

Technical Memorandum

To: Jennifer Saran, Poly Met Mining, Inc.
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Subject: Ongoing groundwater and surface water data collection for NorthMet water quality modeling - Version 1
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Note: This document has been prepared to update the analysis of ongoing data collection that was previously provided prior to publication of the Supplemental Draft Environmental Impact Statement for the NorthMet Project (Reference (1)). This document addresses groundwater and surface water flow, elevation, and water quality data; a companion document (Reference (2), pending) addresses geochemical laboratory data.

Introduction

The purpose of this memorandum is to document the sources of ongoing data collection in support of the water quality modeling for Poly Met Mining Inc.'s (PolyMet) NorthMet Project (Project). For each data source used in the water quality modeling, this memorandum documents the date range used in the water quality models used for preparation of the Supplemental Draft Environmental Impact Statement (SDEIS): Mine Site and Plant Site Version 5.0, February 2013. This memorandum and the attached tables identifies what additional data has been collected but is not used in the water quality modeling and assesses whether unused data is significantly different from the data that is currently used in the modeling. The date of the most-recent data used for each type of model input is identified in **bold** text. A recommendation on whether or not the relevant model inputs should be updated with the additional data is identified in *italicized* text. This document focuses on data collected specifically for the Project; other publicly-available data used in the modeling is referenced but is not included in detail.

1.0 Groundwater Quality Data

Groundwater quality data have been collected at a number of locations within the Partridge River watershed (Mine Site) and the Embarrass River watershed (Plant Site) since 2004. The use of the groundwater quality data in the water quality modeling is described in detail in the Water Modeling Data Package, Volumes 1 and 2 (Reference (3) and Reference (4)); the ongoing data collection is summarized below.

1.1 Mine Site – Surficial Aquifer

Observed groundwater quality data at wells installed in the surficial deposits within the Partridge River watershed are used to develop probability distributions for the background surficial groundwater quality in the water quality modeling (Section 5.3.1.1 of Reference (3)). Three monitoring wells were installed in 2005 and sampled quarterly or less frequently prior to 2011; an additional 21 wells were installed between October 2011 and February 2012 and were sampled monthly through August 2012. Since August 2012, all 24 wells have been sampled three times per year (quarterly, excluding winter (1st) quarter). The monitoring well locations are shown in Large Figure 1.

The surficial groundwater quality data in the Partridge River watershed used as input to the current (February 2013) water quality model (as described in Reference (3)) represent sampling data collected through the end of **June 2012**. As of this writing, data from an additional 6 sampling events are available, through fourth quarter (October) 2013. The surficial groundwater quality data used in the water quality model (as described in Section 5.3.1.1 of Reference (3)) are presented in Large Table 1. The available data that are not used in the model are highlighted green in the table. Note that, in addition to the data beyond June 2012 not used for the model, samples from MW-2 on 11/9/2011, MW-18 on 2/23/2012, and MW-18 on 3/27/2012 are not used due to anomalous concentrations on those dates.

ProUCL, a statistical software program developed by the U.S. Environmental Protection Agency (<http://www.epa.gov/osp/hstl/tsc/software.htm>), was used to compare the data being used for modeling with the complete data set (the anomalous samples from MW-2 and MW-18 were not included in the complete data set). The program was used to fit distributions to the data being used for modeling and to the complete data set in order to compare the 95% upper confidence levels (UCL) of the mean between the data sets. Large Table 2 presents the comparison between the 95% UCL for each constituents being modeled. For constituents with non-detect (ND) values, the 95% UCL values were determined in ProUCL using the Kaplan-Meier method. For constituents without ND values, the 95% Student-t UCL was used for comparison. Some constituents (e.g., total antimony) have a high number of ND values. In these situations, ProUCL was not used to fit distributions.

As shown on Large Table 2, with the exception of aluminum, barium, copper, iron, and lead, the addition of recent data resulted in a less than 10% change (increase or decrease) in the 95% UCL. Note that the groundwater quality data is used in the water quality model to define the uncertainty in the mean concentration, not the full distribution. Changes in the 95% UCL correspond to the potential for changes in the upper end of the simulated mean distribution. Because this document is focused on the use of these data for the water quality modeling, changes that do not affect the 95% UCL are interpreted as having little effect on the uncertainty in the mean concentration, at least on the high end. Because the groundwater concentrations impact the calibration of surface runoff (Section 3.1.1), significant changes in

the groundwater quality could result in differences in the calibrated surface runoff concentrations.
Therefore, updating the surficial aquifer groundwater quality distributions is recommended.

1.2 Mine Site – Bedrock

Observed groundwater quality data at wells installed in the bedrock at the Mine Site are used to develop probability distributions for the background bedrock groundwater quality in the water quality modeling (Section 5.3.1.2 of Reference (3)). The water quality data used for modeling are from a total of nine locations, including four deep bedrock wells (P-series wells) installed for aquifer testing in 2004 and five shallower bedrock monitoring wells installed in 2005. The P-series wells were not intended to be long-term monitoring locations, and with the exception of P-2, were only sampled once. The Ob-series wells were sampled quarterly or less frequently and are currently sampled annually. The monitoring well locations are shown in Large Figure 1.

The bedrock groundwater quality data at the Mine Site used as input to the current (February 2013) water quality model (as described in Reference (3)) represent sampling data collected through the end of **October 2010**. As of this writing, data from 3 additional sampling events at the Ob-series wells 2011 through 2013 are available. The bedrock groundwater quality data used in the water quality model (as described in Section 5.3.1.2 of Reference (3)) are presented in Large Table 3. The available data not used in the current model are highlighted green in the table.

As with the Mine Site surficial aquifer wells, ProUCL was used to compare the 95% UCL of distributions fit to the data used for modeling and fit to the entire data set. The comparison is presented in Large Table 4. For a large number of constituents, the addition of more recent data resulted in either no change or a reduction in the 95% UCL. The 95% UCL increased for the following constituents: barium, cadmium, cobalt, iron, manganese, and nickel by as much as 20%. Background bedrock water quality can be important in the prediction of water quality in the mine pits. *Updating the model inputs for the bedrock groundwater quality is recommended so that the model represents the potential impact of these changed concentrations on the water quality of the mine pits.*

1.3 Plant Site – Surficial Aquifer

Observed groundwater quality data at wells installed in the surficial deposits within the Embarrass River watershed are used for two purposes in the water quality model: (1) data from wells GW002, GW011, GW013, and GW015 are used to develop probability distributions for the background surficial groundwater quality in the water quality modeling (Section 5.3.1 Reference (4)); and (2) data from GW001, GW006, GW007, and GW012 are used to establish concentration targets for the calibration of the model to current conditions (Section 10.2.1 of Reference (5)). The monitoring locations used in the water quality modeling are identified in Large Figure 2. Data have been collected from an additional seven wells at the Plant Site (GW003, GW004, GW005, GW008, GW009, GW010, GW014), but are not used for the water

quality modeling because the wells either fall within the footprint of the existing LTV Steel Mining Company (LTVSMC) tailings basin or the water quality data from the wells is not applicable to the purposes described above. The monitoring locations not used in the water quality modeling are also identified in Large Figure 2. Historically, the frequency and extent of monitoring has varied by location. Currently, groundwater sampling is completed three times per year (quarterly, excluding winter (1st) quarter). Note that wells GW003 and GW004 have been dry for a number of years and ongoing data collection is not occurring at these wells.

The surficial groundwater quality data in the Embarrass River watershed used as input to the current (February 2013) water quality model (as described in Reference (4)) represent sampling data collected through the end of **October 2011** for wells used to establish background groundwater quality and through the end of **July 2011** for wells used to establish calibration targets. As of this writing, data through fourth quarter (October) 2013 are available for the monitoring locations used in the water quality modeling. The surficial groundwater quality data used in the water quality model (as described in Section 5.3.1 of Reference (4) and Section 10.2.1 of Reference (5)) are presented in Large Table 5. The available data not used in the current model (including the available data from wells not used for the model) are highlighted green in the table.

ProUCL analysis was completed for the two sets of four wells being used for the water-quality model to evaluate how the addition of more recent data affects the upper 95% confidence interval for each constituent being modeled. The comparison is presented in Large Table 6. For the wells used to define background groundwater distributions, the addition of the recent data resulted in either no change (up to a 5% increase) or a reduction (up to a 27% decrease) in the 95% UCL for the majority of constituents. Because the groundwater concentrations impact the calibration of surface runoff (Section 3.2.1), significant changes in the groundwater quality could result in differences in the calibrated surface runoff concentrations. *Therefore, updating the surficial aquifer groundwater quality distributions for background water quality is recommended.* For the wells used to establish calibration targets, the addition of the recent data resulted in changes that were within the range of the accuracy of the calibration itself (Table 6 of Reference (6)). Therefore, including the additional data would not create significant changes to the calibration by itself. *However, if the analysis of humidity cell release rates (Reference (2)) shows that the release rates should be updated and the Existing Conditions model calibration is updated, the target groundwater concentrations should be updated for consistency.*

2.0 Groundwater Elevation Data

Groundwater elevation data were used to calibrate the MODFLOW models of the Mine Site and Plant Site, as described in Attachment B of Reference (3), and Attachment A of Reference (4), respectively. Groundwater elevation data used for MODFLOW model calibration were from numerous locations, including monitoring wells, exploration boreholes at the Mine Site, and piezometers installed for

geotechnical purposes within the Tailings Basin at the Plant Site. With the exception of monitoring wells that are also being sampled for groundwater quality, ongoing water level data collection is generally not occurring at the locations used for model calibration. Therefore, the discussion in this section is limited to monitoring wells at the Mine Site and Plant Site that have been utilized for establishing groundwater quality for the water quality modeling, which include the following locations:

- Surficial monitoring wells MW-1 through MW-18, and MW-05-02, MW-05-08, and MW-05-09 at the Mine Site;
- Bedrock monitoring wells P-1 through P-4 and Ob-1 through Ob-5 at the Mine Site; and
- Surficial monitoring wells GW001 through GW015 at the Plant Site.

2.1 Mine Site – Surficial Aquifer

Groundwater elevations have been measured regularly in the 24 monitoring wells completed within the surficial deposits in conjunction with water quality sampling. Groundwater elevation data from these wells were used to calibrate the MODFLOW model of the Mine Site (model calibration is described in Attachment B of Reference (3)). The available water level data for the wells is presented in Large Table 7. The available data that are not used for the MODFLOW model calibration are highlighted green in the table. The most recent data available at the time of model calibration were used, typically elevations from **February 2012**. In some cases, February 2012 elevations were not available because wells were dry or frozen. In these situations, the most recent elevation available from that well was used. MW-15 was installed in February 2012 and was frozen when sampling was attempted. Because no groundwater elevations were available for this location when the model calibration was completed, the elevation used for the MODFLOW model calibration was based on a measured depth to ice at this well. At locations with nested shallow and deep wells, the groundwater elevation used for model calibration was the average of the measured elevations at both wells. Groundwater elevations are currently measured three times per year along with groundwater sampling (quarterly, excluding winter (1st) quarter).

Large Table 7 provides a comparison between the groundwater elevation at each well location that was used for MODFLOW model calibration and the mean groundwater elevation at that location based on all available data. The groundwater elevations used as calibration targets for the MODFLOW model were lower than the average value at each well based on all available data by an average of approximately 2 feet. Differences ranged from 0.48 feet lower at MW-05-08 to 5.62 feet lower at MW-10S. This is not unexpected because the groundwater elevations used to calibrate the model were measured during winter conditions when groundwater levels would be expected to be lower. This is also consistent with the comparison that was presented in Version 3 of the Ongoing Data Collection memo, where the average difference was also approximately 2 feet, with a range from 0.32 feet to 5.01 feet at individual wells. The absolute residual mean from the MODFLOW model calibration was 0.99 meters (3.25 feet) (Attachment B

of Reference (3)). Therefore, the model calibration residuals are generally larger than the difference between the elevation used for calibration and the average water level at a given well. *Updating the MODFLOW model calibration to incorporate newer water level data is not recommended.*

2.2 Mine Site – Bedrock

Groundwater elevations have been measured multiple times at bedrock monitoring wells Ob-1 through Ob-5 at the Mine Site. In addition, groundwater elevations have been measured one or more times at bedrock wells P-1 through P-4, which were installed in 2005 for aquifer testing that was completed at the Mine Site. The bedrock groundwater elevations at these locations that were used for MODFLOW model calibration were measured in **December 2006** (Attachment 1 of Reference (7)). December 2006 represents the only time when a synoptic set of groundwater elevations are available for the bedrock wells at the Mine Site. Currently, groundwater elevations at Ob-1 through Ob-5 are measured annually in conjunction with groundwater sampling. Groundwater elevations are not measured at P-1 through P-4 on an ongoing basis.

Large Table 8 provides a comparison between the groundwater elevation at each well location that was used for MODFLOW model calibration and the mean groundwater elevation at that location based on the other available data. The available data that are not used for the MODFLOW model calibration are highlighted green in the table. Note that, for P-1 through P-4, the groundwater elevations used for calibration are the only available elevations at these locations. The groundwater elevations used as calibration targets for the MODFLOW model were lower than the average value at each well based on all available data by an average of approximately 0.7 feet. Differences ranged from 0.29 feet lower at Ob-2 to 1.07 feet lower at Ob-3. As with the surficial aquifer wells, the groundwater elevations used to calibrate the model were measured during winter conditions when groundwater levels would be expected to be lower. The difference between the elevations used for model calibration and the average elevation at each well is less than the average model calibration residual and *updating the MODFLOW model calibration to incorporate the additional water level data is not recommended.*

2.3 Plant Site – Surficial Aquifer

Groundwater elevations measured at monitoring wells located within the Tailings Basin footprint and the area surrounding the Tailings Basin were used to calibrate the MODFLOW model. The MODFLOW model used for calibration simulates: (1) Conditions shortly after LTVSMC operations ceased and (2) the transient dissipation of the groundwater mound beneath the Tailings Basin from February 2002 through **December 2010**. The frequency and duration of water level data available for these wells varies, depending on when the well was installed. For monitoring wells GW001 through GW008, the groundwater elevations used for model calibration are data collected as part of monitoring for the NPDES permit. For wells GW009 through GW010, the data used for calibration were collected in conjunction with Project groundwater sampling. Ongoing groundwater elevation measurements are collected at GW001 through

GW015 three times per year in conjunction with groundwater sampling (quarterly, excluding winter (1st) quarter).

The available groundwater elevations from the Plant Site monitoring wells collected after December 2010 (the end of the model calibration period) are presented in Large Table 9. Because they were all collected at times beyond the model calibration time period, none of these data were used for the MODFLOW model calibration and they are highlighted green in the table for consistency with the other tables in this document.

To compare the groundwater elevations collected beyond the model calibration time period with the elevations used for calibration, the average of the post-December 2010 data was compared with the final head target at each well from the transient calibration (which represents the most recent data used for calibration). The comparison is presented on Large Table 9. The groundwater elevations used as calibration targets for the MODFLOW model were higher than the average value at each well based on all available data by an average of approximately 0.33 feet. Differences range from 0.38 feet lower at GW015 to 1.35 feet higher at GW011. The absolute residual mean for the transient MODFLOW model calibration is 1.78 feet. Because the differences between the calibration targets used and the more recent data are generally much lower than the average residual, *updating the MODFLOW model calibration to include the more recent data is unlikely to have an appreciable effect on the calibration and is not recommended.*

3.0 Surface Water Quality Data

Surface water quality data have been collected at a number of locations within the Partridge River watershed (Mine Site), Second Creek watershed (Plant Site) and the Embarrass River watershed (Plant Site) since 2004. The use of the surface water quality data in the water quality modeling is described in detail in the Water Modeling Data Package, Volumes 1 and 2 (Reference (3) and Reference (4)); the ongoing data collection is summarized below.

3.1 Mine Site – Partridge River Watershed

Observed surface water quality data at seven monitoring locations along the Partridge River above Colby Lake and two locations within Colby Lake are used for several purposes in the water quality model: (1) to establish the initial concentration of the river at the beginning of the model period (Partridge River and Colby Lake data); and (2) to develop probability distributions for the background runoff concentrations for all modeled constituents (Partridge River data only). The monitoring locations used in the water quality modeling are identified in Large Figure 3. The frequency and extent of monitoring varies by location. Monitoring conducted from 2004 through 2008 generally included a wider parameter list to characterize the baseline conditions within the watershed. Monitoring between 2008 and 2010 generally focused on a smaller list of constituents and locations to address specific issues. Regular monitoring of a broader constituent list within the Partridge River watershed was resumed in 2012. Six of the seven Partridge River

locations (excluding SW001/PM-1) are currently being monitored at monthly intervals. Colby Lake monitoring resumed in the second half of 2013, with monthly monitoring at one location on the east side of the lake (LCy-2).

The surface water quality data along the Partridge River above and within Colby Lake used as input to the current (February 2013) water quality model (as described in Reference (3)) represent sampling data collected through the end of **September 2010**; data through September 2010 were used both to develop distributions of surface runoff concentrations and to set initial conditions within the model. The surface water quality data used in the water quality model (as described in Section 4.4.4.1 of Reference (3)) are presented in Large Table 10. The available data that are not used in the model are highlighted green in the table. As of this writing, the results of 19 additional monitoring events performed in 2012 and 2013 are available.

Changes to initial model conditions resulting from additional data were not evaluated, as the initial constituent concentrations have negligible impact on model results beyond the first model time step. Colby Lake data was not used in model calibration (as described in Reference (6)); these data are currently being evaluated separately to assess potential model changes at the direction of the Co-lead Agencies.

3.1.1 Surface Runoff Calibration for the Partridge River

The recent, additional monitoring increases the number of data points available for calibration of runoff concentrations from between 16 and 104 (the number of points varies by constituent) to between 36 and 220. The impact of new data on calibration of surface runoff concentrations is presented in Large Table 11. During the calibration of the surface runoff concentration, a normalized root mean square error (RMSE) was calculated between modeled and observed Partridge River concentrations for each constituent, with the calibration goal of minimizing the normalized RMSE for each constituent (as described in Reference (6)). Note that the calibration results presented in Section 5.2.4.7 of Reference (3) are superseded by the calibration results presented in Large Table 11 to correct a previous calculation error that affected how the RMSE was normalized. Large Table 11 presents the most recent calibration of surface runoff concentrations using data through September 2010, based on the surface runoff distributions used in the current (February 2013) water quality model. The table compares the normalized RMSE of that calibration to the normalized RMSE as calculated using the additional Partridge River surface water quality data. Note that the correction of this error does not affect the percent change in normalized RMSE presented in the far right column of Large Table 11.

As shown in Large Table 11, the difference in the normalized RMSE between the two data sets ranges from an increase of 98% (goodness-of-fit worsened) to a decrease of 18% (goodness-of-fit improved) for all constituents excluding thallium. For thallium, the large decrease in the RMSE of 659% is the result of a lowered detection limit for the more recently-collected data; there are significantly more detections of thallium (at low levels) in the updated data, and therefore a data distribution that more-closely matches

the shape of the distribution used for modeling. Excluding thallium, the normalized RMSE increased by an average of 15.2%, indicating that the goodness-of-fit worsened for most constituents. *Based on the changes to the calibration fit and the large number of new observations represented by the updated data set, updating the surface runoff calibration for the Partridge River is recommended.*

3.1.2 Tributaries to the Partridge River

Additional surface water quality monitoring has been performed by PolyMet in the Partridge River watershed at seven locations for which data are not used in the water quality modeling. These locations, on tributaries to the Partridge River, Wyman Creek, and in Whitewater Reservoir, are identified in Large Figure 3. The surface water quality data for these locations are highlighted green in Large Table 10, as these locations are not explicitly included in the water quality model. Four Partridge River tributary locations (LN-1, PM-5, WL-1, and WP-1) have been monitored at monthly intervals beginning in the second half of 2012. *There are no plans to include data from these locations in the water quality modeling.*

3.1.3 Discharge to the Partridge River

An additional source of surface water quality data in the Partridge River watershed is the Northshore Mining Company discharge from the Peter Mitchell Pit to the headwaters of the Partridge River, near PolyMet monitoring location SW001. PolyMet collected surface water quality data at PM1/SW001 in 2004 through **May 2008**, as shown in Large Table 10. These data are used as input to the current (February 2013) water quality model (as described in Reference (3)) to set the average concentration of future discharges from the Peter Mitchell Pit. This site is not currently being monitored as part of the Project, but is regularly monitored for the NPDES program for a limited number of constituents. As of this writing data are available from November 2008 through March 2014 at the MPCA's Environmental Data Access website (http://www.pca.state.mn.us/index.php?option=com_k2&view=item&id=2229); these data for discharge location SD009 are shown in Large Table 12. Table 1 below presents the average concentrations for PM1/SW001 used in the current (February 2013) water quality model and the average from all currently-available data at Northshore NPDES point SD009, including MPCA data through March 2014. *Based on the significant change in average concentration for chloride and sulfate, two key constituents for surface runoff calibration, updating the Peter Mitchell Pit discharge water quality for the model is recommended.*

300 **Table 1 Comparison of Partridge River headwaters water quality data**

Constituent	Average Concentration		Percent change	Notes
	Data used for WQ Model V5.0	All available data		
Alkalinity as CaCO ₃	94.6 mg/L	84.7 mg/L	-10.4%	Total alkalinity as CaCO ₃ reported by PolyMet, bicarbonate alkalinity as HCO ₃ from NPDES monitoring. NPDES data assumed to be equivalent to total alkalinity and converted to units of CaCO ₃ .
Chloride	1.64 mg/L	6.73 mg/L	311%	
Sulfate	21.8 mg/L	25.5 mg/L	16.9%	
Iron	25.7 mg/L	26.4 mg/L	2.4%	Total iron data collected by PolyMet, dissolved iron from NPDES monitoring.

301 **3.2 Plant Site – Embarrass River Watershed and Second Creek**

302 Observed surface water quality data at five monitoring locations along the Embarrass River upstream of
 303 the chain of lakes, three locations on tributaries to the Embarrass River, and one location on Second Creek
 304 are used for several purposes in the water quality model: (1) to establish the initial concentration of the
 305 river at the beginning of the model period (Embarrass River and tributary data); (2) to develop probability
 306 distributions for the runoff concentrations for all modeled constituents (Embarrass River data at PM-12
 307 only); and (3) to corroborate the calibration of the Existing Conditions portion of the water quality model
 308 (Embarrass River, tributary, and Second Creek data). The monitoring locations used in the water quality
 309 modeling are shown in Large Figure 4; note that locations MLC-2, MLC-3, TC-1A, and UC-1 were added in
 310 2012. The frequency and extent (i.e., constituent list) of monitoring varies by location. Monitoring
 311 conducted from 2004 through 2008 generally included a wider parameter list to characterize the baseline
 312 conditions at previously-established monitoring locations. Monitoring from 2008 to 2010 generally
 313 focused on a smaller list of constituents at the previously-monitored locations and wider parameter list at
 314 additional locations to address specific issues. Five Embarrass River locations and seven Embarrass River
 315 tributary locations (including monitoring location PM-12.1 on Spring Mine Creek) are being monitored at
 316 monthly intervals beginning in the second half of 2012 (see Large Figure 4).

317 The surface water quality data along the Embarrass River and its tributaries used as initial concentration
 318 inputs to the current (February 2013) water quality model (as described in Reference (4)) represent the
 319 samples collected through the end of **April 2011**. The surface water quality data along the Embarrass
 320 River and its tributaries used for calibration and corroboration of the current (February 2013) water quality
 321 model (as described in Reference (4) and Reference (6)) represent sampling data collected through the

end of **September 2011**. The surface water quality data used in the water quality model (as described in Section 4.4.4.1 of Reference (4)) are presented in Large Table 13. Note that Large Table 13 now includes monitoring data collected from 2004 to 2007 at location PM-7 on Second Creek. This data was not used in model calibration. As of this writing, the results of up to 22 additional monitoring events performed in 2011 through 2013 are available. The available data not used in the current model are highlighted green in the table. Changes to initial model conditions resulting from additional data were not evaluated, as the initial constituent concentrations have negligible impact on model results beyond the first model time step. Additionally, existing conditions model corroboration (Reference (6)) based on additional data was not evaluated because there was no metric created for the initial existing conditions corroboration; the analysis was a visual comparison of model results to sampled data at major surface water locations (PM-13, MLC-2, PM-19, and PM-11).

3.2.1 Surface Runoff Calibration for the Embarrass River

The recent, additional monitoring increases the number of data points available for calibration of runoff concentrations from between 1 and 45 (the number of points varies by constituent) to between 6 and 64. The impact of new data on calibration of surface runoff concentrations is presented in Large Table 14. During the calibration of the surface runoff concentration, a normalized root mean square error (RMSE) was calculated between modeled and observed concentrations for each constituent at location PM-12, with the calibration goal of minimizing the normalized RMSE for each constituent (as described in Reference (6); note that the calibration results are presented in Reference (6)). Large Table 14 presents the most recent calibration of surface runoff concentrations using data through September 2011 and compares the normalized RMSE of that calibration to the normalized RMSE as calculated using the additional surface water quality data.

Large Table 14 compares the RMSE of the calibration that was used for the current (February 2013) water quality model to the RMSE if the current calibration were compared to all of the available data; the comparison shows little change in the quality of the calibration for most constituents. There are 10 constituents where the normalized RMSE was at least 10% greater (i.e., goodness-of-fit worsened) than the normalized RMSE of the current (February 2013) water quality model. These constituents are arsenic, boron, cobalt, chromium, iron, manganese, lead, sulfate, thallium, and zinc. Of these ten constituents, chromium, lead, thallium and zinc exhibited a worse normalized RMSE because many of the additional samples continued to be non-detected samples pushing the distribution of the samples towards lower concentrations. Recalibration of these constituents would likely require decreasing the modeled surface runoff quality or the variance of the modeled distribution.

The distributions of the other six constituents included enough samples of higher concentrations to noticeably shift the sample distribution towards higher concentrations. Dry conditions within the Embarrass River watershed during 2012 should be evaluated when considering the incorporation of the

newly collected data. The dry conditions resulted in higher concentrations during 2012, especially for the six constituents mentioned above that exhibited worsening normalized RMSE values. Incorporating the 2012 data and recalibrating could skew the existing conditions model high and potentially mask project impacts for arsenic, cobalt, or sulfate.

The number of samples for these six constituents also increased by anywhere from 40% to nearly 400% relative to the number of samples that were used for the current (February 2013) water quality model. *On these grounds updating the surface runoff calibration for the Embarrass River to reflect the newly collected available data is recommended.*

3.2.2 Discharge to the Embarrass River Watershed and Second Creek

Surface water quality data were also collected for the Project at Cliffs Erie NPDES location SD033, the discharge of water from Pit 5NW to Spring Mine Creek. Data collected as part of the Project are used to define the average concentration of water leaving Pit 5NW (Section 4.4.3.3 of Reference (4)). The data used as input to the current (February 2013) water quality model (as described Reference (4)) represent sampling data collected through the end of **August 2011** and are presented in Large Table 15. This site was last monitored for the Project in October 2011 (two sampling events for a limited constituent list beyond the data used for the model) and is not currently being monitored as part of the Project, but is regularly monitored for the NPDES program for a limited number of constituents. As of this writing data are available through March 2014 at the MPCA's Environmental Data Access website (http://www.pca.state.mn.us/index.php?option=com_k2&view=item&id=2229).

Duplicate entries of single samples are shown in Large Table 15 due to multiple sources of the same sample at SD004, SD026 and SD033 (June 2001 at SD004 for example). However, duplicate entries were removed from the analysis described in this section so as to not affect the average values of the available data. Table 2 presents the average concentrations for SD033 used in the current (February 2013) water quality model and the average from all currently-available data, including MPCA data through March 2014. For most constituents modeled, there are no additional samples in the data set and therefore no difference in the average value. Additionally, for constituents with additional data such as calcium, chloride, magnesium, and sulfate the difference is minor (< 5%). For silver, the percent difference is large at 50% but is due to a significant increase in the number of non-detected samples at higher detection limits. Finally, for other constituents, the data sampled at SD033 is much lower than the applicable standard, or there is no applicable standard, and the new data will not affect the Project impact assessment. *Therefore, it is not recommended that the additional data at SD033 is used to update the surface water quality from Pit 5NW.*

389 **Table 2 Comparison of SD033 water quality data (units of mg/L)**

Constituent	Average Concentration			Notes
	Data used for WQ Model V5.0	All available data	Percent change	
Ag	0.0001	0.00015	50%	Difference due to non-detects
Al	0.0125	0.0125	0.0%	No Change
Alkalinity*	96	96	0.0%	No Change
As	0.0013	0.0011	-15.4%	Low relative to standard
B	0.16	0.16	0.0%	No Change
Ba	0.0036	0.0036	0.0%	No Change
Be	0.0001	0.0001	0.0%	No Change
Ca	85.7	86.3	0.7%	Change is minimal (<10%)
Cd	0.0001	0.0001	0.0%	No Change
Cl	4.33	4.28	-1.2%	Change is minimal (<10%)
Co	0.0004	0.0004	0.0%	No Change
Cr	0.0005	0.0005	0.0%	No Change
Cu	0.0018	0.0018	0.0%	No Change
F*	0.17	0.17	0.0%	No Change
Fe	0.116	0.093	-19.8%	No applicable standard
K	51.9	51.9	0.0%	No Change
Mg	243	245	0.8%	Change is minimal (<10%)
Mn	0.804	0.804	0.0%	No Change
Na	89.2	89.2	0.0%	No Change
Ni	0.0036	0.0036	0.0%	No Change
Pb	0.00015	0.00014	-6.7%	Change is minimal (<10%)
Sb	0.00025	0.00025	0.0%	No Change
Se	0.00079	0.0007	-11.4%	Low relative to standard
SO ₄	1042	1084	4.0%	Change is minimal (<10%)
Tl	0.0001	0.0001	0.0%	No Change
V*	0.00541	0.00541	0.0%	No Change
Zn	0.003	0.003	0.0%	No Change

* no data available; value based on groundwater concentrations

390 In addition to the surface water quality monitoring performed for the Project, other publicly-available
 391 water quality data is used in the water quality model. The monitoring locations with publicly-available
 392 data are identified in Large Figure 4 and described below:

- Cliffs Erie NPDES locations SD026 and SD004: Publicly-available water quality data are used to establish concentration targets for the calibration of the model to current conditions (Section 10.2.1 of Reference (5)). The data used as input to the current (February 2013) water quality model (as described in Reference (4)) represent sampling data collected through the end of **December 2009** (Large Table 6 of Reference (4)). As of this writing data are available through March 2014 for SD026 and June 2011 for SD004 at the MPCA's Environmental Data Access website (http://www.pca.state.mn.us/index.php?option=com_k2&view=item&id=2229). Note that SD026 discharges to the Partridge River watershed via Second Creek and is equivalent to location PM-7.

Large Table 15 includes monitoring data collected from 2004, 2006, and 2007 from location PM-7 on Second Creek. Location PM-7 is approximately the same location as SD026. Data from location SD026 were used to develop targets for the calibration of the current conditions model (described above). Specifically, SD026 data were used to establish target concentrations at the south toe of the Tailings Basin (see Reference (6)). Data from PM-7 were omitted from development of calibration targets due to confusion regarding the monitoring location. Water quality data from PM-7 are generally consistent with the data from SD026. Table 3 presents the results of the current conditions model calibration at the Tailings Basin toes, expressed as a percent error in the average concentration. The error in the current model calibration (based on SD026 data through December 2009) is compared to the error in the calibration based on all currently-available data at this location (PM-7 and all SD026 data).

In general, when the current water quality model was calibrated there were not data available for many constituents at SD026 to calibrate the south toe of the Tailings Basin. Inclusion of the additional available data at SD026 and PM-7 would provide a calibration target for all constituents except for vanadium. For constituents where data was available during the calibration of the current water quality model such as boron, calcium or magnesium, the change in the comparison of mean water quality at the south toe is minor or indicates a model over-prediction. The calibration for cobalt in the current water quality model under-predicts and the comparison to all of the available data shows the model over-predicts. This is because the model calibration at the south toe was targeting a significant number of non-detects at a high detection limit. The other available data includes significantly more detected samples lower than what was previously targeted. Inclusion of the additionally available data would provide additional calibration targets. *If the water quality model is updated for other reasons, it is recommended that the calibration of concentrations at the Tailings Basin toes be performed using the updated data set for SD026.*

Water quality data at SD004 was used in the calibration at of the Tailings Basin west toe, but it was not the only source of data for the Tailings Basin seepage water quality calibration. Therefore, for comparison of the data that was used for the current water quality model and all of the available data, Table 4 simply compares the mean of the samples to show the difference between the two data sets. *If the water quality model is updated for other reasons, it is recommended that the calibration of concentrations at the Tailings Basin toes be performed using the updated data set for SD004.*

429 **Table 3 Comparison of model calibration to the Tailings Basin South Toe**

Percent Error in South Toe Calibration to Mean ^(*)			
Constituent	Data used for WQ Model V5.0	All available data	Notes
Ag	--	-56%	No data previously available for calibration
Al	--	-44%	No data previously available for calibration
Alkalinity	-41%	-37%	Minimal difference in calibration fit
As	--	464%	No data previously available for calibration
B	20%	28%	Minimal difference in calibration fit
Ba	--	771%	Not a calibrated constituent
Be	--	97%	No data previously available for calibration
Ca	-53%	-50%	Minimal difference in calibration fit
Cd	--	23%	No data previously available for calibration
Cl	63%	75%	Minimal difference in calibration fit
Co	-27%	66%	Initially calibrated to a significant number of non-detect samples with higher limits
Cr	--	-27%	No data previously available for calibration
Cu	--	69%	No data previously available for calibration
F*	101%	107%	Not a calibrated constituent
Fe	--	205%	No data previously available for calibration
K	-11%	6%	Increase in percentage error indicates the model is over-predicting
Mg	-32%	-24%	Minimal difference in calibration fit
Mn	-53%	-56%	Minimal difference in calibration fit
Na	45%	61%	Increase in percentage error indicates the model is over-predicting
Ni	--	83%	No data previously available for calibration
Pb	--	387%	No data previously available for calibration
Sb	--	-72%	No data previously available for calibration
Se	--	-38%	No data previously available for calibration
SO ₄	0%	12%	Increase in percentage error indicates the model is over-predicting
Tl	--	-38%	No data previously available for calibration
V*	--	--	No data available
Zn	--	33%	No data previously available for calibration

* negative values indicate an underestimation of average concentration; positive values indicate an overestimation of average concentration

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431 **Table 4 Comparison of mean water quality data at SD004 in mg/L**

Constituent	Mean Concentration			Notes
	Data used for WQ Model V5.0	All available data	% Difference	
Ag	--	0.001	--	No data available at calibration
Al	--	0.025	--	No data available at calibration
Alkalinity	481	469	-2.5%	Minor difference (< 10%)
As	--	0.005	--	No data available at calibration
B	0.50	0.52	4.0%	Minor difference (< 10%)
Ba	--	0.030	--	No data available at calibration
Be	--	0.0002	--	No data available at calibration
Ca	78.0	78.0	0.0%	Minor difference (< 10%)
Cd	--	--	--	No data available at calibration
Cl	28.0	29.2	4.3%	Minor difference (< 10%)
Co	0.0018	0.0014	-22.2%	Largely affected by non-detects with a higher detection limit
Cr	--	0.002	--	No data available at calibration
Cu	--	0.002	--	No data available at calibration
F*	2.0	2.2	10.0%	Minor difference (< 10%)
Fe	3.8	3.3	-13.2%	Calibrated to higher target
K	11.4	12.5	9.6%	Minor difference (< 10%)
Mg	148	140	-5.4%	Minor difference (< 10%)
Mn	0.61	0.65	6.6%	Minor difference (< 10%)
Na	68.9	73.1	6.1%	Minor difference (< 10%)
Ni	--	0.002	--	No data available at calibration
Pb	--	0.001	--	No data available at calibration
Sb	--	0.003	--	No data available at calibration
Se	--	0.002	--	No data available at calibration
SO ₄	347	308	-11.2%	Calibrated to higher target
Tl	--	0.002	--	No data available at calibration
V*	--	0.004	--	No data available at calibration
Zn	--	0.010	--	No data available at calibration

* negative values indicate an underestimation of average concentration; positive values indicate an overestimation of average concentration

432

3.2.3 Tributaries to the Embarrass River

Additional surface water quality monitoring has been performed in the Embarrass River watershed at seven locations on Spring Mine Creek, Mud Lake Creek, Trimble Creek, and Unnamed Creek; these data are not used in the water quality modeling beyond providing a visual corroboration for the Existing Conditions portion of the water quality model. These locations are shown in Large Figure 4, and the surface water quality data are presented in Large Table 13 and highlighted green. These seven locations are being monitored at monthly intervals beginning in the second half of 2012. *If the analysis of humidity cell release rates (Reference (2)) shows that the release rates should be updated and the Existing Conditions model calibration is updated, the surface water quality data from the tributaries should be updated for consistency and the corroboration re-checked.*

4.0 Surface Water Flow Data

Surface water flow data have been collected at a number of locations within the Partridge River watershed (Mine Site) and the Embarrass River watershed (Plant Site) since 2004. The use of the surface water flow data in the water quality modeling is described in detail in the Water Modeling Data Package, Volumes 1 and 2 (Reference (3) and Reference (4)); the ongoing data collection is summarized below.

4.1 Mine Site – Partridge River Watershed

The primary use of surface water flow data in the Mine Site water quality modeling is as the basis for the XP-SWMM hydrologic/hydraulic model of the Partridge River (which was used to develop flow inputs into the water quality model). The data used for this modeling is from the USGS flow record on the Partridge River from 1978-1987 (Section 4.4.1.1 and 4.4.1.2 of Reference (3)) and is not impacted by ongoing data collection. Point (i.e., non-continuous) flow data collected during water quality sampling on the Partridge River from 2004 through 2007 at five locations with monthly or less frequent observations is not sufficient to develop inputs for the water quality model because the point measurements do not encompass all of the potential variability in flows, the dataset is too small to develop an accurate distribution of potential flows and the observations may be affected by discharge from the upstream Peter Mitchell Pits. *No changes to the model inputs for the Partridge River are recommended based on these measurements.*

A secondary use of surface water flow data in the Mine Site water quality model is to develop estimates of the baseflow in the Partridge River. The observed low-flow periods during three years of the USGS flow record on the Partridge River (water years 1984, 1986, and 1987) are used for this analysis in conjunction with the XP-SWMM model of the watershed (Section 4.4.1.3 of Reference (3)).

There is no ongoing collection of surface water flow data in the Partridge River watershed for the Project. PolyMet is aware of several sources of publicly-available surface water flow data within the Partridge River watershed:

- Continuous flow monitoring has been performed by Minnesota Department of Natural Resources (MDNR) on the Partridge River at PM-3/SW003 (MDNR ID 03155002) since May 2011. Continuous flow data for this location through the present is available from the MDNR's cooperative stream gaging website (<http://www.dnr.state.mn.us/waters/csg/index.html>), although the most recent data is still provisional. The Co-Lead Agencies have considered the use of this flow record to update model assumptions regarding baseflow. The MDNR considered this flow record in its analysis of Partridge River baseflow in a memorandum dated December 18, 2013. *No changes to the baseflow used in the model have been recommended, however, due in part to the inability to separate the Peter Mitchell Pit discharge from this flow record.*
- The MDNR performed spot flow measurements on the Partridge River and several tributaries in the winter of 2011 in order to characterize low flows in the Partridge River. The observed flows during the MDNR measurements are generally higher than the baseflow values determined from the historic USGS data (Section 4.4.1.3.1 of Reference (3)). The average flow increase observed by the MDNR between the Peter Mitchell Pit and location SW006 (5.1 cfs) was similar to the increase estimated over that reach by the XP-SWMM model (4.4 cfs). *The point data collected by the MDNR are not used in the model.*

4.2 Plant Site – Embarrass River Watershed and Second Creek

The primary use of surface water flow data in the Plant Site water quality modeling is as the basis for hydrologic statistics describing the flow per unit watershed area. The data used for this modeling is from the USGS flow record on the Embarrass River from 1942-1964 (Section 4.4.1.1 of Reference (4)) and is not impacted by ongoing data collection. Point (i.e., non-continuous) flow data collected during water quality sampling on tributaries to the Embarrass River includes monthly or less frequent observations taken at 9 locations between 2004 and 2011. This dataset is not sufficient to develop inputs for the water quality model because the point measurements do not encompass all of the potential variability in flows and the dataset is too small to develop an accurate distribution of potential flows. *No changes to the model inputs for the Embarrass River are recommended based on these measurements.*

Continuous flow data were collected from July 2009 to November 2009 at location PM-13 and from October 2009 through November 2009 at location PM-19 as part of a sulfate and methylmercury investigation (Reference (8)). These flow data are based on continuous stream level data and rating curves established during the study. These flow records are not used in the water quality modeling due to the limited range of flows observed during rating curve development and the short duration of the flow record (relative to USGS record).

A secondary use of surface water flow data in the Plant Site water quality model is to develop estimates of the baseflow in the Embarrass River and its tributaries. The observed low-flow periods in the USGS flow

record on the Embarrass River (water years 1942-1964) are used for this analysis (Section 4.4.1.3 of Reference (4)).

In addition to the historic USGS data, other publicly-available surface water flow data is used in the water quality model. The monitoring locations with publicly-available data are identified in Large Figure 4 and described below:

- Cliffs Erie NPDES location SD026: Publicly-available seepage flow data are used to establish flow targets for the calibration of the MODFLOW model to current conditions (Attachment A of Reference (4)). The data used as input to the current (February 2013) water quality model (as described in Reference (4)) represent sampling data collected through **December 2009**. As of this writing, monthly flow data are available through March 2014 for SD026 and June 2011 for SD004 at the MPCA's Environmental Data Access website (http://www.pca.state.mn.us/index.php?option=com_k2&view=item&id=2229). Additional discussion and evaluation of flow data from SD026 is contained in a memorandum prepared for the U.S. Army Corps of Engineers. The memorandum is included as Attachment A. Note that location SD026 discharges to the Partridge River watershed via Second Creek. *No changes to the model inputs are recommended based the analysis of flow at SD026.*
- Cliffs Erie NPDES location SD033: Publicly-available surface water flow data are used to model the constituent loading to the Embarrass River from Pit 5NW (Section 5.5.4 of Reference (4)). The flow data used to develop the model inputs are a total of 45 point flow measurements (data from 2003 to 2009) as well as the monthly average flows from continuous measurements from August 2010 to **July 2011**. As of this writing, monthly flow data are available through March 2014 at the MPCA's Environmental Data Access website (http://www.pca.state.mn.us/index.php?option=com_k2&view=item&id=2229). The additional flow measurements (17 monthly data points) represent a 3% to 12% decrease in monthly flow compared to the NPDES data prior to July 2011. *In order to represent any influence this modest change has on constituent loading to the Embarrass River, it is recommended that the modeled flow distributions for the outflow from SD033 be updated to incorporate these new data.*

Currently, there is no ongoing collection of surface water flow data in the Embarrass River watershed for the Project. Point flow measurements are collected during surface water quality sampling associated with the NPDES monitoring program at the Cliffs Erie monitoring locations.

5.0 Summary

Based on this analysis, the water quality models for the NorthMet Project are recommended to be updated for most of the inputs related to water quality. No updates are recommended for the model inputs related to groundwater or surface water flow, with the exception of flows at SD033. A summary of all of the recommendations in this document is presented in Large Table 16.

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Attachment A	SD026 Flow Data Summary
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Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-05-02 3/23/2005	MW-05-02 11/20/2006	MW-05-02 3/17/2009	MW-05-02 5/3/2010	MW-05-02 7/27/2010	MW-05-02 10/5/2010	MW-05-02 4/26/2011		MW-05-02 7/20/2011	MW-05-02 5/8/2012		MW-05-02 6/21/2012	MW-05-02 7/5/2012	MW-05-02 8/23/2012	MW-05-02 10/22/2012		MW-05-02 5/2/2013	
			N	N	N	N	N	N	N	FD	N	N	FD	N	N	N	N	FD	N	FD
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	75 mg/l	42.6 mg/l	51.6 mg/l	36.9 mg/l	36 mg/l	36.8 mg/l	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	88.3 mg/l	68.3 mg/l	76.4 mg/l	75 mg/l	42.6 mg/l	51.6 mg/l	36.9 mg/l	36 mg/l	36.8 mg/l	37.6 mg/l	37.6 mg/l	28.8 mg/l	28.8 mg/l	28.8 mg/l	27.9 mg/l	--	35.0 mg/l	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 3 mg/l	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	2.7 mg/l	1.8 mg/l	2.2 mg/l	2.0 h mg/l	2.2 h mg/l	2.9 mg/l	2.5 mg/l	2.5 mg/l	2.0 mg/l	2.1 mg/l	2.2 mg/l	1.7 mg/l	--	5.4 mg/l	--
Carbon, total organic	NA	Lab	8 mg/l	2.6 mg/l	1.9 mg/l	3.1 mg/l	1.9 mg/l	1.7 mg/l	1.8 h mg/l	1.8 h mg/l	2.5 mg/l	2.4 mg/l	2.2 mg/l	1.6 mg/l	1.7 mg/l	1.9 b mg/l	1.4 mg/l	--	4.6 mg/l	--
Chemical Oxygen Demand	NA	Lab	12.4 mg/l	< 10 mg/l	< 10 mg/l	20.1 mg/l	< 10 mg/l	< 10 mg/l	12.5 h mg/l	< 10 h mg/l	43.2 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	20.2 mg/l	--
Chloride	NA	Lab	1.3 mg/l	1.11 mg/l	< 0.5 mg/l	0.55 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 h mg/l	< 0.5 h mg/l	0.75 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	--	< 0.50 mg/l	--
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	4.95 mg/l	8.21 mg/l	2.91 mg/l	10.54 mg/l	6.2 mg/l	10.88 mg/l	--	11.0 mg/l	11.45 mg/l	--	12.11 mg/l	12 mg/l	7.37 mg/l	6.25 mg/l	--	10.36 mg/l	--
Fluoride	NA	Lab	0.21 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 h mg/l	< 0.1 h mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--
Hardness, total, as CaCO3	NA	Lab	84.8 mg/l	69.7 mg/l	82.8 mg/l	88.8 mg/l	45.8 mg/l	61.5 mg/l	42.4 mg/l	43.4 mg/l	89.6 mg/l	45.4 mg/l	44.0 mg/l	33.7 mg/l	33.0 mg/l	31.4 mg/l	31.1 mg/l	--	41.2 mg/l	--
Nitrate + Nitrite, as N	NA	Lab	0.33 mg/l	1.42 mg/l	0.26 mg/l	0.16 mg/l	0.29 mg/l	0.48 mg/l	0.29 h mg/l	0.29 h mg/l	0.27 mg/l	0.35 mg/l	0.37 mg/l	0.42 mg/l	0.37 mg/l	0.44 mg/l	0.56 mg/l	--	0.49 mg/l	--
Nitrogen, ammonia (NH3), as N	NA	Lab	0.24 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.1 h mg/l	< 0.1 h mg/l	< 0.1 mg/l	< 0.050 mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.25 b mg/l	< 0.10 mg/l	--	0.14 mg/l	--
pH	NA	Lab	10 pH units	6.5 pH units	7.0 pH units	7.6 pH units	7.1 pH units	7.3 pH units	--	--	7.0 pH units	--	--	--	--	--	--	--	--	--
pH	NA	Field	10.14 pH units	6.50 pH units	6.79 pH units	7.57 pH units	6.77 pH units	8.2 pH units	6.63 pH units	--	6.3 pH units	6.71 pH units	--	6.36 pH units	6.24 pH units	6.28 pH units	6.28 pH units	--	7.71 pH units	--
Phosphorus, total	NA	Lab	0.14 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 h mg P/L	< 0.1 h mg P/L	0.84 mg P/L	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	11.9 mV	148 mV	433 mV	469 mV	453 mV	437 mV	421 mV	--	556 mV	338 mV	--	663 mV	379 mV	260 mV	140 mV	--	415 mV	--
Solids, total dissolved	NA	Lab	--	--	--	134 mg/l	72 mg/l	115 mg/l	81 mg/l	87 mg/l	57 mg/l	78.0 mg/l	83.0 mg/l	117 mg/l	80.0 mg/l	6080 mg/l	52.0 mg/l	--	108 mg/l	--
Specific Conductance @ 25oC	NA	Field	201 umhos/cm	165 umhos/cm	197 umhos/cm	512 umhos/cm	76.9 umhos/cm	199 umhos/cm	72.2 umhos/cm	--	54 umhos/cm	51.7 umhos/cm	--	69.7 umhos/cm	69.1 umhos/cm	67.8 umhos/cm	73.7 umhos/cm	--	75.7 umhos/cm	--
Sulfate	NA	Lab	10.8 mg/l	16.4 mg/l	23 mg/l	20.5 mg/l	7.1 mg/l	10.7 mg/l	6.6 h mg/l	6.7 h mg/l	6.73 mg/l	7.4 mg/l	7.4 mg/l	6.6 mg/l	7.2 mg/l	6.7 mg/l	7.2 mg/l	--	8.0 mg/l	--
Temperature, degrees C	NA	Field	2.98 deg C	5.8 deg C	3.0 deg C	4.3 deg C	11.92 deg C	13.8 deg C	4.49 deg C	--	10.5 deg C	10.6 deg C	--	11.42 deg C	10.29 deg C	14.64 deg C	10.14 deg C	--	3.9 deg C	--
Turbidity	NA	Field	--	--	0.5 NTU	1 NTU	1.1 NTU	0 NTU	0 NTU	--	570.0 NTU	6.4 NTU	--	0 NTU	1.1 NTU	0 NTU	0.7 NTU	--	5 NTU	--
Metals																				
Aluminum	Dissolved	Lab	44.6 * ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	< 100 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	20.1 ug/l	--
Aluminum	Total	Lab	322 ug/l	31.6 ug/l	140 ug/l	428 ug/l	707 * ug/l	144 ug/l	91.5 ug/l	22400 ug/l	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--
Antimony	Total	Lab	< 3 ug/l	< 3 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.92 ug/l	1.1 ug/l	--	< 0.50 ug/l	--
Arsenic	Total	Lab	3.2 ug/l	< 2 ug/l	< 2 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	4.41 ug/l	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	2.82 ug/l	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	< 10 ug/l	< 10 ug/l	7.3 ug/l	11.2 ug/l	7.24 ug/l	6.83 ug/l	3.23 ug/l	3.19 ug/l	102 ug/l	8.9 ug/l	9.2 ug/l	2.4 ug/l	2.4 ug/l	3.5 ug/l	4.1 ug/l	--	8.4 ug/l	--
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.48 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	< 50 ug/l	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 35 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--
Cadmium	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--
Cadmium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.56 ug/l	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	30100 ug/l	18600 ug/l	19800 ug/l	24400 ug/l	12600 ug/l	16700 ug/l	9710 ug/l	9940 ug/l	17100 ug/l	10600 ug/l	10200 ug/l	7400 ug/l	7300 ug/l	7000 ug/l	7000 ug/l	--	10100 ug/l	--
Chromium	Dissolved	Lab	< 1 ug/l	1.1 ug/l	7.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	1.2 b ug/l	1.5 b ug/l	1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	--
Chromium	Total	Lab	1.2 ug/l	< 1 ug/l	2 ug/l	2.17 ug/l	1.23 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	29.2 ug/l	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	0.89 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	1.7 ug/l	1.4 ug/l	--	< 0.20 ug/l	--
Cobalt	Total	Lab	< 1 ug/l	< 1 ug/l	0.25 ug/l	0.71 ug/l	0.72 ug/l	0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	13.7 ug/l	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	8 ug/l	< 2 ug/l	1.6 ug/l	3.3 b ug/l	1.93 ug/l	1.87 ug/l	2.88 ug/l	1.79 ug/l	4.18 ug/l	1.8 ug/l	1.4 ug/l	1.6 ug/l	1.6 ug/l	1.5 ug/l	0.56 ug/l	--	8.2 ug/l	--
Copper	Total	Lab	11.2 ug/l	2.4 ug/l	2.2 b ug/l	8.95 ug/l	5.36 ug/l	2.32 ug/l	2.87 ug/l	2.62 ug/l	95.1 ug/l	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 250 ug/l	97.3 ug/l	< 50.0 ug/l	108 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--
Iron	Total	Lab	350 ug/l	54.3 ug/l	167 b ug/l	568 ug/l	696 * ug/l	146 ug/l	93.3 ug/l	100 ug/l	27400 ug/l	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	< 0.5 ug/l	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 1 ug/l	< 1 ug/l	< 0.52 ug/l	< 0.5 ug/l	0.72 b ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	7.24 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--
Magnesium	Total	Lab	2300 ug/l	5650 ug/l	8090 ug/l	6760 ug/l	3490 ug/l	4800 ug/l	4400 ug/l	4500 ug/l	11400 ug/l	4600 ug/l	4500 ug/l	3700 ug/l	3600 ug/l	3400 ug/l	3300 ug/l	--	3900 ug/l	--
Manganese	Dissolved	Lab	--	--	--	0.81 b ug/l	24.1 ug/l	17.9 ug/l	< 0.5 ug/l	< 0.5 ug/l	91.2 ug/l	1.1 ug/l	1.1 ug/l	0.94 ug/l	< 0.50 ug/l	257 ug/l	398 ug/l	--	2.7 ug/l	--
Manganese	Total	Lab	< 30 ug/l	61.9 ug/l	5.8 b ug/l	34.5 ug/l	65.4 ug/l	21.9 ug/l	4.0 ug/l	3.95 ug/l	698 ug/l	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	< 0.002 ug/l	0.0005 b ug/l	0.0005 ug/l	0.001 ug/l	0.0006 ug/l	0.0007 ug/l	0.0010 ug/l	0.0010 ug/l	0.0070 ug/l	0.00063 ug/l	0.00054 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00062 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.0022 ug/l	0.0022 ug/l
Mercury methyl	Total	Lab	< 0.000025 ug/l	< 0.000146 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	0.00011 ug/l	< 0.0001 ug/l	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	13.1 ug/l	< 5 ug/l	1.2 ug/l	0.5 ug/l	0.24 ug/l	0.24 ug/l	0.22 ug/l	< 0.2 ug/l	0.28 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.26 ug/l	0.34 ug/l	--	0.35 ug/l	--
Molybdenum	Total	Lab	16.1 * ug/l	< 5 ug/l	0.34 ug/l	0.74 ug/l	0.41 ug/l	0.26 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.56 ug/l	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	< 2 ug/l	< 2 ug/l	1.8 ug/l	1.51 ug/l	1.87 ug/l	3.41 ug/l	1.49 ug/l	1.51 ug/l	4.73 ug/l	1.2 ug/l	1.2 ug/l	1.4 ug/l	1.2 ug/l	4.8 ug/l	2.4 ug/l	--	3.7 ug/l	--
Nickel	Total	Lab	< 2 ug/l	< 2 ug/l	2.5 b ug/l	3.73 ug/l	3.44 ug/l	1.68 ug/l	1.73 ug/l	47 ug/l	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	< 25 ug/l	< 0.1 ug/l	< 0.30 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	< 25 ug/l	< 0.01 ug/l	< 0.30 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1600 * ug/l	1930 ug/l	1450 ug/l	1790 ug/l	1460 ug/l	1670 ug/l	850 ug/l	860 ug/l	4700 ug/l	1100 ug/l	1100 ug/l	860 ug/l	850 ug/l	1000				

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-05-02 7/23/2013	MW-05-02 10/1/2013	MW-05-08 3/23/2005		MW-05-08 11/28/2006	MW-05-08 5/7/2009		MW-05-08 5/5/2010	MW-05-08 7/29/2010	MW-05-08 10/7/2010	MW-05-08 4/26/2011	MW-05-08 7/21/2011		MW-05-08 10/5/2011		MW-05-08 11/2/2011		MW-05-08 12/8/2011
			N	N	N	FD	N	N	FD	N	N	N	N	N	FD	N	FD	N	FD	N
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	51.7 mg/l	54.1 mg/l	55 mg/l	54.1 mg/l	52.7 mg/l	55.2 mg/l	54.0 mg/l	53.2 mg/l	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	--	--	--
Alkalinity, total	NA	Lab	62.9 mg/l	82.5 mg/l	72.8 mg/l	65.2 mg/l	67.7 mg/l	51.8 mg/l	51.6 mg/l	51.7 mg/l	54.1 mg/l	55 mg/l	54.1 mg/l	52.7 mg/l	55.2 mg/l	54.0 mg/l	53.2 mg/l	54.9 mg/l	55 mg/l	55.7 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 3 mg/l	< 2.4 mg/l	--	--	--
Carbon, dissolved organic	NA	Lab	2.8 mg/l	3.3 mg/l	--	--	--	--	--	1.1 mg/l	1.3 mg/l	1.5 mg/l	1.8 h mg/l	1.9 mg/l	1.8 mg/l	3.4 mg/l	2.7 mg/l	2.5 mg/l	2.4 mg/l	1.8 mg/l
Carbon, total organic	NA	Lab	2.1 mg/l	2.8 mg/l	3.8 mg/l	3.3 mg/l	1.6 mg/l	1.2 mg/l	1.2 mg/l	< 1 mg/l	1.4 mg/l	1.1 mg/l	1.1 h mg/l	1.5 mg/l	1.6 mg/l	2.3 mg/l	1.8 mg/l	1.5 mg/l	1.4 mg/l	1.5 mg/l
Chemical Oxygen Demand	NA	Lab	16.2 mg/l	28.4 b mg/l	12.4 mg/l	8.8 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	10.3 mg/l	< 10 h mg/l	16.3 mg/l	12.2 mg/l	18 mg/l	17.8 mg/l	< 10 mg/l	10.6 mg/l	< 10 mg/l
Chloride	NA	Lab	< 0.50 mg/l	1.1 mg/l	1.1 mg/l	1.3 mg/l	1.17 mg/l	0.52 mg/l	0.55 mg/l	0.58 b mg/l	0.52 mg/l	< 0.5 mg/l	0.54 h mg/l	0.54 mg/l	0.73 mg/l	0.86 mg/l	0.67 mg/l	0.51 mg/l	< 0.5 mg/l	0.63 mg/l
Cyanide	NA	Lab	--	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0371 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	--	--
Dissolved oxygen	NA	Field	11.09 mg/l	4.49 mg/l	--	--	0.70 mg/l	0.92 mg/l	--	0.7 mg/l	1.02 mg/l	1.9 mg/l	1.6 mg/l	< 0.1 mg/l	--	5.9 mg/l	--	4.93 mg/l	--	6.65 mg/l
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	0.19 mg/l	0.19 mg/l	0.11 mg/l	0.12 mg/l	0.12 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 h mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Hardness, total, as CaCO3	NA	Lab	34.4 mg/l	83.4 mg/l	64.3 mg/l	66.1 mg/l	56.8 mg/l	58.9 mg/l	59 mg/l	58.9 mg/l	58.5 mg/l	58 mg/l	61.3 mg/l	68.8 mg/l	67.8 mg/l	56.6 mg/l	59.4 mg/l	55.3 mg/l	54.6 mg/l	54.5 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.33 mg/l	0.12 mg/l	0.31 mg/l	0.9 mg/l	0.15 mg/l	0.22 mg/l	0.21 mg/l	0.14 mg/l	0.19 mg/l	0.17 mg/l	0.2 h mg/l	0.19 mg/l	0.2 mg/l	0.23 mg/l	0.22 mg/l	0.26 mg/l	0.26 mg/l	0.29 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.42 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.1 h mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
pH	NA	Lab	--	--	7.4 pH units	7.7 pH units	6.9 pH units	7.5 pH units	7.6 pH units	7.5 pH units	8.2 pH units	7.5 pH units	--	7.4 pH units	7.4 pH units	7.4 pH units	7.3 pH units	--	--	--
pH	NA	Field	7.47 pH units	7.51 pH units	7.20 pH units	--	7.27 pH units	7.87 pH units	--	8.24 pH units	8.18 pH units	7.0 pH units	7.21 pH units	6.6 pH units	--	6.8 pH units	--	7.03 pH units	--	8.54 pH units
Phosphorus, total	NA	Lab	--	--	0.17 mg/l	0.16 mg/l	0.14 mg/l	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 h mg P/L	0.15 mg P/L	0.12 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	--	--	--
Redox (oxidation potential)	NA	Field	437 mV	524 mV	-196.5 mV	--	47 mV	390 mV	--	436 mV	397 mV	326 mV	395 mV	406 mV	--	419 mV	--	330 mV	--	368 mV
Solids, total dissolved	NA	Lab	89.0 mg/l	136 mg/l	--	--	--	--	--	95 mg/l	94 mg/l	87 mg/l	91 mg/l	104 mg/l	95 mg/l	128 mg/l	90 mg/l	127 mg/l	106 mg/l	112 mg/l
Specific Conductance @ 25oC	NA	Field	72.8 umhos/cm	160.2 umhos/cm	183 umhos/cm	--	115 umhos/cm	119 umhos/cm	--	212 umhos/cm	116 umhos/cm	120 umhos/cm	04.6 umhos/cm	88 umhos/cm	--	130 umhos/cm	--	125 umhos/cm	--	129.6 umhos/cm
Sulfate	NA	Lab	6.4 mg/l	6.8 mg/l	21.2 mg/l	20.3 mg/l	11.2 mg/l	9.72 mg/l	9.73 mg/l	10.4 mg/l	9.52 mg/l	9.46 mg/l	8.93 h mg/l	9.1 mg/l	9.43 mg/l	9.23 mg/l	9.04 mg/l	8.92 mg/l	8.85 mg/l	9.5 mg/l
Temperature, degrees C	NA	Field	13.84 deg C	12.84 deg C	4.37 deg C	--	6.8 deg C	10.8 deg C	--	4.6 deg C	8.21 deg C	11.7 deg C	4.46 deg C	8.5 deg C	--	13.2 deg C	--	10.81 deg C	--	11.46 deg C
Turbidity	NA	Field	2.5 NTU	23.7 NTU	--	--	--	47 NTU	--	487 NTU	9.7 NTU	2.3 NTU	2.3 NTU	81.0 NTU	--	32.0 NTU	--	2.40 NTU	--	0 NTU
Metals																				
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	214 * ug/l	132 * ug/l	199 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	58.4 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	--	--	1040 ug/l	1300 ug/l	2620 ug/l	364 ug/l	427 ug/l	661 ug/l	627 ug/l	136 ug/l	465 ug/l	5020 ug/l	5140 ug/l	1920 ug/l	2560 ug/l	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Antimony	Total	Lab	--	--	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	2.1 ug/l	--	--	--	--	--	--	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Total	Lab	--	--	4.4 ug/l	3.1 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	0.77 ug/l	0.95 ug/l	0.56 ug/l	0.62 ug/l	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	7.5 ug/l	11.5 ug/l	32.5 ug/l	32 ug/l	28.1 ug/l	19.7 ug/l	20 ug/l	18.5 ug/l	17.9 ug/l	15.9 ug/l	15.1 ug/l	39.9 ug/l	44.1 ug/l	24.8 ug/l	27 ug/l	14.5 ug/l	13.5 ug/l	13.5 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 35 ug/l	38 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.03 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.08 j ug/l	0.28 ug/l	< 0.2 ug/l	--	--	--
Calcium	Total	Lab	7600 ug/l	18500 ug/l	14500 ug/l	14900 ug/l	12100 ug/l	12300 ug/l	12300 ug/l	12500 ug/l	12400 ug/l	12400 ug/l	13100 ug/l	14000 ug/l	13900 ug/l	11900 ug/l	12500 ug/l	11400 ug/l	11400 ug/l	11400 ug/l
Chromium	Dissolved	Lab	1.2 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	1.2 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	1.08 ug/l	< 1.5 ug/l	< 1.5 ug/l	< 1 ug/l
Chromium	Total	Lab	--	--	6.1 ug/l	4.8 ug/l	3.2 ug/l	< 1 ug/l	1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	6.3 ug/l	6.72 ug/l	3.17 ug/l	4.13 ug/l	--	--	--
Cobalt	Dissolved	Lab	< 0.20 ug/l	4.9 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cobalt	Total	Lab	--	--	1.8 ug/l	1.6 ug/l	< 1 ug/l	0.32 ug/l	0.32 ug/l	0.37 ug/l	0.34 ug/l	< 0.2 ug/l	0.23 ug/l	2.98 ug/l	3.17 ug/l	1.16 ug/l	1.4 ug/l	--	--	--
Copper	Dissolved	Lab	1.6 ug/l	3.3 ug/l	6.4 ug/l	2.3 ug/l	< 2 ug/l	0.94 b ug/l	< 0.7 ug/l	0.76 ug/l	1.59 ug/l	< 0.7 ug/l	0.84 ug/l	< 0.7 ug/l	0.49 j ug/l	1.7 ug/l	0.95 ug/l	< 0.7 ug/l	0.9 ug/l	< 0.7 ug/l
Copper	Total	Lab	--	--	10 ug/l	7.8 ug/l	5.7 ug/l	1.2 ug/l	1.4 ug/l	2.06 ug/l	1.37 ug/l	0.8 ug/l	1.12 ug/l	7.82 ug/l	8.71 ug/l	6 ug/l	5.2 ug/l	--	--	--
Iron	Dissolved	Lab	< 50.0 ug/l	638 ug/l	--	--	--	--	--	--	78.3 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	84.6 b ug/l	99.5 b ug/l	< 50 ug/l
Iron	Total	Lab	--	--	1740 ug/l	1940 ug/l	1860 ug/l	398 ug/l	442 ug/l	619 ug/l	500 ug/l	113 ug/l	336 ug/l	4200 ug/l	4450 ug/l	1600 ug/l	2000 ug/l	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	0.81 ug/l	0.69 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	1.82 ug/l	1.97 ug/l	1.78 ug/l	1.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Magnesium	Total	Lab	3800 ug/l	9000 ug/l	6800 ug/l	7000 ug/l	6470 ug/l	6850 ug/l	6860 ug/l	6730 ug/l	6680 ug/l	6580 ug/l	6950 ug/l	8230 ug/l	8040 ug/l	6520 ug/l	6850 ug/l	6520 ug/l	6350 ug/l	6330 ug/l
Manganese	Dissolved	Lab	1.1 ug/l	869 ug/l	--	--	--	--	--	62.7 ug/l	66.1 ug/l	56.5 ug/l	51.1 ug/l	71 ug/l	73.4 ug/l	68.1 ug/l	67.1 ug/l	58.4 ug/l	58 ug/l	48.5 ug/l
Manganese	Total	Lab	--	--	220 ug/l	220 ug/l	152 ug/l	101 ug/l	100 ug/l	93.1 ug/l	75.5 ug/l	61.2 ug/l	71.2 ug/l	227 ug/l	220 ug/l	116 ug/l	122 ug/l	--	--	--
Mercury	Total	Lab	0.00078 ug/l	0.0018 ug/l	0.0053 ug/l	0.0036 ug/l	0.0016 b ug/l	0.0014 ug/l	0.0009 ug/l	0.0009 ug/l	0.0011 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	0.0025 ug/l	0.0014 ug/l	0.0013 ug/l	0.0014 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l
Mercury methyl	Total	Lab	--	--	< 0.000025 ug/l	< 0.000025 ug/l	< 0.000056 ug/l	0.00044 b ug/l	0.00024 b ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	--	--	--
Molybdenum	Dissolved	Lab	< 0.30 ug/l	0.65 ug/l	34.4 ug/l	32.9 ug/l	< 5 ug/l	1.2 ug/l	1.2 ug/l	1.3 ug/l	1.08 ug/l	1.09 b ug/l	0.92 ug/l	0.92 ug/l	0.95 ug/l	1.1 ug/l	1.02 ug/l	0.99 ug/l	0.83 ug/l	0.73 ug/l
Molybdenum	Total	Lab	--	--	35.6 * ug/l	33.1 * ug/l	< 5 ug/l	1.4 ug/l	1.3 ug/l	1.09 ug/l	1.02 ug/l	1.22 ug/l	0.87 ug/l	0.94 ug/l	1.06 ug/l	1.11 ug/l	1.06 ug/l	--	--	--
Nickel	Dissolved	Lab	1.1 ug/l	10.3 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	0.61 ug/l	< 0.6 ug/l	< 0.6 ug/l	0.89 ug/l	0.9 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l
Nickel	Total	Lab	--	--	7.9 ug/l	6.2 ug/l	3 ug/l	1.4 ug/l	1.4 ug/l	1.7 ug/l	1.73 ug/l	0.82 ug/l	1.05 ug/l	10.9 ug/l	11.8 ug/l	4.54 ug/l	5.06 ug/l	--	--	--
Palladium	Total	Lab	--	--	< 25 ug/l	< 25 ug/l														

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date			MW-05-08 3/26/2012		MW-05-08 4/24/2012		MW-05-08 5/4/2012	MW-05-08 6/21/2012		MW-05-08 7/26/2012		MW-05-08 8/23/2012		MW-05-08 10/22/2012	MW-05-08 5/13/2013		MW-05-08 7/23/2013		MW-05-08 10/17/2013	
Sample Type			N	FD	N	FD	N	N	FD	N	FD	N	FD	N	N	FD	N	FD	N	FD
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	55.4 mg/l	54.3 mg/l	55.5 mg/l	56.6 mg/l	54.9 mg/l	51.8 mg/l	52.8 mg/l	90.5 mg/l	107 mg/l	52.8 mg/l	52.4 mg/l	53.5 mg/l	55.8 mg/l	--	68.7 mg/l	--	53.9 mg/l	53.9 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	1.9 mg/l	1.7 mg/l	1.5 mg/l	1.8 mg/l	1.4 mg/l	1.7 mg/l	1.7 mg/l	< 1.0 mg/l	< 1.0 mg/l	1.4 mg/l	1.3 mg/l	1.4 mg/l	1.5 mg/l	--	1.4 mg/l	--	1.3 mg/l	1.4 mg/l
Carbon, total organic	NA	Lab	1.4 mg/l	1.8 mg/l	1.4 mg/l	1.5 mg/l	1.1 mg/l	1.1 mg/l	1.1 mg/l	< 1.0 mg/l	< 1.0 mg/l	1.7 b mg/l	2.1 b mg/l	< 1.0 mg/l	1.6 mg/l	--	1.2 mg/l	--	1.1 mg/l	1.2 mg/l
Chemical Oxygen Demand	NA	Lab	< 10 mg/l	< 10 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l	--	< 10.0 mg/l	10.3 b mg/l
Chloride	NA	Lab	< 0.5 mg/l	< 0.5 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.56 mg/l	0.73 mg/l	0.67 mg/l	0.64 mg/l	0.53 mg/l	0.64 mg/l	--	0.58 mg/l	--	< 1.0 mg/l	< 1.0 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	3.01 mg/l	--	2.34 mg/l	--	2.67 mg/l	2.44 mg/l	--	2.36 mg/l	--	2.17 mg/l	--	2.36 mg/l	0.35 mg/l	--	0.36 mg/l	--	0.71 mg/l	--
Fluoride	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.10 mg/l	< 0.10 mg/l	0.11 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	59.3 mg/l	55.8 mg/l	55.6 mg/l	56.5 mg/l	57.0 mg/l	54.6 mg/l	54.7 mg/l	56.6 mg/l	55.8 mg/l	56.0 mg/l	54.7 mg/l	59.2 mg/l	55.1 mg/l	--	58.5 mg/l	--	56.5 mg/l	57.5 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.34 mg/l	0.29 mg/l	0.30 mg/l	0.30 mg/l	0.29 mg/l	0.32 mg/l	0.32 mg/l	0.37 mg/l	0.38 mg/l	0.37 mg/l	0.37 mg/l	0.26 mg/l	0.28 mg/l	--	0.31 mg/l	--	0.36 mg/l	0.40 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	0.090 b mg/l	< 0.050 mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.14 b mg/l	0.33 b mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	7.25 pH units	--	7.68 pH units	--	7.18 pH units	6.82 pH units	--	6.95 pH units	--	6.97 pH units	--	7.1 pH units	7.21 pH units	--	6.94 pH units	--	7.18 pH units	--
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	418 mV	--	521 mV	--	301 mV	350 mV	--	259 mV	--	209 mV	--	179 mV	447 mV	--	329 mV	--	401 mV	--
Solids, total dissolved	NA	Lab	113 mg/l	102 mg/l	98.0 mg/l	92.0 mg/l	113 mg/l	122 mg/l	119 mg/l	104 mg/l	100 mg/l	89.0 mg/l	94.0 mg/l	86.0 mg/l	85.0 mg/l	--	102 mg/l	--	90.0 mg/l	107 mg/l
Specific Conductance @ 25oC	NA	Field	125.3 umhos/cm	--	122.9 umhos/cm	--	81.8 umhos/cm	116.5 umhos/cm	--	118.7 umhos/cm	--	119.3 umhos/cm	--	125.1 umhos/cm	113 umhos/cm	--	126.3 umhos/cm	--	126.6 umhos/cm	--
Sulfate	NA	Lab	8.86 mg/l	8.85 mg/l	8.8 mg/l	8.8 mg/l	8.9 mg/l	9.2 mg/l	9.2 mg/l	9.5 mg/l	9.5 mg/l	9.3 mg/l	9.3 mg/l	10.2 mg/l	9.7 mg/l	--	9.2 mg/l	--	9.3 mg/l	9.2 mg/l
Temperature, degrees C	NA	Field	4.29 deg C	--	6.31 deg C	--	6.23 deg C	8.3 deg C	--	10.08 deg C	--	12.42 deg C	--	9.07 deg C	4.83 deg C	--	7.27 deg C	--	8.81 deg C	--
Turbidity	NA	Field	0 NTU	--	0 NTU	--	0 NTU	0 NTU	--	0 NTU	--	0 NTU	--	1.5 NTU	0 NTU	--	0 NTU	--	0 NTU	--
Metals																				
Aluminum	Dissolved	Lab	< 20 ug/l	< 20 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	--	< 20.0 ug/l	21.1 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	0.56 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	13.3 ug/l	12.8 ug/l	12.5 ug/l	12.8 ug/l	12.8 ug/l	12.2 ug/l	12.2 ug/l	13.2 ug/l	12.7 ug/l	12.3 ug/l	12.2 ug/l	13.9 ug/l	12.3 ug/l	--	11.4 ug/l	--	13.5 ug/l	13.6 ug/l
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	12400 ug/l	11400 ug/l	11400 ug/l	11600 ug/l	11700 ug/l	11400 ug/l	11200 ug/l	11700 ug/l	11600 ug/l	11600 ug/l	11300 ug/l	12200 ug/l	11300 ug/l	--	12100 ug/l	--	11600 ug/l	11700 ug/l
Chromium	Dissolved	Lab	1.29 b ug/l	1.71 b ug/l	< 1.0 ug/l	1.0 ug/l	2.2 b ug/l	1.2 ug/l	1.1 ug/l	2.5 ug/l	1.8 ug/l	< 1.0 ug/l	1.1 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	< 0.7 ug/l	< 0.7 ug/l	< 0.50 ug/l	0.73 ug/l	0.67 ug/l	0.54 ug/l	< 0.50 ug/l	0.62 ug/l	0.62 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	61.4 b ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	6880 ug/l	6640 ug/l	6600 ug/l	6600 ug/l	6700 ug/l	6400 ug/l	6500 ug/l	6600 ug/l	6700 ug/l	6600 ug/l	6400 ug/l	7000 ug/l	6500 ug/l	--	6900 ug/l	--	6700 ug/l	6900 ug/l
Manganese	Dissolved	Lab	41.5 ug/l	41.4 ug/l	39.4 ug/l	41.3 ug/l	41.0 ug/l	42.6 ug/l	41.1 ug/l	41.5 ug/l	41.0 ug/l	33.3 ug/l	32.6 ug/l	34.7 ug/l	35.0 ug/l	--	37.7 ug/l	--	38.6 ug/l	39.4 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	< 0.0005 ug/l	< 0.0005 ug/l	< 0.00050 ug/l	0.00058 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00053 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00089 ug/l	< 0.00050 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	0.65 ug/l	0.66 ug/l	0.60 ug/l	0.64 ug/l	0.67 ug/l	0.69 ug/l	0.67 ug/l	1.2 b ug/l	0.78 b ug/l	0.69 ug/l	0.68 ug/l	0.80 ug/l	0.65 ug/l	--	0.58 ug/l	--	0.69 ug/l	0.67 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	< 0.6 ug/l	< 0.6 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	1.1 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1170 ug/l	1140 ug/l	1100 ug/l	1200 ug/l	1200 ug/l	1300 ug/l	1300 ug/l	1300 ug/l	1300 ug/l	1400 ug/l	1400 ug/l	1400 ug/l	1100 ug/l	--	1300 ug/l	--	1300 ug/l	1300 ug/l
Selenium	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	4070 ug/l	3890 ug/l	3800 ug/l	3900 ug/l	40													

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Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-05-09 3/23/2005	MW-05-09 10/5/2006	MW-05-09 3/17/2009	MW-05-09 5/5/2010	MW-05-09 7/29/2010	MW-05-09 10/7/2010	MW-05-09 3/24/2011		MW-05-09 4/26/2011	MW-05-09 7/21/2011	MW-05-09 10/5/2011	MW-05-09 11/2/2011	MW-05-09 12/6/2011	MW-05-09 1/11/2012	MW-05-09 2/13/2012	MW-05-09 3/1/2012	MW-05-09 4/9/2012	
			N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	FD
General Parameters	Fraction	Analysis Location																		
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	20.4 mg/l	18.6 mg/l	17.1 mg/l	20.3 mg/l	20.7 mg/l	16.4 mg/l	18.5 mg/l	15.8 mg/l	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	47 mg/l	26.4 mg/l	23.7 mg/l	20.4 mg/l	18.6 mg/l	17.1 mg/l	20.7 mg/l	20.3 mg/l	16.4 mg/l	18.5 mg/l	15.8 mg/l	16.7 mg/l	16 mg/l	15.2 mg/l	13.9 mg/l	14.6 mg/l	16.1 mg/l	16.0 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	< 2.4 mg/l	< 3 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 4 mg/l	< 4 mg/l	< 2.4 mg/l	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	4.1 mg/l	4.7 mg/l	4.0 mg/l	3.9 mg/l	3.8 mg/l	4.7 h mg/l	5.3 mg/l	4.6 mg/l	4.1 mg/l	3.9 mg/l	3.4 mg/l	3.1 b mg/l	2.86 b mg/l	3.0 mg/l	3.1 mg/l
Carbon, total organic	NA	Lab	4.6 mg/l	5.2 mg/l	4.4 mg/l	5.0 mg/l	3.9 mg/l	3.6 mg/l	4.2 mg/l	4.0 mg/l	3.7 h mg/l	6.3 mg/l	4.0 mg/l	4.5 mg/l	4.1 mg/l	3.0 mg/l	2.78 b mg/l	2.47 mg/l	2.6 mg/l	2.7 mg/l
Chemical Oxygen Demand	NA	Lab	6.9 mg/l	< 10 mg/l	23.9 mg/l	21.9 mg/l	12 mg/l	22.5 mg/l	32.2 mg/l	28.4 mg/l	19.2 h mg/l	24 mg/l	35.2 mg/l	25 mg/l	26.4 mg/l	< 10 mg/l	16.5 mg/l	16.5 mg/l	20.6 mg/l	11.7 mg/l
Chloride	NA	Lab	5.5 mg/l	0.69 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 h mg/l	< 0.5 mg/l	0.53 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	0.93 mg/l	< 0.5 mg/l	< 0.50 mg/l	< 0.50 mg/l
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	--	--	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	1.80 mg/l	3.71 mg/l	12.1 mg/l	11.8 mg/l	7.6 mg/l	2.84 mg/l	--	10.3 mg/l	9.9 mg/l	10.6 mg/l	8.50 mg/l	10.74 mg/l	11.22 mg/l	11.09 mg/l	11.9 mg/l	11.45 mg/l	--
Fluoride	NA	Lab	0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 h mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	53.4 mg/l	45.8 mg/l	23.0 mg/l	23 mg/l	24.2 mg/l	25.8 mg/l	23 mg/l	29 mg/l	26.4 mg/l	75.1 mg/l	40.4 mg/l	33.2 mg/l	36.2 mg/l	27.5 mg/l	21.2 mg/l	19.6 mg/l	27.2 mg/l	28.1 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	0.11 mg/l	0.18 mg/l	0.18 mg/l	0.35 mg/l	0.22 mg/l	0.23 mg/l	0.21 h mg/l	0.13 mg/l	0.21 mg/l	0.2 mg/l	0.27 mg/l	0.25 mg/l	0.24 mg/l	0.25 mg/l	0.39 mg/l	0.33 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.05 mg/l	0.15 b mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.1 h mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.099 mg/l	< 0.050 mg/l
pH	NA	Lab	7.5 pH units	7.5 pH units	6.8 pH units	6.9 pH units	7.1 pH units	6.9 pH units	6.5 pH units	6.5 pH units	--	6.9 pH units	7.1 pH units	--	--	--	--	--	--	--
pH	NA	Field	6.62 pH units	6.78 pH units	8.01 pH units	8.37 pH units	9.20 pH units	7.3 pH units	6.82 pH units	--	6.39 pH units	6.2 pH units	7.4 pH units	6.32 pH units	7.77 pH units	7.81 pH units	6.55 pH units	8.06 pH units	7.1 pH units	--
Phosphorus, total	NA	Lab	0.47 mg/l	0.25 mg/l	0.12 mg/l	< 0.1 mg P/L	0.13 mg P/L	0.12 mg P/L	0.22 mg P/L	0.18 mg P/L	0.12 h mg P/L	1.75 mg P/L	0.52 mg P/L	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	187.8 mV	89 mV	203 mV	493 mV	365 mV	257 mV	248 mV	--	431 mV	505 mV	399 mV	369 mV	459 mV	480 mV	399 mV	436 mV	367 mV	--
Solids, total dissolved	NA	Lab	--	--	--	102 mg/l	52 mg/l	95 mg/l	81.9 mg/l	71.9 mg/l	98 mg/l	114 mg/l	94 mg/l	202 mg/l	125 mg/l	76 mg/l	78 mg/l	88 h mg/l	85.0 mg/l	77.0 mg/l
Specific Conductance @ 25oC	NA	Field	139 umhos/cm	73 umhos/cm	80 umhos/cm	70 umhos/cm	63.2 umhos/cm	76.4 umhos/cm	66 umhos/cm	--	49.7 umhos/cm	24 umhos/cm	50 umhos/cm	53 umhos/cm	56.4 umhos/cm	52 umhos/cm	52 umhos/cm	46.1 umhos/cm	77.1 umhos/cm	--
Sulfate	NA	Lab	13.8 mg/l	10.4 mg/l	7.38 mg/l	12.6 mg/l	8.99 mg/l	16.9 mg/l	11.6 mg/l	11 mg/l	11.8 h mg/l	8.74 mg/l	7.17 mg/l	9.54 mg/l	11 mg/l	9.81 mg/l	8.83 mg/l	7.82 mg/l	19.7 mg/l	19.6 mg/l
Temperature, degrees C	NA	Field	4.20 deg C	9.6 deg C	4.7 deg C	5.9 deg C	10.03 deg C	14.1 deg C	5.3 deg C	--	5.51 deg C	17.3 deg C	13.4 deg C	11.35 deg C	11.78 deg C	9.29 deg C	11.36 deg C	8.92 deg C	10.03 deg C	--
Turbidity	NA	Field	--	--	133 NTU	1 NTU	470 NTU	54.7 NTU	18 NTU	--	148.9 NTU	860.0 NTU	339.4 NTU	140.40 NTU	311.8 NTU	105.6 NTU	85.6 NTU	41.4 NTU	24.5 NTU	--
Metals																				
Aluminum	Dissolved	Lab	910 * ug/l	430 ug/l	373 ug/l	154 ug/l	296 ug/l	511 ug/l	466 ug/l	411 ug/l	311 ug/l	214 ug/l	102 ug/l	139 ug/l	135 ug/l	205 ug/l	225 ug/l	258 ug/l	353 ug/l	301 ug/l
Aluminum	Total	Lab	4640 ug/l	27100 ug/l	4200 ug/l	5360 ug/l	6550 ug/l	5620 ug/l	9940 ug/l	9950 ug/l	5940 ug/l	32300 ug/l	16500 ug/l	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	< 3 ug/l	< 3 ug/l	< 0.5 ug/l	0.52 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	3.4 ug/l	4.8 ug/l	< 2 ug/l	1.84 ug/l	1.88 ug/l	1.82 ug/l	3.25 ug/l	3.34 ug/l	2.18 ug/l	2.38 ug/l	5.84 ug/l	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	90.7 ug/l	214 ug/l	59.2 ug/l	65.6 ug/l	71.2 ug/l	66.2 ug/l	98.4 ug/l	99.2 ug/l	71.3 ug/l	301 ug/l	159 ug/l	133 ug/l	121 ug/l	79.4 ug/l	46.8 ug/l	44.8 ug/l	43.2 ug/l	45.6 ug/l
Beryllium	Total	Lab	0.3 ug/l	0.7 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.22 ug/l	0.2 ug/l	0.31 ug/l	0.31 ug/l	< 0.2 ug/l	0.84 ug/l	0.53 ug/l	0.43 ug/l	0.32 ug/l	0.23 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 50 ug/l	< 50 ug/l	--	--	--	--	--	--	--
Boron	Total	Lab	40.2 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.21 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.03 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.28 ug/l	< 0.2 ug/l	0.22 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.37 ug/l	0.29 ug/l	--	--	--	--	--	--	--
Calcium	Total	Lab	12100 ug/l	7080 ug/l	5190 ug/l	5090 ug/l	4820 ug/l	5960 ug/l	5610 ug/l	5640 ug/l	5490 ug/l	12600 ug/l	7010 ug/l	6240 ug/l	7370 ug/l	5800 ug/l	4800 ug/l	4320 ug/l	6500 ug/l	6800 ug/l
Chromium	Dissolved	Lab	2.5 ug/l	1.2 ug/l	1.7 b ug/l	< 1 ug/l	2.2 ug/l	2.86 ug/l	1.31 ug/l	1.29 ug/l	1.66 ug/l	< 1 ug/l	< 1 ug/l	< 1.5 ug/l	< 1 ug/l	1.99 ug/l	< 1.0 ug/l	< 1 ug/l	1.8 ug/l	1.6 ug/l
Chromium	Total	Lab	28.6 ug/l	55 ug/l	8.5 ug/l	12.4 ug/l	16.6 ug/l	12.9 ug/l	20.6 ug/l	21.5 ug/l	13.4 ug/l	50.6 ug/l	39.7 ug/l	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	0.29 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.50 ug/l	< 0.2 ug/l	0.22 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	5.4 ug/l	8.8 ug/l	2.9 ug/l	3.1 ug/l	4.88 ug/l	2.83 ug/l	4.76 ug/l	4.93 ug/l	3.49 ug/l	23 ug/l	10.6 ug/l	--	--	--	--	--	--	--
Copper	Dissolved	Lab	18.2 ug/l	7.9 ug/l	3.2 ug/l	5.6 ug/l	12.9 ug/l	3.26 ug/l	6.14 * ug/l	9.78 * ug/l	4.56 ug/l	6.14 * ug/l	3.7 ug/l	4.34 ug/l	2.88 ug/l	2.8 ug/l	2.13 ug/l	2.5 ug/l	2.6 ug/l	2.6 ug/l
Copper	Total	Lab	72.2 ug/l	99.6 ug/l	13.9 ug/l	21 ug/l	16.8 ug/l	17.9 ug/l	36 ug/l	37.7 ug/l	17.4 ug/l	81.9 ug/l	43.8 ug/l	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	394 ug/l	685 ug/l	540 ug/l	455 ug/l	342 ug/l	254 ug/l	126 ug/l	265 b ug/l	160 ug/l	262 ug/l	269 ug/l	304 ug/l	424 ug/l	380 ug/l
Iron	Total	Lab	6400 ug/l	29800 ug/l	5210 ug/l	6320 ug/l	8600 ug/l	5470 ug/l	12400 ug/l	12500 ug/l	7530 ug/l	44400 ug/l	21500 ug/l	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	5.6 ug/l	6.1 ug/l	1.7 ug/l	2.09 ug/l	2.15 ug/l	1.76 ug/l	7.62 ug/l	7.68 ug/l	2.75 ug/l	11.5 ug/l	6.38 ug/l	5.31 ug/l	4.06 ug/l	2.43 ug/l	1.3 ug/l	1.21 ug/l	1.7 ug/l	1.4 ug/l
Magnesium	Total	Lab	5700 ug/l	6830 ug/l	2430 ug/l	2500 ug/l	2960 ug/l	2640 ug/l	3600 ug/l	3620 ug/l	3080 ug/l	10600 ug/l	5550 ug/l	4290 ug/l	4310 ug/l	3160 ug/l	2300 ug/l	2130 ug/l	2600 ug/l	2700 ug/l
Manganese	Dissolved	Lab	--	--	--	16.5 ug/l	30.2 ug/l	36.7 ug/l	23.7 ug/l	23.4 ug/l	12.7 ug/l	11.1 ug/l	< 10 ug/l	10.2 ug/l	7.67 ug/l	8.05 ug/l	13.2 ug/l	8.7 ug/l	12.8 ug/l	12.4 ug/l
Manganese	Total	Lab	330 ug/l	584 ug/l	497 ug/l	257 ug/l	377 ug/l	194 ug/l	266 ug/l	266 ug/l	225 ug/l	1770 ug/l	672 ug/l	--	--	--	--	--	--	--
Mercury	Total	Lab	0.0181 ug/l	0.0288 ug/l	0.0126 ug/l	0.0197 ug/l	0.0192 ug/l	0.0185 ug/l	0.0181 ug/l	0.0202 ug/l	0.0150 ug/l	0.0876 ug/l	0.0286 ug/l	0.0263 ug/l	0.0218 ug/l	0.0103 ug/l	0.0072 ug/l	0.0063 ug/l	0.0058 ug/l	0.0052 ug/l
Mercury methyl	Total	Lab	0.000043 ug/l	0.000130 ug/l	0.00019 ug/l	< 0.0001 ug/l	0.00052 ug/l	0.00012 ug/l	--	--	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	< 5 ug/l	8.8 ug/l	2.0 ug/l	1.89 ug/l	2.26 ug/l	1.89 ug/l	4.76 ug/l	3.93 ug/l	2.81 ug/l	2.78 ug/l	2.46 ug/l	2.58 ug/l	1.56 ug/l	1.59 ug/l	1.8 ug/l	1.83 ug/l	1.4 ug/l	1.3 ug/l
Molybdenum	Total	Lab	12.4 * ug/l	12.1 ug/l	4.6 ug/l	3.96 ug/l	4.02 ug/l	3.12 ug/l	5.65 ug/l	5.46 ug/l	4.81 ug/l	1 ug/l	6.46 ug/l	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	< 2 ug/l	3 ug/l	1.7 ug/l	1.93 ug/l	2.56 ug/l	3.14 ug/l	2.77 ug/l	1.93 ug/l	1.36 ug/l	1.32 ug/l	1.06 ug/l	1.21 ug/l	0.97 ug/l	1.54 ug/l	1.3 ug/l	0.96 ug/l	1.4 ug/l	1.3 ug/l
Nickel	Total	Lab	9.6 ug/l	40.2 ug/l	8.2 ug/l	10.1 ug/l	11.2 ug/l	8.53 ug/l	16.7 ug/l	16.7 ug/l	10.8 ug/l	45.2 ug/l	30.2 ug/l	--	--	--	--	--	--	--
Palladium	Total	Lab	< 25 ug/l	< 0.1 ug/l	< 0.30 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--	--	--	--	--
Platinum	Total	Lab	< 25 ug/l	< 0.02 ug/l	<															

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			MW-1		MW-1		MW-1	MW-1	MW-1	MW-1		MW-1		MW-1	MW-1	MW-2	MW-2		MW-2	
Date			4/18/2012		5/4/2012		6/13/2012	7/26/2012	8/27/2012	10/19/2012		5/8/2013		7/23/2013	10/17/2013	11/9/2011	12/6/2011		1/4/2012	
Sample Type			N	FD	N	FD	N	N	N	N	FD	N	FD	N	N	N	N	FD	N	FD
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	96.8 mg/l	97.2 mg/l	88.0 mg/l	87.9 mg/l	86.2 mg/l	83.1 mg/l	80.5 mg/l	91.2 mg/l	88.4 mg/l	94.8 mg/l	--	88.3 mg/l	85.7 mg/l	111 BQS mg/l	138 mg/l	138 mg/l	141 mg/l	140 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	3.1 mg/l	2.8 mg/l	2.8 mg/l	2.7 mg/l	2.8 mg/l	1.9 mg/l	2.3 mg/l	2.2 mg/l	2.3 mg/l	3.5 mg/l	--	2.8 mg/l	2.2 mg/l	5.2 BQS mg/l	6.6 mg/l	7.4 mg/l	6.1 mg/l	5.7 mg/l
Carbon, total organic	NA	Lab	2.5 mg/l	2.7 mg/l	2.4 mg/l	2.3 mg/l	2.3 mg/l	2.7 mg/l	2.4 mg/l	2.0 mg/l	2.1 mg/l	2.2 mg/l	--	2.3 mg/l	2.2 mg/l	5.2 BQS mg/l	5.9 mg/l	6.7 mg/l	5.6 mg/l	5.4 mg/l
Chemical Oxygen Demand	NA	Lab	22.8 mg/l	24.6 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	10.3 mg/l	< 10.0 mg/l	10.1 mg/l	10.1 mg/l	--	15.4 mg/l	12.1 b mg/l	27.4 BQS mg/l	25.3 mg/l	22.5 mg/l	20.4 mg/l	20.9 mg/l
Chloride	NA	Lab	1.7 mg/l	1.7 mg/l	1.8 mg/l	1.8 mg/l	1.8 mg/l	2.1 mg/l	2.4 mg/l	2.5 mg/l	2.5 mg/l	1.9 mg/l	--	2.0 mg/l	2.6 mg/l	1.26 BQS mg/l	1.29 mg/l	1.27 mg/l	1.2 mg/l	1.13 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	1.73 mg/l	--	2.1 mg/l	--	1.86 mg/l	2.1 mg/l	2.23 mg/l	1.58 mg/l	--	0.02 mg/l	--	< 0.1 mg/l	0.11 mg/l	7.12 BQS mg/l	8.02 mg/l	--	8 mg/l	--
Fluoride	NA	Lab	0.18 mg/l	0.17 mg/l	0.20 mg/l	0.21 mg/l	0.19 mg/l	0.18 mg/l	0.22 mg/l	0.24 mg/l	0.24 mg/l	0.20 mg/l	--	0.18 mg/l	0.19 mg/l	< 0.1 BQS mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Hardness, total, as CaCO3	NA	Lab	92.2 mg/l	94.2 mg/l	83.8 mg/l	86.0 mg/l	81.3 mg/l	80.2 mg/l	78.3 mg/l	80.7 mg/l	80.4 mg/l	86.4 mg/l	--	85.1 mg/l	76.9 mg/l	148 BQS mg/l	143 mg/l	144 mg/l	145 mg/l	148 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 BQS mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	0.13 b mg/l	0.19 b mg/l	0.10 mg/l	0.10 mg/l	0.10 mg/l	< 0.10 mg/l	0.15 mg/l	0.14 mg/l	0.13 mg/l	0.15 mg/l	--	0.19 mg/l	0.16 mg/l	< 0.1 BQS mg/l	0.11 mg/l	0.13 mg/l	< 0.1 mg/l	< 0.1 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	9.46 pH units	--	9.32 pH units	--	8.79 pH units	8.63 pH units	8.25 pH units	8.85 pH units	--	9.35 pH units	--	9.08 pH units	9.06 pH units	.76 BQS pH units	7.34 pH units	--	7.1 pH units	--
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	311 mV	--	--	--	165 mV	163 mV	242 mV	216 mV	--	415 mV	--	273 mV	98 mV	387 BQS mV	476 mV	--	448 mV	--
Solids, total dissolved	NA	Lab	157 mg/l	152 mg/l	148 mg/l	152 mg/l	152 mg/l	142 mg/l	139 mg/l	147 mg/l	164 mg/l	131 mg/l	--	162 mg/l	147 mg/l	183 BQS mg/l	209 mg/l	201 mg/l	188 mg/l	202 mg/l
Specific Conductance @ 25oC	NA	Field	190.3 umhos/cm	--	43.8 umhos/cm	--	140 umhos/cm	173.9 umhos/cm	177.3 umhos/cm	77.7 umhos/cm	--	172.2 umhos/cm	--	185.7 umhos/cm	178 umhos/cm	5.1 BQS umhos/cm	306.9 umhos/cm	--	284.2 umhos/cm	--
Sulfate	NA	Lab	5.7 mg/l	5.8 mg/l	6.3 mg/l	6.3 mg/l	6.4 mg/l	6.7 mg/l	6.6 mg/l	6.4 mg/l	6.4 mg/l	6.1 mg/l	--	6.1 mg/l	6.4 mg/l	9.24 BQS mg/l	8.34 mg/l	8.34 mg/l	6.09 mg/l	6.06 mg/l
Temperature, degrees C	NA	Field	4.11 deg C	--	5.17 deg C	--	11.73 deg C	12.63 deg C	12.31 deg C	8.93 deg C	--	5.15 deg C	--	10.21 deg C	9.33 deg C	8.71 BQS deg C	13.86 deg C	--	11.09 deg C	--
Turbidity	NA	Field	0 NTU	--	0 NTU	--	0 NTU	0 NTU	0 NTU	1.4 NTU	--	0 NTU	--	0 NTU	0 NTU	214.2 BQS NTU	75.5 NTU	--	59.3 NTU	--
Metals																				
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	22.6 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	21.6 ug/l	< 20.0 ug/l	6510 BQS ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.5 BQS ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	0.85 ug/l	0.74 ug/l	0.92 ug/l	0.94 ug/l	1.1 ug/l	1.1 ug/l	0.90 ug/l	1.0 ug/l	1.1 ug/l	0.58 ug/l	--	< 0.50 ug/l	1.0 ug/l	3.17 BQS ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	15.9 ug/l	16.1 ug/l	10.8 ug/l	10.9 ug/l	10.0 ug/l	9.8 ug/l	7.7 ug/l	9.1 ug/l	9.0 ug/l	8.4 ug/l	--	8.2 ug/l	8.3 ug/l	154 BQS ug/l	83.4 ug/l	83.6 ug/l	80.2 ug/l	81.1 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	0.35 BQS ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	61.7 ug/l	61.9 ug/l	63.4 ug/l	60.1 ug/l	67.2 ug/l	67.7 ug/l	83.0 ug/l	80.0 ug/l	77.2 ug/l	58.7 ug/l	--	78.5 ug/l	99.4 ug/l	< 50 BQS ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 BQS ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	26600 ug/l	27200 ug/l	22800 ug/l	23700 ug/l	21900 ug/l	22200 ug/l	21000 ug/l	22500 ug/l	22400 ug/l	25100 ug/l	--	24100 ug/l	21600 ug/l	34800 BQS ug/l	35100 ug/l	35500 ug/l	34900 ug/l	35600 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	2.0 ug/l	1.9 b ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	19.3 BQS ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			Date	MW-3 2/14/2012	MW-3 3/5/2012		MW-3 4/19/2012		MW-3 5/7/2012		MW-3 6/8/2012		MW-3 7/9/2012		MW-3 8/6/2012		MW-3 10/9/2012	MW-3 4/23/2013	MW-3 7/19/2013	
Sample Type		FD			N	N	FD	N	FD	N	FD	N	FD	N	FD	N	FD	N	N	N
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	36 mg/l	37 mg/l	35.9 mg/l	35.8 mg/l	36.0 mg/l	34.4 mg/l	31.8 mg/l	37.4 mg/l	33.6 mg/l	31.7 mg/l	33.5 mg/l	34.2 mg/l	37.3 mg/l	48.1 mg/l	34.5 mg/l	28.6 mg/l	27.8 mg/l	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	1.7 mg/l	2.45 b mg/l	2.0 mg/l	2.4 mg/l	2.1 mg/l	1.9 mg/l	1.5 mg/l	1.5 mg/l	1.6 mg/l	1.6 mg/l	1.8 mg/l	1.8 mg/l	1.2 mg/l	1.7 mg/l	1.7 mg/l	1.5 mg/l	1.6 mg/l	--
Carbon, total organic	NA	Lab	1.9 mg/l	1.92 b mg/l	< 1 mg/l	1.8 mg/l	1.7 mg/l	1.8 mg/l	1.3 mg/l	1.3 mg/l	1.3 mg/l	1.3 mg/l	1.3 mg/l	1.4 mg/l	< 1.0 mg/l	1.2 mg/l	1.3 mg/l	< 1.0 mg/l	1.7 mg/l	--
Chemical Oxygen Demand	NA	Lab	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	18.8 mg/l	22.0 mg/l	10.1 mg/l	< 10.0 mg/l	10.1 mg/l	12.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--
Chloride	NA	Lab	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.50 h mg/l	< 0.50 h mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	--
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	7.16 mg/l	4.64 mg/l	--	5.94 mg/l	--	6.35 mg/l	--	5.45 mg/l	--	5.98 mg/l	--	6.16 mg/l	--	5.8 mg/l	5.72 mg/l	6.01 mg/l	--
Fluoride	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 h mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--
Hardness, total, as CaCO3	NA	Lab	39.5 mg/l	44.9 mg/l	38.7 mg/l	39.9 mg/l	39.4 mg/l	39.6 mg/l	38.5 mg/l	38.5 mg/l	39.8 mg/l	38.3 mg/l	40.9 mg/l	39.3 mg/l	38.0 mg/l	39.4 mg/l	39.7 mg/l	34.0 mg/l	35.7 mg/l	--
Nitrate + Nitrite, as N	NA	Lab	0.43 mg/l	0.29 mg/l	0.34 mg/l	0.34 mg/l	0.40 mg/l	0.41 mg/l	0.43 mg/l	0.41 mg/l	0.49 mg/l	0.49 mg/l	0.48 mg/l	0.48 mg/l	0.50 mg/l	0.53 mg/l	0.45 mg/l	0.57 mg/l	0.63 mg/l	--
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.10 b mg/l	0.10 b mg/l	< 0.050 mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	--	6.68 pH units	6.25 pH units	--	6.42 pH units	--	6.48 pH units	--	6.05 pH units	--	5.96 pH units	--	6.05 pH units	--	6.18 pH units	6.24 pH units	6.13 pH units	--
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	--	407 mV	377 mV	--	525 mV	--	367 mV	--	575 mV	--	398 mV	--	285 mV	--	325 mV	520 mV	591 mV	--
Solids, total dissolved	NA	Lab	82 mg/l	95 mg/l	106 mg/l	100 mg/l	68.0 mg/l	88.0 mg/l	68.0 mg/l	73.0 mg/l	119 mg/l	108 mg/l	117 mg/l	129 mg/l	100 mg/l	94.0 mg/l	112 mg/l	91.0 mg/l	96.0 mg/l	--
Specific Conductance @ 25oC	NA	Field	--	100.1 umhos/cm	93.8 umhos/cm	--	87.8 umhos/cm	--	49.7 umhos/cm	--	55.8 umhos/cm	--	91 umhos/cm	--	91.5 umhos/cm	--	99.5 umhos/cm	69.2 umhos/cm	70.8 umhos/cm	--
Sulfate	NA	Lab	9.77 mg/l	11.2 mg/l	9.16 mg/l	9.44 mg/l	11.1 h mg/l	11.1 h mg/l	10.7 mg/l	10.8 mg/l	12.9 mg/l	12.8 mg/l	12.7 mg/l	12.7 mg/l	12.8 mg/l	12.8 mg/l	11.1 mg/l	10.5 mg/l	10.2 mg/l	--
Temperature, degrees C	NA	Field	--	9.05 deg C	8.92 deg C	--	5.79 deg C	--	11.03 deg C	--	18.16 deg C	--	13.51 deg C	--	16.84 deg C	--	9.48 deg C	6.25 deg C	16.65 deg C	--
Turbidity	NA	Field	--	3.3 NTU	0 NTU	--	0 NTU	--	0.9 NTU	--	1.3 NTU	--	1.3 NTU	--	1.6 NTU	--	0.2 NTU	3 NTU	0.1 NTU	--
Metals																				
Aluminum	Dissolved	Lab	< 25 ug/l	< 25.0 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 200 ug/l	22.2 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 5.0 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 5.0 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	14.7 ug/l	20.6 ug/l	17.4 ug/l	17.8 ug/l	15.2 ug/l	15.3 ug/l	16.2 ug/l	15.6 ug/l	18.3 ug/l	17.7 ug/l	16.1 ug/l	15.9 ug/l	17.5 ug/l	18.6 ug/l	18.2 ug/l	15.5 ug/l	15.9 ug/l	--
Beryllium	Total	Lab	< 0.2 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50 ug/l	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--
Cadmium	Dissolved	Lab	< 0.2 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 2.0 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	9320 ug/l	10800 ug/l	9130 ug/l	9480 ug/l	9300 ug/l	9300 ug/l	9100 ug/l	9100 ug/l	9300 ug/l	9000 ug/l	9700 ug/l	9200 ug/l	8800 ug/l	9200 ug/l	9300 ug/l	7700 ug/l	8100 ug/l	--
Chromium	Dissolved	Lab	< 1 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.3 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 10.0 ug/l	6.3 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	0.47 ug/l	0.48 j ug/l	0.39 ug/l	0.37 ug/l	0.47 ug/l	0.41 ug/l	0.43 ug/l	0.41 ug/l	0.24 ug/l	0.24 ug/l	0.29 ug/l	0.29 ug/l	< 2.0 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--
Cobalt	Total	Lab	--	--	--	--	--	--	--</											

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			MW-3		MW-4	MW-4		MW-4	MW-4		MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	
Date			10/18/2013		11/8/2011	12/7/2011		1/17/2012	2/14/2012		3/5/2012	4/19/2012	5/7/2012	6/8/2012	7/9/2012	8/6/2012	10/9/2012	5/7/2013
Sample Type			N	FD	N	N	FD	N	N	FD	N	N	N	N	N	N	N	FD
	Fraction	Sample Location																
General Parameters																		
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	28.9 mg/l	--	64.5 mg/l	68.3 mg/l	68.9 mg/l	65.6 mg/l	57.8 mg/l	57.5 mg/l	56.4 mg/l	69.8 mg/l	66.4 mg/l	66.8 mg/l	68.8 mg/l	74.8 mg/l	66.4 mg/l	64.8 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	1.4 mg/l	--	3.1 mg/l	5.5 mg/l	5.2 mg/l	3.6 mg/l	3.25 b mg/l	3.73 b mg/l	2.9 mg/l	6.3 mg/l	5.7 mg/l	6.4 mg/l	6.3 mg/l	5.9 mg/l	2.9 mg/l	4.3 mg/l
Carbon, total organic	NA	Lab	1.2 mg/l	--	3.0 mg/l	4.6 mg/l	4.4 mg/l	3.2 mg/l	2.35 b mg/l	2.64 b mg/l	1.8 mg/l	6.0 mg/l	5.4 mg/l	6.0 mg/l	5.6 mg/l	5.0 mg/l	2.6 mg/l	4.0 mg/l
Chemical Oxygen Demand	NA	Lab	13.2 mg/l	--	12.2 mg/l	13.4 mg/l	15.2 mg/l	< 10 mg/l	14.2 mg/l	13.6 mg/l	< 10 mg/l	30.2 mg/l	< 10.0 mg/l	28.3 mg/l	15.2 mg/l	< 10.0 mg/l	< 10.0 mg/l	12.9 mg/l
Chloride	NA	Lab	< 1.0 mg/l	--	0.71 mg/l	0.72 mg/l	< 0.5 mg/l	0.63 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.59 mg/l	0.60 mg/l	0.77 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	6.09 mg/l	--	3.63 mg/l	7.81 mg/l	--	2.3 mg/l	7.05 mg/l	--	3.63 mg/l	2.14 mg/l	2.48 mg/l	1.47 mg/l	1.47 mg/l	1.91 mg/l	2.15 mg/l	0.28 mg/l
Fluoride	NA	Lab	< 0.10 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	34.4 mg/l	--	70.5 mg/l	73.7 mg/l	73.4 mg/l	68.1 mg/l	65.9 mg/l	63.7 mg/l	59 mg/l	64.7 mg/l	62.3 mg/l	61.7 mg/l	62.8 mg/l	67.0 mg/l	63.4 mg/l	61.9 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.75 mg/l	--	0.44 mg/l	0.22 mg/l	0.22 mg/l	0.29 mg/l	0.35 mg/l	0.32 mg/l	0.52 mg/l	0.40 mg/l	0.39 mg/l	0.32 mg/l	0.31 mg/l	0.27 mg/l	0.27 mg/l	0.24 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.12 b mg/l	0.060 mg/l	< 0.10 mg/l	0.13 mg/l	0.15 mg/l	< 0.10 mg/l	0.10 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.1 pH units	--	6.84 pH units	6.73 pH units	--	6.52 pH units	6.75 pH units	--	6.58 pH units	6.69 pH units	6.66 pH units	6.29 pH units	6.11 pH units	6.1 pH units	6.43 pH units	6.34 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	497 mV	--	108 mV	365 mV	--	377 mV	409 mV	--	354 mV	419 mV	337 mV	517 mV	320 mV	202 mV	340 mV	302 mV
Solids, total dissolved	NA	Lab	100 mg/l	--	121 mg/l	165 mg/l	96 mg/l	113 mg/l	113 mg/l	112 mg/l	122 mg/l	139 mg/l	103 mg/l	174 mg/l	156 mg/l	133 mg/l	137 mg/l	126 mg/l
Specific Conductance @ 25oC	NA	Field	81.7 umhos/cm	--	157.8 umhos/cm	163.5 umhos/cm	--	148.2 umhos/cm	130 umhos/cm	--	129.1 umhos/cm	149.8 umhos/cm	106.9 umhos/cm	115.2 umhos/cm	158.5 umhos/cm	159.3 umhos/cm	137.6 umhos/cm	125.1 umhos/cm
Sulfate	NA	Lab	9.6 mg/l	--	11.3 mg/l	10.4 mg/l	10.4 mg/l	7.41 mg/l	7.56 mg/l	7.56 mg/l	7.01 mg/l	8.7 mg/l	8.2 mg/l	8.8 mg/l	8.1 mg/l	7.7 mg/l	7.2 mg/l	7.3 mg/l
Temperature, degrees C	NA	Field	10.06 deg C	--	8.44 deg C	7.46 deg C	--	8.56 deg C	8.87 deg C	--	5.52 deg C	5.02 deg C	8.49 deg C	14.68 deg C	16.2 deg C	19.11 deg C	8.57 deg C	9.35 deg C
Turbidity	NA	Field	0 NTU	--	15.7 NTU	0 NTU	--	0 NTU	9.2 NTU	--	4 NTU	9.5 NTU	5.2 NTU	6.1 NTU	3.4 NTU	2.5 NTU	1 NTU	4.2 NTU
Metals																		
Aluminum	Dissolved	Lab	< 20.0 ug/l	--	27.5 ug/l	28.4 ug/l	29.4 ug/l	< 25 ug/l	< 25.0 ug/l	< 25.0 ug/l	< 25 ug/l	260 ug/l	286 ug/l	213 ug/l	141 ug/l	102 ug/l	37.7 ug/l	107 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	0.53 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	16.1 ug/l	--	32.6 ug/l	34 ug/l	34.2 ug/l	29.8 ug/l	29.9 ug/l	28.9 ug/l	25.6 ug/l	28.4 ug/l	27.0 ug/l	26.9 ug/l	26.8 ug/l	29.8 ug/l	25.6 ug/l	18.2 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	--	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	8000 ug/l	--	14900 ug/l	15100 ug/l	15000 ug/l	13900 ug/l	13900 ug/l	13400 ug/l	12000 ug/l	11700 ug/l	11400 ug/l	11300 ug/l	11700 ug/l	12600 ug/l	12200 ug/l	10900 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	--	< 4.5 c ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.4 b ug/l	< 1.0 ug/l	< 1.0 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	< 0.20 ug/l	--	0.55 ug/l	1.07 ug/l	1.04 ug/l	0.68 ug/l	0.53 ug/l	0.58 ug/l	0.36 ug/l	1.8 ug/l	0.72 ug/l	1.4 ug/l	1.5 ug/l	1.6 ug/l	0.26 ug/l	3.2 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	1.5 ug/l	--	3.38 ug/l	4.16 ug/l	3.29 ug/l	2.62 ug/l	2.9 ug/l	2.7 ug/l	1.95 ug/l	12.3 ug/l	13.9 ug/l					

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			5D	MW-6D	MW-6D	MW-6D		MW-6S	MW-6S	MW-6S	MW-6S	MW-6S	MW-6S	MW-6S		MW-6S	MW-6S	MW-6S	MW-6S	MW-6S	MW-6S	7
Date			12	10/11/2012	7/17/2013	10/25/2013		11/8/2011	12/9/2011	1/10/2012	2/15/2012	3/6/2012	4/6/2012	5/2/2012		6/7/2012	7/10/2012	8/7/2012	10/11/2012	4/24/2013		
Sample Type			FD	N	N	N	FD	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	
	Fraction	Analysis Location																				
General Parameters																						
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, total	NA	Lab	87.3 mg/l	89.3 mg/l	91.0 mg/l	121 mg/l	--	79.6 mg/l	85.6 mg/l	85.2 mg/l	86.9 mg/l	87.0 mg/l	80.7 mg/l	76.8 mg/l	76.6 mg/l	67.9 mg/l	64.0 mg/l	64.9 mg/l	87.3 mg/l	82.2 mg/l	64.8 mg/l	
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, dissolved organic	NA	Lab	1.7 mg/l	1.9 mg/l	1.7 mg/l	1.9 mg/l	--	2.5 mg/l	3.1 mg/l	3.4 mg/l	2.97 mg/l	3.0 b mg/l	2.4 mg/l	2.0 mg/l	2.0 mg/l	2.0 mg/l	1.9 mg/l	1.8 mg/l	1.8 mg/l	1.6 mg/l	1.5 mg/l	
Carbon, total organic	NA	Lab	1.8 mg/l	1.7 mg/l	1.9 mg/l	1.8 mg/l	--	2.0 mg/l	2.5 mg/l	2.5 mg/l	2.17 mg/l	2.3 mg/l	2.0 mg/l	1.7 mg/l	1.6 mg/l	1.5 mg/l	1.7 mg/l	1.3 mg/l	1.6 mg/l	1.2 mg/l	1.6 mg/l	
Chemical Oxygen Demand	NA	Lab	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	46.8 mg/l	--	17.6 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	13.8 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	
Chloride	NA	Lab	0.58 mg/l	0.55 mg/l	< 0.50 mg/l	< 1.0 mg/l	--	0.63 mg/l	0.63 mg/l	0.69 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.55 mg/l	0.61 mg/l	0.61 mg/l	< 0.50 mg/l	0.62 mg/l	
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dissolved oxygen	NA	Field	--	1.73 mg/l	0.01 mg/l	0.01 mg/l	--	0.96 mg/l	5.41 mg/l	1.83 mg/l	1.93 mg/l	1.76 mg/l	--	2.83 mg/l	--	4.53 mg/l	5.09 mg/l	2.16 mg/l	1.78 mg/l	0.23 mg/l	3.96 mg/l	
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.10 mg/l	--	< 0.1 mg/l	0.12 mg/l	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	
Hardness, total, as CaCO3	NA	Lab	93.6 mg/l	95.5 mg/l	93.9 mg/l	95.5 mg/l	--	85.8 mg/l	94.2 mg/l	90.8 mg/l	98.5 mg/l	91.4 mg/l	88.2 mg/l	84.2 mg/l	83.1 mg/l	71.2 mg/l	68.3 mg/l	84.9 mg/l	91.4 mg/l	81.8 mg/l	69.7 mg/l	
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.050 mg/l	< 0.050 mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
pH	NA	Field	--	7.58 pH units	7.67 pH units	7.88 pH units	--	7.45 pH units	7.52 pH units	7.49 pH units	7.62 pH units	7.54 pH units	--	7.2 pH units	--	7.05 pH units	6.81 pH units	7.25 pH units	7.31 pH units	7.36 pH units	6.94 pH units	
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Redox (oxidation potential)	NA	Field	--	279 mV	405 mV	160 mV	--	176 mV	300 mV	428 mV	330 mV	428 mV	--	335 mV	--	523 mV	303 mV	142 mV	286 mV	288 mV	465 mV	
Solids, total dissolved	NA	Lab	134 mg/l	143 mg/l	133 mg/l	139 mg/l	--	137 mg/l	138 mg/l	123 mg/l	140 mg/l	144 mg/l	134 h mg/l	134 mg/l	132 mg/l	179 mg/l	120 mg/l	99.0 mg/l	131 mg/l	127 mg/l	123 mg/l	
Specific Conductance @ 25oC	NA	Field	--	93.5 umhos/cm	180.6 umhos/cm	170.9 umhos/cm	--	182.8 umhos/cm	186.6 umhos/cm	89.7 umhos/cm	83.7 umhos/cm	192.7 umhos/cm	--	132.8 umhos/cm	--	111 umhos/cm	41.8 umhos/cm	173.7 umhos/cm	90.7 umhos/cm	168.7 umhos/cm	41.1 umhos/cm	
Sulfate	NA	Lab	10.5 mg/l	9.6 mg/l	9.8 mg/l	10.2 mg/l	--	11.5 mg/l	11 mg/l	10.5 mg/l	10.4 mg/l	9.92 mg/l	10.8 mg/l	10.9 mg/l	10.8 mg/l	10.2 mg/l	10.8 mg/l	11.1 mg/l	9.9 mg/l	10.3 mg/l	9.9 mg/l	
Temperature, degrees C	NA	Field	--	8.74 deg C	8.4 deg C	6.41 deg C	--	8.09 deg C	8.88 deg C	6.11 deg C	4.73 deg C	8.44 deg C	--	9.68 deg C	--	9.5 deg C	10.1 deg C	11.17 deg C	10.79 deg C	4.06 deg C	8.6 deg C	
Turbidity	NA	Field	--	0.8 NTU	3.6 NTU	0 NTU	--	1.1 NTU	0.4 NTU	0.1 NTU	0.1 NTU	0.8 NTU	--	0 NTU	--	0 NTU	0 NTU	0 NTU	1.3 NTU	0.3 NTU	3.4 NTU	
Metals																						
Aluminum	Dissolved	Lab	36.3 b ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25.0 ug/l	< 25 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	21.9 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Arsenic	Dissolved	Lab	0.64 ug/l	1.0 ug/l	< 0.50 ug/l	0.87 ug/l	--	0.78 ug/l	0.72 ug/l	0.84 ug/l	0.88 ug/l	0.92 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.53 ug/l	0.86 ug/l	< 0.50 ug/l	< 0.50 ug/l	
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Barium	Total	Lab	21.1 ug/l	20.3 ug/l	16.4 ug/l	17.2 ug/l	--	20.4 ug/l	21.4 ug/l	20.6 ug/l	18.8 ug/l	18 ug/l	18.8 ug/l	18.8 ug/l	18.9 ug/l	18.0 ug/l	17.3 ug/l	18.7 ug/l	17.1 ug/l	17.6 ug/l	15.4 ug/l	
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Calcium	Total	Lab	20100 ug/l	20100 ug/l	19100 ug/l	19600 ug/l	--	18500 ug/l	19600 ug/l	18700 ug/l	20900 ug/l	18800 ug/l	18400 ug/l	17700 ug/l	17500 ug/l	15200 ug/l	14600 ug/l	17800 ug/l	18900 ug/l	16700 ug/l	14700 ug/l	
Chromium	Dissolved	Lab	1.2 b ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	--	< 1.5 ug/l	< 1 ug/l	< 1 ug/l	1.2 ug/l	< 1 ug/l	1.0 ug/l	1.1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.7 b ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cobalt	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	0.36 ug/l	0.5 ug/l	0.48 ug/l	0.40 j ug/l	0.36 ug/l	0.33 ug/l	0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Copper	Dissolved	Lab	< 0.50 ug/l	0.60 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	3 ug/l	1.52 ug/l	0.75 ug/l	0.77 ug/l	1.12 ug/l	1.2 ug/l	0.94 ug/l	1.1 ug/l	0.82 ug/l	0.74 ug/l	0.80 ug/l	1.2 ug/l	0.69 ug/l	0.79 ug/l	
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	Dissolved	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	77.1 ug/l	< 50.0 ug/l	58.1 ug/l	79.4 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	0.65 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	
Magnesium	Total	Lab	10600 ug/l	11000 ug/l	11200 ug/l	11300 ug/l	--	9620 ug/l	11000 ug/l	10700 ug/l	11300 ug/l	10800 ug/l	10300 ug/l	9700 ug/l	9500 ug/l	8100 ug/l	7700 ug/l	9800 ug/l	10700 ug/l	9700 ug/l	8000 ug/l	
Manganese	Dissolved	Lab	156 ug/l	143 ug/l	113 ug/l	116 ug/l	--	108 ug/l	238 ug/l	224 ug/l	217 ug/l	186 ug/l	137 ug/l	91.2 ug/l	86.4 ug/l	44.0 ug/l	26.7 ug/l	67.4 ug/l	99.7 ug/l	64.5 ug/l	13.9 ug/l	
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Mercury	Total	Lab	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.0009 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00056 ug/l	< 0.00050 ug/l	0.00057 ug/l	0.00072 ug/l	
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Molybdenum	Dissolved	Lab	0.94 ug/l	0.90 ug/l	0.96 ug/l	0.78 ug/l	--	3.59 ug/l	3.75 ug/l	3.67 ug/l	3.3 ug/l	3.54 ug/l	2.2 ug/l	2.3 ug/l	2.2 ug/l	2.5 ug/l	3.1 ug/l	4.1 ug/l	2.5 ug/l	1.4 ug/l	2.3 ug/l	
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nickel	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	1.92 ug/l	1.27 ug/l	0.95 ug/l	1.3 ug/l	0.76 ug/l	1.0 ug/l	0.70 ug/l	0.59 ug/l	0.63 ug/l	< 0.50 ug/l	0.88 ug/l	< 0.50 ug/l	0.51 ug/l	< 0.50 ug/l	
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Potassium	Total	Lab	1900 ug/l	2100 ug/l	2000 ug/l	2000 ug/l	--	1960 ug/l	2150 ug/l	1930 ug/l	2000 ug/l	1820 ug/l	1900 ug/l	1800 ug/l	1800 ug/l	1700 ug/l	1700 ug/l	2000 ug/l	2200 ug/l	1800 ug/l	1700 ug/l	
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l											

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			MW-6S	MW-6S	MW-7		MW-7	MW-7	MW-7	MW-7	MW-7		MW-7		MW-7		MW-7		MW-7
Date			1/7/2013	10/25/2013	11/9/2011		12/12/2011	1/24/2012	2/15/2012	3/7/2012	4/23/2012		5/30/2012		6/26/2012		7/30/2012		8/20/2012
Sample Type			FD	N	N	FD	N	N	N	N	N	FD	N	FD	N	FD	N	FD	N
	Fraction	Analysis Location																	
General Parameters																			
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	--	86.9 mg/l	36.5 mg/l	36.5 mg/l	39.2 mg/l	35.7 mg/l	35.2 mg/l	35.6 mg/l	39.0 mg/l	39.1 mg/l	35.7 mg/l	35.3 mg/l	31.6 mg/l	31.8 mg/l	33.7 mg/l	31.7 mg/l	32.9 * mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	2.0 mg/l	2.6 mg/l	2.6 mg/l	3.4 mg/l	2.5 mg/l	2.54 mg/l	2.7 b mg/l	2.1 mg/l	2.6 mg/l	2.1 mg/l	2.0 mg/l	2.2 mg/l	2.4 mg/l	1.5 mg/l	1.3 mg/l	1.6 mg/l
Carbon, total organic	NA	Lab	--	1.5 mg/l	2.2 mg/l	2.3 mg/l	2.4 mg/l	2.1 mg/l	1.79 mg/l	1.8 mg/l	2.6 mg/l	2.2 mg/l	1.6 mg/l	1.7 mg/l	2.1 mg/l	1.9 mg/l	1.6 mg/l	1.0 mg/l	1.3 mg/l
Chemical Oxygen Demand	NA	Lab	--	13.6 mg/l	11.4 mg/l	10.4 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	13.0 mg/l	< 10.0 h mg/l	10.0 mg/l	10.5 mg/l	10.6 mg/l	11.6 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l
Chloride	NA	Lab	--	< 1.0 mg/l	0.63 mg/l	0.63 mg/l	0.67 mg/l	0.79 mg/l	0.61 mg/l	0.58 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.70 mg/l	0.70 mg/l	0.85 mg/l	0.84 mg/l	0.95 mg/l	0.95 mg/l	0.94 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	0.01 mg/l	5.86 mg/l	--	4 mg/l	2.02 mg/l	9.64 mg/l	2.23 mg/l	2.1 mg/l	--	1.6 mg/l	--	1.62 mg/l	--	1.83 mg/l	--	1.29 mg/l
Fluoride	NA	Lab	--	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	--	94.1 mg/l	44 mg/l	43.2 mg/l	47.4 mg/l	39.6 mg/l	47.8 mg/l	40.5 mg/l	43.3 mg/l	43.5 mg/l	39.3 mg/l	39.9 mg/l	39.3 mg/l	38.9 mg/l	40.8 mg/l	40.8 mg/l	39.1 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	--	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.13 b mg/l	0.080 b mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.15 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	--	7.5 pH units	7.08 pH units	--	7.01 pH units	7.08 pH units	7.26 pH units	7.49 pH units	6.99 pH units	--	7.28 pH units	--	7.37 pH units	--	7.33 pH units	--	7.36 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	--	348 mV	155 mV	--	296 mV	292 mV	352 mV	419 mV	624 mV	--	274 mV	--	192 mV	--	204 mV	--	148 mV
Solids, total dissolved	NA	Lab	--	134 mg/l	110 mg/l	107 mg/l	72 mg/l	< 10 mg/l	72 mg/l	97 mg/l	89.0 mg/l	91.0 mg/l	75.0 mg/l	63.0 mg/l	65.0 mg/l	81.0 mg/l	50.0 h mg/l	62.0 h mg/l	104 mg/l
Specific Conductance @ 25oC	NA	Field	--	67.4 umhos/cm	96.9 umhos/cm	--	102.2 umhos/cm	89.8 umhos/cm	90.5 umhos/cm	90.3 umhos/cm	97.4 umhos/cm	--	48.1 umhos/cm	--	80.4 umhos/cm	--	80.6 umhos/cm	--	79.8 umhos/cm
Sulfate	NA	Lab	--	10.3 mg/l	9.89 mg/l	9.88 mg/l	9.54 mg/l	10.4 mg/l	9.98 mg/l	9.3 mg/l	7.8 mg/l	7.7 mg/l	9.7 mg/l	9.7 mg/l	10 mg/l	9.9 mg/l	10 mg/l	10.1 mg/l	9.5 mg/l
Temperature, degrees C	NA	Field	--	7.38 deg C	7.42 deg C	--	7.85 deg C	9.14 deg C	11.34 deg C	7.87 deg C	6.6 deg C	--	5.59 deg C	--	11.36 deg C	--	12.01 deg C	--	12.11 deg C
Turbidity	NA	Field	--	0.1 NTU	5.1 NTU	--	7.7 NTU	2.7 NTU	16.5 NTU	0 NTU	0 NTU	--	0.2 NTU	--	0 NTU	--	0.4 NTU	--	0 NTU
Metals																			
Aluminum	Dissolved	Lab	--	< 20.0 ug/l	63.5 ug/l	68.1 ug/l	< 25 ug/l	< 25 ug/l	< 25.0 ug/l	< 25 ug/l	24.1 ug/l	25.9 ug/l	< 20.0 ug/l	< 20.0 ug/l	42.9 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	--	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	0.86 ug/l	1.2 ug/l	1.23 ug/l	0.54 ug/l	0.58 ug/l	0.67 ug/l	0.63 ug/l	< 0.50 ug/l	0.51 ug/l	0.84 ug/l	0.98 ug/l	0.52 ug/l	1.2 ug/l	< 0.50 ug/l	0.62 ug/l	0.98 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	15.9 ug/l	16 ug/l	15.8 ug/l	15.7 ug/l	11.4 ug/l	24.8 ug/l	9.6 ug/l	10.7 ug/l	10.9 ug/l	8.5 ug/l	8.7 ug/l	7.8 ug/l	7.7 ug/l	7.5 ug/l	7.4 ug/l	6.7 ug/l
Beryllium	Total	Lab	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	--	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	--	19400 ug/l	9760 ug/l	9480 ug/l	10200 ug/l	8080 ug/l	9800 ug/l	8010 ug/l	8800 ug/l	8900 ug/l	7700 ug/l	7900 ug/l	7800 ug/l	7700 ug/l	8100 ug/l	8000 ug/l	7600 ug/l
Chromium	Dissolved	Lab	--	< 1.0 ug/l	< 1.5 ug/l	< 1.5 ug/l	1.55 ug/l	< 1 ug/l	< 1.0 ug/l	1.83 b ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.5 ug/l	< 1.0 ug/l	< 1.0 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	< 0.20 ug/l	0.96 ug/l	1.02 ug/l	0.72 ug/l	0.32 ug/l	0.20 j ug/l	< 0.2 ug/l	0.43 ug/l	0.42 ug/l	0.26 ug/l	0.26 ug/l	0.24 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																			

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			W-8D	MW-8D		MW-8D		MW-8D	MW-8D		MW-8D	MW-8D	MW-8S		MW-8S		MW-8S	MW-8S		MW-8S
Date			8/2012	7/20/2012		8/16/2012		10/8/2012	4/18/2013		7/29/2013	10/24/2013	11/7/2011		12/13/2011		1/9/2012	2/13/2012		3/16/2012
Sample Type			FD	N	FD	N	FD	N	N	FD	N	N	N	FD	N	FD	N	N	FD	N
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	124 mg/l	120 mg/l	116 mg/l	120 mg/l	123 mg/l	122 mg/l	127 mg/l	--	122 mg/l	121 mg/l	69.3 mg/l	69.1 mg/l	76.7 mg/l	76.8 mg/l	86.5 mg/l	74.2 mg/l	73.2 mg/l	76.2 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	4.0 mg/l	3.8 mg/l	4.4 mg/l	5.8 mg/l	4.7 mg/l	3.8 mg/l	3.7 mg/l	--	3.0 mg/l	3.3 mg/l	2.0 mg/l	2.5 mg/l	2.6 mg/l	2.4 mg/l	2.2 mg/l	2.72 b mg/l	2.80 b mg/l	2.5 mg/l
Carbon, total organic	NA	Lab	3.5 mg/l	4.0 mg/l	3.6 mg/l	4.5 mg/l	3.4 mg/l	3.4 mg/l	3.3 mg/l	--	3.6 mg/l	3.2 mg/l	1.8 mg/l	2.1 mg/l	2.4 mg/l	1.9 mg/l	1.63 b mg/l	1.72 b mg/l	2.1 mg/l	2.1 mg/l
Chemical Oxygen Demand	NA	Lab	13.2 mg/l	< 10.0 mg/l	< 10.0 mg/l	15.8 mg/l	11.9 mg/l	< 10.0 mg/l	17.5 mg/l	--	17.2 mg/l	24.0 mg/l	12.6 mg/l	11.6 mg/l	10.5 mg/l	12.2 mg/l	< 10 mg/l	< 10 mg/l	10.8 mg/l	< 10 mg/l
Chloride	NA	Lab	< 0.50 mg/l	0.54 mg/l	0.54 mg/l	0.61 mg/l	0.61 mg/l	0.81 mg/l	< 0.50 mg/l	--	0.54 mg/l	< 1.0 mg/l	0.77 mg/l	0.77 mg/l	0.9 mg/l	0.9 mg/l	0.86 mg/l	0.58 mg/l	0.58 mg/l	0.61 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	1.37 mg/l	--	1.76 mg/l	--	3.21 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	2.78 mg/l	--	6.48 mg/l	--	3.55 mg/l	3.78 mg/l	--	2.97 mg/l
Fluoride	NA	Lab	0.15 mg/l	0.13 mg/l	0.13 mg/l	0.16 mg/l	0.16 mg/l	0.15 mg/l	0.14 mg/l	--	0.14 mg/l	0.15 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.14 mg/l	0.14 mg/l	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.11 mg/l
Hardness, total, as CaCO3	NA	Lab	127 mg/l	127 mg/l	128 mg/l	124 mg/l	125 mg/l	127 mg/l	135 mg/l	--	123 mg/l	128 mg/l	77.5 mg/l	78.7 mg/l	87.2 mg/l	87 mg/l	78.4 mg/l	80.2 mg/l	75.2 mg/l	79.1 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.16 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	0.23 mg/l	0.22 mg/l	0.18 mg/l	0.22 mg/l	0.22 mg/l	0.26 mg/l	0.25 mg/l	0.22 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	0.13 mg/l	0.28 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	--	7.26 pH units	--	7.21 pH units	--	7.17 pH units	7.5 pH units	--	7.46 pH units	7.54 pH units	6.10 pH units	--	6.77 pH units	--	6.7 pH units	6.71 pH units	--	6.46 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	--	82 mV	--	178 mV	--	-103 mV	137 mV	--	73 mV	-105 mV	712 mV	--	357 mV	--	240 mV	336 mV	--	255 mV
Solids, total dissolved	NA	Lab	174 mg/l	177 mg/l	178 mg/l	176 mg/l	179 mg/l	184 mg/l	183 mg/l	--	189 mg/l	186 mg/l	153 mg/l	142 mg/l	133 mg/l	145 mg/l	99 mg/l	134 mg/l	132 mg/l	141 mg/l
Specific Conductance @ 25oC	NA	Field	--	244.3 umhos/cm	--	249.3 umhos/cm	--	248.2 umhos/cm	240.6 umhos/cm	--	243.1 umhos/cm	48.9 umhos/cm	166 umhos/cm	--	196.7 umhos/cm	--	178.8 umhos/cm	161 umhos/cm	--	65.7 umhos/cm
Sulfate	NA	Lab	6.5 mg/l	6.9 mg/l	6.9 mg/l	6.8 mg/l	6.8 mg/l	6.4 mg/l	6.6 mg/l	--	6.7 mg/l	6.9 mg/l	11.7 mg/l	11.7 mg/l	19.6 mg/l	19.6 mg/l	9.91 mg/l	7.99 mg/l	7.99 mg/l	8.74 mg/l
Temperature, degrees C	NA	Field	--	9.49 deg C	--	9.16 deg C	--	6.82 deg C	6.02 deg C	--	10.33 deg C	6.54 deg C	7.23 deg C	--	9.49 deg C	--	6.07 deg C	4.93 deg C	--	10.03 deg C
Turbidity	NA	Field	--	0 NTU	--	0 NTU	--	0 NTU	0.9 NTU	--	0 NTU	0 NTU	10.3 NTU	--	1.2 NTU	--	1.5 NTU	0 NTU	--	21.1 NTU
Metals																				
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	83.6 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25.0 ug/l	< 25.0 ug/l	< 20 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	2.3 ug/l	2.2 ug/l	2.2 ug/l	2.3 ug/l	2.1 ug/l	2.6 ug/l	2.4 ug/l	--	2.4 ug/l	2.3 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	14.3 ug/l	13.4 ug/l	13.6 ug/l	12.6 ug/l	12.4 ug/l	11.7 ug/l	10.1 ug/l	--	10.2 ug/l	10.5 ug/l	20.3 ug/l	23.6 ug/l	21.3 ug/l	21.5 ug/l	19.7 ug/l	18.3 ug/l	17.4 ug/l	21.7 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	< 50.0 ug/l	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	31100 ug/l	30900 ug/l	31200 ug/l	30100 ug/l	30300 ug/l	31400 ug/l	32600 ug/l	--	30000 ug/l	31000 ug/l	17500 ug/l	17800 ug/l	19800 ug/l	19600 ug/l	17400 ug/l	18500 ug/l	17100 ug/l	17600 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1.5 ug/l	< 1.5 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	0.21 ug/l	0.20 ug/l	0.21 ug/l	&														

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-8S 4/27/2012	MW-8S 5/24/2012	MW-8S 6/18/2012	MW-8S 7/20/2012	MW-8S 10/8/2012		MW-8S 8/16/2012	MW-8S 4/18/2013	MW-8S 7/29/2013		MW-8S 10/24/2013		MW-9 12/20/2011	MW-9 1/23/2012	MW-9 2/2/2012		MW-9 3/19/2012	
			N	N	N	N	N	FD	N	N	N	FD	N	FD	N	N	N	FD	N	FD
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	120 mg/l	99.2 mg/l	116 mg/l	98.6 mg/l	77.1 mg/l	84.2 mg/l	93.5 mg/l	263 mg/l	89.6 mg/l	--	75.1 mg/l	77.4 mg/l	50.4 mg/l	55.8 mg/l	56.7 mg/l	56.5 mg/l	56.1 mg/l	54.9 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	3.9 mg/l	2.9 mg/l	2.6 mg/l	2.6 mg/l	1.7 mg/l	1.6 mg/l	2.3 mg/l	1.9 mg/l	1.8 mg/l	--	2.6 mg/l	2.2 mg/l	24.3 mg/l	25.8 mg/l	22.9 mg/l	22.8 mg/l	22.7 mg/l	22.4 mg/l
Carbon, total organic	NA	Lab	3.0 mg/l	2.5 mg/l	2.1 mg/l	1.8 mg/l	1.4 mg/l	1.4 mg/l	1.6 mg/l	2.2 mg/l	2.3 mg/l	--	2.2 mg/l	2.3 mg/l	23.2 mg/l	25.1 mg/l	22.6 mg/l	22.7 mg/l	22.9 mg/l	22.6 mg/l
Chemical Oxygen Demand	NA	Lab	< 10.0 mg/l	12.1 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	10.3 mg/l	12.9 mg/l	--	16.6 mg/l	15.9 mg/l	74.5 mg/l	65.2 mg/l	59.8 mg/l	64 mg/l	72 mg/l	67 mg/l
Chloride	NA	Lab	< 0.50 mg/l	< 0.50 mg/l	0.54 mg/l	0.64 mg/l	0.79 mg/l	0.78 mg/l	0.72 mg/l	< 0.50 mg/l	0.61 mg/l	--	< 1.0 mg/l	< 1.0 mg/l	0.9 mg/l	0.72 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	1.87 mg/l	1.61 mg/l	1.81 mg/l	2.51 mg/l	3.5 mg/l	--	2.67 mg/l	0.58 mg/l	1.11 mg/l	--	0.65 mg/l	--	1.51 mg/l	2.58 mg/l	--	--	1.99 mg/l	--
Fluoride	NA	Lab	0.25 mg/l	0.20 mg/l	0.16 mg/l	0.11 mg/l	0.10 mg/l	0.10 mg/l	0.12 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	0.15 mg/l	0.15 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Hardness, total, as CaCO3	NA	Lab	89.4 mg/l	94.8 mg/l	94.4 mg/l	88.3 mg/l	90.1 mg/l	89.0 mg/l	86.9 mg/l	56.2 mg/l	76.7 mg/l	--	41.6 mg/l	44.6 mg/l	58.1 mg/l	55.5 mg/l	58.4 mg/l	57.8 mg/l	56.8 mg/l	56.8 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	0.11 mg/l	0.12 mg/l	0.12 mg/l	0.33 mg/l	0.34 mg/l	0.22 mg/l	0.12 mg/l	0.17 mg/l	--	0.12 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.11 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	0.060 b mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.25 mg/l	0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	0.11 mg/l	< 0.1 mg/l	0.14 mg/l	0.11 mg/l	0.14 mg/l	0.19 mg/l	0.14 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	10.36 pH units	10.41 pH units	9.47 pH units	8.33 pH units	7.13 pH units	--	7.43 pH units	10.33 pH units	7.8 pH units	--	8.65 pH units	--	6.37 pH units	6.49 pH units	--	--	6.51 pH units	--
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	308 mV	112 mV	163 mV	195 mV	82 mV	--	280 mV	234 mV	292 mV	--	292 mV	--	141 mV	201 mV	--	--	134 mV	--
Solids, total dissolved	NA	Lab	179 mg/l	161 mg/l	172 mg/l	143 mg/l	152 mg/l	152 mg/l	136 mg/l	141 mg/l	148 mg/l	--	134 mg/l	132 mg/l	183 mg/l	60 mg/l	75 * mg/l	156 * mg/l	121 mg/l	108 mg/l
Specific Conductance @ 25oC	NA	Field	209.3 umhos/cm	212.2 umhos/cm	193.7 umhos/cm	202.7 umhos/cm	89.1 umhos/cm	--	199.1 umhos/cm	190.8 umhos/cm	190.4 umhos/cm	--	159.5 umhos/cm	--	143.7 umhos/cm	143.2 umhos/cm	--	--	142.9 umhos/cm	--
Sulfate	NA	Lab	9.9 mg/l	9.1 mg/l	8.0 mg/l	7.8 mg/l	7.9 mg/l	7.9 mg/l	7.9 mg/l	6.6 mg/l	7.3 mg/l	--	6.9 mg/l	6.9 mg/l	6.98 mg/l	1.28 mg/l	1.44 mg/l	1.45 mg/l	1.97 mg/l	2.03 mg/l
Temperature, degrees C	NA	Field	8.75 deg C	7.86 deg C	11.52 deg C	12.45 deg C	9.41 deg C	--	11 deg C	3.48 deg C	9.72 deg C	--	7.67 deg C	--	8.61 deg C	6.36 deg C	--	--	7.2 deg C	--
Turbidity	NA	Field	12 NTU	0 NTU	0 NTU	0 NTU	0 NTU	--	0 NTU	4.9 NTU	0 NTU	--	0 NTU	--	31.1 NTU	1.9 NTU	--	--	0 NTU	--
Metals																				
Aluminum	Dissolved	Lab	59.8 ug/l	128 ug/l	112 ug/l	53.8 ug/l	< 20.0 ug/l	< 20.0 ug/l	52.4 ug/l	121 ug/l	27.7 ug/l	--	36.7 ug/l	32.6 ug/l	617 ug/l	175 ug/l	145 ug/l	164 ug/l	110 ug/l	111 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	4.0 ug/l	3.5 ug/l	2.2 ug/l	1.4 ug/l	1.1 ug/l	1.1 ug/l	1.3 ug/l	3.7 ug/l	1.9 ug/l	--	3.6 ug/l	3.0 ug/l	3.34 ug/l	3.94 ug/l	3.99 ug/l	3.96 ug/l	5.09 ug/l	5.14 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	18.1 ug/l	15.9 ug/l	14.2 ug/l	11.7 ug/l	11.4 ug/l	11.0 ug/l	10.7 ug/l	11.0 ug/l	11.0 ug/l	--	7.0 ug/l	7.1 ug/l	70.3 ug/l	29 ug/l	28.2 ug/l	28 ug/l	26.4 ug/l	26.5 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	0.23 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	< 50.0 ug/l	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	33400 ug/l	36000 ug/l	31800 ug/l	26900 ug/l	25100 ug/l	24900 ug/l	25300 ug/l	21100 ug/l	22000 ug/l	--	12400 ug/l	13100 ug/l	13700 ug/l	11900 ug/l	12400 ug/l	12300 ug/l	12200 ug/l	12200 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	1.5 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	1.16 ug/l	< 1 ug/l	< 1 ug/l	1.14 ug/l	1.1 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	4.22 ug/l	3.71 ug/l	3.54 ug/l	3.51 ug/l	3.52 ug/l	3.59 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	2.9 ug/l	2.9 ug/l	3.0 ug/l	1.6 ug/l	1.1 ug/l	1.2 ug/l	1.3 ug/l	2.6 ug/l	1.2 ug/l	--	3.7 ug/l	2.8 ug/l	16 ug/l	8.44 ug/l	6.41 ug/l	6.44 ug/l	2.84 ug/l	2.9 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	6520 ug/l	10700 ug/l	10600 ug/l	10400 ug/l	11900 ug/l	12000 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	3.07 ug/l	0.52 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Magnesium	Total	Lab	1400 ug/l	1200 ug/l	3700 ug/l	5200 ug/l	6600 ug/l	6500 ug/l	5700 ug/l	890 ug/l	6600 ug/l	--	2600 ug/l	2900 ug/l	5800 ug/l	6260 ug/l	6600 ug/l	6580 ug/l	6400 ug/l	6400 ug/l
Manganese	Dissolved	Lab	12.6 ug/l	3.6 ug/l	26.6 ug/l	70.6 ug/l	35.1 ug/l	35.0 ug/l	44.8 ug/l	1.2 ug/l	4.3 ug/l	--	3.2 ug/l	3.4 ug/l	928 ug/l	1220 ug/l	1310 ug/l	1300 ug/l	1380 ug/l	1400 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	0.0045 ug/l	0.0029 ug/l	0.0026 ug/l	0.0019 ug/l	0.00053 ug/l	0.00056 ug/l	0.0011 ug/l	0.0041 ug/l	0.0016 ug/l	0.0016 ug/l	0.0035 ug/l	0.0034 ug/l	0.0137 ug/l	0.0030 ug/l	0.0033 ug/l	0.0033 ug/l	0.0016 ug/l	0.0015 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	11.1 ug/l	9.6 ug/l	6.1 ug/l	2.9 ug/l	1.7 ug/l	1.7 ug/l	2.2 ug/l	5.0 ug/l	1.6 ug/l	--	4.0 ug/l	3.7 ug/l	2.3 ug/l	1.99 ug/l	2.1 ug/l	2.14 ug/l	1.55 ug/l	1.55 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	0.73 ug/l	0.85 ug/l	0.75 ug/l	0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.88 ug/l	0.65 ug/l	< 0.50 ug/l	--	1.3 ug/l	0.82 ug/l	4.6 ug/l	2.53 ug/l	2.16 ug/l	2.12 ug/l	1.8 ug/l	1.82 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	3000 ug/l	3100 ug/l	2600 ug/l	2100 ug/l	1700 ug/l	1700 ug/l	2200 ug/l	2600 ug/l	1800 ug/l	--	1600 ug/l	1600 ug/l	1960 ug/l	1570 ug/l	1560 ug/l	1570 ug/l	1510 ug/l	1520 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	23100 ug/l	20900 ug/l	15500 ug/l	9600 ug/l	5900 ug/l	5800 ug/l	8900 ug/l	22500 ug/l	9400 ug/l	--	20000 ug/l	19300 ug/l	2600 ug/l	< 2000 ug/l	< 2000 ug/l	< 2		

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			MW-9		MW-9		MW-9		MW-9		MW-9		MW-9		MW-9		MW-9		MW-10D	
Date			4/20/2012		5/16/2012		6/22/2012		7/17/2012		8/15/2012		10/30/2012		5/8/2013		7/25/2013		10/21/2013	
Sample Type			N	FD	N	FD	N	FD	N	FD	N	FD	N	N	N	FD	N	N	FD	
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, total	NA	Lab	37.4 mg/l	36.9 mg/l	38.3 mg/l	37.4 mg/l	25.9 mg/l	26.6 mg/l	26.7 * mg/l	51.3 * mg/l	52.8 mg/l	55.5 mg/l	55.9 mg/l	26.1 mg/l	26.3 mg/l	--	44.6 mg/l	48.6 mg/l	48.4 mg/l	
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, dissolved organic	NA	Lab	12.6 mg/l	12.6 mg/l	13.1 mg/l	13.0 mg/l	4.9 mg/l	5.0 mg/l	6.6 mg/l	6.3 mg/l	12.1 mg/l	11.0 mg/l	23.5 mg/l	4.6 mg/l	4.0 mg/l	--	26.6 mg/l	4.0 mg/l	4.1 mg/l	
Carbon, total organic	NA	Lab	12.6 mg/l	12.6 mg/l	12.8 mg/l	12.7 mg/l	4.3 mg/l	4.4 mg/l	6.3 mg/l	6.1 mg/l	10.9 mg/l	11.1 mg/l	22.2 mg/l	3.8 mg/l	3.4 mg/l	--	23.9 mg/l	3.9 mg/l	3.5 mg/l	
Chemical Oxygen Demand	NA	Lab	43.8 mg/l	43.6 mg/l	45.4 mg/l	49.5 mg/l	< 10.0 mg/l	13.4 mg/l	16.3 mg/l	26.6 mg/l	38.4 mg/l	41.7 mg/l	81.0 mg/l	17.6 mg/l	15.3 mg/l	--	84.2 mg/l	12.3 mg/l	17.7 mg/l	
Chloride	NA	Lab	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.52 mg/l	0.73 mg/l	0.69 mg/l	0.70 mg/l	0.54 mg/l	0.62 mg/l	0.64 mg/l	--	< 1.0 mg/l	0.74 mg/l	0.73 mg/l	
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dissolved oxygen	NA	Field	1.63 mg/l	--	1.93 mg/l	--	1.07 mg/l	--	1.33 mg/l	--	1.39 mg/l	--	1.71 mg/l	0.11 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	6.97 mg/l	--	
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	0.1 mg/l	0.1 mg/l	
Hardness, total, as CaCO3	NA	Lab	41.5 mg/l	41.8 mg/l	41.1 mg/l	40.0 mg/l	25.9 mg/l	25.6 mg/l	29.1 mg/l	28.9 mg/l	40.4 mg/l	38.9 mg/l	53.7 mg/l	26.9 mg/l	27.8 mg/l	--	52.3 mg/l	60.8 mg/l	60.6 mg/l	
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.44 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	1.6 mg/l	1.59 mg/l	
Nitrogen, ammonia (NH3), as N	NA	Lab	0.31 mg/l	0.23 mg/l	0.17 mg/l	0.19 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.12 mg/l	0.14 mg/l	0.17 mg/l	0.17 mg/l	0.26 mg/l	< 0.10 mg/l	0.11 mg/l	--	0.27 mg/l	< 0.1 mg/l	< 0.1 mg/l	
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
pH	NA	Field	6.96 pH units	--	6.81 pH units	--	6.3 pH units	--	6.24 pH units	--	6.41 pH units	--	6.67 pH units	6.68 pH units	6.35 pH units	--	6.61 pH units	7.22 pH units	--	
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Redox (oxidation potential)	NA	Field	303 mV	--	75 mV	--	198 mV	--	224 mV	--	-7 mV	--	3 mV	179 mV	185 mV	--	83 mV	202 mV	--	
Solids, total dissolved	NA	Lab	96.0 mg/l	103 mg/l	139 mg/l	136 mg/l	109 mg/l	107 mg/l	112 mg/l	124 mg/l	120 mg/l	126 mg/l	156 mg/l	82.0 mg/l	84.0 mg/l	--	171 mg/l	102 mg/l	114 mg/l	
Specific Conductance @ 25oC	NA	Field	118.1 umhos/cm	--	77.9 umhos/cm	--	71.1 umhos/cm	--	78.2 umhos/cm	--	100.1 umhos/cm	--	151.9 umhos/cm	67 umhos/cm	76 umhos/cm	--	152 umhos/cm	145.1 umhos/cm	--	
Sulfate	NA	Lab	6.7 mg/l	6.8 mg/l	4.9 mg/l	5.0 mg/l	4.6 mg/l	4.7 mg/l	5.1 mg/l	5.3 mg/l	4.7 mg/l	4.7 mg/l	5.7 mg/l	6.1 mg/l	5.4 mg/l	--	6.2 mg/l	13 mg/l	13 mg/l	
Temperature, degrees C	NA	Field	4.36 deg C	--	5.24 deg C	--	9.14 deg C	--	11.75 deg C	--	10.97 deg C	--	6.81 deg C	4.07 deg C	9.4 deg C	--	7.85 deg C	11.51 deg C	--	
Turbidity	NA	Field	0 NTU	--	0 NTU	--	0 NTU	--	0.1 NTU	--	1.4 NTU	--	0 NTU	0.1 NTU	6.7 NTU	--	1.7 NTU	2.6 NTU	--	
Metals																				
Aluminum	Dissolved	Lab	65.0 ug/l	65.2 ug/l	73.1 ug/l	74.8 ug/l	61.7 ug/l	54.9 ug/l	121 * ug/l	70.7 * ug/l	167 b ug/l	146 b ug/l	115 ug/l	42.9 ug/l	132 ug/l	--	129 ug/l	< 25 ug/l	< 25 ug/l	
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Arsenic	Dissolved	Lab	5.6 ug/l	5.7 ug/l	5.2 ug/l	5.1 ug/l	3.2 ug/l	3.4 ug/l	4.7 ug/l	4.3 ug/l	5.6 ug/l	5.9 ug/l	6.7 ug/l	2.5 ug/l	2.5 ug/l	--	6.4 ug/l	< 0.5 ug/l	< 0.5 ug/l	
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Barium	Total	Lab	18.6 ug/l	18.6 ug/l	17.8 ug/l	18.0 ug/l	12.4 ug/l	12.2 ug/l	16.9 ug/l	16.6 ug/l	21.2 ug/l	20.6 ug/l	23.3 ug/l	10.1 ug/l	13.4 ug/l	--	22.4 ug/l	22.7 ug/l	22.6 ug/l	
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Calcium	Total	Lab	8300 ug/l	8400 ug/l	8200 ug/l	8000 ug/l	5100 ug/l	5000 ug/l	5800 ug/l	5700 ug/l	8000 ug/l	7700 ug/l	11100 ug/l	5100 ug/l	5300 ug/l	--	10500 ug/l	15500 ug/l	15400 ug/l	
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.5 b ug/l	2.0 b ug/l	1.1 b ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	1.29 ug/l	1.22 ug/l	
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cobalt	Dissolved	Lab	1.7 ug/l	1.8 ug/l	1.7 ug/l	1.7 ug/l	1.3 ug/l	1.3 ug/l	1.5 ug/l	1.5 ug/l	1.6 ug/l	1.6 ug/l	1.9 ug/l	1.2 ug/l	1.4 ug/l	--	4.5 ug/l	1.12 ug/l	0.98 ug/l	
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Copper	Dissolved	Lab	4.7 ug/l	2.7 ug/l	3.8 ug/l	3.6 ug/l	2.0 ug/l	1.9 ug/l	3.7 * ug/l	2.3 * ug/l	4.6 ug/l	3.8 ug/l	2.4 ug/l	1.7 ug/l	3.3 ug/l	--				

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-10D 1/16/2012	MW-10D 2/1/2012	MW-10D 3/2/2012	MW-10D 4/17/2012	MW-10D 5/9/2012		MW-10D 6/12/2012	MW-10D 7/12/2012		MW-10D 8/8/2012		MW-10D 10/23/2012		MW-10D 4/22/2013	
			N	N	N	N	N	FD	N	N	FD	N	FD	N	FD	N	FD
	Fraction	Analysis Location															
General Parameters																	
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	47.2 mg/l	46.8 mg/l	46.6 mg/l	48.5 mg/l	49.5 mg/l	49.4 mg/l	48.4 mg/l	41.6 mg/l	42.3 mg/l	48.9 mg/l	49.3 mg/l	39.8 mg/l	41.4 mg/l	41.3 mg/l	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	4.1 mg/l	2.29 mg/l	2.41 mg/l	2.4 mg/l	2.6 mg/l	2.5 mg/l	2.7 b mg/l	1.7 mg/l	1.8 mg/l	1.2 mg/l	1.2 mg/l	1.5 mg/l	1.4 mg/l	1.6 mg/l	--
Carbon, total organic	NA	Lab	2.0 mg/l	1.96 mg/l	1.76 mg/l	1.9 mg/l	2.2 mg/l	1.8 mg/l	1.5 mg/l	1.4 mg/l	1.4 mg/l	< 1.0 mg/l	< 1.0 mg/l	1.4 mg/l	1.4 mg/l	1.1 mg/l	--
Chemical Oxygen Demand	NA	Lab	< 10 mg/l	< 10 mg/l	15.4 mg/l	23.2 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	13.1 mg/l	--
Chloride	NA	Lab	0.76 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.52 mg/l	0.52 mg/l	0.64 mg/l	0.62 mg/l	< 0.50 mg/l	0.50 mg/l	< 0.50 mg/l	--
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	1.52 mg/l	2.48 mg/l	1.78 mg/l	1.48 mg/l	1.74 mg/l	--	1.59 mg/l	1.5 mg/l	--	1.67 mg/l	--	2.09 mg/l	--	2.03 mg/l	--
Fluoride	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.11 mg/l	0.11 mg/l	< 0.10 mg/l	--
Hardness, total, as CaCO3	NA	Lab	56.5 mg/l	55.1 mg/l	55.2 mg/l	55.0 mg/l	59.3 mg/l	58.6 mg/l	58.4 mg/l	49.9 mg/l	51.0 mg/l	49.7 mg/l	48.6 mg/l	49.6 mg/l	48.9 mg/l	46.5 mg/l	--
Nitrate + Nitrite, as N	NA	Lab	1.32 mg/l	1.33 mg/l	1.32 mg/l	1.2 mg/l	0.91 mg/l	0.91 mg/l	1.2 mg/l	1.6 mg/l	1.6 mg/l	2.4 mg/l	2.4 mg/l	2.2 mg/l	2.1 mg/l	1.8 mg/l	--
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.060 mg/l	< 0.050 mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.19 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.87 pH units	6.79 pH units	6.72 pH units	6.87 pH units	6.77 pH units	--	6.87 pH units	6.44 pH units	--	6.14 pH units	--	6.69 pH units	--	6.67 pH units	--
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	92 mV	170 mV	258 mV	-67 mV	132 mV	--	203 mV	219 mV	--	131 mV	--	159 mV	--	401 mV	--
Solids, total dissolved	NA	Lab	111 mg/l	30 mg/l	123 h mg/l	131 mg/l	110 mg/l	100 mg/l	124 mg/l	128 mg/l	122 mg/l	114 mg/l	106 mg/l	110 mg/l	99.0 mg/l	116 mg/l	--
Specific Conductance @ 25oC	NA	Field	135.4 umhos/cm	127 umhos/cm	134.7 umhos/cm	129.7 umhos/cm	99.1 umhos/cm	--	98 umhos/cm	123.5 umhos/cm	--	22.2 umhos/cr	--	123.5 umhos/cm	--	110.6 umhos/cm	--
Sulfate	NA	Lab	13.4 mg/l	12.2 mg/l	10.7 mg/l	11.2 mg/l	12.4 mg/l	12.5 mg/l	12.4 mg/l	12.1 mg/l	12.1 mg/l	11.5 mg/l	11.5 mg/l	11.2 mg/l	11.2 mg/l	10.8 mg/l	--
Temperature, degrees C	NA	Field	8.48 deg C	8.33 deg C	8.51 deg C	6.85 deg C	10.16 deg C	--	12.01 deg C	12.89 deg C	--	11.35 deg C	--	7.25 deg C	--	8.79 deg C	--
Turbidity	NA	Field	0 NTU	7.1 NTU	0 NTU	0 NTU	1.7 NTU	--	0.4 NTU	0 NTU	--	0 NTU	--	0.8 NTU	--	0.1 NTU	--
Metals																	
Aluminum	Dissolved	Lab	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	0.51 ug/l	0.6 ug/l	0.82 ug/l	0.70 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.53 ug/l	0.74 ug/l	0.55 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.54 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	22.2 ug/l	19.4 ug/l	18.9 ug/l	18.7 ug/l	19.7 ug/l	19.4 ug/l	18.7 ug/l	17.7 ug/l	18.3 ug/l	17.7 ug/l	18.2 ug/l	15.5 ug/l	15.2 ug/l	13.3 ug/l	--
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 100 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--
Cadmium	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	13800 ug/l	13200 ug/l	13500 ug/l	13200 ug/l	14000 ug/l	13800 ug/l	13800 ug/l	12000 ug/l	12300 ug/l	12100 ug/l	11900 ug/l	11900 ug/l	11700 ug/l	10500 ug/l	--
Chromium	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	1.1 ug/l	1.1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.5 b ug/l	1.3 b ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	0.97 ug/l	1.08 ug/l	0.93 ug/l	0.70 ug/l	0.76 ug/l	0.75 ug/l	0.60 ug/l	1.2 ug/l	1.2 ug/l	1.4 ug/l	1.5 ug/l	0.82 ug/l	0.79 ug/l	0.71 ug/l	--
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	0.99 ug/l	< 0.7 ug/l	< 0.7 ug/l	< 0.50 ug/l	1.2 ug/l	0.57 ug/l	0.67 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.50 ug/l	0.52 ug/l	0.74 ug/l	0.84 ug/l	1.0 ug/l	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	252 ug/l	398 ug/l	753 ug/l	729 ug/l	864 ug/l	873 ug/l	874 ug/l	771 ug/l	760 ug/l	667 ug/l	698 ug/l	729 ug/l	763 ug/l	303 ug/l	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Magnesium	Total	Lab	5360 ug/l	5380 ug/l	5220 ug/l	5400 ug/l	5900 ug/l	5900 ug/l	5800 ug/l	4800 ug/l	5000 ug/l	4700 ug/l	5800 ug/l	4800 ug/l	4800 ug/l	4900 ug/l	--
Manganese	Dissolved	Lab	235 ug/l	282 ug/l	333 ug/l	328 ug/l	345 ug/l	362 ug/l	306 ug/l	299 ug/l	294 ug/l	281 ug/l	296 ug/l	275 ug/l	268 ug/l	192 ug/l	--
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	0.0006 ug/l	< 0.0005 ug/l	0.0011 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00056 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	3.68 ug/l	3.16 ug/l	3.93 ug/l	3.9 ug/l	4.2 ug/l	4.2 ug/l	3.3 ug/l	4.2 ug/l	4.2 ug/l	4.2 ug/l	4.4 ug/l	3.7 ug/l	3.7 ug/l	3.2 ug/l	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	1.35 ug/l	1.35 ug/l	1.14 ug/l	0.95 ug/l	1.1 ug/l	1.2 ug/l	0.84 ug/l	1.4 ug/l	1.3 ug/l	2.3 ug/l	2.2 ug/l	1.4 ug/l	1.8 ug/l	1.5 ug/l	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1890 ug/l	1670 ug/l	1750 ug/l	1800 ug/l	1800 ug/l	1800 ug/l	1800 ug/l	1600 ug/l	1700 ug/l	1500 ug/l	1500 ug/l	1500 ug/l	1500 ug/l	1500 ug/l	--
Selenium	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	4460 ug/l	4250 ug/l	4300 ug/l	4500 ug/l	4500 ug/l	4500 ug/l	4100 ug/l	4500 ug/l	4600 ug/l	4400 ug/l	4300 ug/l	4600 ug/l	4600 ug/l	4500 ug/l	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 10 ug/l	< 10 ug/l	< 5 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	--
Zinc	Dissolved	Lab	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date			MW-10D 7/22/2013		MW-10D 10/28/2013	MW-10S 12/19/2011	MW-10S 1/4/2012	MW-10S 6/26/2012	MW-10S 7/12/2012	MW-10S 8/8/2012	MW-10S 10/23/2012	MW-10S 5/15/2013	MW-10S 7/22/2013	MW-10S 10/28/2013		MW 12/20
Sample Type			N	FD	N	N	N	N	N	N	N	N	N	N	FD	N
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	34.4 mg/l	--	32.9 mg/l	69.5 mg/l	49.9 mg/l	< 10.0 mg/l	13.3 mg/l	14.6 mg/l	14.2 mg/l	15.5 mg/l	12.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	58.8 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	1.7 mg/l	--	1.4 mg/l	44.6 mg/l	8.5 mg/l	5.3 mg/l	4.7 mg/l	3.0 mg/l	2.9 mg/l	3.9 mg/l	4.3 mg/l	2.4 mg/l	2.1 mg/l	3.4 mg/l
Carbon, total organic	NA	Lab	1.4 mg/l	--	1.2 mg/l	40.2 mg/l	7.7 mg/l	5.1 mg/l	4.2 mg/l	2.5 mg/l	2.7 mg/l	3.7 mg/l	4.2 mg/l	2.0 mg/l	2.1 mg/l	2.0 mg/l
Chemical Oxygen Demand	NA	Lab	< 10.0 mg/l	--	11.7 mg/l	133 mg/l	25.1 mg/l	29.2 mg/l	< 10.0 mg/l	< 10.0 mg/l	15.8 mg/l	16.9 mg/l	14.0 mg/l	16.0 mg/l	17.2 mg/l	< 10 mg/l
Chloride	NA	Lab	< 0.50 mg/l	--	< 1.0 mg/l	9.33 mg/l	3.68 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 1.0 mg/l	< 1.0 mg/l	1.02 mg/l
Cyanide	--	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	0.94 mg/l	--	1.91 mg/l	11.3 mg/l	11.23 mg/l	8.44 mg/l	5.7 mg/l	8.79 mg/l	9.36 mg/l	7.95 mg/l	5.66 mg/l	10.26 mg/l	--	4.57 mg/l
Fluoride	NA	Lab	< 0.10 mg/l	--	< 0.10 mg/l	0.25 mg/l	0.11 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l
Hardness, total, as CaCO3	NA	Lab	47.3 mg/l	--	40.0 mg/l	136 mg/l	65.1 mg/l	30.8 mg/l	16.1 mg/l	16.1 mg/l	21.0 mg/l	15.2 mg/l	17.9 mg/l	17.5 mg/l	17.1 mg/l	67.5 mg/l
Nitrate + Nitrite, as N	NA	Lab	2.2 mg/l	--	1.7 mg/l	2.66 mg/l	1 mg/l	1.0 mg/l	0.54 mg/l	1.3 mg/l	0.77 mg/l	1.3 mg/l	0.35 mg/l	2.7 mg/l	2.7 mg/l	0.17 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	--	< 0.10 mg/l	0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.31 pH units	--	6.47 pH units	7.23 pH units	7.7 pH units	5.3 pH units	5.1 pH units	5.66 pH units	5.67 pH units	6.89 pH units	4.95 pH units	5.53 pH units	--	8 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	345 mV	--	481 mV	261 mV	428 mV	320 mV	412 mV	159 mV	309 mV	481 mV	544 mV	497 mV	--	210 mV
Solids, total dissolved	NA	Lab	86.0 mg/l	--	93.0 mg/l	228 mg/l	131 mg/l	58.0 mg/l	73.0 mg/l	66.0 mg/l	48.0 mg/l	65.0 mg/l	75.0 mg/l	64.0 mg/l	76.0 mg/l	101 mg/l
Specific Conductance @ 25oC	NA	Field	106.9 umhos/cm	--	100.7 umhos/cm	308.1 umhos/cm	163.2 umhos/cm	46.6 umhos/cm	44.5 umhos/cm	39.7 umhos/cm	50.7 umhos/cm	52.2 umhos/cm	45.5 umhos/cm	34.3 umhos/cm	--	142.5 umhos/cm
Sulfate	NA	Lab	10.3 mg/l	--	10.3 mg/l	42.9 mg/l	17.3 mg/l	9.1 mg/l	7.4 mg/l	6.0 mg/l	9.9 mg/l	10 mg/l	7.8 mg/l	5.0 mg/l	5.0 mg/l	9.22 mg/l
Temperature, degrees C	NA	Field	8.67 deg C	--	6.88 deg C	11.4 deg C	11.08 deg C	20.19 deg C	16.87 deg C	19.36 deg C	8.87 deg C	19.51 deg C	16.34 deg C	7.56 deg C	--	8.79 deg C
Turbidity	NA	Field	0 NTU	--	4.4 NTU	52.6 NTU	43 NTU	306.3 NTU	80.2 NTU	19.7 NTU	68.2 NTU	37.5 NTU	12.1 NTU	22.4 NTU	--	0 NTU
Metals																
Aluminum	Dissolved	Lab	< 20.0 ug/l	--	< 20.0 ug/l	63.7 ug/l	35.6 ug/l	40.5 ug/l	73.2 ug/l	55.1 ug/l	36.9 ug/l	73.6 ug/l	78.7 ug/l	44.6 ug/l	60.7 ug/l	< 25 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	--	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	--	< 0.50 ug/l	1.05 ug/l	< 0.5 ug/l	0.82 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	13.9 ug/l	--	12.5 ug/l	67.3 ug/l	45.7 ug/l	85.9 ug/l	38.2 ug/l	30.1 ug/l	36.1 ug/l	30.9 ug/l	16.0 ug/l	26.5 ug/l	23.7 ug/l	12.4 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.25 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	--	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	--	< 0.20 ug/l	0.3 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	11100 ug/l	--	9400 ug/l	38800 ug/l	18000 ug/l	6700 ug/l	4900 ug/l	4100 ug/l	5200 ug/l	3700 ug/l	4500 ug/l	4400 ug/l	4400 ug/l	14300 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	--	< 1.0 ug/l	3.29 ug/l	< 1 ug/l	< 1.0 ug/l	1.0 ug/l	1.4 b ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	1.2 ug/l	--	0.76 ug/l	0.59 ug/l	0.23 ug/l	0.24 ug/l	0.50 ug/l	0.46 ug/l	0.30 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.29 ug/l	0.37 ug/l	< 0.2 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	1.1 ug/l	--	1.5 ug/l	14.7 ug/l	7.11 ug/l	1.4 ug/l	2.4 ug/l	1.9 ug/l	2.1 ug/l	3.0 ug/l	1.8 ug/l	2.0 ug/l	1.9 ug/l	< 0.7 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 50.0 ug/l	--	< 50.0 ug/l	64.9 ug/l	79.2 ug/l	54.6 ug/l	56.8 ug/l	54.4 ug/l	< 50.0 ug/l	51.6 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	--	< 0.50 ug/l	2.26 ug/l	1.33 ug/l	2.9 ug/l	0.65 ug/l	< 0.50 ug/l	0.73 ug/l	0.74 ug/l	< 0.50 ug/l	0.52 ug/l	< 0.50 ug/l	< 0.5 ug/l
Magnesium	Total	Lab	4800 ug/l	--	4000 ug/l	9480 ug/l	4890 ug/l	3400 ug/l	1900 ug/l	1400 ug/l	1900 ug/l	1400 ug/l	1600 ug/l	1600 ug/l	1500 ug/l	7720 ug/l
Manganese	Dissolved	Lab	172 ug/l	--	109 ug/l	87.8 ug/l	58.5 ug/l	73.3 ug/l	63.1 ug/l	67.1 ug/l	30.8 ug/l	10.9 ug/l	13.9 ug/l	27.4 ug/l	33.8 ug/l	22.6 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.0050 ug/l	0.0034 ug/l	0.0141 ug/l	0.0023 ug/l	0.0018 ug/l	0.0023 ug/l	0.0025 ug/l	0.0021 ug/l	0.0023 ug/l	0.0022 ug/l	< 0.0005 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	3.9 ug/l	--	2.9 ug/l	35.9 ug/l	6.13 ug/l	0.65 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.30 ug/l	< 0.30 ug/l	< 0.30 ug/l	< 0.30 ug/l	4.9 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	2.9 ug/l	--	2.3 ug/l	2.76 ug/l	1.43 ug/l	< 0.50 ug/l	0.91 ug/l	1.2 ug/l	1.4 ug/l	1.3 ug/l	0.54 ug/l	1.1 ug/l	1.1 ug/l	0.92 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1600 ug/l	--	1400 ug/l	3680 ug/l	2110 ug/l	1400 ug/l	580 ug/l	470 ug/l	780 ug/l	650 ug/l	270 ug/l	550 ug/l	460 ug/l	1540 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	--	< 1.0 ug/l	4.73 ug/l	1.45 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	5400 ug/l	--	4300 ug/l	9820 ug/l	6850 ug/l	4000 ug/l	2900 ug/l	2600 ug/l	3100 ug/l	6900 ug/l	3600 ug/l	3100 ug/l	3100 ug/l	3040 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.017 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.30 ug/l	0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 5.0 ug/l	--	< 5.0 ug/l	< 10 ug/l	< 10 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 10 ug/l
Zinc	Dissolved	Lab	< 6.0 ug/l	--	< 6.0 ug/l	19 ug/l	13.7 ug/l	6.6 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date/2011			MW-11 1/16/2012			MW-11 2/2/2012	MW-11 3/7/2012		MW-11 4/17/2012		MW-11 5/9/2012	MW-11 6/12/2012		MW-11 7/11/2012	MW-11 8/20/2012	
Sample Type			FD	N	FD	N	N	FD	N	FD	N	N	FD	N	N	FD
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	60.1 mg/l	58.5 mg/l	59.3 mg/l	62 mg/l	59.6 mg/l	59.9 mg/l	59.8 mg/l	60.1 mg/l	61.5 mg/l	58.8 mg/l	60.7 mg/l	59.7 mg/l	50.9 mg/l	56.1 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	2.0 mg/l	2.0 mg/l	2.2 mg/l	1.84 mg/l	2.0 b mg/l	2.3 b mg/l	1.6 mg/l	1.6 mg/l	1.8 mg/l	1.6 b mg/l	1.5 b mg/l	< 1.0 mg/l	1.2 mg/l	1.3 mg/l
Carbon, total organic	NA	Lab	1.5 mg/l	1.7 mg/l	1.5 mg/l	1.43 mg/l	1.5 mg/l	1.6 mg/l	1.4 mg/l	1.4 mg/l	1.4 mg/l	< 1.0 mg/l	1.0 mg/l	1.3 mg/l	1.0 mg/l	< 1.0 mg/l
Chemical Oxygen Demand	NA	Lab	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	16.5 mg/l	15.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l
Chloride	NA	Lab	1.04 mg/l	1.02 mg/l	1.02 mg/l	0.75 mg/l	0.7 mg/l	0.7 mg/l	0.69 mg/l	0.69 mg/l	0.74 mg/l	0.73 mg/l	0.73 mg/l	0.80 mg/l	0.87 mg/l	0.85 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	4.5 mg/l	--	4.48 mg/l	4.84 mg/l	--	4.62 mg/l	--	4.83 mg/l	4.2 mg/l	--	4 mg/l	3.14 mg/l	--
Fluoride	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	66.1 mg/l	64.9 mg/l	65.3 mg/l	67.9 mg/l	68.2 mg/l	68.1 mg/l	65.1 mg/l	67.7 mg/l	65.5 mg/l	66.7 mg/l	66.7 mg/l	63.8 mg/l	67.8 mg/l	68.2 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.15 mg/l	0.14 mg/l	0.14 mg/l	0.12 mg/l	0.14 mg/l	0.14 mg/l	0.16 mg/l	0.16 mg/l	0.14 mg/l	0.16 mg/l	0.16 mg/l	0.14 mg/l	0.14 mg/l	0.15 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.090 mg/l	< 0.050 mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	--	8.11 pH units	--	7.79 pH units	8.01 pH units	--	8.4 pH units	--	8.21 pH units	8.1 pH units	--	7.99 pH units	8 pH units	--
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	--	234 mV	--	273 mV	414 mV	--	214 mV	--	145 mV	232 mV	--	270 mV	164 mV	--
Solids, total dissolved	NA	Lab	101 mg/l	110 mg/l	85 mg/l	104 mg/l	125 mg/l	119 mg/l	124 mg/l	122 mg/l	100 mg/l	112 mg/l	102 mg/l	129 mg/l	105 mg/l	117 mg/l
Specific Conductance @ 25oC	NA	Field	--	142.6 umhos/cm	--	141 umhos/cm	143.1 umhos/cm	--	138.1 umhos/cm	--	100.1 umhos/cm	99.7 umhos/cm	--	134.1 umhos/cm	137.1 umhos/cm	--
Sulfate	NA	Lab	9.21 mg/l	9.82 mg/l	9.9 mg/l	9.69 mg/l	9.16 mg/l	9.1 mg/l	9.2 mg/l	9.2 mg/l	9.5 mg/l	9.4 mg/l	9.4 mg/l	10.1 mg/l	9.9 mg/l	9.9 mg/l
Temperature, degrees C	NA	Field	--	8.43 deg C	--	5.65 deg C	5.59 deg C	--	4.8 deg C	--	6.56 deg C	6.75 deg C	--	8.92 deg C	9.92 deg C	--
Turbidity	NA	Field	--	0 NTU	--	0 NTU	0 NTU	--	0 NTU	--	0 NTU	0 NTU	--	0 NTU	0 NTU	--
Metals																
Aluminum	Dissolved	Lab	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.5 ug/l	0.66 ug/l	0.61 ug/l	0.6 ug/l	0.51 ug/l	0.76 ug/l	0.66 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.62 ug/l	0.65 ug/l	0.59 ug/l	< 0.50 ug/l	0.52 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	12.2 ug/l	10.5 ug/l	10.8 ug/l	11.1 ug/l	9.3 ug/l	9.24 ug/l	8.5 ug/l	8.3 ug/l	7.5 ug/l	7.0 ug/l	7.0 ug/l	5.8 ug/l	6.0 ug/l	5.9 ug/l
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	14000 ug/l	13800 ug/l	13900 ug/l	14100 ug/l	14500 ug/l	14400 ug/l	13700 ug/l	13800 ug/l	14300 ug/l	13800 ug/l	14100 ug/l	13500 ug/l	14200 ug/l	14200 ug/l
Chromium	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	1.23 ug/l	1.79 b ug/l	3.4 ug/l	1.2 ug/l	< 1.0 ug/l	1.1 ug/l	1.1 ug/l	1.7 ug/l	1.4 ug/l	1.9 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	< 0.7 ug/l	< 0.7 ug/l	1.04 ug/l	< 0.7 ug/l	0.76 ug/l	< 0.7 ug/l	0.63 ug/l	1.6 ug/l	1.2 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.82 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	7570 ug/l	7400 ug/l	7440 ug/l	7940 ug/l	7780 ug/l	7800 ug/l	7500 ug/l	7600 ug/l	7800 ug/l	7500 ug/l	7600 ug/l	7300 ug/l	7800 ug/l	7900 ug/l
Manganese	Dissolved	Lab	22.3 ug/l	22.3 ug/l	22.1 ug/l	23.4 ug/l	18.4 ug/l	17.8 ug/l	10.9 b ug/l	10.8 b ug/l	9.2 ug/l	5.3 ug/l	5.3 ug/l	2.6 ug/l	2.2 ug/l	2.2 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	< 0.0005 ug/l	< 0.0005 ug/l	0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	4.95 ug/l	2.92 ug/l	2.96 ug/l	1.93 ug/l	1.53 ug/l	1.59 ug/l	1.5 ug/l	1.4 ug/l	1.5 ug/l	1.0 ug/l	1.0 ug/l	0.92 ug/l	0.81 ug/l	0.80 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	0.92 ug/l	< 0.6 ug/l	0.61 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	1.4 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.66 ug/l	0.83 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1530 ug/l	1380 ug/l	1340 ug/l	1470 ug/l	1670 ug/l	1660 ug/l	1500 ug/l	1500 ug/l	1500 ug/l	1600 ug/l	1600 ug/l	1600 ug/l	1600 ug/l	1700 ug/l
Selenium	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	3040 ug/l	3240 ug/l	3250 ug/l	3460 ug/l	3380 ug/l	3360 ug/l	3300 ug/l	3400 ug/l	3300 ug/l	3200 ug/l	3200 ug/l	3200 ug/l	3400 ug/l	3400 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 5 ug/l	< 5 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l
Zinc	Dissolved	Lab	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-11 10/12/2012 N	MW-11 4/25/2013 N FD		MW-11 7/29/2013 N	MW-11 10/23/2013 N	MW-12 2/22/2012 N	MW-12 3/14/2012 N FD		MW-12 4/18/2012 N	MW-12 5/21/2012 N	MW-12 6/25/2012 N	MW-12 7/30/2012 N	MW-12 8/28/2012 N FD	
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	55.6 mg/l	59.6 mg/l	--	43.5 mg/l	32.7 mg/l	26.5 mg/l	26.3 mg/l	26.5 mg/l	26.1 mg/l	26.7 mg/l	26.4 mg/l	24.8 mg/l	24.3 mg/l	24.0 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	1.2 mg/l	1.0 mg/l	--	2.5 mg/l	1.6 mg/l	2.93 mg/l	2.0 mg/l	2.3 mg/l	1.7 mg/l	1.7 mg/l	1.4 mg/l	< 1.0 mg/l	1.2 mg/l	1.2 mg/l
Carbon, total organic	NA	Lab	< 1.0 mg/l	< 1.0 mg/l	--	1.8 mg/l	1.5 mg/l	1.81 mg/l	1.3 mg/l	2.2 mg/l	1.3 mg/l	1.2 mg/l	1.0 mg/l	< 1.0 mg/l	1.1 mg/l	2.2 mg/l
Chemical Oxygen Demand	NA	Lab	< 10.0 mg/l	< 10.0 mg/l	--	14.0 mg/l	14.5 mg/l	< 10 mg/l	10.7 mg/l	< 10 mg/l	19.9 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l
Chloride	NA	Lab	0.88 mg/l	0.71 mg/l	--	< 0.50 mg/l	< 1.0 mg/l	0.6 mg/l	0.58 mg/l	0.58 mg/l	0.61 mg/l	0.50 mg/l	< 0.50 mg/l	0.57 mg/l	0.68 mg/l	0.67 mg/l
Cyanide	--	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	4.72 mg/l	2.68 mg/l	--	3.01 mg/l	3.47 mg/l	3.78 mg/l	3.76 mg/l	--	3.52 mg/l	3.92 mg/l	3.24 mg/l	3.64 mg/l	4.02 mg/l	--
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	68.1 mg/l	68.9 mg/l	--	43.4 mg/l	41.1 mg/l	31.1 mg/l	29 mg/l	28.5 mg/l	27.8 mg/l	26.7 mg/l	24.8 mg/l	25.4 mg/l	25.5 mg/l	25.5 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.14 mg/l	0.20 mg/l	--	0.13 mg/l	< 0.10 mg/l	< 0.1 mg/l	0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.080 b mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	8.29 pH units	8.13 pH units	--	8.13 pH units	8.29 pH units	6.69 pH units	6.44 pH units	--	6.75 pH units	6.56 pH units	6.27 pH units	6.15 pH units	6.26 pH units	--
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	265 mV	476 mV	--	397 mV	306 mV	221 mV	194 mV	--	122 mV	342 mV	274 mV	273 mV	241 mV	--
Solids, total dissolved	NA	Lab	116 mg/l	97.0 mg/l	--	76.0 mg/l	85.0 mg/l	18 mg/l	66 mg/l	73 mg/l	78.0 mg/l	79.0 mg/l	66.0 mg/l	66.0 h mg/l	60.0 mg/l	62.0 mg/l
Specific Conductance @ 25oC	NA	Field	140.4 umhos/cm	127 umhos/cm	--	129.2 umhos/cm	136.1 umhos/cm	70.4 umhos/cm	68.6 umhos/cm	--	65.3 umhos/cm	19.9 umhos/cm	57 umhos/cm	54.2 umhos/cm	56.1 umhos/cm	--
Sulfate	NA	Lab	9.2 mg/l	9.6 mg/l	--	7.8 mg/l	9.3 mg/l	8.79 mg/l	7.37 mg/l	7.33 mg/l	6.1 mg/l	6.1 mg/l	5.8 mg/l	6.4 mg/l	6.2 mg/l	6.3 mg/l
Temperature, degrees C	NA	Field	7.87 deg C	4.18 deg C	--	6.24 deg C	6.83 deg C	7.24 deg C	5.93 deg C	--	3.46 deg C	5.87 deg C	9.05 deg C	11.31 deg C	11.25 deg C	--
Turbidity	NA	Field	2.2 NTU	4.1 NTU	--	1.3 NTU	0 NTU	20.1 NTU	4.4 NTU	--	0 NTU	0 NTU	0 NTU	0 NTU	0 NTU	--
Metals																
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	< 25 ug/l	< 20 ug/l	< 20 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	0.55 ug/l	--	< 0.50 ug/l	1.3 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	0.54 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	5.9 ug/l	5.8 ug/l	--	4.3 ug/l	7.1 ug/l	16.6 ug/l	10.3 ug/l	10 ug/l	8.7 ug/l	9.2 ug/l	8.6 ug/l	8.8 ug/l	8.9 ug/l	8.9 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	14400 ug/l	14400 ug/l	--	8500 ug/l	8100 ug/l	7240 ug/l	7010 ug/l	6870 ug/l	6800 ug/l	6500 ug/l	6000 ug/l	6200 ug/l	6200 ug/l	6200 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.9 ug/l	< 1.0 ug/l	< 1.0 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	0.81 ug/l	1.01 ug/l	1.02 ug/l	1.3 ug/l	1.2 ug/l	1.6 ug/l	1.5 ug/l	1.4 ug/l	1.4 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	0.84 ug/l	< 0.50 ug/l	--	0.91 ug/l	2.1 ug/l	16.2 ug/l	< 0.7 ug/l	< 0.7 ug/l	1.2 ug/l	0.62 ug/l	0.75 ug/l	< 0.50 ug/l	0.59 ug/l	0.57 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	65.0 ug/l	61.2 ug/l	< 50.0 ug/l	54.7 ug/l	< 50.0 ug/l	< 50.0 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	7800 ug/l	8000 ug/l	--	5400 ug/l	5100 ug/l	3170 ug/l	2790 ug/l	2760 ug/l	2700 ug/l	2600 ug/l	2400 ug/l	2400 ug/l	2400 ug/l	2500 ug/l
Manganese	Dissolved	Lab	1.4 ug/l	0.69 ug/l	--	0.89 ug/l	36.8 ug/l	60.8 ug/l	99.3 ug/l	101 ug/l	161 ug/l	163 ug/l	149 ug/l	150 ug/l	151 ug/l	148 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00097 ug/l	0.0020 ug/l	0.0009 ug/l	0.0009 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	0.71 ug/l	0.94 ug/l	--	0.67 ug/l	1.3 ug/l	3.35 ug/l	3.32 ug/l	3.38 ug/l	2.9 ug/l	2.3 ug/l	2.1 ug/l	1.8 ug/l	2.0 ug/l	2.0 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	--	1.1 ug/l	< 0.50 ug/l	1.04 ug/l	0.95 ug/l	0.96 ug/l	0.76 ug/l	0.70 ug/l	1.0 ug/l	0.96 b ug/l	0.72 ug/l	0.75 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1700 ug/l	1600 ug/l	--	1100 ug/l	1100 ug/l	1320 ug/l	1210 ug/l	1150 ug/l	1100 ug/l	1100 ug/l	1200 ug/l	1400 ug/l	1500 ug/l	1500 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	3500 ug/l	3400 ug/l	--	3300 ug/l	2000 ug/l	2470 ug/l	2250 ug/l	2240 ug/l	2200 ug/l	1900 ug/l	2000 ug/l	2100 ug/l	2100 ug/l	2100 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.017 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 5.0 ug/l	< 5.0 ug/l	--	< 5.0 ug/l	< 5.0 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l
Zinc	Dissolved	Lab	< 6.0 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	< 6.0 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-12 10/22/2012 N	MW-12 5/22/2013 N FD		MW-12 7/31/2013 N	MW-12 10/22/2013 N FD		MW-13 2/22/2012 N FD		MW-13 3/14/2012 N	MW-13 4/20/2012 N	MW-13 5/16/2012 N	MW-13 6/22/2012 N	MW-13 7/17/2012 N	MW-13 8/15/2012 N
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	26.9 mg/l	26.0 mg/l	--	22.6 mg/l	27.3 mg/l	26.5 mg/l	39.9 mg/l	39.1 mg/l	59.6 mg/l	68.1 mg/l	64.9 mg/l	47.1 mg/l	42.8 mg/l	61.9 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	1.3 mg/l	1.5 mg/l	--	1.0 mg/l	4.2 mg/l	1.4 mg/l	10.9 mg/l	11.1 mg/l	12.9 mg/l	23.7 mg/l	21.6 mg/l	19.4 mg/l	20.3 mg/l	24.3 mg/l
Carbon, total organic	NA	Lab	1.1 mg/l	< 1.0 mg/l	--	< 1.0 mg/l	1.0 mg/l	1.0 mg/l	10.6 mg/l	10.3 mg/l	11.8 mg/l	23.5 mg/l	21.6 mg/l	19.1 mg/l	19.4 mg/l	23.7 mg/l
Chemical Oxygen Demand	NA	Lab	< 10.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l	15.5 mg/l	14.0 mg/l	34.2 mg/l	36.9 mg/l	38.6 mg/l	72.7 mg/l	65.5 mg/l	57.6 mg/l	52.4 mg/l	77.2 mg/l
Chloride	NA	Lab	0.67 mg/l	0.65 mg/l	--	0.58 mg/l	< 1.0 mg/l	< 1.0 mg/l	0.74 mg/l	0.71 mg/l	0.62 mg/l	0.73 mg/l	0.69 mg/l	0.66 mg/l	0.74 mg/l	0.86 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	3.06 mg/l	3.06 mg/l	--	4.14 mg/l	1.76 mg/l	--	2.79 mg/l	--	1.35 mg/l	1.75 mg/l	3.07 mg/l	1.85 mg/l	1.31 mg/l	1.82 mg/l
Fluoride	NA	Lab	0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	29.8 mg/l	24.4 mg/l	--	24.4 mg/l	27.7 mg/l	26.4 mg/l	61 mg/l	62.1 mg/l	71.8 mg/l	72.8 mg/l	68.3 mg/l	56.0 mg/l	52.8 mg/l	58.6 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	0.11 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.11 mg/l	0.12 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	--	0.20 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.41 mg/l	0.38 mg/l	0.58 mg/l	1.4 mg/l	1.4 mg/l	1.3 mg/l	1.4 mg/l	1.7 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.51 pH units	6.51 pH units	--	6.31 pH units	6.53 pH units	--	6.27 pH units	--	6.07 pH units	6.33 pH units	6.15 pH units	5.93 pH units	5.79 pH units	5.81 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	216 mV	442 mV	--	407 mV	366 mV	--	254 mV	--	249 mV	368 mV	199 mV	237 mV	256 mV	26 mV
Solids, total dissolved	NA	Lab	45.0 mg/l	77.0 mg/l	--	71.0 mg/l	71.0 * mg/l	40.0 * mg/l	91 mg/l	106 mg/l	161 mg/l	238 mg/l	201 mg/l	194 mg/l	176 mg/l	178 mg/l
Specific Conductance @ 25oC	NA	Field	71.8 umhos/cm	47.5 umhos/cm	--	54.8 umhos/cm	62.5 umhos/cm	--	154.5 umhos/cm	--	178.1 umhos/cm	190.8 umhos/cm	157 umhos/cm	170.7 umhos/cm	154.8 umhos/cm	168.6 umhos/cm
Sulfate	NA	Lab	6.4 mg/l	5.7 mg/l	--	5.8 mg/l	5.7 mg/l	5.5 mg/l	23.3 mg/l	23.4 mg/l	13.8 mg/l	12.6 mg/l	16.8 mg/l	19.6 mg/l	19.8 mg/l	18.2 mg/l
Temperature, degrees C	NA	Field	7.63 deg C	4.74 deg C	--	7.83 deg C	7.36 deg C	--	3 deg C	--	8.29 deg C	6.23 deg C	16.71 deg C	9.5 deg C	9.14 deg C	10.33 deg C
Turbidity	NA	Field	2.1 NTU	1.4 NTU	--	1.8 NTU	0 NTU	--	7.1 NTU	--	2.3 NTU	0 NTU	3.8 NTU	0 NTU	0 NTU	0 NTU
Metals																
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	118 ug/l	126 ug/l	108 ug/l	161 ug/l	146 ug/l	137 ug/l	139 ug/l	230 b ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.84 ug/l	0.85 ug/l	0.85 ug/l	0.86 ug/l	0.77 ug/l	0.78 ug/l	0.76 ug/l	0.91 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	10.1 ug/l	8.5 ug/l	--	8.3 ug/l	10.6 ug/l	10.4 ug/l	45.1 ug/l	44.4 ug/l	56.6 ug/l	72.8 ug/l	67.3 ug/l	54.9 ug/l	51.9 ug/l	53.6 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	7200 ug/l	5800 ug/l	--	5900 ug/l	6700 ug/l	6400 ug/l	13600 ug/l	13900 ug/l	16000 ug/l	16900 ug/l	15300 ug/l	12500 ug/l	11700 ug/l	13200 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.42 ug/l	1.22 ug/l	< 1 ug/l	< 1.0 ug/l	1.0 ug/l	< 1.0 ug/l	1.1 ug/l	1.7 b ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	1.5 ug/l	1.7 ug/l	--	1.6 ug/l	1.7 ug/l	1.7 ug/l	3.42 ug/l	3.63 ug/l	6.21 ug/l	8.6 ug/l	8.3 ug/l	7.2 ug/l	6.0 ug/l	5.1 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	0.99 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	0.71 ug/l	0.70 ug/l	5.09 ug/l	5.29 ug/l	3.84 ug/l	2.0 ug/l	1.8 ug/l	1.5 ug/l	2.0 ug/l	1.4 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	64.7 ug/l	149 ug/l	--	108 ug/l	166 ug/l	158 ug/l	5470 ug/l	5830 ug/l	7040 ug/l	10500 ug/l	11900 ug/l	11300 ug/l	10400 ug/l	13000 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.55 ug/l	0.51 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	2900 ug/l	2400 ug/l	--	2400 ug/l	2700 ug/l	2500 ug/l	6560 ug/l	6660 ug/l	7740 ug/l	7400 ug/l	7300 ug/l	6000 ug/l	5700 ug/l	6200 ug/l
Manganese	Dissolved	Lab	208 ug/l	176 ug/l	--	124 ug/l	192 ug/l	198 ug/l	502 ug/l	499 ug/l	843 ug/l	1150 ug/l	909 ug/l	754 ug/l	597 ug/l	516 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.0013 ug/l	0.0013 ug/l	0.0009 ug/l	< 0.00050 ug/l	0.00087 ug/l	0.00057 ug/l	0.00069 ug/l	0.00087 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	1.8 ug/l	1.5 ug/l	--	1.5 ug/l	2.2 ug/l	2.1 ug/l	1.08 ug/l	1.07 ug/l	0.85 ug/l	0.55 ug/l	0.43 ug/l	0.40 ug/l	0.42 ug/l	0.39 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	0.80 ug/l	0.75 ug/l	--	0.54 ug/l	0.77 ug/l	0.63 ug/l	11.2 ug/l	11.3 ug/l	15.8 ug/l	19.9 ug/l	20.5 ug/l	16.5 ug/l	13.5 ug/l	12.4 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1500 ug/l	1100 ug/l	--	1400 ug/l	1500 ug/l	1400 ug/l	1560 ug/l	1590 ug/l	1860 ug/l	1700 ug/l	1400 ug/l	1100 ug/l	1100 ug/l	1100 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	2500 ug/l	1900 ug/l	--	2000 ug/l	2400 ug/l	2400 ug/l	2290 ug/l	2310 ug/l	2550 ug/l	5500 ug/l	5000 ug/l	4600 ug/l	4800 ug/l	5500 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	--	< 0.017 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 5.0 ug/l	< 5.0 ug/l	--	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	5.8 ug/l	5.9 ug/l	7.4 ug/l	7.0 ug/l	9.3 ug/l
Zinc	Dissolved	Lab	< 6.0 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	19.9 ug/l	21.6 ug/l	20.4 ug/l	19.0 ug/l	19.5 ug/l	17.4 ug/l	15.8 ug/l	15.0 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			MW-13		MW-13		MW-13	MW-13		MW-14		MW-14	MW-14		MW-14	
Date			10/30/2012		4/23/2013		7/25/2013	10/21/2013		2/23/2012		3/26/2012	4/30/2012		5/14/2012	
Sample Type			N	FD	N	FD	N	N	FD	N	FD	N	N	FD	N	FD
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	59.4 mg/l	63.5 mg/l	55.9 mg/l	56.0 mg/l	49.8 mg/l	60.2 mg/l	--	62.3 mg/l	59.4 mg/l	50 mg/l	49.2 mg/l	49.6 mg/l	46.7 mg/l	46.6 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	35.8 mg/l	34.4 mg/l	29.3 mg/l	27.0 mg/l	29.6 mg/l	39.9 mg/l	--	3.57 mg/l	2.66 mg/l	1.8 mg/l	2.1 b mg/l	1.7 b mg/l	2.1 mg/l	1.5 mg/l
Carbon, total organic	NA	Lab	33.9 mg/l	33.2 mg/l	28.3 mg/l	26.2 mg/l	26.0 mg/l	35.6 mg/l	--	1.87 mg/l	2.03 mg/l	1.8 mg/l	1.7 mg/l	1.7 mg/l	1.8 mg/l	1.9 mg/l
Chemical Oxygen Demand	NA	Lab	108 mg/l	109 mg/l	83.6 mg/l	80.9 mg/l	78.8 mg/l	116 mg/l	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l
Chloride	NA	Lab	0.75 mg/l	0.75 mg/l	0.63 mg/l	0.64 mg/l	0.82 mg/l	13.2 mg/l	--	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	2.58 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	--	10.16 mg/l	--	9.64 mg/l	9.85 mg/l	--	9.72 mg/l	--
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.52 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	66.4 mg/l	66.5 mg/l	55.8 mg/l	56.9 mg/l	50.8 mg/l	56.7 mg/l	--	67 mg/l	64.8 mg/l	54.8 mg/l	57.1 mg/l	56.0 mg/l	49.5 mg/l	49.0 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.11 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	0.33 mg/l	0.33 mg/l	0.32 mg/l	0.31 mg/l	0.32 mg/l	0.35 mg/l	0.34 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	1.8 mg/l	1.9 mg/l	1.5 mg/l	1.6 mg/l	1.5 mg/l	1.6 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.070 mg/l	< 0.050 mg/l	< 0.050 mg/l	< 0.050 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.09 pH units	--	5.97 pH units	--	5.75 pH units	5.85 pH units	--	8.57 pH units	--	7.17 pH units	7.31 pH units	--	6.85 pH units	--
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	50 mV	--	101 mV	--	75 mV	97 mV	--	364 mV	--	464 mV	623 mV	--	363 mV	--
Solids, total dissolved	NA	Lab	222 mg/l	223 mg/l	196 mg/l	224 mg/l	198 mg/l	228 mg/l	--	99 * mg/l	58 * mg/l	93 mg/l	108 mg/l	112 mg/l	129 mg/l	106 mg/l
Specific Conductance @ 25oC	NA	Field	208.5 umhos/cm	--	188.7 umhos/cm	--	178.8 umhos/cm	210.4 umhos/cm	--	135.3 umhos/cm	--	121.6 umhos/cm	73.8 umhos/cm	--	65.7 umhos/cm	--
Sulfate	NA	Lab	17.6 mg/l	17.7 mg/l	15.8 mg/l	15.8 mg/l	16.8 mg/l	104 mg/l	--	7.7 mg/l	7.73 mg/l	7.24 mg/l	7.0 mg/l	7.0 mg/l	6.9 mg/l	6.9 mg/l
Temperature, degrees C	NA	Field	4.97 deg C	--	4.97 deg C	--	8.69 deg C	5.68 deg C	--	4.25 deg C	--	4.37 deg C	5.96 deg C	--	6.93 deg C	--
Turbidity	NA	Field	0 NTU	--	2.5 NTU	--	1.4 NTU	0.3 NTU	--	0 NTU	--	0 NTU	0 NTU	--	0 NTU	--
Metals																
Aluminum	Dissolved	Lab	319 ug/l	321 ug/l	211 ug/l	210 ug/l	307 ug/l	427 ug/l	--	43.2 ug/l	44.7 ug/l	32.4 ug/l	35.1 ug/l	34.8 ug/l	< 20.0 ug/l	< 20.0 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	0.90 ug/l	1.0 ug/l	1.1 ug/l	1.1 ug/l	0.64 ug/l	1.5 ug/l	--	0.71 ug/l	< 0.5 ug/l	< 0.5 ug/l	0.68 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	57.8 ug/l	56.2 ug/l	41.6 ug/l	41.9 ug/l	30.9 ug/l	39.4 ug/l	--	11.3 ug/l	10.7 ug/l	9.4 ug/l	9.9 ug/l	9.7 ug/l	8.9 ug/l	9.0 ug/l
Beryllium	Total	Lab	0.25 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.20 ug/l	< 0.20 ug/l	0.27 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	15300 ug/l	15300 ug/l	12300 ug/l	12600 ug/l	11500 ug/l	12800 ug/l	--	21100 ug/l	20200 ug/l	16400 ug/l	16800 ug/l	16400 ug/l	14100 ug/l	14000 ug/l
Chromium	Dissolved	Lab	1.6 b ug/l	1.4 b ug/l	2.5 ug/l	2.2 ug/l	1.7 ug/l	1.1 ug/l	--	5.66 ug/l	5.77 ug/l	5.12 ug/l	3.6 ug/l	3.4 ug/l	2.3 ug/l	2.3 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	5.6 ug/l	5.6 ug/l	4.9 ug/l	4.7 ug/l	3.5 ug/l	3.2 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	0.94 ug/l	0.91 ug/l	0.88 ug/l	0.82 ug/l	0.81 ug/l	0.88 ug/l	--	1.85 ug/l	1.92 ug/l	0.98 ug/l	0.82 ug/l	1.1 ug/l	2.7 ug/l	0.80 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	21600 ug/l	21700 ug/l	21100 ug/l	21200 ug/l	19300 ug/l	22100 ug/l	--	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	6800 ug/l	6900 ug/l	6100 ug/l	6200 ug/l	5400 ug/l	6000 ug/l	--	3480 ug/l	3480 ug/l	3360 ug/l	3700 ug/l	3600 ug/l	3500 ug/l	3400 ug/l
Manganese	Dissolved	Lab	515 ug/l	511 ug/l	470 ug/l	464 ug/l	325 ug/l	360 ug/l	--	22.2 ug/l	22.4 ug/l	12.2 ug/l	8.3 ug/l	8.5 ug/l	6.9 ug/l	7.1 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	0.0010 ug/l	0.0010 ug/l	0.00077 ug/l	0.00078 ug/l	0.00088 ug/l	0.0015 ug/l	0.0014 ug/l	0.0006 ug/l	0.0006 ug/l	< 0.0005 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00077 ug/l	0.00070 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	0.33 ug/l	0.33 ug/l	0.36 ug/l	0.31 ug/l	< 0.30 ug/l	< 0.30 ug/l	--	2.2 ug/l	2.17 ug/l	1.16 ug/l	0.75 ug/l	0.78 ug/l	0.46 ug/l	0.45 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	12.2 ug/l	12.0 ug/l	9.1 ug/l	8.8 ug/l	5.6 ug/l	6.3 ug/l	--	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.67 ug/l	0.63 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1100 ug/l	1100 ug/l	1000 ug/l	1000 ug/l	1100 ug/l	1600 ug/l	--	980 ug/l	960 ug/l	940 ug/l	930 ug/l	900 ug/l	810 ug/l	780 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	8100 ug/l	8200 ug/l	6600 ug/l	6700 ug/l	7700 ug/l	9500 ug/l	--	2940 ug/l	2830 ug/l	2810 ug/l	2800 ug/l	2800 ug/l	2600 ug/l	2500 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.017 ug/l	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	14.9 ug/l	14.8 ug/l	12.6 ug/l	12.7 ug/l	9.1 ug/l	12.6 ug/l	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l
Zinc	Dissolved	Lab	8.8 ug/l	8.4 ug/l	6.0 ug/l	6.1 ug/l	< 6.0 ug/l	< 6.0 ug/l	--	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date			MW-14 6/6/2012		MW-14 7/27/2012		MW-14 8/29/2012		MW-14 10/15/2012	MW-14 5/13/2013	MW-14 7/24/2013		MW-14 10/29/2013		MW-15 3/29/2012	MW-15 4/30/2012
Sample Type			N	FD	N	FD	N	FD	N	N	N	FD	N	FD	N	N
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	39.4 mg/l	41.1 mg/l	52.8 mg/l	41.4 mg/l	39.8 mg/l	39.4 mg/l	56.2 mg/l	39.1 mg/l	34.5 mg/l	35.0 mg/l	35.2 mg/l	--	87.9 mg/l	79.6 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	2.2 mg/l	1.8 mg/l	2.4 b mg/l	2.4 b mg/l	1.6 mg/l	2.4 mg/l	1.8 mg/l	1.6 mg/l	1.5 mg/l	1.6 mg/l	1.5 mg/l	--	13.2 mg/l	15.0 mg/l
Carbon, total organic	NA	Lab	1.7 mg/l	1.5 mg/l	< 1.0 mg/l	1.0 mg/l	1.8 mg/l	1.6 mg/l	1.5 mg/l	1.7 mg/l	1.5 mg/l	1.0 mg/l	1.2 mg/l	--	13.2 mg/l	14.4 mg/l
Chemical Oxygen Demand	NA	Lab	10.0 mg/l	12.2 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	12.8 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	17.3 mg/l	--	36.5 mg/l	38.9 mg/l
Chloride	NA	Lab	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.55 mg/l	0.54 mg/l	< 0.50 mg/l	0.54 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 1.0 mg/l	--	< 0.50 mg/l	< 0.50 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	8.8 mg/l	--	10.39 mg/l	--	10.39 mg/l	--	10.48 mg/l	9.39 mg/l	10.23 mg/l	--	10.68 mg/l	--	2.38 mg/l	1.44 mg/l
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	46.6 mg/l	48.2 mg/l	42.4 mg/l	41.9 mg/l	43.9 mg/l	42.6 mg/l	47.7 mg/l	39.6 mg/l	39.8 mg/l	38.9 mg/l	39.8 mg/l	--	74.8 mg/l	70.3 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.41 mg/l	0.40 mg/l	0.45 mg/l	0.44 mg/l	0.46 mg/l	0.46 mg/l	0.45 mg/l	0.65 mg/l	0.65 mg/l	0.64 mg/l	0.70 mg/l	--	< 0.10 mg/l	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.15 b mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	3.3 mg/l	3.3 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.52 pH units	--	6.22 pH units	--	6.36 pH units	--	6.49 pH units	6.52 pH units	6.48 pH units	--	6.46 pH units	--	6.17 pH units	6.18 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	574 mV	--	316 mV	--	254 mV	--	307 mV	501 mV	513 mV	--	559 mV	--	436 mV	543 mV
Solids, total dissolved	NA	Lab	97.0 mg/l	99.0 mg/l	97.0 mg/l	94.0 mg/l	79.0 mg/l	92.0 mg/l	99.0 mg/l	71.0 mg/l	93.0 mg/l	98.0 mg/l	99.0 mg/l	--	135 mg/l	133 mg/l
Specific Conductance @ 25oC	NA	Field	57.5 umhos/cm	--	90.2 umhos/cm	--	89.3 umhos/cm	--	96.9 umhos/cm	78.2 umhos/cm	74.3 umhos/cm	--	84.7 umhos/cm	--	180 umhos/cm	127.3 umhos/cm
Sulfate	NA	Lab	7.1 mg/l	7.2 mg/l	7.5 mg/l	7.5 mg/l	7.3 mg/l	7.1 mg/l	6.9 mg/l	7.0 mg/l	6.6 mg/l	6.6 mg/l	6.5 mg/l	--	< 1.0 mg/l	< 1.0 mg/l
Temperature, degrees C	NA	Field	6.86 deg C	--	8.3 deg C	--	9.42 deg C	--	7.57 deg C	4.44 deg C	6.33 deg C	--	6.7 deg C	--	5.1 deg C	7.19 deg C
Turbidity	NA	Field	0 NTU	--	0 NTU	--	0 NTU	--	3.3 NTU	2.2 NTU	2.4 NTU	--	0 NTU	--	7.9 NTU	0 NTU
Metals																
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	25.1 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	0.55 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	8.5 ug/l	8.7 ug/l	7.2 ug/l	7.1 ug/l	7.1 ug/l	7.0 ug/l	7.8 ug/l	7.1 ug/l	5.1 ug/l	5.3 ug/l	5.7 ug/l	--	58.1 ug/l	49.7 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	12700 ug/l	13100 ug/l	11200 ug/l	11100 ug/l	11800 ug/l	11400 ug/l	13100 ug/l	10100 ug/l	10100 ug/l	9900 ug/l	10200 ug/l	--	17900 ug/l	16300 ug/l
Chromium	Dissolved	Lab	1.7 ug/l	2.1 ug/l	4.0 ug/l	2.9 ug/l	2.4 ug/l	2.2 ug/l	2.4 b ug/l	2.5 ug/l	2.6 ug/l	2.2 ug/l	2.7 ug/l	--	< 1.0 ug/l	< 1.0 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	3.2 ug/l	3.2 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	0.78 ug/l	0.84 ug/l	1.7 ug/l	0.99 ug/l	0.74 ug/l	0.75 ug/l	0.96 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.58 ug/l	--	< 0.50 ug/l	0.63 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	3360 ug/l	3970 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	3600 ug/l	3700 ug/l	3500 ug/l	3500 ug/l	3500 ug/l	3400 ug/l	3600 ug/l	3500 ug/l	3600 ug/l	3500 ug/l	3500 ug/l	--	7300 ug/l	7200 ug/l
Manganese	Dissolved	Lab	6.7 ug/l	6.8 ug/l	4.5 ug/l	4.7 ug/l	3.3 ug/l	3.9 ug/l	2.0 ug/l	0.93 ug/l	0.99 ug/l	0.95 ug/l	0.70 ug/l	--	656 ug/l	562 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	0.37 ug/l	0.29 ug/l	0.46 ug/l	0.35 ug/l	0.34 ug/l	0.34 ug/l	0.42 ug/l	< 0.30 ug/l	0.33 ug/l	< 0.30 ug/l	0.37 ug/l	--	0.35 ug/l	0.20 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	0.70 ug/l	0.85 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	1.9 ug/l	1.7 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	830 ug/l	860 ug/l	800 ug/l	800 ug/l	910 ug/l	860 ug/l	920 ug/l	700 ug/l	790 ug/l	760 ug/l	860 ug/l	--	1100 ug/l	820 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	2700 ug/l	2700 ug/l	2500 ug/l	2500 ug/l	2600 ug/l	2600 ug/l	3000 ug/l	2600 ug/l	2700 ug/l	2600 ug/l	2800 ug/l	--	3100 ug/l	2800 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.017 ug/l	< 0.017 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	--	< 5.0 ug/l	< 5.0 ug/l
Zinc	Dissolved	Lab	< 6.0 ug/l	7.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	8.4 ug/l	< 6.0 ug/l	< 6.0 ug/l	--	6.6 ug/l	6.5 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-15 5/30/2012 N	MW-15 6/27/2012 N FD		MW-15 7/27/2012 N	MW-15 8/21/2012 N FD		MW-15 10/15/2012 N	MW-15 5/23/2013 N	MW-15 7/30/2013 N	MW-15 10/29/2013 N	MW-16 2/24/2012 N	MW-16 3/20/2012 N FD		MW-16 4/24/2012 N
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	78.1 mg/l	74.9 mg/l	74.9 mg/l	55.6 mg/l	81.9 mg/l	77.5 mg/l	61.6 mg/l	86.9 mg/l	80.8 mg/l	72.0 mg/l	71.1 mg/l	73.6 mg/l	86.3 mg/l	55.3 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	15.4 mg/l	16.1 mg/l	16.1 mg/l	17.2 mg/l	3.5 * mg/l	18.7 * mg/l	16.6 mg/l	13.5 mg/l	16.7 mg/l	17.4 mg/l	3.49 mg/l	3.59 b mg/l	3.16 b mg/l	2.1 mg/l
Carbon, total organic	NA	Lab	15.4 mg/l	15.9 mg/l	15.9 mg/l	16.6 mg/l	3.8 * mg/l	17.7 * mg/l	16.1 mg/l	13.6 mg/l	15.6 mg/l	20.0 mg/l	2.73 mg/l	2.24 mg/l	2.64 mg/l	1.8 mg/l
Chemical Oxygen Demand	NA	Lab	48.2 mg/l	42.2 mg/l	38.5 mg/l	44.3 mg/l	51.6 mg/l	50.2 mg/l	49.0 mg/l	41.6 mg/l	54.4 mg/l	70.8 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10.0 mg/l
Chloride	NA	Lab	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.75 mg/l	0.51 mg/l	0.61 mg/l	0.55 mg/l	< 0.50 mg/l	< 1.0 mg/l	1.01 mg/l	1.13 mg/l	1.14 mg/l	< 0.50 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	1.66 mg/l	0.86 mg/l	--	0.95 mg/l	1.02 mg/l	--	1.43 mg/l	< 0.1 mg/l	0.01 mg/l	< 0.1 mg/l	2.82 mg/l	1.61 mg/l	--	3.82 mg/l
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l
Hardness, total, as CaCO3	NA	Lab	66.5 mg/l	64.2 mg/l	64.1 mg/l	60.0 mg/l	59.4 mg/l	59.0 mg/l	67.8 mg/l	73.0 mg/l	67.7 mg/l	62.0 mg/l	61.2 mg/l	67.6 mg/l	68.4 mg/l	51.6 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.12 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.14 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	3.3 mg/l	3.1 mg/l	3.1 mg/l	3.4 mg/l	3.0 mg/l	3.1 mg/l	3.5 mg/l	3.5 mg/l	3.3 mg/l	2.8 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.10 b mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.05 pH units	5.97 pH units	--	6.00 pH units	5.88 pH units	--	6.04 pH units	6.09 pH units	6.12 pH units	6.01 pH units	7.01 pH units	6.99 pH units	--	7.06 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	255 mV	136 mV	--	32 mV	183 mV	--	135 mV	245 mV	331 mV	266 mV	186 mV	150 mV	--	417 mV
Solids, total dissolved	NA	Lab	134 mg/l	158 mg/l	145 mg/l	147 mg/l	143 mg/l	158 mg/l	135 mg/l	145 mg/l	131 mg/l	153 mg/l	78 mg/l	74 mg/l	91 mg/l	94.0 mg/l
Specific Conductance @ 25oC	NA	Field	132 umhos/cm	158.3 umhos/cm	--	160.8 umhos/cm	150.9 umhos/cm	--	168 umhos/cm	177 umhos/cm	173.6 umhos/cm	164.3 umhos/cm	167.3 umhos/cm	165.1 umhos/cm	--	118.2 umhos/cm
Sulfate	NA	Lab	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	1.0 mg/l	1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 2.0 mg/l	10.7 mg/l	10.3 mg/l	10.3 mg/l	8.1 mg/l
Temperature, degrees C	NA	Field	8.1 deg C	11.08 deg C	--	9.28 deg C	10.75 deg C	--	7.17 deg C	5.95 deg C	10.12 deg C	7.07 deg C	8.3 deg C	7.38 deg C	--	7.46 deg C
Turbidity	NA	Field	0.2 NTU	0 NTU	--	1.5 NTU	0 NTU	--	1.6 NTU	0 NTU	0 NTU	1.9 NTU	5.5 NTU	7.9 NTU	--	2 NTU
Metals																
Aluminum	Dissolved	Lab	33.1 ug/l	63.8 ug/l	66.1 ug/l	41.7 ug/l	45.2 ug/l	60.2 ug/l	39.3 ug/l	33.1 ug/l	33.5 ug/l	39.3 ug/l	863 ug/l	< 20 ug/l	< 20 ug/l	< 20.0 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	0.52 ug/l	< 0.50 ug/l	0.86 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.56 ug/l	0.80 ug/l	0.75 ug/l	< 0.5 ug/l	0.59 ug/l	< 0.5 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	44.5 ug/l	42.3 ug/l	42.4 ug/l	39.6 ug/l	35.3 ug/l	35.0 ug/l	39.8 ug/l	38.2 ug/l	34.7 ug/l	29.9 ug/l	17.8 ug/l	18.2 ug/l	18.6 ug/l	10.9 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	15400 ug/l	15000 ug/l	15000 ug/l	14000 ug/l	13900 ug/l	13700 ug/l	15900 ug/l	16900 ug/l	15800 ug/l	14400 ug/l	12700 ug/l	14200 ug/l	14300 ug/l	10400 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.6 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	1.1 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	2.6 ug/l	2.5 ug/l	2.5 ug/l	2.1 ug/l	1.5 ug/l	1.5 ug/l	1.7 ug/l	1.6 ug/l	1.8 ug/l	1.6 ug/l	0.82 ug/l	1.29 ug/l	1.32 ug/l	1.0 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	0.75 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.87 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.65 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.58 ug/l	1.89 ug/l	0.94 ug/l	0.93 ug/l	1.8 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	4570 ug/l	4600 ug/l	4730 ug/l	4920 ug/l	5000 ug/l	5010 ug/l	5270 ug/l	8690 ug/l	9540 ug/l	8760 ug/l	369 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	6800 ug/l	6500 ug/l	6500 ug/l	6100 ug/l	6000 ug/l	6000 ug/l	6800 ug/l	7500 ug/l	6900 ug/l	6400 ug/l	7160 ug/l	7800 ug/l	7940 ug/l	6200 ug/l
Manganese	Dissolved	Lab	424 ug/l	503 b ug/l	501 b ug/l	355 ug/l	284 ug/l	284 ug/l	320 ug/l	377 ug/l	350 ug/l	320 ug/l	141 ug/l	334 ug/l	339 ug/l	93.5 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00085 ug/l	< 0.00050 ug/l	0.00055 ug/l	0.0009 ug/l	0.0009 ug/l	0.0008 ug/l	0.00075 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.23 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.30 ug/l	< 0.30 ug/l	< 0.30 ug/l	15 ug/l	10.5 ug/l	10.6 ug/l	4.9 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	1.5 ug/l	1.5 ug/l	1.4 ug/l	1.2 ug/l	1.4 ug/l	1.2 ug/l	1.2 ug/l	0.80 ug/l	0.66 ug/l	0.96 ug/l	2.17 ug/l	2.63 b ug/l	2.71 b ug/l	4.0 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	760 ug/l	710 ug/l	700 ug/l	700 ug/l	660 ug/l	660 ug/l	740 ug/l	810 ug/l	770 ug/l	650 ug/l	1310 ug/l	1450 ug/l	1470 ug/l	1200 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	2800 ug/l	2700 ug/l	2700 ug/l	2900 ug/l	3000 ug/l	3000 ug/l	3200 ug/l	3400 ug/l	3000 ug/l	3200 ug/l	11900 ug/l	9470 ug/l	9750 ug/l	5200 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.017 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5.0 ug/l
Zinc	Dissolved	Lab	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	6.8 ug/l	6.2 ug/l	8.9 ug/l	6.1 ug/l	< 6.0 ug/l	< 6.0 ug/l	8.1 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6.0 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-16 5/15/2012		MW-16 6/6/2012	MW-16 7/11/2012		MW-16 8/28/2012	MW-16 10/23/2012	MW-16 5/15/2013		MW-16 7/29/2013		MW-16 10/28/2013	MW-17 2/23/2012	MW-17 3/20/2012
			N	FD	N	N	FD	N	N	N	FD	N	FD	N	N	N
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	48.2 mg/l	48.4 mg/l	46.7 mg/l	43.8 mg/l	44.5 mg/l	46.5 mg/l	50.4 mg/l	45.6 mg/l	46.3 mg/l	61.6 mg/l	--	45.5 mg/l	118 mg/l	124 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	2.0 mg/l	2.4 mg/l	2.3 mg/l	1.7 mg/l	1.7 mg/l	3.6 mg/l	1.6 mg/l	1.8 mg/l	1.5 mg/l	1.1 mg/l	--	1.5 mg/l	13.8 mg/l	45.8 mg/l
Carbon, total organic	NA	Lab	2.1 mg/l	2.0 mg/l	1.7 mg/l	1.4 mg/l	1.4 mg/l	3.2 mg/l	1.4 mg/l	1.5 mg/l	1.5 mg/l	< 1.0 mg/l	--	1.4 mg/l	14.1 mg/l	42.7 mg/l
Chemical Oxygen Demand	NA	Lab	< 10.0 mg/l	< 10.0 mg/l	15.5 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	12.8 mg/l	62.3 mg/l	433 mg/l
Chloride	NA	Lab	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.60 mg/l	< 0.50 mg/l	0.51 mg/l	0.51 mg/l	0.76 mg/l	--	< 1.0 mg/l	1.64 mg/l	1.08 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	3.8 mg/l	--	4.1 mg/l	3.41 mg/l	--	3.53 mg/l	4.31 mg/l	2.8 mg/l	--	3.01 mg/l	--	3.14 mg/l	4.71 mg/l	1.52 mg/l
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l
Hardness, total, as CaCO3	NA	Lab	52.2 mg/l	52.1 mg/l	49.9 mg/l	47.4 mg/l	46.8 mg/l	49.0 mg/l	48.8 mg/l	43.5 mg/l	47.7 mg/l	64.6 mg/l	--	45.1 mg/l	112 mg/l	120 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.16 mg/l	0.16 mg/l	0.17 mg/l	0.14 mg/l	0.15 mg/l	0.18 mg/l	0.17 mg/l	0.22 mg/l	0.15 mg/l	0.16 mg/l	--	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.050 mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	0.56 mg/l	1.18 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.89 pH units	--	6.62 pH units	6.47 pH units	--	6.46 pH units	6.66 pH units	6.58 pH units	--	6.51 pH units	--	6.5 pH units	6.58 pH units	6.51 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	368 mV	--	562 mV	364 mV	--	258 mV	246 mV	495 mV	--	470 mV	--	513 mV	161 mV	136 mV
Solids, total dissolved	NA	Lab	111 mg/l	110 mg/l	94.0 mg/l	105 * mg/l	204 * mg/l	91.0 mg/l	85.0 mg/l	87.0 mg/l	78.0 mg/l	101 mg/l	--	89.0 mg/l	195 mg/l	213 mg/l
Specific Conductance @ 25oC	NA	Field	71 umhos/cm	--	67.8 umhos/cm	101.2 umhos/cm	--	105.5 umhos/cm	112.6 umhos/cm	89.6 umhos/cm	--	90.6 umhos/cm	--	79.4 umhos/cm	264 umhos/cm	290 umhos/cm
Sulfate	NA	Lab	8.2 mg/l	8.3 mg/l	8.2 mg/l	8.8 mg/l	8.7 mg/l	8.8 mg/l	9.1 mg/l	8.0 mg/l	8.0 mg/l	9.5 mg/l	--	7.8 mg/l	2.69 mg/l	8.86 mg/l
Temperature, degrees C	NA	Field	7.7 deg C	--	8.1 deg C	10.38 deg C	--	10.29 deg C	7.74 deg C	7.54 deg C	--	6.35 deg C	--	6.92 deg C	6.03 deg C	7.93 deg C
Turbidity	NA	Field	0 NTU	--	1 NTU	0.5 NTU	--	0.3 NTU	5.1 NTU	3.2 NTU	--	1.9 NTU	--	2.9 NTU	24.9 NTU	11.7 NTU
Metals																
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	98.3 ug/l	117 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	0.97 ug/l	1.09 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	11.2 ug/l	10.9 ug/l	8.1 ug/l	6.6 ug/l	6.7 ug/l	6.9 ug/l	6.6 ug/l	5.0 ug/l	4.3 ug/l	4.8 ug/l	--	4.5 ug/l	58.4 ug/l	66.6 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	10300 ug/l	10300 ug/l	9900 ug/l	9400 ug/l	9300 ug/l	9700 ug/l	9700 ug/l	8600 ug/l	9400 ug/l	13400 ug/l	--	9000 ug/l	21900 ug/l	25600 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.0 ug/l	1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	1.4 ug/l	--	< 1.0 ug/l	3.83 ug/l	3.77 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	0.63 ug/l	0.64 ug/l	0.45 ug/l	0.24 ug/l	0.23 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	3.92 ug/l	5.47 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	2.8 ug/l	1.8 ug/l	2.1 ug/l	1.8 ug/l	1.7 ug/l	2.0 ug/l	1.8 ug/l	1.7 ug/l	1.7 ug/l	< 0.50 ug/l	--	1.7 ug/l	49 ug/l	12.8 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	10400 ug/l	11000 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	3.43 ug/l	0.88 ug/l
Magnesium	Total	Lab	6400 ug/l	6400 ug/l	6100 ug/l	5800 ug/l	5700 ug/l	6000 ug/l	6000 ug/l	5300 ug/l	5900 ug/l	7600 ug/l	--	5500 ug/l	13800 ug/l	13500 ug/l
Manganese	Dissolved	Lab	46.7 ug/l	47.6 ug/l	25.6 ug/l	9.4 ug/l	9.1 ug/l	4.8 ug/l	3.0 ug/l	1.1 ug/l	0.96 ug/l	0.59 ug/l	--	< 0.50 ug/l	1060 ug/l	1260 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	0.0013 ug/l	0.00075 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00068 ug/l	0.00051 ug/l	< 0.00050 ug/l	0.00057 ug/l	< 0.00050 ug/l	0.0023 ug/l	0.0023 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	3.6 ug/l	3.6 ug/l	2.1 ug/l	1.6 ug/l	1.5 ug/l	2.0 ug/l	2.1 ug/l	0.73 ug/l	0.74 ug/l	0.58 ug/l	--	0.51 ug/l	2.38 ug/l	3.45 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	3.3 ug/l	3.2 ug/l	2.8 ug/l	2.2 ug/l	2.1 ug/l	1.8 ug/l	2.0 ug/l	1.4 ug/l	1.4 ug/l	< 0.50 ug/l	--	1.9 ug/l	6.26 ug/l	14.1 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1200 ug/l	1200 ug/l	1200 ug/l	1200 ug/l	1200 ug/l	1300 ug/l	1300 ug/l	990 ug/l	1200 ug/l	1600 ug/l	--	1200 ug/l	1700 ug/l	1650 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1 ug/l	< 1 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	4700 ug/l	4700 ug/l	4100 ug/l	3700 ug/l	3700 ug/l	4300 ug/l	4900 ug/l	3600 ug/l	4000 ug/l	3200 ug/l	--	3600 ug/l	7210 ug/l	9720 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.22 ug/l	< 0.20 ug/l	< 0.017 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	--	< 5.0 ug/l	8.91 ug/l	8.08 ug/l
Zinc	Dissolved	Lab	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	7.59 ug/l	8.88 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			MW-17 4/23/2012 N	MW-17 5/15/2012 N	MW-17 6/27/2012 N	MW-17 7/27/2012 N	MW-17 8/29/2012 N	MW-17 10/19/2012 N	MW-17 5/7/2013 N	MW-17 7/24/2013 N	MW-17 10/22/2013 N	MW-17 2/23/2012 N	MW-18 3/27/2012		MW-18 4/9/2012 N	MW-18 5/14/2012 N
													N	FD		
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	129 mg/l	124 mg/l	119 mg/l	121 mg/l	131 mg/l	152 mg/l	150 mg/l	147 mg/l	151 mg/l	84.5 BQS mg/l	126 BQS mg/l	122 BQS mg/l	119 mg/l	119 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	29.6 mg/l	28.5 mg/l	26.4 mg/l	25.0 mg/l	31.8 mg/l	39.9 mg/l	32.4 mg/l	30.8 mg/l	35.5 mg/l	14.0 BQS mg/l	8.6 BQS mg/l	9.1 BQS mg/l	9.2 mg/l	9.0 mg/l
Carbon, total organic	NA	Lab	29.0 mg/l	28.5 mg/l	26.0 mg/l	24.5 mg/l	31.6 mg/l	40.4 mg/l	33.2 mg/l	29.0 mg/l	36.1 mg/l	13.3 BQS mg/l	8.0 BQS mg/l	7.8 BQS mg/l	8.7 mg/l	8.4 mg/l
Chemical Oxygen Demand	NA	Lab	96.4 mg/l	79.9 mg/l	77.5 mg/l	75.0 mg/l	104 mg/l	128 mg/l	111 mg/l	97.8 mg/l	118 mg/l	82.1 BQS mg/l	22.1 BQS mg/l	25.4 BQS mg/l	28.1 mg/l	35.3 mg/l
Chloride	NA	Lab	0.67 mg/l	0.63 mg/l	0.60 mg/l	0.78 mg/l	0.90 mg/l	0.87 mg/l	0.84 mg/l	0.73 mg/l	1.1 mg/l	74.9 BQS mg/l	27 BQS mg/l	27 BQS mg/l	8.1 mg/l	2.9 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	1.56 mg/l	1.97 mg/l	1.13 mg/l	1.12 mg/l	1.42 mg/l	2.83 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	10.68 BQS mg/l	6.85 BQS mg/l	--	9.78 mg/l	8.52 mg/l
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.10 mg/l	0.10 mg/l	0.10 mg/l	0.12 mg/l	< 0.1 BQS mg/l	0.12 BQS mg/l	0.12 BQS mg/l	< 0.10 mg/l	0.11 mg/l
Hardness, total, as CaCO3	NA	Lab	121 mg/l	122 mg/l	111 mg/l	110 mg/l	121 mg/l	134 mg/l	138 mg/l	136 mg/l	130 mg/l	223 BQS mg/l	131 BQS mg/l	125 BQS mg/l	129 mg/l	125 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	1.19 BQS mg/l	< 0.1 BQS mg/l	< 0.1 BQS mg/l	0.29 mg/l	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	1.2 mg/l	1.2 mg/l	1.0 mg/l	1.1 mg/l	1.4 mg/l	1.3 mg/l	1.2 mg/l	1.1 mg/l	1.2 b mg/l	0.14 BQS mg/l	0.1 BQS mg/l	< 0.1 BQS mg/l	0.057 mg/l	< 0.050 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.67 pH units	6.54 pH units	6.4 pH units	6.33 pH units	6.45 pH units	6.5 pH units	6.44 pH units	6.48 pH units	6.54 pH units	6.84 BQS pH units	6.84 BQS pH units	--	7.44 pH units	7 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	21 mV	77 mV	-56 mV	59 mV	32 mV	53 mV	87 mV	193 mV	10 mV	185 BQS mV	527 BQS mV	--	435 mV	299 mV
Solids, total dissolved	NA	Lab	247 mg/l	256 mg/l	236 mg/l	234 mg/l	248 mg/l	342 mg/l	297 mg/l	298 mg/l	296 mg/l	212 BQS mg/l	239 BQS mg/l	219 BQS mg/l	190 mg/l	201 mg/l
Specific Conductance @ 25oC	NA	Field	290.1 umhos/cm	238.9 umhos/cm	272.5 umhos/cm	290.1 umhos/cm	306.2 umhos/cm	359.2 umhos/cm	329.8 umhos/cm	329.5 umhos/cm	349.9 umhos/cm	494.2 BQS umhos/cm	371 BQS umhos/cm	--	283.7 umhos/cm	231.6 umhos/cm
Sulfate	NA	Lab	1.8 mg/l	1.6 mg/l	1.3 mg/l	1.3 mg/l	1.9 mg/l	1.7 mg/l	1.1 mg/l	< 1.0 mg/l	< 2.0 mg/l	30.2 BQS mg/l	19.6 BQS mg/l	19.5 BQS mg/l	13.8 mg/l	11.5 mg/l
Temperature, degrees C	NA	Field	6.62 deg C	7.87 deg C	12.08 deg C	13.71 deg C	13.36 deg C	8.78 deg C	7.2 deg C	13.52 deg C	7.78 deg C	6.66 BQS deg C	8.96 BQS deg C	--	9.03 deg C	16.11 deg C
Turbidity	NA	Field	0 NTU	0 NTU	1.3 NTU	4.3 NTU	0 NTU	5.9 NTU	0.2 NTU	7.9 NTU	0 NTU	1111 BQS NTU	90.7 BQS NTU	--	106.9 NTU	25.1 NTU
Metals																
Aluminum	Dissolved	Lab	128 ug/l	117 ug/l	227 ug/l	89.0 ug/l	105 ug/l	135 ug/l	104 ug/l	94.3 ug/l	92.1 ug/l	45.6 BQS ug/l	< 20 BQS ug/l	< 20 BQS ug/l	< 20.0 ug/l	< 20.0 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.54 BQS ug/l	< 0.5 BQS ug/l	< 0.5 BQS ug/l	< 0.50 ug/l	< 0.50 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	0.87 ug/l	1.1 ug/l	0.93 ug/l	1.0 ug/l	1.0 ug/l	1.0 ug/l	0.58 ug/l	0.66 ug/l	< 0.50 ug/l	< 0.5 BQS ug/l	< 0.5 BQS ug/l	< 0.5 BQS ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	60.4 ug/l	60.4 ug/l	50.3 ug/l	51.3 ug/l	55.9 ug/l	67.2 ug/l	50.5 ug/l	50.4 ug/l	56.7 ug/l	247 BQS ug/l	77.9 BQS ug/l	73.6 BQS ug/l	72.2 ug/l	50.3 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.57 BQS ug/l	< 0.2 BQS ug/l	< 0.2 BQS ug/l	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	54.3 ug/l	< 50.0 ug/l	55.2 ug/l	< 50 BQS ug/l	< 50 BQS ug/l	< 50 BQS ug/l	< 50.0 ug/l	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 BQS ug/l	< 0.2 BQS ug/l	< 0.2 BQS ug/l	< 0.20 ug/l	< 0.20 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	25000 ug/l	25100 ug/l	21600 ug/l	20500 ug/l	23100 ug/l	26000 ug/l	24300 ug/l	23200 ug/l	22500 ug/l	47100 BQS ug/l	31000 BQS ug/l	29500 BQS ug/l	29900 ug/l	29500 ug/l
Chromium	Dissolved	Lab	3.5 ug/l	2.8 ug/l	4.1 ug/l	4.4 ug/l	4.1 ug/l	4.4 ug/l	5.2 ug/l	4.5 ug/l	5.9 ug/l	< 1 BQS ug/l	< 1 BQS ug/l	< 1 BQS ug/l	< 1.0 ug/l	< 1.0 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	3.6 ug/l	3.8 ug/l	3.0 ug/l	3.0 ug/l	2.6 ug/l	3.3 ug/l	2.7 ug/l	2.2 ug/l	2.1 ug/l	0.79 BQS ug/l	0.76 BQS ug/l	0.78 BQS ug/l	0.65 ug/l	0.52 ug/l
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	7.1 ug/l	6.0 ug/l	6.8 ug/l	6.3 ug/l	4.6 ug/l	3.7 ug/l	2.7 ug/l	3.1 ug/l	3.1 ug/l	4.8 BQS ug/l	3.19 BQS ug/l	3.19 BQS ug/l	5.7 ug/l	6.5 ug/l
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	12600 ug/l	11900 ug/l	15600 ug/l	15500 ug/l	18200 ug/l	23000 ug/l	25000 ug/l	25600 ug/l	25400 ug/l	112 BQS ug/l	85.3 BQS ug/l	87 BQS ug/l	< 50.0 ug/l	53.4 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	0.64 ug/l	0.57 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	8.09 BQS ug/l	1.3 BQS ug/l	1.11 BQS ug/l	1.6 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	14200 ug/l	14500 ug/l	13900 ug/l	14300 ug/l	15400 ug/l	16900 ug/l	18700 ug/l	18900 ug/l	18000 ug/l	25600 BQS ug/l	13000 BQS ug/l	12400 BQS ug/l	13300 ug/l	12500 ug/l
Manganese	Dissolved	Lab	1210 ug/l	1110 ug/l	1120 b ug/l	1180 ug/l	1180 ug/l	1350 ug/l	1340 ug/l	1240 ug/l	1200 ug/l	358 BQS ug/l	422 BQS ug/l	419 BQS ug/l	366 ug/l	371 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	0.0012 ug/l	0.0020 ug/l	0.0010 ug/l	0.0015 ug/l	0.00092 ug/l	0.00097 ug/l	0.00091 ug/l	0.00079 ug/l	0.00076 b ug/l	0.0182 BQS ug/l	0.0024 BQS ug/l	0.0023 BQS ug/l	0.0029 ug/l	0.0015 ug/l
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	2.6 ug/l	2.6 ug/l	2.2 ug/l	2.9 ug/l	2.4 ug/l	2.2 ug/l	1.4 ug/l	1.3 ug/l	1.5 ug/l	8.84 BQS ug/l	8.57 BQS ug/l	8.78 BQS ug/l	8.7 ug/l	9.1 ug/l
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	9.9 ug/l	10.4 ug/l	7.6 ug/l	6.5 ug/l	6.4 ug/l	7.3 ug/l	5.8 ug/l	4.5 ug/l	4.3 ug/l	3.82 BQS ug/l	2.8 BQS ug/l	2.86 BQS ug/l	2.9 ug/l	2.9 ug/l
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1400 ug/l	1400 ug/l	1200 ug/l	1300 ug/l	1400 ug/l	1300 ug/l	1000 ug/l	1000 ug/l	1000 ug/l	6350 BQS ug/l	2900 BQS ug/l	2730 BQS ug/l	2700 ug/l	2100 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	2.73 BQS ug/l	< 1 BQS ug/l	< 1 BQS ug/l	< 1.0 ug/l	< 1.0 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 BQS ug/l	< 0.2 BQS ug/l	< 0.2 BQS ug/l	< 0.20 ug/l	< 0.20 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	8400 ug/l	8200 ug/l	7400 ug/l	9100 ug/l	9800 ug/l	15400 ug/l	11600 ug/l	12900 ug/l	15600 ug/l	45500 BQS ug/l	33000 BQS ug/l	31400 BQS ug/l	18900 ug/l	11200 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.25 ug/l	< 0.20 ug/l	< 0.2 BQS ug/l	< 0.2 BQS ug/l	< 0.2 BQS ug/l	< 0.20 ug/l	< 0.20 ug/l
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	8.3 ug/l	8.0 ug/l	11.4 ug/l	10.4 ug/l	12.3 ug/l	12.9 ug/l	13.1 ug/l	10.9 ug/l	10.2 ug/l	< 5 BQS ug/l	< 5 BQS ug/l	< 5 BQS ug/l	< 5.0 ug/l	< 5.0 ug/l
Zinc	Dissolved	Lab	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	12.9 ug/l	< 6.0 ug/l	< 6.0 ug/l	8.05 BQS ug/l	< 6 BQS ug/l	6.65 BQS ug/l	< 6.0 ug/l	< 6.0 ug/l
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location			MW-18	MW-18	MW-18		MW-18	MW-18		MW-18	MW-18	MW-18
Date			6/11/2012	7/13/2012	8/14/2012		10/26/2012	5/23/2013		7/31/2013	10/1/2013	10/2/2013
Sample Type			N	N	N	FD	N	N	FD	N	N	N
	Fraction	Analysis Location										
General Parameters												
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	106 mg/l	108 mg/l	124 mg/l	126 mg/l	140 mg/l	124 mg/l	--	133 mg/l	133 mg/l	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	7.5 mg/l	7.3 mg/l	7.5 mg/l	7.1 mg/l	8.5 mg/l	6.5 mg/l	--	5.9 mg/l	5.3 mg/l	--
Carbon, total organic	NA	Lab	6.9 mg/l	6.9 mg/l	7.4 mg/l	6.8 mg/l	8.2 mg/l	6.0 mg/l	--	5.8 mg/l	5.3 mg/l	--
Chemical Oxygen Demand	NA	Lab	26.9 mg/l	18.5 mg/l	24.7 mg/l	25.4 mg/l	32.1 mg/l	17.9 mg/l	--	16.6 mg/l	33.4 b mg/l	--
Chloride	NA	Lab	1.5 mg/l	1.2 mg/l	1.6 mg/l	1.6 mg/l	1.4 mg/l	0.87 mg/l	--	0.78 mg/l	1.8 mg/l	--
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	8.04 mg/l	6.32 mg/l	8.42 mg/l	--	7.03 mg/l	0.75 mg/l	--	3.81 mg/l	--	9.95 mg/l
Fluoride	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	0.12 mg/l	0.12 mg/l	0.14 mg/l	0.12 mg/l	--	0.11 mg/l	0.13 mg/l	--
Hardness, total, as CaCO3	NA	Lab	116 mg/l	138 mg/l	138 mg/l	134 mg/l	153 mg/l	137 mg/l	--	160 mg/l	138 mg/l	--
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	0.19 mg/l	0.20 mg/l	0.15 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	--
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	0.12 mg/l	0.16 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.91 pH units	6.61 pH units	6.47 pH units	--	7.06 pH units	7.04 pH units	--	6.87 pH units	--	7.16 pH units
Phosphorus, total	NA	Lab	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	323 mV	177 mV	311 mV	--	216 mV	455 mV	--	406 mV	--	502 mV
Solids, total dissolved	NA	Lab	191 mg/l	156 mg/l	184 mg/l	190 mg/l	194 mg/l	162 mg/l	--	199 mg/l	184 mg/l	--
Specific Conductance @ 25oC	NA	Field	206.8 umhos/cm	257.4 umhos/cm	0 umhos/cm	--	270 umhos/cm	258.4 umhos/cm	--	250.4 umhos/cm	--	241.2 umhos/cm
Sulfate	NA	Lab	13.5 mg/l	14.8 mg/l	15.1 mg/l	15.1 mg/l	12.9 mg/l	13.6 mg/l	--	14.0 mg/l	11.0 mg/l	--
Temperature, degrees C	NA	Field	15.77 deg C	22.33 deg C	14.81 deg C	--	3.72 deg C	6.93 deg C	--	24.55 deg C	--	15.81 deg C
Turbidity	NA	Field	14.2 NTU	17.5 NTU	2036 NTU	--	11.7 NTU	82.8 NTU	--	5.1 NTU	--	44.7 NTU
Metals												
Aluminum	Dissolved	Lab	21.7 ug/l	20.8 ug/l	25.2 ug/l	28.8 ug/l	28.9 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--
Antimony	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.52 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	0.51 ug/l	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	38.4 ug/l	42.2 ug/l	46.8 ug/l	42.2 ug/l	44.8 ug/l	45.7 ug/l	--	61.2 ug/l	45.1 ug/l	--
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	--
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	--
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	25700 ug/l	27000 ug/l	32500 ug/l	31600 ug/l	36400 ug/l	29800 ug/l	--	36000 ug/l	31500 ug/l	--
Chromium	Dissolved	Lab	< 1.0 ug/l	1.3 ug/l	< 1.0 ug/l	2.5 b ug/l	< 1.0 ug/l	< 1.0 ug/l	--	1.0 ug/l	< 1.0 ug/l	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	0.26 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.22 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	--
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	4.0 ug/l	4.2 ug/l	5.0 ug/l	5.2 ug/l	4.2 ug/l	3.4 ug/l	--	2.0 ug/l	3.3 ug/l	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.65 ug/l	--	0.91 ug/l	0.67 ug/l	--
Magnesium	Total	Lab	11200 ug/l	11700 ug/l	13800 ug/l	13400 ug/l	15100 ug/l	15200 ug/l	--	17100 ug/l	14500 ug/l	--
Manganese	Dissolved	Lab	334 ug/l	296 ug/l	137 ug/l	140 ug/l	37.3 ug/l	164 ug/l	--	67.8 ug/l	110 ug/l	--
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	0.0018 ug/l	0.0012 ug/l	0.0016 ug/l	0.0013 ug/l	0.0011 ug/l	0.0017 ug/l	0.0015 ug/l	0.0012 ug/l	0.0028 ug/l	--
Mercury methyl	Total	Lab	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	7.3 ug/l	6.8 ug/l	8.1 ug/l	8.5 ug/l	7.1 ug/l	4.7 ug/l	--	4.9 ug/l	6.1 ug/l	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	2.3 ug/l	2.2 ug/l	2.0 b ug/l	2.7 b ug/l	0.83 ug/l	1.2 ug/l	--	0.91 ug/l	0.79 ug/l	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1800 ug/l	2000 ug/l	2400 ug/l	2300 ug/l	2500 ug/l	1800 ug/l	--	2400 ug/l	2200 ug/l	--
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Silver	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	8600 ug/l	8100 ug/l	9800 ug/l	9500 ug/l	9100 ug/l	7500 ug/l	--	8400 ug/l	8100 ug/l	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.20 ug/l	0.23 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	0.44 ug/l	< 0.20 ug/l	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Vanadium	Dissolved	Lab	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	< 5.0 ug/l	--	< 5.0 ug/l	< 5.0 ug/l	--
Zinc	Dissolved	Lab	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	< 6.0 ug/l	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--

Large Table 1
Mine Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Data Qualifiers/Footnotes	
Qualifier	Definition
	Not used in water quality modeling as of June 13, 2014
--	Not analyzed/not available.
a	Estimated value, calculated using some or all values that are estimates.
b	Potential false positive value based on blank data validation procedures.
c	Coeluting compound.
e	Estimated value, exceeded the instrument calibration range.
f	Sample was collected at a flowrate exceeding the recommended rate of 200 mL/minute.
h	EPA recommended sample preservation, extraction or analysis holding time was exceeded.
i	Indeterminate value based on failure of blind duplicate data to meet quality assurance criteria.
j	Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
p	Relative percent difference is >40% (25% CLP pesticides) between primary and confirmation GC columns.
pp	Small peak in chromatogram below method detection limit.
r	The presence of the compound is suspect based on the ID criteria of the retention time and relative retention time obtained from the examination of the chromatograms.
s	Potential false positive value based on statistical analysis of blank sample data.
v	Sample was collected under a vacuum of greater than XX inches of mercury.
*	Estimated value, QA/QC criteria not met.
**	Unusable value, QA/QC criteria not met.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
AT	Sample chromatogram is noted to be atypical of a petroleum product.
DLND	Not detected, detection limit not determined.
DF	Did not flash
EMPC	Estimated maximum possible concentration.
NA – (Not applicable)	NA indicates that a fractional portion of the sample is not part of the analytical testing or field collection procedures.
ND	Not detected.
TIC	Tentatively identified compound
BQA	Barr-applied project specific qualifier: extraction and/or analyses conducted using an alternative method and/or procedure.
BQC	Barr-applied project specific qualifier: plant shut down.
BQD	Barr-applied project specific qualifier: equipment malfunction.
BQE	Barr-applied project specific qualifier: equipment adjustment.
BQM	Barr-applied project specific qualifier: manual measurement.
BQN	Barr-applied project specific qualifier: unable to be sampled or measured due to various reasons.
BQP	Barr-applied project specific qualifier: atypical chromatographic pattern.
BQQ	Barr-applied project specific qualifier: some aspect of QA/QC was not met.
BQR	Barr-applied project specific qualifier: location was re-sampled.
BQS	Barr-applied project specific qualifier: data is considered suspect.
BQT	Barr-applied project specific qualifier: summed value not displayed due to insufficient field length.
BQU	Barr-applied project specific qualifier: historical qualifier - definition unknown.
BQV	Barr-applied project specific qualifier: estimated value.
BQX	Barr-applied project specific qualifier: see notes for qualifier definition.
BQZ	Barr-applied project specific qualifier: data is considered unusable.

Large Table 2
ProUCL Comparison of Surficial Groundwater Quality Data at the Mine Site
Poly Met Mining Inc.

			95% KM (t) UCL (unless otherwise noted)			
			Mine Site Surficial Wells		% Difference	
			WQ Model Version 5.0	All Data		
			March 2005 - June 2012	March 2005 - October 2013		
Groundwater Quality Standards						
Alkalinity	mg/L	Total		65.56	66.44	1.3%
Chloride	mg/L	N/A	250 ³	0.963	0.918	-4.7%
Fluoride	mg/L	N/A	2 ³ , 4 ²	0.116	0.115	-0.9%
Sulfate	mg/L	N/A	250 ³	10.12	9.681	-4.3%
Aluminum	mg/L	Dissolved	0.05-0.2 ³	0.095	0.08	-15.8%
Antimony	mg/L	Dissolved	0.006 ^{1,2}	All NDs	All NDs	--
Arsenic	mg/L	Dissolved	0.01 ²	0.00102	0.00101	-1.0%
Barium	mg/L	Total		0.0466	0.0381	-18.2%
Beryllium	mg/L	Total	0.00008 ¹ , 0.004 ²	0.00024493	0.00022788	-7.0%
Boron	mg/L	Total		0.0422	0.0423	0.2%
Cadmium	mg/L	Dissolved	0.004 ¹ , 0.005 ²	0.00020178	0.00020117	-0.3%
Calcium	mg/L	Total		16.75*	16.02*	-4.4%
Chromium	mg/L	Dissolved		0.00144	0.00141	-2.1%
Cobalt	mg/L	Dissolved		0.00117	0.00106	-9.4%
Copper	mg/L	Dissolved	1 ³	0.00392	0.00305	-22.2%
Iron	mg/L	Dissolved	0.3 ³	1.771	2.37	33.8%
Lead	mg/L	Total		0.00151	0.00115	-23.8%
Magnesium	mg/L	Total		7.333*	7.161*	-2.3%
Manganese	mg/L	Dissolved	0.1 ¹ , 0.05 ³	0.346	0.328	-5.2%
Nickel	mg/L	Dissolved	0.1 ¹	0.00266	0.0024	-9.8%
Potassium	mg/L	Total		1.918*	1.784*	-7.0%
Selenium	mg/L	Dissolved	0.03 ¹ , 0.05 ²	0.00151	0.00148	-2.0%
Silver	mg/L	Dissolved	0.03 ¹ , 0.1 ³	All NDs	All NDs	--
Sodium	mg/L	Total		5.891	5.802	-1.5%
Thallium	mg/L	Total	0.0006 ¹ , 0.002 ²	0.00022507	0.00020887	-7.2%
Vanadium	mg/L	Dissolved	0.05 ¹	0.00588	0.00604	2.7%
Zinc	mg/L	Dissolved	2 ¹ , 5 ³	0.00781	0.00717	-8.2%

* 95% student's T UCL was used due to no NDs therefore no KM UCL

1 MDH HRL

2 EPA MCL

3 EPA sMCL

Note: The groundwater quality data is used in the water quality model to define the uncertainty in the mean concentration, not the full distribution. Changes in the 95% UCL correspond to the potential for changes in the upper end of the simulated mean distribution. Because this document is focused on the use of these data for the water quality modeling, changes that do not affect the 95% UCL are interpreted as having little effect on the uncertainty in the mean concentration, at least on the high end.

Large Table 3
Mine Site Bedrock Groundwater Quality Data
Poly Met Mining Inc.

Location			OB-1	OB-1	OB-1	OB-1	OB-1	OB-1	OB-1	OB-1	OB-1	OB-1	OB-1	OB-2	OB-2		OB-2	OB-2		OB-2
Date			10/5/2006	3/17/2009	5/7/2010	7/29/2010	10/7/2010	10/13/2011	9/24/2012		10/24/2012	9/25/2013		10/3/2006	3/17/2009		5/7/2010	7/29/2010		10/7/2010
Sample Type			N	N	N	N	N	N	N	FD	N	N	FD	N	N	FD	N	N	FD	N
	Fraction	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	35.8 mg/l	36.0 mg/l	28.6 mg/l	35.8 mg/l	98.0 mg/l	96.3 mg/l	--	38.0 mg/l	--	--	--	--	79.5 mg/l	94.2 mg/l	90.4 mg/l	93.8 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 20.0 mg/l	< 20.0 mg/l	--	< 10.0 mg/l	--	--	--	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l
Alkalinity, total	NA	Lab	47.4 mg/l	52.8 mg/l	35.8 mg/l	36.0 mg/l	28.6 mg/l	35.8 mg/l	98.0 mg/l	96.3 mg/l	--	38.0 mg/l	--	< 10 mg/l	92.7 mg/l	89.2 mg/l	79.5 mg/l	94.2 mg/l	90.4 mg/l	93.8 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	< 2.4 mg/l	< 3 mg/l	< 2.4 mg/l	< 4 mg/l	< 8.0 h mg/l	< 8.0 h mg/l	< 2.4 mg/l	< 4.0 * mg/l	--	--	--	--	< 2.4 mg/l	< 3 mg/l	< 3 mg/l	< 2.4 mg/l
Carbon, dissolved organic	NA	Lab	--	--	1.5 mg/l	1.3 mg/l	1.5 mg/l	2.5 mg/l	2.3 mg/l	1.9 mg/l	--	1.5 mg/l	--	--	--	--	1.6 mg/l	2.3 mg/l	2.2 mg/l	2.1 mg/l
Carbon, total organic	NA	Lab	1.5 mg/l	1.4 mg/l	1.2 mg/l	1.3 mg/l	1.1 mg/l	1.8 mg/l	1.2 mg/l	1.0 mg/l	--	1.0 mg/l	--	1.9 mg/l	1.7 mg/l	1.7 mg/l	1.7 mg/l	1.9 mg/l	2 mg/l	1.9 mg/l
Chemical Oxygen Demand	NA	Lab	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	11.2 mg/l	54.7 mg/l	< 10.0 mg/l	11.2 mg/l	--	< 10.0 mg/l	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	13.6 mg/l	< 10 mg/l	< 10 mg/l	14.1 mg/l
Chloride	NA	Lab	15.7 mg/l	3.46 mg/l	2.39 mg/l	2.79 mg/l	2.53 mg/l	2.47 mg/l	1.5 mg/l	1.5 mg/l	--	1.6 mg/l	--	0.55 mg/l	< 0.5 mg/l	< 0.5 mg/l	0.59 mg/l	0.6 mg/l	0.66 mg/l	< 0.5 mg/l
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	0.0132 mg/l	0.0120 mg/l	--	0.0124 mg/l	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l
Dissolved oxygen	NA	Field	9.59 mg/l	2.51 mg/l	0.06 mg/l	0.64 mg/l	1.9 mg/l	4.4 mg/l	3.46 mg/l	--	--	1.39 mg/l	--	2.15 mg/l	0.24 mg/l	--	0.03 mg/l	0.54 mg/l	--	2.4 mg/l
Fluoride	NA	Lab	0.11 mg/l	0.15 mg/l	0.16 mg/l	0.15 mg/l	0.14 mg/l	0.15 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	0.22 mg/l	0.11 mg/l	0.11 mg/l	0.11 mg/l	0.13 mg/l	0.14 mg/l	0.15 mg/l
Hardness, total, as CaCO3	NA	Lab	106 mg/l	87.4 mg/l	82.7 mg/l	77.6 mg/l	53.8 mg/l	119 mg/l	53.0 mg/l	53.2 mg/l	--	49.9 mg/l	--	76.4 mg/l	97.6 mg/l	98.9 mg/l	90.6 mg/l	92.6 mg/l	94.4 mg/l	92.9 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.2 b mg/l	0.07 mg/l	0.06 mg/l	< 0.1 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l
pH	NA	Lab	9.0 pH units	10.4 pH units	9.1 pH units	10.4 pH units	9.5 pH units	9.9 pH units	7.5 pH units	7.9 pH units	--	8.5 pH units	--	7.6 pH units	7.2 pH units	6.9 pH units	7.3 pH units	7.7 pH units	7.6 pH units	7.6 pH units
pH	NA	Field	9.73 pH units	7.67 pH units	6.78 pH units	9.62 pH units	10.1 pH units	10.3 pH units	8.42 pH units	--	--	8.78 pH units	--	8.09 pH units	7.43 pH units	--	6.79 pH units	7.48 pH units	--	7.8 pH units
Phosphorus, total	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L
Redox (oxidation potential)	NA	Field	-47 mV	167 mV	409 mV	362 mV	162 mg/l	103 mV	143 mV	--	--	351 mV	--	-148 mV	36 mV	--	492 mV	428 mV	--	70 mV
Solids, total dissolved	NA	Lab	--	--	82 mg/l	95 mg/l	92 mg/l	76 mg/l	107 mg/l	103 mg/l	--	107 mg/l	--	--	--	--	108 mg/l	114 mg/l	112 mg/l	113 mg/l
Specific Conductance @ 25oC	NA	Field	158 umhos/cm	184 umhos/cm	261 umhos/cm	161.8 umhos/cm	138 umhos/cm	160 umhos/cm	111 umhos/cm	--	--	104.7 umhos/cm	--	187 umhos/cm	187 umhos/cm	--	301 umhos/cm	80 umhos/cm	--	186 umhos/cm
Sulfate	NA	Lab	37.2 mg/l	29.2 mg/l	25.1 mg/l	32.2 mg/l	29.3 mg/l	31.9 mg/l	18.2 mg/l	18.2 mg/l	--	18.7 mg/l	--	10.9 mg/l	8.88 mg/l	8.89 mg/l	4.53 mg/l	8.95 mg/l	9.05 mg/l	7.23 mg/l
Temperature, degrees C	NA	Field	6.96 deg C	5.7 deg C	4.9 deg C	7.03 deg C	9.5 deg C	6.9 deg C	9.1 deg C	--	--	6.93 deg C	--	5.6 deg C	5.5 deg C	--	5.3 deg C	6.09 deg C	--	8.5 deg C
Turbidity	NA	Field	--	48 NTU	193.4 NTU	19.7 NTU	6.9 NTU	41.2 NTU	0 NTU	--	--	1.8 NTU	--	--	46 NTU	--	24 NTU	25 NTU	--	7.3 NTU
Metals																				
Aluminum	Dissolved	Lab	55.2 ug/l	127 ug/l	79.7 ug/l	98.5 ug/l	45.1 ug/l	70.1 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	111 ug/l	1690 ug/l	1490 ug/l	1580 ug/l	443 ug/l	4740 ug/l	26.1 b ug/l	23.4 b ug/l	--	40.7 ug/l	--	62.4 ug/l	60.6 ug/l	60.6 ug/l	48.6 ug/l	114 ug/l	132 ug/l	< 25 ug/l
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	< 3 ug/l	0.53 ug/l	< 0.5 ug/l	0.53 ug/l	< 0.5 ug/l	0.58 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 3 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Dissolved	Lab	--	--	--	0.53 ug/l	0.74 ug/l	0.74 ug/l	0.68 ug/l	0.70 ug/l	--	0.85 ug/l	--	--	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l
Arsenic	Total	Lab	< 2 ug/l	< 2 ug/l	1.52 ug/l	1.8 ug/l	1.19 ug/l	2.43 ug/l	0.91 ug/l	0.97 ug/l	--	0.99 ug/l	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Barium	Dissolved	Lab	--	--	--	--	--	3.70 ug/l	0.80 ug/l	0.82 ug/l	--	0.94 ug/l	--	--	--	--	--	--	--	--
Barium	Total	Lab	< 10 ug/l	16.8 ug/l	16.6 ug/l	12.6 ug/l	4.11 ug/l	29.9 ug/l	0.77 ug/l	0.75 ug/l	--	1.2 ug/l	--	< 10 ug/l	1.2 ug/l	1.2 ug/l	1.57 ug/l	1.49 ug/l	1.69 ug/l	1.09 ug/l
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.36 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	--	--	--	--	--	--	--
Boron	Total	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	93.1 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Cadmium	Dissolved																			

Large Table 3
Mine Site Bedrock Groundwater Quality Data
Poly Met Mining Inc.

Location Date			OB-2 10/12/2011	OB-2 9/25/2012	OB-2 10/24/2012	OB-2 9/24/2013		OB-3 10/16/2006	OB-3 1/4/2007	OB-3 3/19/2009	OB-3 5/7/2010		OB-3 7/27/2010		OB-3 10/7/2010		OB-3 10/12/2011	OB-3 9/25/2012	OB-3 10/24/2012		OB-3 9/24/2013
Sample Type			N	N	N	N	FD	N	N	N	N	FD	N	FD	N	FD	N	N	N	FD	N
	Fraction	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	96.4 mg/l	96.2 mg/l	--	95.6 mg/l	--	--	--	--	106 mg/l	105 mg/l	115 mg/l	112 mg/l	104 mg/l	104 mg/l	94.2 mg/l	80.0 mg/l	--	--	88.9 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10 mg/l	< 20.0 mg/l	--	< 10.0 mg/l	--	--	--	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 20.0 mg/l	--	--	< 10.0 mg/l
Alkalinity, total	NA	Lab	96.4 mg/l	96.2 mg/l	--	95.6 mg/l	--	66.2 mg/l	--	109 mg/l	106 mg/l	105 mg/l	115 mg/l	112 mg/l	104 mg/l	104 mg/l	94.2 mg/l	80.0 mg/l	--	--	88.9 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	4.3 mg/l	< 3.0 mg/l	--	< 3.0 * mg/l	--	--	--	--	< 2.4 mg/l	< 2.4 mg/l	< 3 mg/l	< 3 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 4 mg/l	< 3.0 mg/l	--	--	< 4.0 * mg/l
Carbon, dissolved organic	NA	Lab	3.3 mg/l	2.0 mg/l	--	1.9 mg/l	--	--	--	--	2.9 mg/l	2.9 mg/l	2.9 mg/l	2.8 mg/l	2.9 mg/l	2.7 mg/l	3.9 mg/l	3.1 mg/l	--	--	2.6 mg/l
Carbon, total organic	NA	Lab	2.8 mg/l	1.8 mg/l	--	1.5 mg/l	--	3.2 mg/l	--	3.0 b mg/l	3.8 mg/l	3.6 mg/l	2.9 mg/l	3.0 mg/l	2.9 mg/l	2.7 mg/l	3.6 mg/l	2.5 mg/l	--	--	2.6 mg/l
Chemical Oxygen Demand	NA	Lab	22.8 mg/l	< 10.0 mg/l	--	13.4 mg/l	--	< 10 mg/l	--	11.0 b mg/l	18 mg/l	19.2 mg/l	< 10 mg/l	< 10 mg/l	17.3 mg/l	15.7 mg/l	26.7 mg/l	< 10.0 mg/l	--	--	13.5 mg/l
Chloride	NA	Lab	0.88 mg/l	0.78 mg/l	--	1.1 mg/l	--	93.1 mg/l	--	0.58 b mg/l	0.81 mg/l	0.76 mg/l	0.75 mg/l	0.81 mg/l	0.64 mg/l	0.57 mg/l	0.95 mg/l	0.80 mg/l	--	--	1.0 mg/l
Cyanide	NA	Lab	< 0.0100 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	--	< 0.0100 mg/l	--	< 0.02 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	--	< 0.0100 mg/l
Dissolved oxygen	NA	Field	1.6 mg/l	2.08 mg/l	--	< 0.1 mg/l	--	0.80 mg/l	--	0.12 mg/l	0.05 mg/l	--	0.27 mg/l	--	1.9 mg/l	--	2.0 mg/l	1.54 mg/l	--	--	< 0.1 mg/l
Fluoride	NA	Lab	0.16 mg/l	0.16 mg/l	--	0.15 mg/l	--	0.97 mg/l	--	0.1 b mg/l	< 0.1 mg/l	< 0.1 mg/l	0.12 mg/l	0.12 mg/l	0.13 mg/l	0.13 mg/l	0.12 mg/l	0.12 mg/l	--	--	0.11 mg/l
Hardness, total, as CaCO3	NA	Lab	97.3 mg/l	95.9 mg/l	--	91.8 mg/l	--	140 mg/l	--	129 mg/l	140 mg/l	140 mg/l	127 mg/l	122 mg/l	131 mg/l	131 mg/l	137 mg/l	151 mg/l	--	--	145 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.18 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.12 mg/l	< 0.10 mg/l	--	--	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.1 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	0.1 mg/l	0.09 mg/l	0.11 mg/l	0.11 mg/l	0.14 mg/l	0.09 mg/l	0.11 mg/l	< 0.10 mg/l	--	--	< 0.10 mg/l
pH	NA	Lab	7.5 pH units	7.8 pH units	--	8.0 pH units	--	6.6 pH units	--	7.2 pH units	7.3 pH units	7.6 pH units	7.6 pH units	7.7 pH units	7.5 pH units	7.5 pH units	7.5 pH units	7.4 pH units	--	--	8.0 pH units
pH	NA	Field	7.2 pH units	7.53 pH units	--	7.55 pH units	--	6.72 pH units	--	7.25 pH units	7.28 pH units	--	7.11 pH units	--	7.3 pH units	--	7.1 pH units	7.22 pH units	--	--	7.15 pH units
Phosphorus, total	NA	Lab	< 0.1 mg P/L	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	0.43 mg P/L	0.35 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	0.15 mg P/L	< 0.10 mg/l	--	--	4.4 mg/l
Redox (oxidation potential)	NA	Field	112 mV	-29 mV	--	40 mV	--	-63 mV	--	147 mV	476 mV	--	425 mV	--	126 mV	--	147 mV	-16 mV	--	--	86 mV
Solids, total dissolved	NA	Lab	130 mg/l	134 mg/l	--	143 mg/l	--	--	--	--	160 mg/l	161 mg/l	146 mg/l	156 mg/l	174 mg/l	168 mg/l	190 mg/l	200 mg/l	--	--	214 mg/l
Specific Conductance @ 25oC	NA	Field	204 umhos/cm	198.6 umhos/cm	--	180.3 umhos/cm	--	198 umhos/cm	--	257 umhos/cm	440 umhos/cm	--	215 umhos/cm	--	263 umhos/cm	--	293 umhos/cm	315.4 umhos/cm	--	--	290.1 umhos/cm
Sulfate	NA	Lab	7.75 mg/l	8.3 mg/l	--	8.9 mg/l	--	66.4 mg/l	--	25.8 mg/l	24.3 mg/l	24.1 mg/l	140 mg/l	127 mg/l	19.6 mg/l	35.6 mg/l	47.5 mg/l	68.9 mg/l	--	--	66.3 mg/l
Temperature, degrees C	NA	Field	8.6 deg C	6.1 deg C	--	6.72 deg C	--	8.3 deg C	--	5.9 deg C	5.9 deg C	--	7.82 deg C	--	10.5 deg C	--	8.7 deg C	8.69 deg C	--	--	8.58 deg C
Turbidity	NA	Field	251.5 NTU	0.7 NTU	--	5.9 NTU	--	--	--	8.3 NTU	1 NTU	--	7.0 NTU	--	7.5 NTU	--	75.4 NTU	0.7 NTU	--	--	7.9 NTU
Metals																					
Aluminum	Dissolved	Lab	< 25 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	--	--	< 20.0 ug/l
Aluminum	Total	Lab	64.8 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	--	368 ug/l	332 ug/l	469 ug/l	6950 ug/l	8210 ug/l	322 ug/l	274 ug/l	26.9 ug/l	< 25 ug/l	613 ug/l	33.6 ug/l	--	--	20.9 ug/l
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 3 ug/l	< 3 ug/l	< 0.5 ug/l	< 0.5 ug/l	0.64 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	--	< 0.50 ug/l
Arsenic	Dissolved	Lab	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	--	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	0.86 ug/l	--	--	0.92 ug/l
Arsenic	Total	Lab	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	4.1 ug/l	3.6 ug/l	3.3 ug/l	24.1 ug/l	26.6 ug/l	1.58 ug/l	2.35 ug/l	< 1 ug/l	< 1 ug/l	10.4 ug/l	< 1.1 ug/l	--	--	1.1 ug/l
Barium	Dissolved	Lab	--	0.70 ug/l	--	0.72 ug/l	--	--	--	--	--	--	--	--	--	--	--	2.3 ug/l	--	--	2.1 ug/l
Barium	Total	Lab	2.08 ug/l	0.77 ug/l	--	0.78 ug/l	--	< 10 ug/l	< 10 ug/l	2.8 ug/l	9.5 * ug/l	15.8 * ug/l	2.62 ug/l	3.12 ug/l	2.48 ug/l	2.5 ug/l	6.8 ug/l	2.5 ug/l	--	--	2.2 ug/l
Beryllium	Total	Lab	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.21 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l
Boron	Dissolved	Lab	< 50 ug/l	65.9 ug/l	--	55.7 ug/l	--	--	--	--	--	--	--	--	--	--	< 50 ug/l	< 50.0 ug/l	--	--	< 50.0 ug/l
Boron	Total	Lab	< 50 ug/l	< 50.0 ug/l	--	56.1 ug/l	--	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	--	--	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.2 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.92 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l
Cadmium	Total	Lab	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.5 ug/l	0.6 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	48 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l
Calcium	Total	Lab	14900 ug/l	13900 ug/l	--	13200 ug/l	--	21000 ug/l	21600 ug/l	21600 ug/l	22700 ug/l	22500 ug/l	21600 ug/l	20600 ug/l	22300 ug/l	22200 ug/l	23000 ug/l	24900 ug/l	--	--	23600 ug/l
Chromium	Dissolved	Lab	< 1 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	--	< 1 ug/l	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	--	--	< 1.0 ug/l
Chromium	Total	Lab	< 1 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	--	< 2.5 ug/l	2.7 ug/l	1.7 ug/l	2.4 ug/l	5.53 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	4.22 ug/l	< 1.0 ug/l	--	--	< 1.0 ug/l
Cobalt	Dissolved	Lab	--	0.28 ug/l	--	0.40 ug/l	--	--	--	--	--	--	--	--	--	--	--	5.0 ug/l	--	--	4.8 ug/l
Cobalt	Total	Lab	3.18 ug/l	0.35 ug/l	--	0.48 ug/l	--	4.1 ug/l	6.7 ug/l	7.9 ug/l	12.3 ug/l	15.4 ug/l	8.28 ug/l	7.69 ug/l	6.57 ug/l	6.77 ug/l	23.3 ug/l	5.9 ug/l	--	--	5.1 ug/l
Copper	Dissolved	Lab	< 0.7 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 2 ug/l	< 5 ug/l	0.89 b ug/l	0.92 b ug/l	< 0.7 ug/l	0.79 ug/l	0.81 ug/l	2.53 ug/l	< 0.7 ug/l	1.87 ug/l	< 0.50 ug/l	--	--	< 0.50 ug/l
Copper	Total	Lab	3.96 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	2.1 ug/l	< 5 ug/l	6.1 b ug/l	44.6 * ug/l	67.1 * ug/l	7.06 * ug/l	4.46 * ug/l	1.57 ug/l	1.52 ug/l	39.4 ug/l	0.99 ug/l	--	--	0.70 ug/l
Iron	Dissolved	Lab	142 ug/l	561 ug/l	--	865 ug/l	--	--	--	--	--	--	1620 ug/l	1610 ug/l	2460 ug/l	2460 ug/l	204 ug/l	2750 ug/l	--	--	3240 ug/l
Iron	Total	Lab	25600 ug/l	1560 ug/l	--	1360 ug/l	--	7040 ug/l	6370 ug/l	4320 ug/l	36000 ug/l	42500 ug/l	4440 ug/l	3690 ug/l	3780 ug/l	3600 ug/l	44300 ug/l	4200 ug/l	--	--	4010 ug/l
Lead	Dissolved	Lab	--	< 0.50 ug/l	--	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	--	--	< 0.50 ug/l
Lead	Total	Lab	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 1 ug/l	< 2 ug/l	< 0.5 ug/l	2.9 ug/l	4.09 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	1.46 ug/l	< 0.50 ug/l	--	--	< 0.50 ug/l
Magnesium	Total	Lab	14600 ug/l	14900 ug/l	--	14300 ug/l	--	21400 ug/l	20600 ug/l	18300 ug/l	20300 ug/l	20400 ug/l	17800 ug/l	17100 ug/l	18400 ug/l	18300 ug/l	19300 ug/l	21600 ug/l	--	--	20800 ug/l
Manganese	Dissolved	Lab	188 ug/l	108 ug/l	--	129 ug/l	--	--	--	--	208 ug/l	208 ug/l	193 ug/l	195 ug/l	217 ug/l	213 ug/l	218 ug/l	210 ug/l	--	--	218 ug/l
Manganese	Total	Lab	280 ug/l	121 ug/l	--	140 ug/l	--	383 ug/l	366 ug/l	222 ug/l	279 ug/l	287 ug/l	207 ug/l	207 ug/l	222 ug/l	222 ug/l	339 ug/l	241 ug/l	--	--	225 ug/l
Mercury	Total	Lab	0.0009 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.0008 b ug/l	--	< 0.0005 ug/l	0.0011 ug/l	0.0007 ug/l	< 0.0005 ug/l	0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	0.0017 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l
Mercury methyl	Total	Lab	< 0.0001 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.000056 ug/l	--	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.00003 ug/l	0.00009 jb ug/l	< 0.00003 ug/l	< 0.00003 ug/l
Molybdenum	Dissolved	Lab	2.64 ug/l	1.6 ug/l	--	1.7 ug/l	--	< 5 ug/l	< 5 ug/l	0.91 ug/l	0.79 ug/l	0.8 ug/l	0.99 ug/l	0.94 ug/l	0.87 b ug/l	0.87 b ug/l	0.96 ug/l	0.74 ug/l	--	--	0.90 ug/l
Molybdenum	Total	Lab	0.76 ug/l	1.6 ug/l	--	1.8 ug/l	--	< 5 ug/l	< 5 ug/l	0.97 ug/l	0.58 ug/l	1.04 ug/l	0.94 ug/l	0.96 ug/l	0.86 ug/l	0.86 ug/l	0.29 ug/l	0.71 ug/l	--	--	0.85 ug/l
Nickel	Dissolved	Lab	8.31 ug/l	0.88 ug/l	--	0.82 ug/l	--	100 ug/l	158 ug/l	141 ug/l	118 ug/l	117 ug/l	122 ug/l	124 ug/l	128 ug/l	124 ug/l	104 ug/l	103 ug/l	--	--	98.2 ug/l

Large Table 3
Mine Site Bedrock Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			OB-3 9/24/2013 N	OB-4 10/4/2006 N FD		OB-4 3/19/2009 N	OB-4 5/5/2010 N	OB-4 7/27/2010 N	OB-4 10/6/2010 N	OB-4 10/12/2011 N FD		OB-4 9/25/2012 N	OB-4 10/24/2012 N	OB-4 9/23/2013 N FD		OB-5 10/4/2006 N	OB-5 3/19/2009 N FD		OB-5 5/5/2010 N
	Fraction	Analysis Location																	
General Parameters																			
Alkalinity, bicarbonate, as CaCO3	NA	Lab	88.9 mg/l	--	--	--	19 mg/l	25.9 mg/l	18.3 mg/l	16.9 mg/l	17 mg/l	< 20.0 mg/l	--	15.0 mg/l	14.1 mg/l	--	--	--	18.7 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10.0 mg/l	--	--	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 20.0 mg/l	--	< 10.0 mg/l	< 10.0 mg/l	--	--	--	< 10 mg/l
Alkalinity, total	NA	Lab	88.9 mg/l	17.6 mg/l	17.6 mg/l	26.7 mg/l	19 mg/l	25.9 mg/l	18.3 mg/l	16.9 mg/l	17 mg/l	< 20.0 mg/l	--	15.0 mg/l	14.1 mg/l	25.5 mg/l	23.1 mg/l	24 mg/l	18.7 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	< 4.0 * mg/l	--	--	--	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 3 mg/l	< 2.4 mg/l	< 3.0 mg/l	--	< 3.0 * mg/l	< 3.0 * mg/l	--	--	--	< 2.4 mg/l
Carbon, dissolved organic	NA	Lab	2.6 mg/l	--	--	--	1.3 mg/l	1.3 mg/l	1.6 mg/l	2.7 mg/l	2.5 mg/l	1.8 mg/l	--	1.7 mg/l	1.7 mg/l	--	--	--	1.6 mg/l
Carbon, total organic	NA	Lab	2.6 mg/l	2.2 mg/l	1.9 mg/l	1.5 b mg/l	1.0 mg/l	1.3 mg/l	1.0 mg/l	2.2 mg/l	1.8 mg/l	1.6 mg/l	--	1.4 mg/l	1.4 mg/l	2.0 mg/l	2.0 b mg/l	2.0 b mg/l	1.6 mg/l
Chemical Oxygen Demand	NA	Lab	13.5 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	12.0 mg/l	< 10 mg/l	< 10 mg/l	30.5 mg/l	24.9 mg/l	< 10.0 mg/l	--	15.2 mg/l	< 10.0 mg/l	< 10 mg/l	< 10 mg/l	32.9 b mg/l	14.9 mg/l
Chloride	NA	Lab	1.0 mg/l	0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	0.77 b mg/l	0.61 mg/l	0.54 mg/l	0.66 mg/l	0.73 mg/l	0.74 mg/l	--	1.1 mg/l	< 1.0 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l
Cyanide	NA	Lab	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	0.0105 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l
Dissolved oxygen	NA	Field	< 0.1 mg/l	5.47 mg/l	--	1.34 mg/l	4.95 mg/l	7.00 mg/l	5.9 mg/l	8.7 mg/l	--	8.99 mg/l	--	9.23 mg/l	--	7.04 mg/l	7.07 mg/l	--	6.82 mg/l
Fluoride	NA	Lab	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Hardness, total, as CaCO3	NA	Lab	145 mg/l	23.7 mg/l	24.1 mg/l	38.9 mg/l	37.7 mg/l	34.5 mg/l	34.7 mg/l	34.6 mg/l	30.7 mg/l	20.6 mg/l	--	18.2 mg/l	17.8 mg/l	30.2 mg/l	39.2 mg/l	38.6 mg/l	32.9 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.15 mg/l	0.14 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.05 mg/l
pH	NA	Lab	8.0 pH units	6.1 pH units	5.7 pH units	6.4 pH units	6.4 pH units	6.7 pH units	6.5 pH units	6.5 pH units	5.6 pH units	6.7 pH units	--	7.1 pH units	7.1 pH units	6.0 pH units	6.3 pH units	6.5 pH units	6.6 pH units
pH	NA	Field	7.15 pH units	5.80 pH units	--	6.53 pH units	6.46 pH units	6.61 pH units	5.9 pH units	5.8 pH units	--	5.69 pH units	--	5.85 pH units	--	6.24 pH units	6.33 pH units	--	7.1 pH units
Phosphorus, total	NA	Lab	4.4 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	0.19 mg P/L	0.15 mg P/L	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg P/L
Redox (oxidation potential)	NA	Field	86 mV	119 mV	--	401 mV	528 mV	464 mV	454 mV	399 mV	--	354 mV	--	643 mV	--	483 mV	494 mV	--	494 mV
Solids, total dissolved	NA	Lab	214 mg/l	--	--	--	63 mg/l	52 mg/l	74 mg/l	62 mg/l	62 mg/l	60.0 mg/l	--	51.0 mg/l	54.0 mg/l	--	--	--	129 mg/l
Specific Conductance @ 25oC	NA	Field	290.1 umhos/cm	49 umhos/cm	--	84 umhos/cm	117 umhos/cm	66 umhos/cm	69 umhos/cm	60 umhos/cm	--	40 umhos/cm	--	39.2 umhos/cm	--	45 umhos/cm	76 umhos/cm	--	92 umhos/cm
Sulfate	NA	Lab	66.3 mg/l	< 1 * mg/l	8.55 * mg/l	13.4 mg/l	14.6 mg/l	14.5 mg/l	14.7 mg/l	8.34 mg/l	8.43 mg/l	8.5 mg/l	--	8.2 mg/l	8.0 mg/l	15.3 mg/l	15.2 mg/l	--	9.08 mg/l
Temperature, degrees C	NA	Field	8.58 deg C	8.0 deg C	--	5.1 deg C	6.9 deg C	7.55 deg C	10 deg C	8.7 deg C	--	8.3 deg C	--	7.4 deg C	--	8.3 deg C	4.2 deg C	--	4.6 deg C
Turbidity	NA	Field	7.9 NTU	--	--	27 NTU	202 NTU	11.2 NTU	5.8 NTU	216.9 NTU	--	0 NTU	--	0 NTU	--	--	35 NTU	--	4 NTU
Metals																			
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	20.9 ug/l	55.4 ug/l	62.1 ug/l	3600 ug/l	4570 ug/l	1680 ug/l	134 ug/l	4850 ug/l	3500 ug/l	48.9 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	181 ug/l	1170 ug/l	1210 ug/l	3290 ug/l
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	< 0.50 ug/l	< 3 ug/l	< 3 ug/l	0.72 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 3 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Dissolved	Lab	0.92 ug/l	--	--	--	--	2.47 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--
Arsenic	Total	Lab	1.1 ug/l	< 2 ug/l	< 2 ug/l	11 ug/l	2.64 ug/l	5.5 ug/l	< 1 ug/l	2.92 ug/l	2.3 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	2.61 ug/l
Barium	Dissolved	Lab	2.1 ug/l	--	--	--	--	--	--	--	--	0.58 ug/l	--	0.64 ug/l	0.77 ug/l	--	--	--	--
Barium	Total	Lab	2.2 ug/l	< 10 ug/l	< 10 ug/l	14.4 ug/l	20.5 ug/l	6.45 ug/l	2.12 ug/l	32.4 ug/l	24 ug/l	0.75 ug/l	--	0.66 ug/l	0.64 ug/l	< 10 ug/l	5.2 ug/l	5.3 ug/l	19.6 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	< 50.0 ug/l	--	--	--	--	--	--	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	--	--	--	--
Boron	Total	Lab	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.24 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.31 ug/l	0.25 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Calcium	Total	Lab	23600 ug/l	5400 ug/l	5480 ug/l	8060 ug/l	7520 ug/l	7640 ug/l	7790 ug/l	6210 ug/l	5910 ug/l	4700 ug/l	--	4200 ug/l	4100 ug/l	7660 ug/l	9590 ug/l	9430 ug/l	7190 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	1.2 b ug/l	< 1 ug/l	< 1 ug/l
Chromium	Total	Lab	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	13.8 ug/l	15.9 ug/l	5.82 ug/l	< 1 ug/l	36.2 ug/l	24 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	2.2 ug/l	1.1 ug/l	3.1 ug/l	7.71 ug/l
Cobalt	Dissolved	Lab	4.8 ug/l	--	--	--	--	--	--	--	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--
Cobalt	Total	Lab	5.1 ug/l	< 1 ug/l	< 1 ug/l	1.9 ug/l	1.76 ug/l	1.2 ug/l	0.24 ug/l	3.96 ug/l	2.92 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 1 ug/l	0.98 ug/l	1.0 ug/l	2.55 ug/l
Copper	Dissolved	Lab	< 0.50 ug/l	< 2 ug/l	< 2 ug/l	2.0 b ug/l	0.98 ug/l	3.33 ug/l	1.25 ug/l	1.67 ug/l	0.97 ug/l	0.57 ug/l	--	0.52 ug/l	0.51 ug/l	2.3 ug/l	3.2 b ug/l	3.1 b ug/l	2.61 ug/l
Copper	Total	Lab	0.70 ug/l	< 2 ug/l	< 2 ug/l	8.6 b ug/l	9.06 ug/l	6.35 ug/l	1.34 ug/l	33.8 ug/l	27 ug/l	0.65 ug/l	--	0.57 ug/l	0.57 ug/l	3.5 ug/l	10.2 b ug/l	10.2 b ug/l	33.2 ug/l
Iron	Dissolved	Lab	3240 ug/l	--	--	--	--	56.8 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	--	--	--	--
Iron	Total	Lab	4010 ug/l	< 50 ug/l	< 50 ug/l	4160 ug/l	5160 ug/l	2020 ug/l	168 ug/l	14400 ug/l	8860 ug/l	73.7 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	548 ug/l	17200 ug/l	18900 ug/l	21900 ug/l
Lead	Dissolved	Lab	< 0.50 ug/l	--	--	--	--	--	--	--	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--
Lead	Total	Lab	< 0.50 ug/l	< 1 ug/l	< 1 ug/l	0.58 ug/l	0.51 ug/l	< 0.5 ug/l	< 0.5 ug/l	1 ug/l	0.74 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 1 ug/l	0.57 ug/l	< 0.5 ug/l	0.85 ug/l
Magnesium	Total	Lab	20800 ug/l	2480 ug/l	2520 ug/l	4550 ug/l	4590 ug/l	3750 ug/l	3710 ug/l	4650 ug/l	3880 ug/l	2100 ug/l	--	1900 ug/l	1800 ug/l	2810 ug/l	3710 ug/l	3670 ug/l	3620 ug/l
Manganese	Dissolved	Lab	218 ug/l	--	--	--	4.11 b ug/l	31.1 ug/l	4.72 ug/l	< 10 ug/l	0.62 ug/l	0.59 ug/l	--	0.52 ug/l	0.59 ug/l	--	--	--	14.3 ug/l
Manganese	Total	Lab	225 ug/l	< 10 ug/l	< 10 ug/l	56.6 ug/l	41.2 ug/l	36.4 ug/l	4.95 ug/l	92 ug/l	69.6 ug/l	1.0 ug/l	--	0.72 ug/l	0.76 ug/l	< 10 ug/l	20.6 b ug/l	22.2 b ug/l	78.5 ug/l
Mercury	Total	Lab	< 0.00050 ug/l	0.0009 b ug/l	0.0010 b ug/l	0.0008 ug/l	0.0007 ug/l	0.0007 ug/l	0.0006 ug/l	0.0037 ug/l	0.0032 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00067 ug/l	0.00068 ug/l	0.0049 ug/l	0.0009 ug/l	0.0012 ug/l	0.0022 ug/l
Mercury methyl	Total	Lab	< 0.00003 ug/l	< 0.000056 ug/l	< 0.000056 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.000056 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l
Molybdenum	Dissolved	Lab	0.90 ug/l	< 5 ug/l	< 5 ug/l	2.5 ug/l	0.27 ug/l	1.64 ug/l	0.39 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	< 0.30 ug/l	< 0.30 ug/l	< 5 ug/l	0.22 ug/l	0.22 ug/l	< 0.2 ug/l
Molybdenum	Total	Lab	0.85 ug/l	< 5 ug/l	< 5 ug/l	3.3 ug/l	1.1 ug/l	1.94 ug/l	0.41 ug/l	0.45 ug/l	0.39 ug/l	< 0.20 ug/l	--	< 0.30 ug/l	< 0.30 ug/l	< 5 ug/l	0.9 ug/l	0.86 ug/l	0.74 ug/l
Nickel	Dissolved	Lab	98.2 ug/l	< 2 ug/l	< 2 ug/l	5.1 ug/l	1.34 ug/l	4.49 ug/l	2.32 ug/l	2.41 ug/l	2.05 ug/l	0.51 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	5.9 ug/l	8.6 ug/l	8.3 ug/l	5.41 ug/l
Nickel	Total	Lab	103 ug/l	< 2 ug/l	< 2 ug/l	11.1 ug/l	8.25 ug/l	8.11 ug/l	2.29 ug/l	16.8 ug/l	12.6 ug/l	0.70 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	4.6 ug/l	11.6 ug/l	12 ug/l	22.8 ug/l
Palladium	Total	Lab	< 0.50 ug/l	< 0.1 ug/l	< 0.1 ug/l	< 0.30 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.1 ug/l	< 0.30 ug/l	< 0.30 ug/l	< 0.50 ug/l
Platinum	Total	Lab	< 0.1 ug/l	< 0.50 ug/l	< 0.1 ug/l	< 0.30 ug/l	<												

Large Table 3
Mine Site Bedrock Groundwater Quality Data
Poly Met Mining Inc.

Location			OB-5	OB-5		OB-5	OB-5	OB-5	OB-5	P-1	P-2	P-2	P-2	P-2	P-2	P-3
Date			7/27/2010	10/6/2010		10/12/2011	9/24/2012	10/24/2012	9/23/2013	1/5/2006	12/22/2005	10/24/2006	10/31/2006	11/7/2006	11/14/2006	1/5/2006
Sample Type			N	N	FD	N	N	N	N	N	N	N	N	N	N	N
	Fraction	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	23.4 mg/l	25.8 mg/l	25.3 mg/l	25.2 mg/l	85.1 mg/l	--	20.1 mg/l	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 20.0 mg/l	--	< 10.0 mg/l	--	--	--	--	--	--	--
Alkalinity, total	NA	Lab	23.4 mg/l	25.8 mg/l	25.3 mg/l	25.2 mg/l	85.1 mg/l	--	20.1 mg/l	< 10 mg/l	98.5 mg/l	101 mg/l	105 mg/l	74 mg/l	108 mg/l	97.2 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	< 3 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 6 mg/l	< 8.0 h mg/l	< 2.4 mg/l	< 3.0 * mg/l	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	1.7 mg/l	2.1 mg/l	1.5 mg/l	2.7 mg/l	2.1 mg/l	--	1.8 mg/l	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	1.8 mg/l	1.3 mg/l	1.3 mg/l	1.3 mg/l	2.7 mg/l	--	1.4 mg/l	2.3 mg/l	2.4 mg/l	3.3 mg/l	3.9 mg/l	4.5 mg/l	5.3 mg/l	7.6 mg/l
Chemical Oxygen Demand	NA	Lab	< 10 mg/l	< 10 mg/l	14.2 mg/l	25.5 mg/l	< 10.0 mg/l	--	10.0 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	485 mg/l
Chloride	NA	Lab	0.63 mg/l	< 0.5 mg/l	< 0.5 mg/l	1.08 mg/l	0.53 mg/l	--	< 1.0 mg/l	6.6 mg/l	1.8 mg/l	1.29 mg/l	1.4 mg/l	1.35 mg/l	1.3 mg/l	2.1 mg/l
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	0.0126 mg/l	--	0.0253 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 * mg/l
Dissolved oxygen	NA	Field	8.10 mg/l	7.2 mg/l	--	9.6 mg/l	9.15 mg/l	--	9.36 mg/l	--	--	--	--	--	--	--
Fluoride	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	1.1 mg/l	0.53 mg/l	0.31 mg/l	0.15 mg/l	0.13 mg/l	0.37 mg/l	0.64 mg/l
Hardness, total, as CaCO3	NA	Lab	31.5 mg/l	35.2 mg/l	31 mg/l	40.6 mg/l	26.5 mg/l	--	24.6 mg/l	15 mg/l	56.5 mg/l	63.5 mg/l	68.6 mg/l	77.4 mg/l	82.9 mg/l	113 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.18 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.1 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.1 mg/l	0.27 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
pH	NA	Lab	7.0 pH units	6.8 pH units	6.6 pH units	6.9 pH units	6.8 pH units	--	7.3 pH units	8.5 pH units	7.8 pH units	7.7 pH units	7.1 pH units	8.4 pH units	7.5 pH units	6.6 pH units
pH	NA	Field	6.73 pH units	5.6 pH units	--	6.3 pH units	6.25 pH units	--	6.14 pH units	--	--	--	--	--	--	--
Phosphorus, total	NA	Lab	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	0.15 mg P/L	< 0.10 mg/l	--	< 0.10 mg/l	< 0.1 mg/l	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Redox (oxidation potential)	NA	Field	460 mV	454 mV	--	333 mV	310 mV	--	598 mV	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	51 mg/l	75 mg/l	69 mg/l	66 mg/l	69.0 mg/l	--	70.0 mg/l	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Field	51.4 umhos/cm	67 umhos/cm	--	70 umhos/cm	55.1 umhos/cm	--	53 umhos/cm	--	--	--	--	--	--	--
Sulfate	NA	Lab	9.97 mg/l	9.81 mg/l	9.77 mg/l	8.71 mg/l	10.1 mg/l	--	9.4 mg/l	1200 mg/l	10.5 mg/l	9.06 mg/l	7.88 mg/l	6.53 mg/l	5.76 mg/l	32.9 mg/l
Temperature, degrees C	NA	Field	8.06 deg C	11.0 deg C	--	10.0 deg C	10.11 deg C	--	8.73 deg C	--	--	--	--	--	--	--
Turbidity	NA	Field	54.2 NTU	18 NTU	--	1106.0 NTU	0 NTU	--	0 NTU	--	--	--	--	--	--	--
Metals																
Aluminum	Dissolved	Lab	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	1460 ug/l	281 * ug/l	147 * ug/l	2480 ug/l	< 20.0 ug/l	--	24.3 ug/l	59.1 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l
Arsenic	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	--	--	--	--	--
Arsenic	Total	Lab	2.94 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	2.2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Barium	Dissolved	Lab	--	--	--	--	1.7 ug/l	--	1.7 ug/l	--	--	--	--	--	--	--
Barium	Total	Lab	7.32 ug/l	3.18 ug/l	3.27 ug/l	20.4 ug/l	1.7 ug/l	--	1.7 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.2 ug/l	0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	< 50 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	--	--	--	--	--	--
Boron	Total	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	518 ug/l	170 ug/l	194 ug/l	168 ug/l	153 ug/l	148 ug/l	76.3 ug/l
Cadmium	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.54 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Calcium	Total	Lab	7430 ug/l	8120 ug/l	7240 ug/l	8900 ug/l	6300 ug/l	--	5900 ug/l	6200 ug/l	11600 ug/l	12800 ug/l	13500 ug/l	15500 ug/l	16700 ug/l	20400 ug/l
Chromium	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Chromium	Total	Lab	3.8 ug/l	< 1 ug/l	< 1 ug/l	9.7 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	1.9 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	1.1 ug/l	< 1 ug/l	1.2 ug/l
Cobalt	Dissolved	Lab	--	--	--	--	< 0.20 ug/l	--	< 0.20 ug/l	--	--	--	--	--	--	--
Cobalt	Total	Lab	1.19 ug/l	0.23 ug/l	< 0.2 ug/l	5.49 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Copper	Dissolved	Lab	3.48 ug/l	3.47 ug/l	3.04 ug/l	1.73 ug/l	2.9 ug/l	--	3.0 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Copper	Total	Lab	18.9 ug/l	3.48 ug/l	3.73 ug/l	46.3 ug/l	3.3 ug/l	--	3.5 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Iron	Dissolved	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	--	--	--	--	--	--
Iron	Total	Lab	19500 ug/l	756 * ug/l	521 * ug/l	35500 ug/l	140 b ug/l	--	181 ug/l	100 ug/l	140 ug/l	253 ug/l	271 ug/l	325 ug/l	351 ug/l	4370 ug/l
Lead	Dissolved	Lab	--	--	--	--	< 0.50 ug/l	--	< 0.50 ug/l	--	--	--	--	--	--	--
Lead	Total	Lab	0.94 b ug/l	< 0.5 ug/l	< 0.5 ug/l	1.31 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 1 ug/l	< 1 ug/l	< 5 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Magnesium	Total	Lab	3140 ug/l	3630 ug/l	3150 ug/l	4470 ug/l	2600 ug/l	--	2400 ug/l	< 2000 ug/l	6700 ug/l	7670 ug/l	8480 ug/l	9410 ug/l	10000 ug/l	15000 ug/l
Manganese	Dissolved	Lab	9.65 ug/l	1.39 ug/l	1.21 ug/l	47.4 ug/l	1.0 ug/l	--	0.86 ug/l	--	--	--	--	--	--	--
Manganese	Total	Lab	32 ug/l	3.81 ug/l	2.87 ug/l	356 ug/l	1.4 b ug/l	--	1.3 ug/l	10 ug/l	20 ug/l	21.7 ug/l	23.6 ug/l	26.2 ug/l	27.3 ug/l	140 ug/l
Mercury	Total	Lab	0.0036 ug/l	0.0009 ug/l	0.0012 ug/l	0.0039 ug/l	0.00069 ug/l	--	0.00097 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	0.0005 b ug/l	< 0.0005 ug/l	< 0.0005 ug/l
Mercury methyl	Total	Lab	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	< 0.0001 ug/l	0.00006 jg ug/l	--	< 0.00003 ug/l	< 0.000025 ug/l	0.000059 b ug/l	< 0.000056 ug/l	0.000070 ug/l	< 0.000056 ug/l	< 0.000056 ug/l	< 0.000025 ug/l
Molybdenum	Dissolved	Lab	< 0.2 ug/l	0.25 ug/l	0.22 ug/l	< 0.2 ug/l	0.23 ug/l	--	< 0.30 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l
Molybdenum	Total	Lab	0.84 ug/l	0.23 ug/l	0.28 ug/l	< 0.2 ug/l	0.22 ug/l	--	< 0.30 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l
Nickel	Dissolved	Lab	5.43 ug/l	5.43 ug/l	5.4 ug/l	4.38 ug/l	4.6 ug/l	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Nickel	Total	Lab	12.3 ug/l	5.7 ug/l	5.88 ug/l	38.4 ug/l	4.8 ug/l	--	4.7 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Palladium	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.1 ug/l	< 0.1 ug/l	< 0.1 ug/l	< 0.1 ug/l	< 0.1 ug/l	< 0.1 ug/l	0.3 ug/l
Platinum	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l
Potassium	Total	Lab	1250 ug/l	1260 ug/l	1120 ug/l	1660 ug/l	1000 ug/l	--	980 ug/l	1200 ug/l	1100 ug/l	1030 ug/l	1040 ug/l	1040 ug/l	1100 ug/l	2100 ug/l
Selenium	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Selenium	Total	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 2 ug/l	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	4 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Silver	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Silver	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Sodium	Total	Lab	< 2000 ug/l	< 2000 ug/l	< 2000 ug/l	< 2000 ug/l	1500 ug/l	--	43900 ug/l	24300 ug/l	24300 ug/l	24400 ug/l	23200 ug/l	23300 ug/l	23900 ug/l	7500 ug/l
Strontium	Total	Lab	24.7 ug/l	23.7 ug/l	24.9 ug/l	41.3 ug/l	20.4 ug/l	--	19.3 ug/l	33.4 ug/l	37.9 ug/l	56.5 ug/l	60.7 ug/l	69.7 ug/l	74.9 ug/l	75.2 ug/l
Thallium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Titanium	Total	Lab	65 ug/l	< 10 ug/l	< 10 ug/l	65 ug/l	< 10.0 ug/l	--	< 10 ug/l	< 20 ug/l	< 20 ug/l	< 20 ug/l	< 20 ug/l	< 20 ug/l	< 20 ug/l	< 10 ug/l
Vanadium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	15.2 ug/l	--	--	6.67 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	< 25 ug/l	< 10 ug/l	59.1 ug/l	68.2 ug/l	134 ug/l	122 ug/l	< 25 ug/l
Zinc	Total	Lab	9.79 ug/l	< 6 ug/l	< 6 ug/l	19 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	17.9 ug/l	< 10 ug/l	65.4 ug/l	67.7 ug/l	125 ug/l	122 ug/l	11.3 ug/l

Large Table 3
Mine Site Bedrock Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type		P-4 12/22/2005 N	
	Fraction	Analysis Location	
General Parameters			
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--
Alkalinity, total	NA	Lab	69.2 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--
Carbon, dissolved organic	NA	Lab	--
Carbon, total organic	NA	Lab	2.2 mg/l
Chemical Oxygen Demand	NA	Lab	17 mg/l
Chloride	NA	Lab	< 0.5 mg/l
Cyanide	NA	Lab	< 0.02 mg/l
Dissolved oxygen	NA	Field	--
Fluoride	NA	Lab	0.35 mg/l
Hardness, total, as CaCO3	NA	Lab	76.2 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	0.11 mg/l
pH	NA	Lab	8.1 pH units
pH	NA	Field	--
Phosphorus, total	NA	Lab	< 0.1 mg/l
Redox (oxidation potential)	NA	Field	--
Solids, total dissolved	NA	Lab	--
Specific Conductance @ 25oC	NA	Field	--
Sulfate	NA	Lab	14.1 mg/l
Temperature, degrees C	NA	Field	--
Turbidity	NA	Field	--
Metals			
Aluminum	Dissolved	Lab	< 25 ug/l
Aluminum	Total	Lab	57.2 ug/l
Antimony	Dissolved	Lab	--
Antimony	Total	Lab	< 3 ug/l
Arsenic	Dissolved	Lab	--
Arsenic	Total	Lab	5.7 ug/l
Barium	Dissolved	Lab	--
Barium	Total	Lab	< 10 ug/l
Beryllium	Total	Lab	< 0.2 ug/l
Boron	Dissolved	Lab	--
Boron	Total	Lab	55 ug/l
Cadmium	Dissolved	Lab	< 0.2 ug/l
Cadmium	Total	Lab	< 0.2 ug/l
Calcium	Total	Lab	17700 ug/l
Chromium	Dissolved	Lab	< 1 ug/l
Chromium	Total	Lab	< 1 ug/l
Cobalt	Dissolved	Lab	--
Cobalt	Total	Lab	< 1 ug/l
Copper	Dissolved	Lab	< 2 ug/l
Copper	Total	Lab	< 2 ug/l
Iron	Dissolved	Lab	--
Iron	Total	Lab	190 ug/l
Lead	Dissolved	Lab	--
Lead	Total	Lab	< 1 ug/l
Magnesium	Total	Lab	7800 ug/l
Manganese	Dissolved	Lab	--
Manganese	Total	Lab	60 ug/l
Mercury	Total	Lab	0.0007 ug/l
Mercury methyl	Total	Lab	< 0.000025 ug/l
Molybdenum	Dissolved	Lab	28.9 ug/l
Molybdenum	Total	Lab	34.5 ug/l
Nickel	Dissolved	Lab	< 2 ug/l
Nickel	Total	Lab	< 2 ug/l
Palladium	Total	Lab	< 0.1 ug/l
Platinum	Total	Lab	< 0.02 ug/l
Potassium	Total	Lab	1700 ug/l
Selenium	Dissolved	Lab	< 2 ug/l
Selenium	Total	Lab	< 2 ug/l
Silver	Dissolved	Lab	< 1 ug/l
Silver	Total	Lab	< 1 ug/l
Sodium	Total	Lab	4400 ug/l
Strontium	Total	Lab	45.5 ug/l
Thallium	Total	Lab	< 2 ug/l
Titanium	Total	Lab	< 10 ug/l
Vanadium	Dissolved	Lab	--
Zinc	Dissolved	Lab	< 10 ug/l
Zinc	Total	Lab	< 10 ug/l

Large Table 3
Mine Site Bedrock Groundwater Quality Data
Poly Met Mining Inc.

Data Qualifiers/Footnotes	
Qualifier	Definition
	Not used in water quality modeling as of June 13, 2014
--	Not analyzed/not available.
a	Estimated value, calculated using some or all values that are estimates.
b	Potential false positive value based on blank data validation procedures.
c	Coeluting compound.
e	Estimated value, exceeded the instrument calibration range.
f	Sample was collected at a flowrate exceeding the recommended rate of 200 mL/minute.
h	EPA recommended sample preservation, extraction or analysis holding time was exceeded.
i	Indeterminate value based on failure of blind duplicate data to meet quality assurance criteria.
j	Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
p	Relative percent difference is >40% (25% CLP pesticides) between primary and confirmation GC columns.
pp	Small peak in chromatogram below method detection limit.
r	The presence of the compound is suspect based on the ID criteria of the retention time and relative retention time obtained from the examination of the chromatograms.
s	Potential false positive value based on statistical analysis of blank sample data.
v	Sample was collected under a vacuum of greater than XX inches of mercury.
*	Estimated value, QA/QC criteria not met.
**	Unusable value, QA/QC criteria not met.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
AT	Sample chromatogram is noted to be atypical of a petroleum product.
DLND	Not detected, detection limit not determined.
DF	Did not flash
EMPC	Estimated maximum possible concentration.
NA – (Not applicable)	NA indicates that a fractional portion of the sample is not part of the analytical testing or field collection procedures.
ND	Not detected.
TIC	Tentatively identified compound
BQA	Barr-applied project specific qualifier: extraction and/or analyses conducted using an alternative method and/or procedure.
BQC	Barr-applied project specific qualifier: plant shut down.
BQD	Barr-applied project specific qualifier: equipment malfunction.
BQE	Barr-applied project specific qualifier: equipment adjustment.
BQM	Barr-applied project specific qualifier: manual measurement.
BQN	Barr-applied project specific qualifier: unable to be sampled or measured due to various reasons.
BQP	Barr-applied project specific qualifier: atypical chromatographic pattern.
BQQ	Barr-applied project specific qualifier: some aspect of QA/QC was not met.
BQR	Barr-applied project specific qualifier: location was re-sampled.
BQS	Barr-applied project specific qualifier: data is considered suspect.
BQT	Barr-applied project specific qualifier: summed value not displayed due to insufficient field length.
BQU	Barr-applied project specific qualifier: historical qualifier - definition unknown.
BQV	Barr-applied project specific qualifier: estimated value.
BQX	Barr-applied project specific qualifier: see notes for qualifier definition.
BQZ	Barr-applied project specific qualifier: data is considered unusable.

Large Table 4
ProUCL Comparison of Bedrock Groundwater Quality Data at the Mine Site
Poly Met Mining Inc.

			95% KM (t) UCL (unless otherwise noted)			
			Mine Site Bedrock Wells		% Difference	
			WQ Model Version 5.0	All Data		
			March 2005 - October 2010	March 2005 - September 2013		
Groundwater Quality Standards						
Alkalinity	mg/L	Total		71.42	69.16	-3.2%
Chloride	mg/L		250 ³	8.993	6.534	-27.3%
Fluoride	mg/L		2 ³ , 4 ²	0.295	0.242	-18.0%
Sulfate	mg/L		250 ³	111.1	83.48	-24.9%
Aluminum	mg/L	Dissolved	0.05-0.2 ³	0.0556	0.053	-4.7%
Antimony	mg/L	Total		0.00055868	0.00054749	-2.0%
Arsenic	mg/L	Total		0.00406	0.00333	-18.0%
Barium	mg/L	Total		0.00766	0.00782	2.1%
Beryllium	mg/L	Total	0.00008 ¹ , 0.004 ²	94% NDs	0.0002097	--
Boron	mg/L	Total		0.113	0.096	-15.0%
Cadmium	mg/L	Dissolved	0.004 ¹ , 0.005 ²	0.00020395	0.0002454	20.3%
Calcium	mg/L	Total		17.12*	16.45*	-3.9%
Chromium	mg/L	Dissolved		0.00111	0.00111	0.0%
Cobalt	mg/L	Total		0.00289	0.0034	17.6%
Copper	mg/L	Dissolved	1 ³	0.00176	0.00158	-10.2%
Iron	mg/L	Total		7.906 **	9.487	20.0%
Lead	mg/L	Total		0.00076116	0.00073607	-3.3%
Magnesium	mg/L	Total		10.84	10.75	-0.8%
Manganese	mg/L	Total		0.128	0.137	7.0%
Nickel	mg/L	Total		0.0609	0.0642	5.4%
Potassium	mg/L	Total		1.777*	1.74*	-2.1%
Selenium	mg/L	Dissolved	0.03 ¹ , 0.05 ²	All NDs	All NDs	--
Silver	mg/L	Dissolved	0.03 ¹ , 0.1 ³	All NDs	All NDs	--
Sodium	mg/L	Total		12.89	10.37	-19.6%
Thallium	mg/L	Total	0.0006 ¹ , 0.002 ²	All NDs	All NDs	--
Zinc	mg/L	Dissolved	2 ¹ , 5 ³	0.0293	0.0217	-25.9%

* 95% student's T UCL was used due to no NDs therefore no KM UCL

** recommended 95% KM (chebyshev) ucl = 11.44

1 MDH HRL

2 EPA MCL

3 EPA smCL

Note: The groundwater quality data is used in the water quality model to define the uncertainty in the mean concentration, not the full distribution. Changes in the 95% UCL correspond to the potential for changes in the upper end of the simulated mean distribution. Because this document is focused on the use of these data for the water quality modeling, changes that do not affect the 95% UCL are interpreted as having little effect on the uncertainty in the mean concentration, at least on the high end.

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			GW-001 8/17/2007 N	GW-001 10/11/2007 N	GW-001 5/6/2009 N	GW-001 5/7/2009 N	GW-001 5/6/2010 N	GW-001 7/26/2010 N	GW-001 10/5/2010 N	GW-001 7/19/2011 N	GW-001 10/4/2011 N	GW-001 11/1/2011 N	GW-001 4/25/2012 N	GW-001 7/19/2012		GW001 10/2/2012 N	GW001 4/29/2013		GW001 7/3/2013		GW001 10/3/2013 N	GW001 10/10/2013 N	GW-002 8/17/2007 N	GW-002 10/10/2007 N	GW-002 3/18/2009 N	GW-002 3/17/2010 N
			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Fraction	Analysis Location																									
General Parameters																										
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--		386 mg/l	339 mg/l	375 mg/l	385 mg/l	391 mg/l	387 mg/l	394 mg/l	386 mg/l	389 mg/l	398 mg/l	402 mg/l	399 mg/l	395 mg/l	--	405 mg/l	--	--	--	37.7 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--		< 10 mg/l	< 10 mg/l	< 10 mg/l	< 20 mg/l	--	< 10 mg/l	--	< 10 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 20.0 mg/l	--	--	--	--	--	< 10 mg/l	
Alkalinity, total	NA	Lab	394 mg/l	387 mg/l	379 mg/l	384 mg/l	386 mg/l	339 mg/l	375 mg/l	385 mg/l	391 mg/l	387 mg/l	394 mg/l	386 mg/l	389 mg/l	398 mg/l	402 mg/l	399 mg/l	395 mg/l	--	405 mg/l	--	46.5 mg/l	34.1 mg/l	26.1 mg/l	37.7 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--		< 2.4 mg/l	< 3 mg/l	< 4 mg/l	< 4 mg/l	--	< 4.0 mg/l	--	< 4.0 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 2.4 * mg/l	--	--	--	--	--	< 6 mg/l	
Carbon, dissolved organic	NA	Lab	--	--	--	--		8.9 mg/l	8.9 mg/l	9.2 mg/l	9.1 mg/l	9.8 mg/l	9.2 mg/l	9.2 mg/l	8.5 mg/l	8.9 mg/l	8.4 mg/l	8.5 mg/l	8.7 mg/l	9.3 mg/l	--	8.3 mg/l	--	--	--	4.5 mg/l
Carbon, total organic	NA	Lab	8.6 mg/l	9.1 mg/l	8.6 mg/l	8.7 mg/l	9.0 mg/l	8.5 mg/l	8.7 mg/l	8.5 mg/l	9.4 mg/l	9.3 mg/l	8.9 mg/l	8.2 mg/l	8.9 mg/l	8.8 mg/l	8.7 mg/l	8.8 mg/l	8.7 mg/l	--	7.3 mg/l	--	1.9 mg/l	7.4 mg/l	4.4 b mg/l	4.2 mg/l
Chemical Oxygen Demand	NA	Lab	48.0 mg/l	43 mg/l	24.1 mg/l	28.1 mg/l	34.3 mg/l	32.1 mg/l	35.2 mg/l	44.8 mg/l	52.9 mg/l	--	23.2 mg/l	24.6 mg/l	23.2 mg/l	25.4 mg/l	28.2 mg/l	29.6 mg/l	31.4 mg/l	--	37.8 mg/l	--	< 10 mg/l	38 mg/l	23.1 b mg/l	34.2 mg/l
Chloride	NA	Lab	26.9 mg/l	27.3 mg/l	26.9 mg/l	--	26.4 mg/l	26.4 mg/l	27.1 mg/l	26.3 mg/l	26.3 mg/l	27 mg/l	26.5 mg/l	27.7 mg/l	26.3 mg/l	27.2 mg/l	27.8 mg/l	27.6 mg/l	27.9 mg/l	--	28.1 mg/l	--	0.65 mg/l	0.74 mg/l	< 0.5 mg/l	0.9 mg/l
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	0.0107 mg/l	0.0113 mg/l	0.0219 mg/l	< 0.0100 mg/l	--	0.0104 mg/l	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	0.0054 j mg/l
Dissolved oxygen	NA	Field	4.11 mg/l	1.99 mg/l	--	1.74 mg/l	5.36 mg/l	4.62 mg/l	3.0 mg/l	1.67 mg/l	2.4 mg/l	879 mg/l	9.3 mg/l	1.38 mg/l	1.47 mg/l	1.35 mg/l	< 0.1 mg/l	--	0.01 mg/l	--	< 0.1 mg/l	--	1.75 mg/l	5.11 mg/l	10.94 mg/l	3.76 mg/l
Fluoride	NA	Lab	< 0.1 mg/l	0.11 mg/l	0.15 mg/l	--	0.18 mg/l	0.15 mg/l	0.19 mg/l	0.16 mg/l	0.17 mg/l	0.15 mg/l	0.15 mg/l	0.16 mg/l	0.16 mg/l	< 0.10 mg/l	0.15 mg/l	0.15 mg/l	0.14 mg/l	--	0.19 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Hardness, total, as CaCO3	NA	Lab	367 mg/l	322 mg/l	371 mg/l	352 mg/l	369 mg/l	328 mg/l	384 mg/l	373 mg/l	346 mg/l	350 mg/l	373 mg/l	367 mg/l	384 mg/l	365 mg/l	385 mg/l	368 mg/l	--	371 mg/l	--	< 0.1 mg/l	--	73.9 mg/l	42.3 mg/l	70.6 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	0.15 mg/l	0.13 b mg/l	0.1 mg/l	< 0.1 mg/l	0.13 mg/l	0.11 mg/l	0.16 mg/l	0.17 mg/l	0.16 mg/l	0.16 mg/l	0.17 mg/l	0.15 mg/l	0.13 mg/l	0.13 mg/l	0.20 mg/l	0.19 mg/l	0.21 mg/l	--	0.18 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, Nitrate as N	NA	Lab	< 0.1 h mg/l	--	--	--	--	--	--	--	--	< 0.1 mg/l	--	--	--	--	--	--	--	--	--	--	< 0.1 h mg/l	--	--	--
Nitrogen, Nitrite as N	NA	Lab	< 0.05 h mg/l	--	--	--	--	--	--	--	--	< 0.1 mg/l	--	--	--	--	--	--	--	--	--	--	< 0.05 h mg/l	--	--	--
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	< 0.02 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	7.1 pH units	7.2 pH units	7.1 pH units	7.2 pH units	7.5 pH units	7.7 pH units	7.4 pH units	7.5 pH units	7.4 pH units	--	5.2 pH units	7.2 pH units	7.1 pH units	7.5 pH units	7.6 pH units	7.5 pH units	4.1 pH units	--	7.2 pH units	--	7.4 pH units	7.4 pH units	7.5 pH units	6.9 pH units
pH	NA	Field	6.88 pH units	7.22 pH units	--	7.31 pH units	6.88 pH units	6.74 pH units	8.00 pH units	6.45 pH units	6.9 pH units	7.00 pH units	7.01 pH units	6.84 pH units	--	6.81 pH units	6.91 pH units	--	6.83 pH units	--	6.88 pH units	7.02 pH units	7.76 pH units	7.95 pH units	8.06 pH units	6.96 pH units
Phosphorus, total	NA	Lab	< 0.1 mg/l	0.11 mg/l	< 0.1 mg/l	--	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	--
Redox (oxidation potential)	NA	Field	429 mV	554 mV	--	454 mV	591 mV	562 mV	560 mV	408 mV	198 mV	152 mV	303 mV	38 mV	--	2 mV	101 mV	--	274 mV	--	139 mV	185 mV	398 mV	504 mV	390 mV	299 mV
Solids, total dissolved	NA	Lab	--	--	--	--	--	537 mg/l	455 mg/l	509 mg/l	586 mg/l	555 mg/l	523 mg/l	494 mg/l	473 mg/l	495 mg/l	490 mg/l	493 mg/l	--	500 mg/l	--	--	--	--	--	--
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	42 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	640 umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Field	831 umhos/cm	842 umhos/cm	--	885 umhos/cm	835 umhos/cm	902 umhos/cm	753 umhos/cm	803.5 umhos/cm	883 umhos/cm	879 umhos/cm	869 umhos/cm	874.3 umhos/cm	--	881.1 umhos/cm	892.4 umhos/cm	--	872.5 umhos/cm	--	806.8 umhos/cm	883.5 umhos/cm	88 umhos/cm	122 umhos/cm	65 umhos/cm	109 umhos/cm
Sulfate	NA	Lab	36.8 mg/l	36.8 mg/l	34.3 mg/l	--	34 mg/l	33.4 mg/l	33.3 mg/l	31.8 mg/l	30.3 mg/l	31.6 mg/l	29.7 mg/l	31.9 mg/l	31.8 mg/l	30.1 mg/l	29.2 mg/l	29.1 mg/l	28.8 mg/l	--	30.1 mg/l	--	7.74 mg/l	6.39 mg/l	6.18 mg/l	7.21 mg/l
Sulfide	NA	Lab	--	--	--	--	--	--	--	--	--	< 5.0 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, degrees C	NA	Field	9.1 deg C	5.7 deg C	--	3.5 deg C	7.6 deg C	7.9 deg C	8.6 deg C	7.75 deg C	7.3 deg C	6.61 deg C	7.3 deg C	10.19 deg C	--	8.08 deg C	8.89 deg C	--	11.01 deg C	--	8.35 deg C	8.78 deg C	11.7 deg C	8.9 deg C	6.5 deg C	7.7 deg C
Turbidity	NA	Field	48 NTU	35.5 NTU	--	104 NTU	146 NTU	147 NTU	37.6 NTU	2.1 NTU	32.7 NTU	0 NTU	0 NTU	0 NTU	--	0 NTU	0 NTU	--	0 NTU	--	8.35 deg C	8.78 deg C	57 NTU	321 NTU	786 NTU	477 NTU
Water Elevation, ft/MSL	NA	Field	1486.33	1486.37	1486.3	1486.21	1486.17	--	1486.15	1485.11	1484.9	1485.45	1485.81	1485.76	--	1485.78	1485.83	--	1485.6	--	1485.6	1485.62	1784.71	1785.05	1784.38	1784.6
Metals																										
Aluminum	Dissolved	Lab	< 10 ug/l	< 10 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	--	< 20.0 ug/l	25.0 ug/l	24.6 ug/l	22.7 ug/l	21.0 ug/l	< 20.0 ug/l	24.5 ug/l	--	< 20.0 ug/l	--	56 ug/l	110 ug/l	< 25 ug/l	87.5 ug/l
Aluminum	Total	Lab	1600 ug/l	1100 ug/l	42.6 ug/l	3060 ug/l	823 ug/l	1080 ug/l	342 ug/l	484 ug/l	1110 ug/l	247 ug/l	--	34.5 ug/l	484 ug/l	33.5 ug/l	59.2 ug/l	56.4 ug/l	113 ug/l	--	47.2 ug/l	--	9800 ug/l	16000 ug/l	4600 ug/l	11000 ug/l
Antimony	Dissolved	Lab	--	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	--
Antimony	Total	Lab	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Dissolved	Lab	--	< 2.0 ug/l	< 2 ug/l	--	--	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.71 ug/l	--	< 0.50 ug/l	--	--	< 2.0 ug/l	--	--
Arsenic	Total	Lab	< 10 ug/l	< 2.0 ug/l	< 2 ug/l	< 2 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	0.54 ug/l	--	0.58 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	< 10 ug/l	2.2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l
Arsenic III	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	--	--	--
Arsenic inorganic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic V	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	250 ug/l	--	--	--	--	--	262 e ug/l	240 ug/l	--	--	239 ug/l	236 ug/l	230 ug/l	239 ug/l	254 ug/l	246 ug/l	--	228 ug/l	--	--	6.3 ug/l	--	--
Barium	Total	Lab	300 ug/l	280 ug/l	260 ug/l	285 ug/l	271 ug/l	229 ug/l	269 ug/l	261 ug/l	273 ug/l	264 ug/l	267 ug/l	264 ug/l	257 ug/l	248 ug/l	273 ug/l	283 ug/l	285 ug/l	--	245 ug/l	--	59 ug/l	110 ug/l	47.1 ug/l	84.3 ug/l
Beryllium	Dissolved	Lab	--	< 2.0 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2.0 ug/l	--	--
Beryllium	Total	Lab	< 1.0 ug/l	< 2.0 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 1.0 ug/l	< 2.0 ug/l	< 0.2 ug/l	0.22 ug/l
Boron	Dissolved	Lab	--	290 ug/l	--	--	--	--	--	256 ug/l	259 ug/l	--	--	258 ug/l	263 ug/l	267 ug/l	273 ug/l	264 ug/l	308 ug/l	--	293 ug/l	--	--	< 200 ug/l	< 200 ug/l	< 50 ug/l
Boron	Total	Lab	300 ug/l	260 ug/l	297 ug/l	269 ug/l	256 ug/l	254 ug/l	276 ug/l	254 ug/l	264 ug/l	262 ug/l	262 ug/l	266 ug/l	263 ug/l	266 ug/l	265 ug/l	277 ug/l	296 ug/l	--	312 ug/l	--	< 200 ug/l	< 200 ug/l	< 50 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	< 0.20 ug/l	0.98 ug/l	< 0.2 ug/l	0.62 ug/l	< 0.2 ug/l	0.3 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.34 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l										

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			GW-002	GW-002	GW-002	GW-002	GW-002	GW-002	GW-002	GW002	GW002	GW002		GW002		GW002	GW-005	GW-005	GW-005	GW-005	GW-005	GW-005	GW-005		GW-005
			5/6/2010	10/6/2010	4/21/2011	7/18/2011	10/4/2011	4/11/2012	7/19/2012	10/1/2012	4/29/2013	7/5/2013		10/3/2013		10/10/2013	3/20/2009	5/7/2009	3/17/2010	5/3/2010	7/26/2010	10/5/2010	4/21/2011		7/18/2011
			N	N	N	N	N	N	N	N	N	N	FD	N	FD	N	N	N	N	N	N	N	N	FD	N
General Parameters			Fraction	Analysis Location																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	21.4 mg/l	32.7 mg/l	26.6 mg/l	29.1 mg/l	35.0 mg/l	17.6 mg/l	54.6 mg/l	36.3 mg/l	30.0 mg/l	27.6 mg/l	--	31.4 mg/l	--	--	--	--	376 mg/l	439 mg/l	372 mg/l	392 mg/l	353 mg/l	371 mg/l	338 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l	--	--	--	--	< 10 mg/l	< 10 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 10 mg/l
Alkalinity, total	NA	Lab	21.4 mg/l	32.7 mg/l	26.6 mg/l	29.1 mg/l	35.0 mg/l	17.6 mg/l	54.6 mg/l	36.3 mg/l	30.0 mg/l	27.6 mg/l	--	31.4 mg/l	--	--	337 mg/l	--	376 mg/l	439 mg/l	372 mg/l	392 mg/l	353 mg/l	371 mg/l	338 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	< 4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 4 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 4.0 * mg/l	< 4.0 * mg/l	--	--	--	< 2.4 * mg/l	--	--	< 4 mg/l	< 4 mg/l	< 4 mg/l	< 4 mg/l	< 4 mg/l	< 4 mg/l	< 4 mg/l
Carbon, dissolved organic	NA	Lab	4.8 mg/l	2.7 mg/l	7.1 mg/l	4.3 mg/l	3.6 mg/l	6.7 mg/l	2.6 mg/l	1.8 mg/l	5.2 mg/l	5.6 mg/l	--	2.3 mg/l	--	--	--	--	1.6 mg/l	2.2 mg/l	2.0 mg/l	2.2 mg/l	2.4 h mg/l	2.1 mg/l	2.2 mg/l
Carbon, total organic	NA	Lab	4.5 mg/l	1.5 mg/l	5.6 mg/l	3.7 mg/l	2.5 mg/l	5.3 mg/l	3.5 mg/l	1.6 b mg/l	4.4 mg/l	5.6 mg/l	--	1.8 mg/l	--	--	1.5 b mg/l	--	1.9 mg/l	2.0 mg/l	1.6 mg/l	1.4 mg/l	1.7 h mg/l	1.5 mg/l	1.6 mg/l
Chemical Oxygen Demand	NA	Lab	19.0 mg/l	16.5 mg/l	16.8 mg/l	16.6 mg/l	28.7 mg/l	27.8 mg/l	< 10.0 mg/l	< 10.0 mg/l	32.6 mg/l	26.1 mg/l	--	10.1 mg/l	--	--	35.2 b mg/l	--	14 mg/l	43.4 mg/l	18.7 mg/l	17.7 mg/l	47.6 h* mg/l	14.7 * mg/l	18.7 mg/l
Chloride	NA	Lab	0.56 mg/l	< 0.5 mg/l	1.2 mg/l	0.93 mg/l	0.89 mg/l	1.4 mg/l	< 0.50 mg/l	0.64 mg/l	< 0.50 mg/l	< 0.50 mg/l	--	< 1.0 mg/l	--	--	29.2 mg/l	--	29.2 mg/l	31.4 mg/l	31.9 mg/l	31.4 mg/l	30.8 h mg/l	31.4 mg/l	30.3 mg/l
Cyanide	NA	Lab	< 0.0100 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	--	--	< 0.02 mg/l	--	< 0.0035 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l
Dissolved oxygen	NA	Field	16.21 mg/l	8.2 mg/l	9.52 mg/l	7.7 mg/l	10.9 mg/l	10.65 mg/l	11.49 mg/l	9.37 mg/l	10.28 mg/l	8.75 mg/l	--	8.81 mg/l	--	--	0.67 mg/l	1.39 mg/l	4.23 mg/l	2.91 mg/l	1.93 mg/l	1.4 mg/l	7.19 mg/l	--	2.05 mg/l
Fluoride	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	--	2.28 mg/l	--	1.98 mg/l	1.92 mg/l	2.04 mg/l	2.2 mg/l	2.22 h mg/l	2.14 mg/l	1.95 mg/l
Hardness, total, as CaCO3	NA	Lab	39.6 mg/l	38.6 mg/l	38.9 mg/l	36.3 mg/l	55.9 mg/l	30.4 mg/l	37.3 mg/l	45.0 mg/l	50.3 mg/l	53.2 mg/l	--	34.0 mg/l	--	--	532 mg/l	--	490 mg/l	707 mg/l	526 mg/l	534 mg/l	552 mg/l	493 mg/l	493 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	--	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	0.1 mg/l	< 0.1 mg/l	0.13 h mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.05 mg/l	< 0.05 mg/l	< 0.1 h mg/l	< 0.1 mg/l	< 0.1 mg/l	0.080 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	--	0.52 mg/l	--	0.28 mg/l	< 0.1 mg/l	0.16 mg/l	0.21 mg/l	< 0.1 h mg/l	< 0.1 h mg/l	0.2 mg/l
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	7.1 pH units	7.0 pH units	--	7.0 pH units	7.3 pH units	7.4 pH units	6.7 pH units	7.1 pH units	7.3 pH units	6.7 pH units	--	8.3 pH units	--	--	8.1 pH units	--	8.0 pH units	8.1 pH units	8.0 pH units	8.0 pH units	--	--	8.1 pH units
pH	NA	Field	7.26 pH units	5.3 pH units	7.59 pH units	7.4 pH units	7.9 pH units	7.5 pH units	6.11 pH units	6.7 pH units	7.42 pH units	7.4 pH units	--	7.34 pH units	--	--	7.66 pH units	8.47 pH units	8 pH units	7.57 pH units	7.63 pH units	8.0 pH units	7.5 pH units	--	7.42 pH units
Phosphorus, total	NA	Lab	0.46 mg P/L	< 0.1 mg P/L	0.12 h mg P/L	0.14 mg P/L	0.48 mg P/L	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.36 mg/l	0.32 mg/l	--	< 0.10 mg P/L	--	--	0.14 mg/l	--	< 0.1 mg P/L	0.62 mg P/L	0.13 mg P/L	0.13 mg P/L	< 0.1 h mg P/L	0.72 h mg P/L	< 0.1 mg P/L
Redox (oxidation potential)	NA	Field	638 mV	632 mV	337 mV	436 mV	430 mV	416 mV	397 mV	171 mV	418 mV	332 mV	--	476 mV	--	--	338 mV	253 mV	213 mV	469 mV	407 mV	535 mV	365 mV	--	448 mV
Solids, total dissolved	NA	Lab	96.1 mg/l	90 mg/l	95 mg/l	88 mg/l	117 mg/l	90.0 mg/l	81.0 mg/l	103 mg/l	82.0 mg/l	83.0 mg/l	--	90.0 mg/l	--	--	--	--	694 mg/l	743 mg/l	--	840 mg/l	851 mg/l	849 mg/l	789 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Field	84 umhos/cm	225 umhos/cm	37.9 umhos/cm	55 umhos/cm	82 umhos/cm	58.6 umhos/cm	68.8 umhos/cm	0 umhos/cm	63.9 umhos/cm	56.5 umhos/cm	--	69.4 umhos/cm	--	--	1070 umhos/cm	885 umhos/cm	1140 umhos/cm	512 umhos/cm	1098 umhos/cm	1027 umhos/cm	1278 umhos/cm	--	1115 umhos/cm
Sulfate	NA	Lab	6.24 mg/l	6.56 mg/l	6.27 mg/l	6.22 mg/l	6.18 mg/l	7.6 mg/l	6.4 mg/l	6.7 mg/l	5.5 mg/l	5.2 mg/l	--	6.7 mg/l	--	--	283 mg/l	259 mg/l	250 mg/l	222 mg/l	265 mg/l	284 mg/l	323 mg/l	322 mg/l	298 mg/l
Sulfide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8 * mg/l	--	--	--	--	--	--	--
Temperature, degrees C	NA	Field	7 deg C	13.6 deg C	12.21 deg C	16.6 deg C	13.4 deg C	13.1 deg C	16.23 deg C	16.1 deg C	14.74 deg C	21.72 deg C	--	13.54 deg C	--	--	7.2 deg C	10.7 deg C	9.83 deg C	4.3 deg C	11.99 deg C	15.8 deg C	14.49 deg C	--	18.38 deg C
Turbidity	NA	Field	1 NTU	54.6 NTU	178.1 NTU	6.8 NTU	303.8 NTU	178.3 NTU	19.9 NTU	53.8 NTU	140.9 NTU	185.9 NTU	--	9.9 NTU	--	--	234 NTU	165 NTU	209 NTU	1 NTU	150.8 NTU	151 NTU	--	--	78.9 NTU
Water Elevation, ft/MSL	NA	Field	1783.9	1783.67	1785.35	1784.9	--	1783.34	1784.97	1784.48	1785.71	1784.74	--	1784.68	--	1784.63	1598.76	1601.94	1602.43	1602.18	1602.01	1601.97	--	--	1601.12
Metals																									
Aluminum	Dissolved	Lab	86.3 ug/l	43.2 ug/l	352 ug/l	74.6 ug/l	39.3 ug/l	97.1 ug/l	59.5 ug/l	40.8 ug/l	100 ug/l	76.8 ug/l	--	66.5 ug/l	--	--	< 25 ug/l	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	5360 ug/l	2620 ug/l	6070 ug/l	2110 ug/l	8340 ug/l	2620 ug/l	1700 ug/l	5880 ug/l	6000 ug/l	--	--	413 ug/l	--	--	3200 ug/l	--	1040 ug/l	21500 ug/l	2940 ug/l	1380 ug/l	1640 ug/l	--	853 ug/l
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	< 0.5 ug/l	--	< 0.5 ug/l	< 2.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	0.73 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Dissolved	Lab	--	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	--	--	--	--	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Total	Lab	< 1 ug/l	< 1 ug/l	0.96 ug/l	< 0.5 ug/l	1.32 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.91 ug/l	--	--	--	--	--	--	6.7 ug/l	1.18 ug/l	< 2 ug/l	27.1 ug/l	5.4 ug/l	2.73 ug/l	1.9 * ug/l	3.33 * ug/l	1.83 ug/l
Arsenic III	Total	Lab	--	--	--	--	--	--	--	--	0.89 ug/l	1.4 ug/l	--	< 0.50 ug/l	--	--	< 0.50 ug/l	--	--	--	--	--	--	--	--
Arsenic inorganic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.81 ug/l	--	--	--	--	--	--	--	--
Arsenic V	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.60 ug/l	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	5.96 ug/l	6.92 ug/l	< 10 ug/l	--	6.3 ug/l	7.5 ug/l	6.8 ug/l	6.0 ug/l	--	7.9 ug/l	--	--	--	--	--	--	--	--	28.8 ug/l	29.4 ug/l	28.1 ug/l
Barium	Total	Lab	49.5 ug/l	24.2 ug/l	56.7 ug/l	26.7 ug/l	71.3 ug/l	25.6 ug/l	19.8 ug/l	32.1 ug/l	56.0 ug/l	54.7 ug/l	--	10.9 ug/l	--	--	71.8 ug/l	--	41.8 ug/l	193 ug/l	66.2 ug/l	47.7 ug/l	50.8 ug/l	55.6 ug/l	41 ug/l
Beryllium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	--	0.66 ug/l	--	< 0.2 ug/l	2.17 ug/l	0.47 ug/l	0.21 ug/l	0.27 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	--	--	--	--	--	--	--	413 ug/l	408 ug/l	422 ug/l
Boron	Total	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	--	390 ug/l	--	406 ug/l	441 ug/l	398 ug/l	419 ug/l	415 ug/l	418 ug/l	419 ug/l
Cadmium	Dissolved	Lab	0.23 ug/l	< 0.2 ug/l	< 0.2 ug/l	1.33 ug/l	0.39 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	--	< 0.2 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	0.23 ug/l	< 0.2 ug/l	< 0.2 ug/l	1.72 ug/l	0.72 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	--	0.23 ug/l	--	< 0.2 ug/l	1.98 ug/l	0.48 ug/l	0.34 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Calcium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	10300 ug/l	9740 ug/l	9800 ug/l	10500 ug/l	13500 ug/l	8400 ug/l	11300 ug/l	11900 ug/l	13800 ug/l	12900 ug/l	--	10300 ug/l	--										

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

		Location Date Sample Type	GW-005 10/3/2011 N	GW-005 4/26/2012 N	GW-005 7/19/2012 N	GW005 10/2/2012 N	GW005 4/2/2013		GW005 7/5/2013 N	GW005 10/7/2013 N	GW-006 8/17/2007 N	GW-006 10/10/2007 N	GW-006 3/20/2009 N	GW-006 5/4/2009 N	GW-006 3/16/2010		GW-006 5/3/2010 N	GW-006 7/26/2010 N	GW-006 10/4/2010 N	GW-006 4/22/2011		GW-006 7/19/2011		GW-006 10/4/2011 N	GW-006 11/1/2011 N	GW-006 4/25/2012 N	GW 7/11
			N	N	N	N	N	FD	N	N	N	N	N	N	N	FD	N	N	N	N	FD	N	FD	N	N	N	N
General Parameters		Fraction	Analysis Location																								
Alkalinity, bicarbonate, as CaCO3	NA	Lab	337 mg/l	344 mg/l	321 mg/l	327 mg/l	316 mg/l	--	300 mg/l	319 mg/l	--	--	--	--	712 mg/l	711 mg/l	693 mg/l	654 mg/l	654 mg/l	605 mg/l	614 mg/l	616 mg/l	645 mg/l	711 mg/l	698 mg/l	721 mg/l	644 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l	< 10.0 mg/l	--	--	--	--	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	--	< 20.0 mg/l	< 20.0 mg/l
Alkalinity, total	NA	Lab	337 mg/l	344 mg/l	321 mg/l	327 mg/l	316 mg/l	--	300 mg/l	319 mg/l	576 mg/l	521 mg/l	769 mg/l	736 mg/l	712 mg/l	711 mg/l	693 mg/l	654 mg/l	654 mg/l	605 mg/l	614 mg/l	616 mg/l	645 mg/l	711 mg/l	698 mg/l	721 mg/l	644 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	< 3 mg/l	< 24.0 mg/l	< 24.0 mg/l	12.0 mg/l	8.2 mg/l	--	< 6.0 mg/l	4.6 mg/l	--	--	--	--	< 6 mg/l	< 2.4 mg/l	< 3 mg/l	< 3 mg/l	< 3 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 3.0 mg/l	--	< 3.0 mg/l	< 2.4 mg/l
Carbon, dissolved organic	NA	Lab	2.4 mg/l	2.9 mg/l	4.7 mg/l	5.1 mg/l	2.5 mg/l	--	3.2 mg/l	2.5 mg/l	--	--	--	--	2.7 mg/l	2.6 mg/l	2.7 mg/l	3.2 mg/l	3.5 mg/l	2.9 mg/l	2.8 mg/l	3.4 mg/l	3.3 mg/l	4.4 mg/l	3.6 mg/l	3.5 mg/l	3.4 mg/l
Carbon, total organic	NA	Lab	2.1 mg/l	2.0 mg/l	4.0 mg/l	4.4 mg/l	1.6 mg/l	--	1.8 mg/l	2.5 mg/l	2.8 mg/l	2.4 mg/l	2.6 b mg/l	2.8 mg/l	2.7 mg/l	2.7 mg/l	2.5 mg/l	3.1 mg/l	3.5 mg/l	2.1 mg/l	2.0 mg/l	3.4 mg/l	3.2 mg/l	3.8 mg/l	3.4 mg/l	3.6 mg/l	3.1 mg/l
Chemical Oxygen Demand	NA	Lab	30.2 mg/l	< 10.0 mg/l	< 10.0 mg/l	57.4 mg/l	39.7 mg/l	--	25.0 mg/l	66.3 mg/l	23.0 mg/l	10 mg/l	< 10 mg/l	11.2 mg/l	13.3 mg/l	11.2 mg/l	20.7 mg/l	12.8 mg/l	12.4 mg/l	13 mg/l	< 10 mg/l	15.6 mg/l	12.8 mg/l	13.8 mg/l	--	< 10.0 mg/l	< 10.0 mg/l
Chloride	NA	Lab	30.3 mg/l	30.0 mg/l	31.2 mg/l	30.6 mg/l	30.4 mg/l	--	30.0 mg/l	29.2 mg/l	8.26 mg/l	17.7 mg/l	17.7 mg/l	14 mg/l	14 mg/l	14.1 mg/l	17.5 mg/l	18.6 mg/l	18.9 mg/l	17 mg/l	< 10 mg/l	17 mg/l	17 mg/l	15.6 mg/l	15.8 mg/l	14.7 mg/l	15.3 mg/l
Cyanide	NA	Lab	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0035 mg/l	0.0037 b mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	< 0.0100 mg/l
Dissolved oxygen	NA	Field	6.7 mg/l	9.57 mg/l	8.96 mg/l	5.05 mg/l	2.24 mg/l	--	8.32 mg/l	1.46 mg/l	0.56 mg/l	4.38 mg/l	0.56 mg/l	--	3.67 mg/l	--	1.72 mg/l	0.96 mg/l	0.6 mg/l	1.3 mg/l	--	--	--	--	--	1.7 mg/l	2.27 mg/l
Fluoride	NA	Lab	1.99 mg/l	2.0 mg/l	2.1 mg/l	2.0 mg/l	2.0 mg/l	--	2.0 mg/l	1.9 mg/l	2.56 mg/l	1.67 mg/l	2.24 mg/l	2.08 mg/l	1.75 mg/l	1.74 mg/l	2.12 mg/l	2.16 mg/l	2.28 mg/l	1.4 mg/l	1.41 mg/l	1.93 mg/l	1.94 mg/l	1.97 mg/l	2.04 mg/l	1.8 mg/l	2.0 mg/l
Hardness, total, as CaCO3	NA	Lab	552 mg/l	537 mg/l	624 mg/l	581 mg/l	480 mg/l	--	500 mg/l	510 mg/l	933 mg/l	757 mg/l	1290 mg/l	1240 mg/l	1140 mg/l	1100 mg/l	1090 mg/l	1160 mg/l	1040 mg/l	1040 mg/l	1080 mg/l	1070 mg/l	1130 mg/l	--	1280 mg/l	1160 mg/l	
Nitrate + Nitrite, as N	NA	Lab	0.16 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.10 mg/l	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	0.22 mg/l	0.23 mg/l	0.20 mg/l	0.13 mg/l	0.27 mg/l	--	0.27 mg/l	< 1.0 mg/l	0.11 mg/l	< 0.1 mg/l	0.39 mg/l	0.11 mg/l	0.24 mg/l	0.22 mg/l	0.19 mg/l	0.22 mg/l	0.24 mg/l	< 0.1 h mg/l	< 0.1 h mg/l	0.19 mg/l	0.18 mg/l	0.18 mg/l	0.2 mg/l	0.21 mg/l	0.20 mg/l
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	--	< 0.1 h mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	--	--
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	--	< 0.05 h mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.02 mg/l	--	--
pH	NA	Lab	7.9 pH units	8.1 pH units	8.1 pH units	8.0 pH units	7.3 pH units	--	8.0 pH units	8.5 pH units	7.5 pH units	7.4 pH units	7.2 pH units	7.1 pH units	7.4 pH units	7.3 pH units	8.1 pH units	7.8 pH units	7.3 pH units	--	--	7.8 pH units	7.6 pH units	7.5 pH units	--	7.8 pH units	7.6 pH units
pH	NA	Field	7.2 pH units	7.99 pH units	7.62 pH units	7.55 pH units	7.57 pH units	--	7.91 pH units	7.8 pH units	7.08 pH units	7.39 pH units	7.55 pH units	--	7.10 pH units	--	7.22 pH units	7.92 pH units	6.7 pH units	7.2 pH units	--	7.0 pH units	--	7.1 pH units	7.05 pH units	7.22 pH units	7.12 pH units
Phosphorus, total	NA	Lab	0.14 mg P/L	< 0.10 mg/l	0.50 mg/l	0.11 mg/l	0.21 mg/l	--	< 0.10 mg/l	0.13 mg/l	0.11 mg/l	< 0.1 mg/l	0.13 mg/l	< 0.1 mg/l	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	0.18 mg P/L	0.12 mg P/L	< 0.1 h mg P/L	< 0.1 h mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	0.1 mg P/L	0.12 mg P/L	0.12 mg/l	0.12 mg/l
Redox (oxidation potential)	NA	Field	495 mV	301 mV	347 mV	173 mV	422 mV	--	318 mV	105 mV	336 mV	553 mV	344 mV	--	312 mV	--	532 mV	371 mV	326 mV	452 mV	--	353 mV	--	154 mV	148 mV	332 mV	-12 mV
Solids, total dissolved	NA	Lab	886 mg/l	839 mg/l	700 mg/l	743 mg/l	754 mg/l	--	848 mg/l	825 mg/l	--	--	--	--	--	--	1310 mg/l	1280 mg/l	1310 mg/l	1220 mg/l	1240 mg/l	1204 mg/l	1376 mg/l	1386 mg/l	1520 mg/l	1550 mg/l	1330 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20 mg/l	--
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1600 umhos/cm	--
Specific Conductance @ 25oC	NA	Field	1294 umhos/cm	1359 umhos/cm	1266 umhos/cm	1266 umhos/cm	1214 umhos/cm	--	1276 umhos/cm	1213 umhos/cm	1574 umhos/cm	1272 umhos/cm	1160 umhos/cm	--	1718 umhos/cm	--	1116 umhos/cm	559 umhos/cm	941 umhos/cm	1758 umhos/cm	--	1827 umhos/cm	--	2078 umhos/cm	2111 umhos/cm	2097 umhos/cm	1971 umhos/cm
Sulfate	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide	NA	Lab	353 mg/l	333 mg/l	323 mg/l	325 mg/l	337 mg/l	--	343 mg/l	342 mg/l	430 mg/l	217 mg/l	555 mg/l	496 mg/l	475 mg/l	471 mg/l	485 mg/l	525 mg/l	519 mg/l	455 mg/l	455 mg/l	490 mg/l	490 mg/l	524 mg/l	556 mg/l	529 mg/l	485 mg/l
Temperature, degrees C	NA	Field	13.2 deg C	7.26 deg C	18.36 deg C	11.39 deg C	8.61 deg C	--	22.59 deg C	8.39 deg C	9.6 deg C	10.1 deg C	4.3 deg C	--	6.4 deg C	--	8.2 deg C	12.62 deg C	12.5 deg C	6.44 deg C	--	10.7 deg C	--	12.1 deg C	10.41 deg C	7.01 deg C	15.88 deg C
Turbidity	NA	Field	238.7 NTU	45.3 NTU	590 NTU	365.5 NTU	161.4 NTU	--	123.3 NTU	305.7 NTU	1.1 NTU	0.9 NTU	2 NTU	--	1 NTU	--	1 NTU	0 NTU	0 NTU	0 NTU	--	11.6 NTU	--	2.2 NTU	0.20 NTU	0 NTU	0 NTU
Water Elevation, ft/MSL	NA	Field	1600.27	1599.89	1608.62	1600.42	1600.19	--	1600.52	1600.82	1486.76	1488.28	1487.6	1487.98	1487.98	--	1487.29	1486.77	1487.12	1487.88	--	1486.78	--	1486.66	1486.97	1487.61	1486.84
Metals																											
Aluminum	Dissolved	Lab	40.6 ug/l	< 20.0 ug/l	23.3 ug/l	23.8 ug/l	< 20.0 ug/l	--	22.6 ug/l	< 20.0 ug/l	< 10 ug/l	< 10 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	--	< 20.0 ug/l	25.8 ug/l
Aluminum	Total	Lab	2860 ug/l	387 ug/l	7660 ug/l	6490 ug/l	3330 ug/l	--	1350 ug/l	7660 ug/l	89 ug/l	33 ug/l	66.8 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	34.6 ug/l	529 ug/l	< 25 ug/l	< 25 ug/l	572 * ug/l	383 * ug/l	170 ug/l	< 25 ug/l	< 20.0 ug/l	27.9 ug/l	
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	
Arsenic	Dissolved	Lab	< 0.5 ug/l	< 1.0 ug/l	< 0.50 ug/l	1.2 ug/l	0.55 ug/l	--	< 0.50 ug/l	0.83 ug/l	--	2.3 ug/l	--	2.0 ug/l	--	--	3.47 ug/l	6.5 ug/l	0.94 ug/l	0.69 ug/l	0.56 ug/l	0.52 ug/l	0.92 ug/l	0.53 ug/l	--	2.1 ug/l	1.1 ug/l
Arsenic	Total	Lab	5.04 ug/l	1.2 ug/l	15.9 ug/l	11.7 ug/l	--	--	--	--	4.3 ug/l	2.0 ug/l	4.4 ug/l	3.1 ug/l	3.2 ug/l	4.11 ug/l	5.75 ug/l	6.62 ug/l	0.8 ug/l	0.66 ug/l	3.97 ug/l	3.63 ug/l	5.03 ug/l	--	5.6 ug/l	2.7 ug/l	
Arsenic III	Total	Lab	--	--	--	--	7.2 ug/l	--	2.4 ug/l	5.7 ug/l	--	--	--	0.99 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic inorganic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	3.19 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic V	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	2.21 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	7.6 ug/l	20.0 ug/l	10.6 ug/l	--	22.8 ug/l	16.6 ug/l	--	71 ug/l	--	--	--	--	--	--	--	72.1 ug/l	68.5 ug/l	99.2 ug/l	94.6 ug/l	99.3 ug/l	--	--	90.9 ug/l
Barium	Total	Lab	66.1 ug/l	36.2 ug/l	122 ug/l	94.3 ug/l	72.3 ug/l	--	47.0 ug/l	64.7 ug/l	110 ug/l	66 ug/l	120 ug/l	124 ug/l	92.5 ug/l	95.5 ug/l	100 ug/l	114 ug/l	115 ug/l	76.1 ug/l	76.3 ug/l	109 ug/l	106 ug/l	111 ug/l	117 ug/l	106 ug/l	96.5 ug/l
Beryllium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 2.0 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	0.44 ug/l	< 0.20 ug/l	1.3 ug/l	0.82 ug/l	0.61 ug/l	--	0.22 ug/l	0.63 ug/l	< 1.0 ug/l	< 2.0 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Boron	Dissolved	Lab	419 ug/l	443 ug/l	456 ug/l	463 ug/l	444 ug/l	--	529 ug/l	456 ug/l	--	350 ug/l	--	--	--	--	--	--	422 ug/l	390 ug/l	463 ug/l	463 ug/l	531 ug/l	--	456 ug/l	406 * ug/l	
Boron	Total	Lab	436 ug/l	451 ug/l	424 ug/l	418 ug/l	473 ug/l	--	520 ug/l	569 ug/l	540 ug/l	330 ug/l	493 ug/l	472 ug/l	39												

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location 4-006			GW006	GW006	GW006	GW006	GW006		GW-007		GW-007		GW-007	GW-007	GW-007	GW-007		GW-007		GW-007	GW-007	GW-007		GW-007	GW-007	GW-007	GW-007	
Date 4/2012			10/1/2012	4/3/2013	7/2/2013	10/4/2013	10/10/2013		8/17/2007		10/10/2007		3/18/2009	5/5/2009	3/16/2010	5/5/2010		7/26/2010		10/4/2010		4/22/2011		7/19/2011	10/4/2011		4/11/2011	
Sample Type			FD	N	N	N	N	N	FD	N	FD	N	FD	N	N	N	N	FD	N	FD	N	FD	N	N	N	N	N	N
Analysis Location																												
Fraction																												
General Parameters																												
Alkalinity, bicarbonate, as CaCO3	NA	Lab	678 mg/l	670 mg/l	784 mg/l	679 mg/l	852 mg/l	--	--	--	--	--	--	--	290 mg/l	289 mg/l	284 mg/l	285 mg/l	274 mg/l	281 mg/l	283 mg/l	304 mg/l	281 mg/l	280 mg/l	285 mg/l	287 mg/l		
Alkalinity, carbonate, as CaCO3	NA	Lab	< 20.0 mg/l	< 20.0 mg/l	< 10.0 mg/l	< 20.0 mg/l	< 50.0 mg/l	--	--	--	--	--	--	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 20 mg/l	< 10 mg/l	< 10 mg/l	< 20 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	
Alkalinity, total	NA	Lab	678 mg/l	670 mg/l	784 mg/l	679 mg/l	852 mg/l	--	--	274 mg/l	279 mg/l	280 mg/l	281 mg/l	283 mg/l	295 mg/l	290 mg/l	289 mg/l	284 mg/l	285 mg/l	274 mg/l	284 mg/l	281 mg/l	280 mg/l	285 mg/l	287 mg/l			
Biochemical Oxygen Demand (5-day)	NA	Lab	< 2.4 mg/l	< 8.0 mg/l	< 3.0 mg/l	< 2.4 * mg/l	< 2.4 * mg/l	--	--	--	--	--	--	--	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 3 mg/l	< 3 mg/l	< 4.0 mg/l		
Carbon, dissolved organic	NA	Lab	3.8 mg/l	3.2 mg/l	3.1 mg/l	3.1 mg/l	3.6 mg/l	--	--	--	--	--	--	--	1.7 mg/l	1.5 mg/l	1.6 mg/l	1.9 mg/l	1.7 mg/l	2.2 mg/l	1.8 mg/l	3.1 mg/l	3.1 mg/l	3.1 mg/l	2.6 b mg/l			
Carbon, total organic	NA	Lab	3.3 mg/l	3.4 b mg/l	2.9 mg/l	3.2 mg/l	3.1 mg/l	--	--	1.6 mg/l	1.7 mg/l	1.9 mg/l	1.9 mg/l	1.7 b mg/l	1.8 mg/l	1.7 mg/l	1.4 mg/l	1.4 mg/l	2.1 mg/l	1.6 mg/l	1.6 mg/l	2.0 mg/l	2.3 mg/l	2.1 mg/l	2.4 mg/l			
Chemical Oxygen Demand	NA	Lab	11.7 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	18.9 mg/l	--	--	27.0 * mg/l	95.4 * mg/l	10 mg/l	8 mg/l	6.75 mg/l	10 mg/l	16.0 mg/l	11.5 mg/l	10.8 mg/l	10 mg/l	10.9 mg/l	14.8 mg/l	33.4 mg/l	19.2 mg/l	24.5 mg/l				
Chloride	NA	Lab	15.5 mg/l	13.7 mg/l	14.6 mg/l	10.7 mg/l	13.7 mg/l	--	--	30 mg/l	30 mg/l	28.6 mg/l	28.7 mg/l	29 mg/l	28.4 mg/l	28.9 mg/l	29.5 mg/l	29.5 mg/l	29.5 mg/l	29.7 mg/l	27.7 mg/l	28.7 mg/l	28 mg/l	28.4 mg/l	28.6 mg/l			
Cyanide	NA	Lab	< 0.0100 mg/l	< 0.0100 mg/l	0.0125 b mg/l	< 0.0100 mg/l	0.0157 mg/l	--	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0035 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l			
Dissolved oxygen	NA	Field	1.79 mg/l	< 0.1 mg/l	0.92 mg/l	0.05 mg/l	1.46 mg/l	--	--	0.53 mg/l	< 0.02 mg/l	4.27 mg/l	--	0.47 mg/l	--	0.96 mg/l	5 mg/l	0.57 mg/l	--	1.4 mg/l	--	1.21 mg/l	3.1 mg/l	2.6 mg/l	--			
Fluoride	NA	Lab	2.0 mg/l	1.9 mg/l	1.7 mg/l	1.3 mg/l	1.7 mg/l	--	--	1.79 mg/l	1.79 mg/l	1.89 mg/l	1.89 mg/l	1.94 mg/l	1.84 mg/l	1.94 mg/l	1.93 mg/l	1.94 mg/l	2.04 mg/l	1.93 mg/l	1.86 mg/l	1.89 mg/l	1.92 mg/l	2.0 mg/l				
Hardness, total, as CaCO3	NA	Lab	1140 mg/l	1230 mg/l	1360 mg/l	1140 mg/l	1340 mg/l	--	--	390 mg/l	392 mg/l	416 mg/l	408 mg/l	411 mg/l	438 mg/l	408 mg/l	434 mg/l	420 mg/l	413 mg/l	412 mg/l	418 mg/l	401 mg/l	382 mg/l	392 mg/l	408 mg/l			
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l		
Nitrogen, ammonia (NH3), as N	NA	Lab	0.23 mg/l	0.18 mg/l	0.22 mg/l	0.14 mg/l	0.23 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.13 mg/l	0.07 mg/l	0.06 mg/l	0.07 mg/l	0.08 mg/l	0.13 mg/l	0.06 mg/l	0.19 h mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.090 mg/l	
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	< 0.1 h mg/l	< 0.1 h mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	< 0.05 h mg/l	< 0.05 h mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
pH	NA	Lab	7.6 pH units	7.5 pH units	7.4 pH units	7.4 pH units	8.6 pH units	--	--	7.8 pH units	7.8 pH units	7.7 pH units	7.8 pH units	7.6 pH units	7.4 pH units	7.7 pH units	7.9 pH units	8.0 pH units	7.7 pH units	7.9 pH units	7.6 pH units	7.6 pH units	7.46 pH units	7.9 pH units	7.9 pH units	7.8 pH units	8.0 pH units	
pH	NA	Field	--	7.11 pH units	7.08 pH units	7.03 pH units	7.06 pH units	7.07 pH units	--	7.51 pH units	7.51 pH units	7.23 pH units	7.23 pH units	7.12 pH units	7.48 pH units	7.48 pH units	7.66 pH units	7.66 pH units	7.51 pH units	7.51 pH units	7.13 pH units	7.13 pH units	7.35 pH units	7.35 pH units	7.9 pH units	7.6 pH units		
Phosphorus, total	NA	Lab	< 0.10 mg/l	0.15 mg/l	0.14 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L		
Redox (oxidation potential)	NA	Field	--	-17 mV	-126 mV	-136 mV	-165 mV	--	--	371 mV	--	561 mV	--	--	482 mV	--	596 mV	--	397 mV	--	375 mV	--	365 mV	--	419 mV	--		
Solids, total dissolved	NA	Lab	1280 mg/l	1380 mg/l	1610 mg/l	1320 mg/l	1610 mg/l	--	--	--	--	--	--	--	--	--	560 mg/l	561 mg/l	557 mg/l	517 mg/l	536 mg/l	567 mg/l	592 mg/l	585 mg/l	545 mg/l	554 mg/l	563 mg/l	
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Specific Conductance @ 25oC	NA	Field	--	2117 umhos/cm	2277 umhos/cm	1864 umhos/cm	2254 umhos/cm	2371 umhos/cm	--	876 umhos/cm	--	882 umhos/cm	--	858 umhos/cm	--	880 umhos/cm	896 umhos/cm	--	531 umhos/cm	--	916 umhos/cm	--	931.3 umhos/cm	51.8 umhos/cm	911 umhos/cm	--	901.7 umhos/cm	
Sulfate	NA	Lab	487 mg/l	561 mg/l	633 mg/l	478 mg/l	659 mg/l	--	--	161 mg/l	158 mg/l	169 mg/l	166 mg/l	153 mg/l	167 mg/l	183 mg/l	180 mg/l	177 mg/l	177 mg/l	178 mg/l	173 mg/l	165 mg/l	166 mg/l	173 mg/l	161 mg/l	151 mg/l	153 mg/l	162 mg/l
Sulfide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	< 2 mg/l	--	--	--	--	--	--	--	--	--	--	--		
Temperature, degrees C	NA	Field	--	12.85 deg C	4.4 deg C	12.24 deg C	12.58 deg C	15.97 deg C	--	9.1 deg C	--	9.2 deg C	--	4.8 deg C	--	5.8 deg C	7.2 deg C	--	12.5 deg C	--	--	11.6 deg C	--	5.9 deg C	9.78 deg C	9.3 deg C	7.05 deg C	
Turbidity	NA	Field	--	0 NTU	0.5 NTU	0.4 NTU	0 NTU	0.1 NTU	--	2 NTU	--	2.5 NTU	--	1 NTU	--	1 NTU	30 NTU	--	13.7 NTU	--	--	< 1 NTU	--	0 NTU	80.1 NTU	--	0 NTU	
Water Elevation, ft/MSL	NA	Field	--	1486.55	1487.44	1487.9	1486.93	1486.98	--	1505.41	--	1505.88	--	1505.82	--	1505.66	1505.51	--	1506.41	--	--	1505.64	--	1505.56	--	1505.39	1505.59	1505.46
Metals																												
Aluminum	Dissolved	Lab	23.4 ug/l	< 20.0 ug/l	25.5 ug/l	31.2 ug/l	< 20.0 ug/l	--	--	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l		
Aluminum	Total	Lab	26.2 ug/l	23.4 ug/l	39.4 ug/l	22.0 ug/l	< 20.0 ug/l	--	--	< 40 ug/l	< 40 ug/l	12 ug/l	14 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	29.2 * ug/l	< 25 * ug/l	< 25 ug/l	< 25 ug/l	284 ug/l	234 ug/l	271 ug/l	< 20.0 ug/l		
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--		
Antimony	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l		
Arsenic	Dissolved	Lab	1.2 ug/l	1.5 ug/l	2.1 ug/l	0.96 ug/l	4.2 ug/l	--	--	--	--	2.6 ug/l	2.2 ug/l	--	--	--	--	--	< 1 ug/l	2.51 ug/l	1.64 ug/l	1.71 ug/l	0.86 ug/l	2.35 ug/l	1.32 ug/l	1.22 ug/l	1.1 ug/l	
Arsenic	Total	Lab	2.3 ug/l	5.5 ug/l	--	--	--	--	--	4.2 ug/l	4.4 ug/l	3.3 ug/l	3.6 ug/l	< 2 ug/l	2.76 ug/l	< 2 ug/l	< 1 ug/l	< 1 ug/l	1.33 ug/l	3.32 ug/l	1.58 ug/l	1.58 ug/l	0.84 ug/l	7.06 ug/l	5.55 ug/l	7.64 ug/l	0.90 ug/l	
Arsenic III	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	0.32 ug/l	--	--	--	--	--	--	--	--	--	--	--		
Arsenic inorganic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	2.34 ug/l	--	--	--	--	--	--	--	--	--	--	--		
Arsenic V	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	2.02 ug/l	--	--	--	--	--	--	--	--	--	--	--		
Barium	Dissolved	Lab	90.5 ug/l	96.3 ug/l	106 ug/l	89.3 ug/l	125 ug/l	--	--	--	--	4.5 ug/l	4.3 ug/l	--	--	--	--	--	--	--	--	--	1.42 ug/l	1.95 ug/l	1.46 ug/l	1.50 ug/l	--	
Barium	Total	Lab	95.7 ug/l	105 ug/l	125 ug/l	89.8 ug/l	127 ug/l	--	--	4.2 ug/l	4.5 ug/l	4.0 ug/l	4.1 ug/l	< 10 ug/l	< 10 ug/l	2.1 ug/l	4.68 ug/l	4.85 ug/l	2.29 * ug/l	3.79 * ug/l	1.52 ug/l	1.65 ug/l	1.41 ug/l	6.84 ug/l	4.95 ug/l	5.45 ug/l	1.6 ug/l	
Beryllium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 2.0 ug/l	< 2.0 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--		
Beryllium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	--	< 1.0 ug/l	< 1.0 ug/l	< 2.0 ug/l	< 2.0 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l		
Boron	Dissolved	Lab	465 ug/l	519 ug/l	441 ug/l	494 ug/l	--	--	--	--	--	400 ug/l	400 ug/l	--	--	--	--	--	--	--	--	394 ug/l	396 ug/l	409 ug/l	397 ug/l	400 ug/l		
Boron	Total	Lab	475 ug/l	510 ug/l	464 ug/l	426 ug/l	549 ug/l	--	--	430 ug/l	430 ug/l	410 ug/l	400 ug/l	371 ug/l	401 ug/l	385 ug/l	401 ug/l	392 ug/l	401 ug/l	413 ug/l	395 ug/l	398 ug/l	403 ug/l	406 ug/l	396 ug/l	392 ug/l		
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l		
Cadmium	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l						

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location 007			GW-007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW007	GW0
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Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location 38			GW-008	GW008	GW008	GW008	GW008	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	GW-009	
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Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location W-009			GW009	GW009	GW009		GW009	GW-010		GW-010	GW-010	GW-010		GW-010	GW-010		GW-010	GW-010		GW-010	GW-010	GW010		GW010		GW010	GW010
Date 4/2012			10/3/2012	5/1/2013	7/10/2013		10/11/2013	5/6/2009		5/4/2010	7/28/2010	10/8/2010		5/2/2011	7/25/2011	10/14/2011		4/10/2012	7/24/2012	10/3/2012		5/1/2013		7/10/2013	10/11/2		
Sample Type			FD	N	N	N	FD	N	N	FD	N	N	FD	N	FD	N	FD	N	N	N	FD	N	FD	N	N		
Analysis Location																											
General Parameters																											
Alkalinity, bicarbonate, as CaCO3	NA	Lab	185 b mg/l	210 mg/l	168 mg/l	173 mg/l	--	188 mg/l	--	--	289 mg/l	294 mg/l	289 mg/l	288 mg/l	278 mg/l	277 mg/l	280 mg/l	287 mg/l	290 mg/l	326 mg/l	327 mg/l	336 mg/l	343 mg/l	368 mg/l	--	379 mg/l	366 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l	--	--	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l	< 20.0 mg/l	
Alkalinity, total	NA	Lab	185 b mg/l	210 mg/l	168 mg/l	173 mg/l	--	188 mg/l	259 mg/l	259 mg/l	289 mg/l	294 mg/l	289 mg/l	288 mg/l	278 mg/l	277 mg/l	280 mg/l	287 mg/l	290 mg/l	326 mg/l	327 mg/l	336 mg/l	343 mg/l	368 mg/l	--	379 mg/l	366 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	< 4.0 mg/l	< 8.0 mg/l	< 4.0 mg/l	< 2.4 * mg/l	--	< 3.0 * mg/l	--	--	< 2.4 mg/l	< 3 mg/l	< 3 mg/l	< 3 mg/l	< 3 mg/l	< 3 mg/l	< 2.4 mg/l	< 3 mg/l	< 4 mg/l	4.8 mg/l	< 4.0 mg/l	< 8.0 mg/l	< 4.0 mg/l	--	< 2.4 * mg/l	9.3 mg/l	
Carbon, dissolved organic	NA	Lab	13.2 mg/l	13.2 mg/l	10.1 mg/l	13.4 mg/l	--	16.3 mg/l	--	--	8.6 mg/l	10.1 mg/l	10.2 mg/l	9.8 mg/l	12.4 mg/l	12.5 mg/l	11.5 mg/l	13.4 mg/l	13.1 mg/l	15.3 mg/l	13.7 mg/l	13.9 mg/l	14.2 mg/l	15.0 mg/l	--	14.5 mg/l	14.2 mg/l
Carbon, total organic	NA	Lab	13.0 mg/l	13.1 mg/l	10.3 mg/l	13.8 mg/l	--	15.7 mg/l	5.4 mg/l	5.4 mg/l	8.8 mg/l	10.4 mg/l	10.1 mg/l	9.8 mg/l	11.9 mg/l	11.9 mg/l	11.3 mg/l	12.4 mg/l	12.6 mg/l	14.9 mg/l	14.3 mg/l	13.3 mg/l	13.5 mg/l	14.9 mg/l	--	14.2 mg/l	13.6 mg/l
Chemical Oxygen Demand	NA	Lab	43.7 mg/l	42.8 mg/l	41.5 mg/l	45.4 mg/l	--	59.0 mg/l	16.6 mg/l	16.3 mg/l	30.3 mg/l	26.6 mg/l	36.8 mg/l	35.8 mg/l	39.3 mg/l	36.7 mg/l	36.5 mg/l	70 mg/l	39.2 mg/l	55.2 mg/l	40.0 mg/l	36.5 mg/l	39.6 mg/l	45.3 mg/l	--	44.2 mg/l	52.1 mg/l
Chloride	NA	Lab	4.1 b mg/l	4.5 mg/l	6.4 mg/l	7.1 mg/l	--	6.1 mg/l	18.4 mg/l	18.4 mg/l	15.5 mg/l	16.8 mg/l	17.2 mg/l	17.2 mg/l	16.9 mg/l	16.8 mg/l	19.7 mg/l	18.8 mg/l	19 mg/l	16.4 mg/l	19.5 mg/l	19.9 mg/l	19.9 mg/l	16.6 mg/l	--	15.9 mg/l	16.8 mg/l
Cyanide	NA	Lab	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	0.0446 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	0.0190 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	< 0.0100 mg/l
Dissolved oxygen	NA	Field	--	1.13 mg/l	< 0.1 mg/l	0.1 mg/l	--	0.17 mg/l	--	--	2.44 mg/l	0.28 mg/l	0.64 mg/l	--	1.41 mg/l	--	3.0 mg/l	5.5 mg/l	--	1.58 mg/l	1.12 mg/l	0.75 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	0.02 mg/l
Fluoride	NA	Lab	0.16 mg/l	0.11 mg/l	0.14 mg/l	0.14 mg/l	--	0.16 mg/l	0.12 mg/l	0.12 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.11 mg/l	0.11 mg/l	< 0.1 mg/l	0.11 mg/l	< 0.1 mg/l	0.1 mg/l	0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	0.13 mg/l
Hardness, total, as CaCO3	NA	Lab	200 mg/l	218 mg/l	199 mg/l	189 mg/l	--	189 mg/l	277 mg/l	271 mg/l	285 mg/l	261 mg/l	270 mg/l	269 mg/l	233 mg/l	232 mg/l	263 mg/l	253 mg/l	256 mg/l	281 mg/l	301 mg/l	293 mg/l	299 mg/l	316 mg/l	--	329 mg/l	325 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.10 mg/l	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.10 mg/l	0.21 mg/l	0.15 mg/l	0.23 mg/l	--	0.21 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.05 b mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	0.17 mg/l	0.16 mg/l
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	6.8 pH units	6.8 pH units	7.2 pH units	6.7 pH units	--	7.0 pH units	6.6 pH units	6.8 pH units	7.2 pH units	7.0 pH units	7.2 pH units	7.0 pH units	--	--	7.3 pH units	6.9 pH units	6.9 pH units	7.3 pH units	7.1 pH units	7.0 pH units	7.0 pH units	7.3 pH units	--	7.1 pH units	7.2 pH units
pH	NA	Field	--	6.31 pH units	6.52 pH units	6.36 pH units	--	6.56 pH units	--	--	6.52 pH units	7.13 pH units	6.49 pH units	--	6.72 pH units	--	5.8 pH units	6.7 pH units	--	6.76 pH units	6.66 pH units	6.48 pH units	--	6.78 pH units	--	6.61 pH units	6.86 pH units
Phosphorus, total	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l
Redox (oxidation potential)	NA	Field	--	-13 mV	179 * mV	295 mV	--	225 mV	--	--	537 mV	370 mV	144 mV	--	597 mV	--	374 mV	66 mV	--	253 mV	-70 mV	-52 mV	--	124 * mV	--	291 mV	159 mV
Solids, total dissolved	NA	Lab	386 mg/l	382 mg/l	344 mg/l	346 mg/l	--	338 mg/l	--	--	356 mg/l	313 mg/l	340 mg/l	321 mg/l	337 mg/l	343 mg/l	248 mg/l	284 mg/l	298 mg/l	400 mg/l	414 mg/l	387 mg/l	405 mg/l	436 mg/l	--	444 mg/l	437 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Field	--	84.1 umhos/cm	524.1 umhos/cm	29.9 umhos/cm	--	89.7 umhos/cm	--	--	583 umhos/cm	535 umhos/cm	573 umhos/cm	--	574.1 umhos/cm	--	559 umhos/cm	626 umhos/cm	--	659.5 umhos/cm	705.7 umhos/cm	693.8 umhos/cm	--	733.9 umhos/cm	--	797.2 umhos/cm	750.4 umhos/cm
Sulfate	NA	Lab	86.9 mg/l	83.8 mg/l	80.1 mg/l	67.2 mg/l	--	50.3 mg/l	31.7 mg/l	31.6 mg/l	4.47 mg/l	2.98 mg/l	3.65 mg/l	3.66 mg/l	1.87 mg/l	1.81 mg/l	1.75 mg/l	1.74 mg/l	1.79 mg/l	2.5 mg/l	2.2 b mg/l	1.6 mg/l	1.6 mg/l	2.2 mg/l	--	1.8 mg/l	3.0 mg/l
Sulfide	NA	Lab	--	--	--	--	--	--																			

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location 0			GW-011	GW-011	GW-011	GW-011		GW-011	GW-011	GW-011	GW-011		GW011	GW011		GW011	GW011		GW-012	GW-012		GW-012	
Date 013			5/8/2009	3/18/2010	5/4/2010	7/28/2010		10/8/2010	4/28/2011	7/22/2011	7/23/2012		10/10/2012	7/18/2013		10/14/2013	5/8/2009	3/17/2010		5/3/2010			
Sample Type			N	N	N	N	FD	N	N	N	N	FD	N	N	FD	N	N	N	N	FD	N	FD	
Analysis Location																							
Fraction																							
General Parameters																							
Alkalinity, bicarbonate, as CaCO3	NA	Lab	360 mg/l	--	48.7 mg/l	47.6 mg/l	46.3 mg/l	47.5 mg/l	46 mg/l	47 mg/l	38.2 mg/l	96.1 b mg/l	50.6 b mg/l	46.8 mg/l	23.9 mg/l	--	--	538 mg/l	540 mg/l	512 mg/l	496 mg/l		
Alkalinity, carbonate, as CaCO3	NA	Lab	< 20.0 mg/l	--	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 20.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l		
Alkalinity, total	NA	Lab	360 mg/l	49.3 mg/l	48.7 mg/l	47.6 mg/l	46.3 mg/l	47.5 mg/l	46 mg/l	47 mg/l	38.2 mg/l	96.1 b mg/l	50.6 b mg/l	46.8 mg/l	23.9 mg/l	--	44.0 mg/l	43.7 mg/l	504 mg/l	538 mg/l	540 mg/l		
Biochemical Oxygen Demand (5-day)	NA	Lab	5.2 mg/l	--	< 4 mg/l	< 2.4 mg/l	< 3 mg/l	< 3 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 8.0 mg/l	< 2.4 * mg/l	< 2.4 * mg/l	--	< 2.4 * mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l		
Carbon, dissolved organic	NA	Lab	14.6 mg/l	--	1.9 mg/l	1.8 mg/l	1.3 mg/l	1.3 mg/l	2.5 mg/l	1.6 mg/l	3.1 mg/l	1.4 mg/l	1.4 mg/l	1.3 mg/l	1.3 mg/l	--	1.0 mg/l	< 1.0 mg/l	--	4.4 mg/l	4.4 mg/l		
Carbon, total organic	NA	Lab	14.1 mg/l	1.4 mg/l	1.3 mg/l	< 1 mg/l	1.7 mg/l	1.6 mg/l	1.1 mg/l	1.1 mg/l	1.9 mg/l	1.1 mg/l	1.1 mg/l	1.2 mg/l	1.1 mg/l	--	< 1.0 mg/l	1.3 mg/l	5.0 mg/l	4.6 mg/l	4.0 mg/l		
Chemical Oxygen Demand	NA	Lab	48.6 mg/l	< 10 mg/l	< 10 mg/l	10.1 mg/l	< 10 mg/l	< 10 mg/l	15.6 mg/l	< 10 mg/l	75.1 mg/l	< 10.0 mg/l	< 10.0 mg/l	25.7 mg/l	< 10.0 mg/l	--	11.7 mg/l	16.2 b mg/l	14.1 mg/l	16 mg/l	14.3 mg/l		
Chloride	NA	Lab	16.7 mg/l	2.78 mg/l	1.32 mg/l	0.95 mg/l	1.01 mg/l	0.99 mg/l	0.81 mg/l	1.42 mg/l	1.62 mg/l	1.6 b mg/l	1.7 b mg/l	1.2 mg/l	< 0.50 mg/l	--	1.7 mg/l	1.6 mg/l	23 mg/l	22 mg/l	20.9 mg/l		
Cyanide	NA	Lab	< 0.0100 mg/l	< 0.02 mg/l	< 0.0035 mg/l	< 0.0100 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	0.0150 mg/l	< 0.02 mg/l	< 0.0035 * mg/l	< 0.0100 mg/l		
Dissolved oxygen	NA	Field	--	--	1.34 mg/l	6.85 mg/l	11.84 mg/l	--	7.1 mg/l	7.05 mg/l	10.0 mg/l	11.26 mg/l	--	10.47 mg/l	11.14 mg/l	--	8.99 mg/l	--	--	5.25 mg/l	--		
Fluoride	NA	Lab	0.13 mg/l	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.10 mg/l	0.2 mg/l	0.17 mg/l	< 0.13 mg/l		
Hardness, total, as CaCO3	NA	Lab	323 mg/l	67.6 mg/l	95 mg/l	53.1 mg/l	70.8 mg/l	80.6 mg/l	95 mg/l	64.7 mg/l	236 mg/l	33.1 mg/l	32.8 mg/l	99.0 mg/l	36.2 mg/l	--	50.5 mg/l	54.4 mg/l	685 mg/l	694 mg/l	709 mg/l		
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	0.15 mg/l	0.22 mg/l	0.31 mg/l	0.19 mg/l	0.19 mg/l	0.19 mg/l	0.31 mg/l	0.3 mg/l	0.12 mg/l	0.12 mg/l	0.21 mg/l	< 0.10 mg/l	--	0.17 mg/l	0.16 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l		
Nitrogen, ammonia (NH3), as N	NA	Lab	0.16 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	0.14 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l		
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
pH	NA	Lab	7.4 pH units	6.4 pH units	7.2 pH units	6.9 pH units	6.7 pH units	6.7 pH units	6.8 pH units	--	6.9 pH units	6.8 pH units	6.8 pH units	7.0 pH units	6.5 pH units	--	7.1 pH units	6.9 pH units	7.1 pH units	7.6 pH units	7.5 pH units		
pH	NA	Field	--	--	8.33 pH units	7.32 pH units	7.16 pH units	--	5.5 pH units	6.41 pH units	6.4 pH units	6.02 pH units	--	6.83 pH units	6.19 pH units	--	6.26 pH units	--	--	7.46 pH units	--		
Phosphorus, total	NA	Lab	< 0.10 mg/l	< 0.1 mg/l	1.14 mg P/L	< 0.1 mg P/L	0.43 mg P/L	0.67 mg P/L	1.06 mg P/L	0.41 mg P/L	6 mg P/L	< 0.10 mg/l	< 0.10 mg/l	1.1 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg P/L	< 0.1 mg P/L		
Redox (oxidation potential)	NA	Field	--	--	489 mV	529 mV	406 mV	--	466 mV	358 mV	515 mV	347 mV	--	271 mV	583 mV	--	--	--	--	792 mV	--		
Solids, total dissolved	NA	Lab	441 mg/l	--	--	101 mg/l	65 mg/l	78 mg/l	100 mg/l	94 mg/l	116 mg/l	94.0 mg/l	92.0 mg/l	109 mg/l	77.0 mg/l	--	80.0 mg/l	97.0 mg/l	--	--	946 mg/l		
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Specific Conductance @ 25oC	NA	Field	--	--	1103 umhos/cm	90 umhos/cm	102 umhos/cm	--	182 umhos/cm	72.6 umhos/cm	71 umhos/cm	73.1 umhos/cm	--	101.9 umhos/cm	73.3 umhos/cm	--	107 umhos/cm	--	--	1360 umhos/cm	--		
Sulfate																							
Sulfide	NA	Lab	3.0 mg/l	20.8 mg/l	6.1 mg/l	6.53 mg/l	5.68 mg/l	5.77 mg/l	5.54 mg/l	6.17 mg/l	8.07 mg/l	13.0 mg/l	13.2 mg/l	10 mg/l	15.9 mg/l	--	11.1 mg/l	11.2 mg/l	291 mg/l	332 mg/l	330 mg/l		
Temperature, degrees C	NA	Field	--	--	5.1 deg C	7.9 deg C	11.97 deg C	--	14.7 deg C	10.54 deg C	19.4 deg C	14.31 deg C	--	10.15 deg C	11.27 deg C	--	8.15 deg C	--	--	8 deg C	--		
Turbidity	NA	Field	--	--	712 NTU	19.9 NTU	254 NTU	--	920 NTU	615 NTU	2458.0 NTU	2.1 NTU	--	456 NTU	9.1 NTU	--	0 NTU	--	--	367.4 NTU	--		
Water Elevation, ft/MSL	NA	Field	--	--	1467.67	1468.02	1468.77	--	1468.11	1468.53	1470.56	1472.27	--	1469.17	1472.34	--	1469.37	--	--	1490.74	1490.75		
Metals																							
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	27.8 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l		
Aluminum	Total	Lab	< 20.0 ug/l	52.8 ug/l	15000 ug/l	848 ug/l	8350 * ug/l	12400 * ug/l	13600 ug/l	6400 ug/l	63500 ug/l	30.2 ug/l	28.1 ug/l	21300 ug/l	459 ug/l	--	192 ug/l	223 ug/l	88.9 ug/l	963 * ug/l	3960 * ug/l		
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Antimony	Total	Lab	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5													

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

		Location Date Sample Type	GW-012 7/26/2010	GW-012 10/5/2010		GW-012 4/27/2011		GW-012 7/19/2011	GW-012 10/4/2011	GW-012 11/1/2011		GW-012 4/26/2012		GW-012 7/25/2012	GW012 10/10/2012	GW012 4/3/2013		GW012 7/8/2013		GW012 10/17/2013		GW 7/30/
			N	N	FD	N	FD	N	N	N	FD	N	FD	N	N	N	FD	N	FD	N	FD	
General Parameters		Fraction	Analysis Location																			
Alkalinity, bicarbonate, as CaCO3	NA	Lab	521 mg/l	572 mg/l	554 mg/l	654 mg/l	641 mg/l	637 mg/l	598 mg/l	587 mg/l	613 mg/l	680 mg/l	599 mg/l	622 mg/l	636 mg/l	624 mg/l	--	678 mg/l	669 mg/l	674 mg/l	--	17.6 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	--	--	< 20.0 mg/l	< 20.0 mg/l	< 20.0 mg/l	< 20.0 mg/l	23.7 mg/l	--	< 20.0 mg/l	< 20.0 mg/l	< 20.0 mg/l	--	< 10 mg/l
Alkalinity, total	NA	Lab	521 mg/l	572 mg/l	554 mg/l	654 mg/l	641 mg/l	637 mg/l	598 mg/l	587 mg/l	613 mg/l	680 mg/l	599 mg/l	622 mg/l	636 mg/l	648 mg/l	--	678 mg/l	669 mg/l	674 mg/l	--	17.6 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	< 3 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 3 mg/l	< 3 mg/l	--	--	< 4.0 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 2.4 * mg/l	--	< 2.4 * mg/l	< 2.4 * mg/l	< 2.4 * mg/l	--	< 10 mg/l
Carbon, dissolved organic	NA	Lab	5.3 mg/l	5.2 mg/l	5.5 mg/l	5.6 mg/l	5.5 mg/l	5.9 mg/l	7.1 mg/l	6.5 mg/l	6.2 mg/l	6.3 * mg/l	6.7 mg/l	5.3 mg/l	5.7 mg/l	5.2 mg/l	--	5.7 mg/l	5.7 mg/l	5.6 mg/l	--	3.5 mg/l
Carbon, total organic	NA	Lab	4.2 mg/l	4.8 mg/l	4.9 mg/l	5.3 mg/l	5.1 mg/l	6.0 mg/l	6.8 mg/l	5.8 mg/l	5.8 mg/l	5.8 mg/l	6.7 mg/l	5.4 mg/l	5.5 mg/l	4.9 mg/l	--	5.4 mg/l	5.0 mg/l	5.0 mg/l	--	3.5 mg/l
Chemical Oxygen Demand	NA	Lab	13.2 mg/l	18.1 mg/l	16.7 mg/l	16.4 mg/l	13.8 mg/l	59.1 mg/l	32 mg/l	--	--	< 10.0 mg/l	< 10.0 mg/l	18.3 mg/l	15.2 mg/l	13.9 mg/l	--	< 10.0 mg/l	14.8 mg/l	20.2 mg/l	--	< 10 mg/l
Chloride	NA	Lab	20.7 mg/l	22 mg/l	21.9 mg/l	17.4 mg/l	17.5 mg/l	17.6 mg/l	19.3 mg/l	19.1 mg/l	19 mg/l	17.0 mg/l	17.9 mg/l	17.0 mg/l	15.8 mg/l	15.8 mg/l	--	14.8 mg/l	14.7 mg/l	16.0 mg/l	--	0.7 j mg/l
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	0.0221 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	--	0.0122 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	0.0142 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	< 0.0100 mg/l	0.0289 mg/l	--	< 0.02 mg/l
Dissolved oxygen	NA	Field	1.49 mg/l	0.4 mg/l	--	3.55 mg/l	--	4.3 mg/l	9.4 mg/l	3.98 mg/l	--	1.84 mg/l	--	1.78 mg/l	2.57 mg/l	0.15 mg/l	--	0.14 mg/l	--	0.36 mg/l	--	8.62 mg/l
Fluoride	NA	Lab	0.19 mg/l	0.19 mg/l	0.18 mg/l	0.14 mg/l	0.14 mg/l	0.19 mg/l	0.22 mg/l	0.19 mg/l	0.19 mg/l	0.15 mg/l	0.13 mg/l	0.16 mg/l	0.15 mg/l	0.16 mg/l	--	0.16 mg/l	0.16 mg/l	0.22 mg/l	--	0.56 b mg/l
Hardness, total, as CaCO3	NA	Lab	714 mg/l	774 mg/l	763 mg/l	933 mg/l	925 mg/l	838 mg/l	925 mg/l	--	--	1090 mg/l	1070 mg/l	948 mg/l	1010 mg/l	913 mg/l	--	957 mg/l	955 mg/l	981 mg/l	--	19 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	0.16 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.070 mg/l	0.070 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.05 mg/l
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	0.02 mg/l	0.02 mg/l	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	7.7 pH units	7.6 pH units	7.7 pH units	--	--	7.4 pH units	7.5 pH units	--	--	7.7 pH units	7.7 pH units	7.5 pH units	7.4 pH units	7.5 pH units	--	7.5 pH units	7.5 pH units	7.4 pH units	--	6.9 pH units
pH	NA	Field	7.26 pH units	7.5 pH units	--	7.05 pH units	--	7.0 pH units	7.0 pH units	6.98 pH units	--	6.88 pH units	--	6.9 pH units	6.97 pH units	7.04 pH units	--	6.85 pH units	--	6.96 pH units	--	6.59 pH units
Phosphorus, total	NA	Lab	0.24 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	--	< 0.1 mg P/L	2.9 mg P/L	0.18 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.1 mg P/L
Redox (oxidation potential)	NA	Field	388 mV	581 mV	--	353 mV	--	494 mV	452 mV	362 mV	--	503 mV	--	242 mV	315 mV	337 mV	--	604 mV	--	394 mV	--	397 mV
Solids, total dissolved	NA	Lab	979 mg/l	1090 mg/l	1110 mg/l	1250 mg/l	1270 mg/l	1226 mg/l	1347 mg/l	1456 mg/l	1457 mg/l	1370 mg/l	1390 mg/l	1390 mg/l	1340 mg/l	1230 mg/l	--	1290 mg/l	1200 mg/l	1330 mg/l	--	85 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	4.8 mg/l	5 mg/l	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	1500 umhos/cm	1500 umhos/cm	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Field	573 umhos/cm	1445 umhos/cm	--	1841 umhos/cm	--	1721 umhos/cm	1908 umhos/cm	1989 umhos/cm	--	2226 umhos/cm	--	1907 umhos/cm	1934 umhos/cm	1861 umhos/cm	--	1385 umhos/cm	--	1992 umhos/cm	--	34.4 umhos/cm
Sulfate	NA	Lab	332 mg/l	372 mg/l	373 mg/l	433 mg/l	435 mg/l	395 mg/l	472 mg/l	500 mg/l	498 mg/l	507 mg/l	505 mg/l	460 mg/l	504 mg/l	440 mg/l	--	434 mg/l	431 mg/l	471 mg/l	--	4.1 mg/l
Sulfide	NA	Lab	--	--	--	--	--	--	--	< 5.0 mg/l	< 5.0 mg/l	--	--	--	--	--	--	--	--	--	--	--
Temperature, degrees C	NA	Field	13.2 deg C	12.7 deg C	--	5.57 deg C	--	9.7 deg C	13.3 deg C	10.00 deg C	--	7.23 deg C	--	13.98 deg C	9.38 deg C	4.84 deg C	--	9.91 deg C	--	10.5 deg C	--	7.87 deg C
Turbidity	NA	Field	28.5 NTU	0 NTU	--	6.8 NTU	--	1651.0 NTU	0 NTU	128.0 NTU	--	0 NTU	--	0 NTU	2.1 NTU	1.1 NTU	--	0 NTU	--	0 NTU	--	45.5 NTU
Water Elevation, ft/MSL	NA	Field	1489.91	1490.04	--	1490.39	1490.39	1489.69	1488.9	1489.98	--	1490.17	--	1490.22	1490	1490.19	--	1490.29	--	1490.44	--	1461.51
Metals																						
Aluminum	Dissolved	Lab	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	--	--	< 80.0 ug/l	< 80.0 ug/l	31.5 ug/l	32.4 ug/l	37.8 ug/l	--	22.4 ug/l	24.5 ug/l	< 20.0 ug/l	--	93.2 ug/l
Aluminum	Total	Lab	9490 ug/l	78 ug/l	79.8 ug/l	210 ug/l	235 ug/l	29000 ug/l	6760 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	< 20.0 ug/l	54.8 ug/l	43.0 ug/l	57.0 ug/l	--	80.2 ug/l	55.7 ug/l	< 20.0 ug/l	--	1810 ug/l
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.5 ug/l
Arsenic	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	0.66 ug/l	0.69 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 1 ug/l
Arsenic	Total	Lab	1.02 ug/l	< 1 ug/l	< 1 ug/l	< 0.5 ug/l	< 0.5 ug/l	3.44 ug/l	0.8 ug/l	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	< 1 ug/l
Arsenic III	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--
Arsenic inorganic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic V	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	--	245 e ug/l	246 e ug/l	277 e ug/l	248 ug/l	--	--	--	--	208 ug/l	201 ug/l	180 ug/l	--	198 ug/l	196 ug/l	224 ug/l	--	--
Barium	Total	Lab	303 ug/l	241 ug/l	237 ug/l	248 e ug/l	249 ug/l	452 ug/l	312 ug/l	256 ug/l	248 ug/l	238 ug/l	236 ug/l	208 ug/l	205 ug/l	187 ug/l	--	186 ug/l	193 ug/l	218 ug/l	--	36.8 ug/l
Beryllium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	1.02 ug/l	< 0.2 ug/l	--	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	382 ug/l	411 ug/l	--	--	361 ug/l	393 ug/l	441 ug/l	352 ug/l	352 ug/l	--	404 ug/l	352 ug/l	409 ug/l	--	--
Boron	Total	Lab	368 ug/l	417 ug/l	424 ug/l	378 ug/l	380 ug/l	313 ug/l	416 ug/l	426 ug/l	417 ug/l	369 ug/l	365 ug/l	411 ug/l	442 ug/l	340 ug/l	--	422 ug/l	425 ug/l	429 ug/l	--	< 50 ug/l
Cadmium	Dissolved	Lab	0.25 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	1.1 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.2 ug/l
Cadmium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.8 ug/l	2 ug/l	--	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.2 ug/l
Calcium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	142000 ug/l	148000 ug/l	144000 ug/l	179000 ug/l	176000 ug/l	173000 ug/l	179000 ug/l	196000 ug/l	189000 ug/l	211000 ug/l	204000 ug/l	177000 ug/l	195000 ug/l	170000 ug/l	--	175000 ug/l	174000 ug/l	188000 ug/l	--	4250 ug/l
Chromium	Dissolved	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	1.32 ug/l
Chromium	Total	Lab	17.1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	68.2 ug/l	15 ug/l	--	--	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	4.26 ug/l
Cobalt	Dissolved	Lab	--	--	--	0.8 ug/l	0.84 ug/l	0.86 ug/l	0.74 ug/l	--	--	--	--	0.80 ug/l	0.69 ug/l	0.44 ug/l	--	0.51 ug/l	0.54 ug/l	0.46 ug/l	--	--
Cobalt	Total	Lab	3.45 ug/l	0.71 ug/l	0.69 ug/l	1.03 ug/l	0.98 ug/l	17.9 ug/l	3.45 ug/l	--	--	1.1 ug/l	1.2 ug/l	0.86 ug/l	0.72 ug/l	0.53 ug/l	--	0.60 ug/l	0.53 ug/l	0.42 ug/l	--	1.2 ug/l
Copper	Dissolved	Lab	5.81 b ug/l	2.48 ug/l	2.5 ug/l	2.76 ug/l	2.61 ug/l	3.7 ug/l	4.48 ug/l	--	--	4.0 ug/l	4.0 ug/l	3.1 ug/l	6.2 b ug/l	2.4 ug/l	--	2.0 ug/l	2.3 ug/l	4.1 ug/l	--	5.69 ug/l
Copper	Total	Lab	30.1 ug/l	3.02 ug/l	2.86 ug/l	3.9 ug/l	3.9 ug/l	205 ug/l	34.5 ug/l	--	--	4.1 ug/l	3.1 ug/l	3.1 ug/l	3.1 ug/l	2.7 ug/l	--	2.7 ug/l	2.7 ug/l	3.6 ug/l	--	6.69 ug/l
Iron	Dissolved	Lab	< 50																			

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location 013			GW-013		GW-013		GW-013		GW-013		GW-013		GW-013		GW013		GW013		GW013		GW-014					
Date 2010			9/2/2010		10/8/2010		4/28/2011		7/20/2011		10/7/2011		4/26/2012		7/23/2012		10/10/2012		4/30/2013		7/8/2013		10/16/2013		7/30/2010	
Sample Type			FD		N		FD		N		FD		N		N		N		N		FD		N		N	
Analysis Location																										
Fraction																										
General Parameters																										
Alkalinity, bicarbonate, as CaCO3	NA	Lab	17 mg/l	17.2 mg/l	17.2 mg/l	16 mg/l	16.1 mg/l	12.7 mg/l	14.5 mg/l	16.3 mg/l	16.4 mg/l	18.8 mg/l	18.2 mg/l	17.3 mg/l	< 20.0 mg/l	46.2 mg/l	16.6 mg/l	--	14.6 mg/l	17.5 mg/l	17.9 mg/l	317 mg/l				
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10.0 mg/l	< 20.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 10 mg/l				
Alkalinity, total	NA	Lab	17 mg/l	17.2 mg/l	17.2 mg/l	16 mg/l	16.1 mg/l	12.7 mg/l	14.5 mg/l	16.3 mg/l	16.4 mg/l	18.8 mg/l	18.2 mg/l	17.3 mg/l	< 20.0 mg/l	46.2 mg/l	16.6 mg/l	--	14.6 mg/l	17.5 mg/l	17.9 mg/l	317 mg/l				
Biochemical Oxygen Demand (5-day)	NA	Lab	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 4.0 mg/l	< 2.4 mg/l	< 8.0 mg/l	< 2.4 * mg/l	--	< 2.4 * mg/l	< 2.4 * mg/l	< 2.4 * mg/l	9.7 mg/l				
Carbon, dissolved organic	NA	Lab	3.3 mg/l	3.0 mg/l	3.1 mg/l	2.6 mg/l	2.7 mg/l	5.2 mg/l	5.1 mg/l	4.1 mg/l	3.9 mg/l	4 mg/l	3.9 mg/l	3.8 mg/l	< 2.4 mg/l	3.8 mg/l	2.7 mg/l	--	3.8 mg/l	2.7 mg/l	2.4 mg/l	12.4 mg/l				
Carbon, total organic	NA	Lab	3.4 mg/l	2.7 mg/l	2.9 mg/l	2.5 mg/l	2.6 mg/l	4.6 mg/l	4.5 mg/l	3.5 mg/l	3.6 mg/l	3.1 mg/l	2.6 mg/l	3.5 mg/l	3.2 mg/l	2.5 mg/l	4.0 mg/l	--	3.8 mg/l	2.4 mg/l	2.9 mg/l	11.9 mg/l				
Chemical Oxygen Demand	NA	Lab	< 10 mg/l	11.6 mg/l	10.2 mg/l	11.5 mg/l	12 mg/l	17.4 mg/l	20.4 mg/l	23.5 mg/l	16.4 mg/l	19.4 mg/l	20.4 mg/l	< 10.0 mg/l	12.6 mg/l	< 10.0 mg/l	13.6 mg/l	--	10.3 mg/l	13.4 mg/l	12.6 mg/l	39.3 mg/l				
Chloride	NA	Lab	0.7 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	0.58 mg/l	< 0.5 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	--	< 0.50 mg/l	< 1.0 mg/l	< 1.0 mg/l	20.4 mg/l				
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	0.945 mg/l	--	0.0231 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.02 mg/l				
Dissolved oxygen	NA	Field	--	7.81 mg/l	--	5.8 mg/l	--	9.57 mg/l	--	9.85 mg/l	--	7.0 mg/l	--	10.5 mg/l	8.81 mg/l	7.23 mg/l	6.85 mg/l	--	9.15 mg/l	6.08 mg/l	--	3.58 mg/l				
Fluoride	NA	Lab	0.06 b mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l				
Hardness, total, as CaCO3	NA	Lab	19.8 mg/l	18.4 mg/l	18.4 mg/l	16.7 mg/l	16.6 mg/l	13.3 mg/l	14.8 mg/l	17.6 mg/l	17.5 mg/l	19.4 mg/l	18.8 mg/l	13.7 mg/l	15.8 mg/l	18.3 mg/l	16.7 mg/l	--	14.6 mg/l	17.5 mg/l	17.2 mg/l	631 mg/l				
Nitrate + Nitrite, as N	NA	Lab	0.14 mg/l	0.18 mg/l	0.18 mg/l	0.18 mg/l	0.12 mg/l	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.17 mg/l	0.17 mg/l	0.14 mg/l	< 0.10 mg/l	0.18 mg/l	0.25 mg/l	--	< 0.10 mg/l	0.17 mg/l	0.16 mg/l	0.51 mg/l				
Nitrogen, ammonia (NH3), as N	NA	Lab	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	< 0.05 mg/l	0.49 mg/l	0.37 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.050 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.3 mg/l				
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
pH	NA	Lab	6.7 pH units	6.3 pH units	6.2 pH units	6.4 pH units	6.5 pH units	--	--	6.3 pH units	6.3 pH units	6.0 pH units	6.3 pH units	6.5 pH units	6.4 pH units	6.7 pH units	6.3 pH units	--	6.4 pH units	6.0 pH units	6.7 pH units	7.7 pH units				
pH	NA	Field	--	5.6 pH units	--	5.6 pH units	--	5.45 pH units	5.66 pH units	--	5.7 pH units	--	5.87 pH units	5.39 pH units	5.88 pH units	5.67 pH units	5.67 pH units	--	5.47 pH units	5.78 pH units	--	7.01 pH units				
Phosphorus, total	NA	Lab	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	2.78 mg P/L				
Redox (oxidation potential)	NA	Field	--	392 mV	--	583 mV	--	364 mV	--	588 mV	--	404 mV	--	571 mV	410 mV	366 mV	523 mV	--	635 mV	558 mV	--	143 mV				
Solids, total dissolved	NA	Lab	79 mg/l	28 * mg/l	12 * mg/l	39 mg/l	38 mg/l	57 mg/l	59 mg/l	53 mg/l	49 mg/l	56 mg/l	37 mg/l	59.0 mg/l	68.0 mg/l	84.0 mg/l	51.0 mg/l	--	55.0 mg/l	64.0 mg/l	63.0 mg/l	651 mg/l				
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Specific Conductance @ 25oC	NA	Field	--	37.0 umhos/cm	--	35 umhos/cm	--	0 umhos/cm	--	1 umhos/cm	--	43 umhos/cm	--	16.6 umhos/cm	29.5 umhos/cm	38.4 umhos/cm	23.2 umhos/cm	--	20.7 umhos/cm	34.4 umhos/cm	--	505 umhos/cm				
Sulfate	NA	Lab	4 mg/l	2.74 mg/l	2.66 mg/l	2.64 mg/l	2.59 mg/l	3.23 mg/l	3.31 mg/l	2.62 mg/l	2.72 mg/l	3.12 mg/l	3.3 mg/l	2.9 mg/l	3.0 b mg/l	2.8 mg/l	3.0 mg/l	--	3.4 mg/l	3.7 mg/l	3.8 mg/l	211 mg/l				
Sulfide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Temperature, degrees C	NA	Field	--	7.86 deg C	--	9.6 deg C	--	9.57 deg C	--	8.79 deg C	--	9.1 deg C	--	6.89 deg C	10.08 deg C	8.01 deg C	5.37 deg C	--	6.18 deg C	10.56 deg C	--	11.03 deg C				
Turbidity	NA	Field	--	24 NTU	--	5.6 NTU	--	5 NTU	--	71.4 NTU	--	49.6 NTU	--	0 NTU	3.1 NTU	0 NTU	--	--	1.7 NTU	0 NTU	--	530 NTU				
Water Elevation, ft/MSL	NA	Field	--	1459.9	--	1461.87	--	--	--	1462.11	--	1459.73	--	--	1461.76	1459.19	1462.45	--	1461.85	1460.68	--	1445.2				
Metals																										
Aluminum	Dissolved	Lab	94.1 ug/l	38.6 ug/l	32.8 ug/l	38.1 ug/l	39.1 ug/l	54.4 ug/l	58.1 ug/l	52.2 ug/l	56.7 ug/l	55 ug/l	46.6 ug/l	58.1 ug/l	31.5 ug/l	27.7 ug/l	71.0 ug/l	--	154 ug/l	33.3 b ug/l	31.4 b ug/l	232 ug/l				
Aluminum	Total	Lab	2120 ug/l	894 * ug/l	569 * ug/l	124 ug/l	122 ug/l	385 ug/l	312 ug/l	2450 ug/l	2380 ug/l	1790 ug/l	1690 ug/l	76.5 ug/l	51.6 ug/l	72.4 ug/l	135 ug/l	--	72.1 ug/l	114 b ug/l	120 b ug/l	63700 ug/l				
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

		Location Date Sample Type	GW-014 9/2/2010	GW-014 10/8/2010	GW-014 4/27/2011	GW-014 7/20/2011	GW-014 10/7/2011	GW-014 4/12/2012	GW-014 7/23/2012	GW014 10/4/2012	GW014 4/4/2013		GW014 7/18/2013	GW014 10/14/2013	GW-015 7/30/2010	GW-015 9/2/2010	GW-015 10/8/2010	GW-015 5/22/2011	GW-015 7/22/2011		GW-015 10/13/2011	
			N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	FD	N	FD
	Fraction	Location																				
General Parameters																						
Alkalinity, bicarbonate, as CaCO3	NA	Lab	400 mg/l	507 mg/l	443 mg/l	450 mg/l	420 mg/l	413 mg/l	380 mg/l	397 mg/l	379 mg/l	--	346 mg/l	328 mg/l	118 mg/l	107 mg/l	109 mg/l	107 mg/l	106 mg/l	106 mg/l	103 mg/l	104 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10 mg/l	< 20 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 20 mg/l	< 20 mg/l	< 20 mg/l	--	< 20 mg/l	< 20 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l	< 10 mg/l
Alkalinity, total	NA	Lab	400 mg/l	507 mg/l	443 mg/l	450 mg/l	420 mg/l	413 mg/l	380 mg/l	397 mg/l	387 mg/l	--	346 mg/l	328 mg/l	118 mg/l	107 mg/l	109 mg/l	107 mg/l	106 mg/l	106 mg/l	103 mg/l	104 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	9.2 mg/l	3.8 mg/l	8.1 mg/l	8.1 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 8.0 mg/l	< 8.0 mg/l	< 8.0 mg/l	--	4.3 mg/l	3.2 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 3 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l
Carbon, dissolved organic	NA	Lab	19.3 mg/l	14.9 mg/l	12.3 mg/l	12.8 mg/l	12.8 mg/l	9.9 mg/l	9.4 mg/l	10 mg/l	10 mg/l	--	9.1 mg/l	12.3 mg/l	3.6 mg/l	3.3 mg/l	3.1 mg/l	3.5 mg/l	3.3 mg/l	3.3 mg/l	3.6 mg/l	3.6 mg/l
Carbon, total organic	NA	Lab	15.3 mg/l	13.8 mg/l	12.0 mg/l	16.3 mg/l	12.1 mg/l	10.1 mg/l	9.3 mg/l	9.9 mg/l	9.3 mg/l	--	9.3 mg/l	11.5 mg/l	2.7 mg/l	2.8 mg/l	2.7 mg/l	2.7 mg/l	2.8 mg/l	2.5 mg/l	2.6 mg/l	2.6 mg/l
Chemical Oxygen Demand	NA	Lab	80.6 mg/l	53.5 mg/l	31.8 mg/l	126 mg/l	51.1 mg/l	36.4 mg/l	23.7 mg/l	31.9 mg/l	33.2 mg/l	--	40.2 mg/l	44.7 b mg/l	< 10 mg/l	15.7 mg/l	16.2 mg/l	< 10 mg/l	12.2 mg/l	11.6 mg/l	40.6 mg/l	40.6 mg/l
Chloride	NA	Lab	20.2 mg/l	19.5 mg/l	16.9 mg/l	17.3 mg/l	16 mg/l	16.5 mg/l	18.1 mg/l	16.3 mg/l	16.2 mg/l	--	16.2 mg/l	9.1 mg/l	4.8 mg/l	1.15 mg/l	1.01 mg/l	0.58 mg/l	0.55 mg/l	< 0.5 mg/l	0.61 mg/l	0.61 mg/l
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	0.0226 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	0.0149 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	0.0234 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l
Dissolved oxygen	NA	Field	5.48 mg/l	2.4 mg/l	1.19 mg/l	3.2 mg/l	4.3 mg/l	6.19 mg/l	3.98 mg/l	9.81 mg/l	0.16 mg/l	--	5.94 mg/l	4.59 mg/l	0 mg/l	0.43 mg/l	0.75 mg/l	1.54 mg/l	2.9 mg/l	--	3.6 mg/l	--
Fluoride	NA	Lab	0.4 mg/l	0.42 mg/l	0.37 mg/l	0.44 mg/l	0.41 mg/l	0.36 mg/l	0.32 mg/l	0.52 mg/l	0.32 mg/l	--	0.51 mg/l	0.86 mg/l	0.2 b mg/l	0.22 mg/l	0.23 mg/l	0.19 mg/l	0.2 mg/l	0.2 mg/l	0.2 mg/l	0.2 mg/l
Hardness, total, as CaCO3	NA	Lab	772 mg/l	515 mg/l	500 mg/l	1220 mg/l	432 mg/l	566 mg/l	433 mg/l	389 mg/l	411 mg/l	--	349 mg/l	274 mg/l	128 mg/l	118 mg/l	126 mg/l	117 mg/l	118 mg/l	112 mg/l	114 mg/l	114 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	0.11 mg/l	0.21 mg/l	0.11 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	0.07 mg/l	0.09 mg/l	0.11 mg/l	< 0.1 mg/l	0.080 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	0.19 b mg/l	0.11 mg/l	0.13 mg/l	0.08 mg/l	0.08 mg/l	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.1 mg/l
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	7.4 pH units	7.3 pH units	--	7.0 pH units	7.0 pH units	7.8 pH units	7.2 pH units	7.2 pH units	7.4 pH units	--	7.0 pH units	7.3 pH units	7.9 pH units	7.7 pH units	7.6 pH units	--	7.6 pH units	7.6 pH units	7.4 pH units	7.5 pH units
pH	NA	Field	6.87 pH units	6.9 pH units	6.94 pH units	6.5 pH units	6.1 pH units	6.72 pH units	6.58 pH units	7.24 pH units	6.7 pH units	--	6.71 pH units	7.12 pH units	7.60 pH units	7.04 pH units	7.43 pH units	7.41 pH units	7.2 pH units	--	7.2 pH units	--
Phosphorus, total	NA	Lab	3.81 mg P/L	0.2 mg P/L	0.54 mg P/L	10.6 mg P/L	1.13 mg P/L	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.12 mg/l	--	0.14 mg/l	< 0.10 mg/l	0.15 mg P/L	0.43 mg P/L	< 0.1 mg P/L	0.19 mg P/L	0.1 mg P/L	0.11 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L
Redox (oxidation potential)	NA	Field	3.7 mV	127 mV	208 mV	459 mV	423 mV	320 mV	185 mV	245 mV	174 mV	--	535 mV	436 mV	35 mV	429 mV	228 mV	472 mV	417 mV	--	290 mV	--
Solids, total dissolved	NA	Lab	578 mg/l	653 mg/l	617 mg/l	632 mg/l	554 mg/l	566 mg/l	560 mg/l	591 mg/l	588 mg/l	--	534 mg/l	421 mg/l	212 mg/l	124 mg/l	143 mg/l	151 mg/l	167 mg/l	162 mg/l	134 mg/l	132 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Field	1018 umhos/cm	1022 umhos/cm	1001 umhos/cm	960 umhos/cm	966 umhos/cm	949.8 umhos/cm	998.1 umhos/cm	934.3 umhos/cm	953.4 umhos/cm	--	937.2 umhos/cm	707 umhos/cm	312 umhos/cm	226 umhos/cm	227 umhos/cm	199.1 umhos/cm	175 umhos/cm	--	222 umhos/cm	--
Sulfate	NA	Lab	129 mg/l	75.2 mg/l	77.9 mg/l	83.9 mg/l	61.2 mg/l	75.3 mg/l	103 mg/l	84.8 mg/l	103 mg/l	--	119 mg/l	37.4 mg/l	38.6 mg/l	11.9 mg/l	12.5 mg/l	7.13 mg/l	7.33 mg/l	7.32 mg/l	7.34 mg/l	7.58 mg/l
Sulfide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, degrees C	NA	Field	8.75 deg C	14.9 deg C	3.61 deg C	9.2 deg C	11.3 deg C	15.4 deg C	19.11 deg C	12.23 deg C	4.72 deg C	--	25.98 deg C	11.37 deg C	8.69 deg C	8.77 deg C	7.2 deg C	6.1 deg C	6.9 deg C	--	7.5 deg C	--
Turbidity	NA	Field	1000 > NTU	64 NTU	261 NTU	2458.0 NTU	37.5 NTU	2458.0 NTU	26 NTU	73.5 NTU	92.4 NTU	--	83.4 NTU	26 NTU	82.4 NTU	92 NTU	303 NTU	161.7 NTU	56.9 NTU	--	56.9 NTU	--
Water Elevation, ft/MSL	NA	Field	1446.72	1447.3	1447.74	1446.64	1445.86	1447.01	1445.96	1445.79	1445.45	--	1446.93	1446.58	1415.87	1416.77	1417.23	--	1416.93	--	1415.85	--
Metals																						
Aluminum	Dissolved	Lab	147 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 20.0 ug/l	33.8 ug/l	33.9 ug/l	22.0 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	72.4 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	69600 ug/l	3032 ug/l	6080 ug/l	134000 ug/l	16700 ug/l	1080 ug/l	2010 ug/l	877 ug/l	2010 ug/l	--	2410 ug/l	1100 ug/l	2690 ug/l	2820 ug/l	1060 ug/l	4870 ug/l	2080 ug/l	1370 ug/l	1300 ug/l	
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	0.98 ug/l	0.7 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 5.0 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Dissolved	Lab	1.59 ug/l	1.14 ug/l	1.08 ug/l	4.99 ug/l	1.22 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	1 ug/l	0.62 ug/l	0.71 ug/l	0.62 ug/l	0.78 ug/l
Arsenic	Total	Lab	9.83 ug/l	1.52 ug/l	1.28 ug/l	26.6 ug/l	2.7 ug/l	< 5.0 ug/l	0.60 ug/l	0.60 ug/l	--	--	--	--	< 1 ug/l	1.19 ug/l	1.29 ug/l	< 1 ug/l	0.99 ug/l	0.78 ug/l	1.2 ug/l	0.87 ug/l
Arsenic III	Total	Lab	--	--	--	--	--	--	--	--	0.67 ug/l	--	1.0 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--
Arsenic inorganic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic V	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	128 ug/l	200 ug/l	169 ug/l	--	168 ug/l	155 ug/l	163 ug/l	--	162 ug/l	60.1 ug/l	--	--	--	146 ug/l	150 ug/l	152 ug/l	168 ug/l	164 ug/l
Barium	Total	Lab	647 ug/l	145 ug/l	184 ug/l	1520 ug/l	320 ug/l	154 ug/l	185 ug/l	171 ug/l	213 ug/l	--	194 ug/l	77.3 ug/l	258 ug/l	160 ug/l	173 ug/l	237 ug/l	204 ug/l	200 ug/l	200 ug/l	196 ug/l
Beryllium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	2.25 ug/l	< 0.2 ug/l	0.21 ug/l	5.43 ug/l	0.42 ug/l	< 2.0 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	169 ug/l	215 ug/l	183 ug/l	< 500 ug/l	218 ug/l	192 ug/l	196 ug/l	210 ug/l	183 ug/l	--	189 ug/l	278 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Cadmium	Dissolved	Lab	1.1 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.04 j ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cadmium	Total	Lab	1.98 ug/l	< 0.2 ug/l	< 0.2 ug/l	4.57 ug/l	0.52 ug/l	< 2.0 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Calcium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	156000 ug/l	99100 ug/l	100000 ug/l	252000 ug/l	87600 ug/l	90200 ug/l	92600 ug/l	80200 ug/l	87400 ug/l	--	71300 ug/l	47400 ug/l	38700 ug/l	30500 ug/l	30300 ug/l	27200 ug/l	27400 ug/l	27300 ug/l	26300 ug/l	26500 ug/l
Chromium	Dissolved	Lab	1.96 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Chromium	Total	Lab	356 ug/l	10.3 ug/l	22.6 ug/l	1000 ug/l	56.9 ug/l	< 10.0 ug/l	1.5 ug/l	4.2 ug/l	7.2 ug/l	--	8.7 ug/l	4.7 ug/l	6.66 ug/l	8.13 ug/l	2.47 ug/l	9.1 ug/l	5.14 ug/l	5.56 ug/l	3.58 ug/l	3.88 ug/l
Cobalt	Dissolved	Lab	--	--	0.96 ug/l	5.0 ug/l	1.37 ug/l	--	1.5 ug/l	1.2 ug/l	1.2 ug/l	--	1.3 ug/l	0.58 ug/l	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Cobalt	Total	Lab	62.7 ug/l	3.48 ug/l	5.53 ug/l	215 ug/l	10.9 ug/l	2.2 ug/l	1.8 ug/l	1.8 ug/l	2.8 ug/l	--	2.8 ug/l	1.3 ug/l	2.25 ug/l	2.66 ug/l	1.1 ug/l	3.52 ug/l	1.65 ug/l	1.46 ug/l	1.42 ug/l	
Copper	Dissolved	Lab																				

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Location Date Sample Type			GW-015 4/12/2012		GW-015 7/25/2012		GW015 10/4/2012		GW015 5/6/2013		GW015 7/9/2013		GW015 10/16/2013	GW016 8/21/2013		GW016 10/14/2013
			N	FD	N	FD	N	FD	N	FD	N	FD	N	N	FD	N
General Parameters	Fraction	Analysis Location														
Alkalinity, bicarbonate, as CaCO3	NA	Lab	106 mg/l	105 mg/l	116 mg/l	98.0 mg/l	133 mg/l	135 mg/l	105 mg/l	--	104 mg/l	--	103 mg/l	32.9 mg/l	--	63.8 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	< 10.0 mg/l	< 10.0 mg/l	< 10.0 mg/l	< 20.0 mg/l	< 20.0 mg/l	< 20.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l	--	< 10.0 mg/l	< 10.0 mg/l	--	< 10.0 mg/l
Alkalinity, total	NA	Lab	106 mg/l	105 mg/l	116 mg/l	98.0 mg/l	133 mg/l	135 mg/l	105 mg/l	--	104 mg/l	--	103 mg/l	32.9 mg/l	--	63.8 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	< 2.4 mg/l	< 2.4 mg/l	< 2.4 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 4.0 mg/l	< 2.4 mg/l	--	< 2.4 * mg/l	--	< 2.4 * mg/l	4.3 mg/l	--	13.0 * mg/l
Carbon, dissolved organic	NA	Lab	3.0 mg/l	3.1 mg/l	2.5 mg/l	2.0 mg/l	2.3 mg/l	2.4 mg/l	2.5 mg/l	--	2.7 mg/l	--	2.2 mg/l	8.9 mg/l	--	20.7 mg/l
Carbon, total organic	NA	Lab	3.0 mg/l	2.8 mg/l	2.0 mg/l	2.8 mg/l	2.0 mg/l	1.9 mg/l	2.1 mg/l	--	2.5 mg/l	--	2.0 mg/l	6.4 mg/l	--	20.4 mg/l
Chemical Oxygen Demand	NA	Lab	25.9 mg/l	22.8 mg/l	10.8 mg/l	13.7 mg/l	11.4 mg/l	< 10.0 mg/l	< 10.0 mg/l	--	12.3 mg/l	--	11.2 mg/l	31.6 mg/l	--	89.7 b mg/l
Chloride	NA	Lab	< 0.50 mg/l	< 0.50 mg/l	0.61 mg/l	< 0.50 mg/l	0.62 mg/l	0.58 mg/l	0.65 mg/l	--	0.59 mg/l	--	< 1.0 mg/l	1.4 mg/l	--	2.4 mg/l
Cyanide	NA	Lab	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	< 0.0100 mg/l	--	< 0.0100 mg/l	--	< 0.0100 mg/l	0.0211 mg/l	--	0.0134 mg/l
Dissolved oxygen	NA	Field	1.48 mg/l	--	2.65 mg/l	--	1.5 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	5.75 mg/l	--	5.5 mg/l
Fluoride	NA	Lab	0.20 mg/l	0.20 mg/l	0.18 mg/l	0.18 mg/l	0.20 mg/l	0.20 mg/l	0.20 mg/l	--	0.18 mg/l	--	0.21 mg/l	0.13 mg/l	--	0.26 mg/l
Hardness, total, as CaCO3	NA	Lab	113 mg/l	108 mg/l	108 mg/l	107 mg/l	111 mg/l	108 mg/l	106 mg/l	--	106 mg/l	--	107 mg/l	32.3 mg/l	--	64.7 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.10 mg/l	0.16 mg/l	--	< 0.10 mg/l
Nitrogen, ammonia (NH3), as N	NA	Lab	0.080 mg/l	0.13 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	0.11 mg/l	--	0.19 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l
Nitrogen, Nitrate as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, Nitrite as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	8.0 pH units	7.9 pH units	7.5 pH units	7.6 pH units	7.6 pH units	7.8 pH units	7.7 pH units	--	7.6 pH units	--	7.1 pH units	7.5 pH units	--	6.8 pH units
pH	NA	Field	7.45 pH units	--	7.35 pH units	--	7.28 pH units	--	7.31 pH units	--	7.39 pH units	--	7.47 pH units	6.37 pH units	--	6.72 pH units
Phosphorus, total	NA	Lab	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l	--	< 0.10 mg/l	< 0.10 mg/l	--	< 0.10 mg/l
Redox (oxidation potential)	NA	Field	329 mV	--	225 mV	--	151 mV	--	262 mV	--	328 mV	--	250 mV	228 mV	--	469 mV
Solids, total dissolved	NA	Lab	161 mg/l	156 mg/l	226 mg/l	236 mg/l	161 mg/l	204 mg/l	158 mg/l	--	166 mg/l	--	156 mg/l	97.0 mg/l	--	126 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25oC	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	92 umhos/cm	--	--
Specific Conductance @ 25oC	NA	Field	213.3 umhos/cm	--	207.9 umhos/cm	--	216.6 umhos/cm	--	200.5 umhos/cm	--	203.5 umhos/cm	--	205.1 umhos/cm	--	--	157 umhos/cm
Sulfate	NA	Lab	7.4 mg/l	7.5 mg/l	8.1 mg/l	7.9 mg/l	7.6 mg/l	7.4 mg/l	7.6 mg/l	--	7.4 mg/l	--	8.1 mg/l	6.4 mg/l	--	6.8 mg/l
Sulfide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, degrees C	NA	Field	7.47 deg C	--	8.92 deg C	--	7.09 deg C	--	7.95 deg C	--	8.18 deg C	--	7.52 deg C	12.85 deg C	--	10.7 deg C
Turbidity	NA	Field	0 NTU	--	0 NTU	--	0 NTU	--	0.1 NTU	--	0.8 NTU	--	0 NTU	28.4 NTU	--	59.1 NTU
Water Elevation, ft/MSL	NA	Field	1417.14	--	1417.2	--	1416.43	--	1417.84	--	1417.55	--	1417.18	1448.25	--	1448.31
Metals																
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	--	89.9 b ug/l	47.0 ug/l	--	< 20.0 ug/l
Aluminum	Total	Lab	52.0 ug/l	51.6 ug/l	21.9 ug/l	22.0 ug/l	81.5 ug/l	74.9 ug/l	102 ug/l	--	30.4 ug/l	--	651 ug/l	3060 ug/l	--	3060 ug/l
Antimony	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l
Arsenic	Dissolved	Lab	0.94 ug/l	0.90 ug/l	0.92 ug/l	1.3 ug/l	1.1 ug/l	1.1 ug/l	0.85 ug/l	--	0.71 ug/l	--	0.87 ug/l	< 0.50 ug/l	--	0.64 ug/l
Arsenic	Total	Lab	0.99 ug/l	< 0.50 ug/l	0.81 ug/l	0.96 ug/l	1.3 ug/l	1.1 ug/l	--	--	--	--	--	--	--	--
Arsenic III	Total	Lab	--	--	--	--	--	--	< 0.50 ug/l	--	1.0 ug/l	--	0.74 ug/l	< 0.50 ug/l	--	1.1 ug/l
Arsenic inorganic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic V	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Dissolved	Lab	--	--	201 ug/l	205 ug/l	211 ug/l	220 ug/l	236 ug/l	--	200 ug/l	--	231 ug/l	9.1 ug/l	--	19.7 ug/l
Barium	Total	Lab	200 ug/l	209 ug/l	198 ug/l	199 ug/l	207 ug/l	206 ug/l	216 ug/l	--	218 ug/l	--	241 ug/l	15.1 ug/l	--	49.9 ug/l
Beryllium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	< 0.20 ug/l	< 2.0 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l
Boron	Dissolved	Lab	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l
Boron	Total	Lab	< 100 ug/l	< 100 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l	--	< 50.0 ug/l	< 50.0 ug/l	--	< 50.0 ug/l
Cadmium	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l
Cadmium	Total	Lab	< 0.20 ug/l	< 2.0 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l
Calcium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	28000 ug/l	28700 ug/l	25800 ug/l	25600 ug/l	26400 ug/l	26300 ug/l	25000 ug/l	--	24800 ug/l	--	25100 ug/l	6900 ug/l	--	13100 ug/l
Chromium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l
Chromium	Total	Lab	< 1.0 ug/l	< 10.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	--	< 1.0 ug/l	2.4 ug/l	--	8.6 ug/l
Cobalt	Dissolved	Lab	--	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	1.5 ug/l	--	5.4 ug/l
Cobalt	Total	Lab	0.21 ug/l	< 2.0 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.24 ug/l	0.21 ug/l	0.23 ug/l	--	< 0.20 ug/l	--	< 0.20 ug/l	2.0 ug/l	--	7.5 ug/l
Copper	Dissolved	Lab	0.52 ug/l	< 0.50 ug/l	0.60 ug/l	0.60 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.86 ug/l	--	< 0.50 ug/l	--	0.58 b ug/l	1.1 ug/l	--	0.99 ug/l
Copper	Total	Lab	0.66 ug/l	< 5.0 ug/l	0.56 b ug/l	0.65 b ug/l	1.1 ug/l	0.83 ug/l	0.99 ug/l	--	< 0.50 ug/l	--	1.3 b ug/l	3.2 ug/l	--	11.9 ug/l
Iron	Dissolved	Lab	121 ug/l	114 ug/l	130 ug/l	150 ug/l	141 ug/l	159 ug/l	105 ug/l	--	113 ug/l	--	96.0 b ug/l	67.6 ug/l	--	329 ug/l
Iron	Total	Lab	186 ug/l	188 ug/l	163 ug/l	161 ug/l	249 ug/l	240 ug/l	210 ug/l	--	139 ug/l	--	112 b ug/l	729 ug/l	--	3980 ug/l
Lead	Dissolved	Lab	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l
Lead	Total	Lab	< 0.50 ug/l	< 5.0 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	1.3 ug/l
Magnesium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	10500 ug/l	10700 ug/l	10500 ug/l	10600 ug/l	10900 ug/l	10800 ug/l	11000 ug/l	--	10800 ug/l	--	10700 ug/l	3700 ug/l	--	7800 ug/l
Manganese	Dissolved	Lab	617 ug/l	624 ug/l	603 ug/l	607 ug/l	592 ug/l	611 ug/l	744 ug/l	--	641 ug/l	--	628 ug/l	184 ug/l	--	828 ug/l
Manganese	Total	Lab	639 ug/l	628 ug/l	616 ug/l	623 ug/l	585 ug/l	587 ug/l	634 ug/l	--	683 ug/l	--	648 ug/l	217 ug/l	--	903 ug/l
Mercury	Total	Lab	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00086 ug/l	0.00066 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	< 0.00050 ug/l	0.00061 ug/l	0.0013 ug/l	0.0013 ug/l	0.0055 ug/l
Mercury methyl	Total	Lab	< 0.0001 ug/l	< 0.0001 ug/l	--	--	< 0.00003 ug/l	0.00005 b ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	< 0.00003 ug/l	0.00012 b ug/l
Molybdenum	Dissolved	Lab	2.7 ug/l	2.7 ug/l	2.7 ug/l	2.4 ug/l	3.1 ug/l	3.2 ug/l	2.3 ug/l	--	2.0 ug/l	--	2.2 ug/l	1.3 ug/l	--	1.2 ug/l
Molybdenum	Total	Lab	2.5 ug/l	3.6 ug/l	2.3 ug/l	2.4 ug/l	3.2 ug/l	3.1 ug/l	2.1 ug/l	--	2.2 ug/l	--	2.1 ug/l	1.3 ug/l	--	1.1 ug/l
Nickel	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.52 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.62 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	2.4 ug/l	--	7.7 ug/l
Nickel	Total	Lab	< 0.50 ug/l	< 5.0 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.65 ug/l	0.59 ug/l	0.57 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	4.3 ug/l	--	16.3 ug/l
Palladium	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l
Phosphorus, total	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	< 0.50 ug/l	< 5.0 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l
Potassium	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1300 ug/l	1400 ug/l	1400 ug/l	1400 ug/l	1400 ug/l	1400 ug/l	1300 ug/l	--	1300 ug/l	--	1400 ug/l	990 ug/l	--	1600 ug/l
Selenium	Dissolved	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l
Selenium	Total	Lab	< 1.0 ug/l	< 10.0 ug/l	<											

Large Table 5
Plant Site Surficial Groundwater Quality Data
Poly Met Mining Inc.

Data Qualifiers/Footnotes	
Qualifier	Definition
	Not used in water quality modeling as of June 13, 2014
--	Not analyzed/not available.
a	Estimated value, calculated using some or all values that are estimates.
b	Potential false positive value based on blank data validation procedures.
c	Coeluting compound.
e	Estimated value, exceeded the instrument calibration range.
f	Sample was collected at a flowrate exceeding the recommended rate of 200 mL/minute.
h	EPA recommended sample preservation, extraction or analysis holding time was exceeded.
i	Indeterminate value based on failure of blind duplicate data to meet quality assurance criteria.
j	Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
p	Relative percent difference is >40% (25% CLP pesticides) between primary and confirmation GC columns.
pp	Small peak in chromatogram below method detection limit.
r	The presence of the compound is suspect based on the ID criteria of the retention time and relative retention time obtained from the examination of the chromatograms.
s	Potential false positive value based on statistical analysis of blank sample data.
v	Sample was collected under a vacuum of greater than XX inches of mercury.
*	Estimated value, QA/QC criteria not met.
**	Unusable value, QA/QC criteria not met.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
AT	Sample chromatogram is noted to be atypical of a petroleum product.
DLND	Not detected, detection limit not determined.
DF	Did not flash
EMPC	Estimated maximum possible concentration.
NA – (Not applicable)	NA indicates that a fractional portion of the sample is not part of the analytical testing or field collection procedures.
ND	Not detected.
TIC	Tentatively identified compound
BQA	Barr-applied project specific qualifier: extraction and/or analyses conducted using an alternative method and/or procedure.
BQC	Barr-applied project specific qualifier: plant shut down.
BQD	Barr-applied project specific qualifier: equipment malfunction.
BQE	Barr-applied project specific qualifier: equipment adjustment.
BQM	Barr-applied project specific qualifier: manual measurement.
BQN	Barr-applied project specific qualifier: unable to be sampled or measured due to various reasons.
BQP	Barr-applied project specific qualifier: atypical chromatographic pattern.
BQQ	Barr-applied project specific qualifier: some aspect of QA/QC was not met.
BQR	Barr-applied project specific qualifier: location was re-sampled.
BQS	Barr-applied project specific qualifier: data is considered suspect.
BQT	Barr-applied project specific qualifier: summed value not displayed due to insufficient field length.
BQU	Barr-applied project specific qualifier: historical qualifier - definition unknown.
BQV	Barr-applied project specific qualifier: estimated value.
BQX	Barr-applied project specific qualifier: see notes for qualifier definition.
BQZ	Barr-applied project specific qualifier: data is considered unusable.

Large Table 6
ProUCL Comparison of Surficial Groundwater Quality Data at the Plant Site
Poly Met Mining Inc.

			95% KM (t) UCL (unless otherwise noted)		% Difference	95% KM (t) UCL (unless otherwise noted)		% Difference	
Location Groundwater Quality Standards			Tailings Basin Wells Used for Background Groundwater Distributions (GW-002, GW-011, GW-013, GW-015)			Tailings Basin Wells Used to Establish Concentration Targets at Tailings Basin Toe (GW- 001, GW-006, GW-007, GW-012)			
			WQ Model Version 5.0			All Data			
			August 2007 - October 2011			August 2007 - October 2013			August 2007 - July 2011 August 2007 - October 2013
Alkalinity	mg/L	Total	250 ³	59.47*	59.93	0.8%	513.5*	526.7*	4.5%
Chloride	mg/L			1.32	1.078	-18.3%	24.81*	23.75*	-4.2%
Fluoride	mg/L		2 ³ , 4 ²	0.177	0.158	-10.7%	1.487	1.29	-13.2%
Sulfate	mg/L		250 ³	10.15*	8.83*	-13.0%	319.3*	328.9*	3.0%
Aluminum	mg/L	Dissolved	0.05-0.2 ³	0.0781	0.0677	-13.3%	All NDs	0.0231	--
Antimony	mg/L	Total	0.006 ^{1,2}	All NDs	All NDs	--	All NDs	All NDs	--
Arsenic	mg/L	Dissolved	0.01 ²	0.00067803	0.00071373	5.3%	--	--	--
Arsenic	mg/L	Total		--	--	--	0.00277	0.00238	-14.1%
Barium	mg/L	Dissolved	2 ^{1,2}	0.0825	0.0852	3.3%	--	--	--
Barium	mg/L	Total		--	--	--	0.179	0.173	-3.4%
Beryllium	mg/L	Total	0.00008 ¹ , 0.004 ²	0.00048458	0.00036851	-24.0%	0.0002859	0.00024567	-14.1%
Boron	mg/L	Total	1 ¹	All NDs	All NDs	--	0.404*	0.405*	0.2%
Cadmium	mg/L	Dissolved	0.004 ¹ , 0.005 ²	0.00035228	0.00029827	-15.3%	0.0002611	0.00029199	11.8%
Calcium	mg/L	Total		19.48*	17.17*	-11.9%	102.7*	107.7*	4.9%
Chromium	mg/L	Dissolved		0.00123	0.00124	0.8%	All NDs	All NDs	--
Cobalt	mg/L	Dissolved		92% NDs	97% NDs	--	--	--	--
Cobalt	mg/L	Total		--	--	--	0.00296*	0.00228*	-23.0%
Copper	mg/L	Dissolved	1 ³	0.00333	0.00244	-26.7%	0.00289	0.00263	-9.0%
Iron	mg/L	Dissolved	0.3 ³	0.0926	0.0875	-5.5%	4.225	3.719	-12.0%
Lead	mg/L	Dissolved		All NDs	All NDs	--	--	--	--
Lead	mg/L	Total		--	--	--	0.00165	0.00132	-20.0%
Magnesium	mg/L	Total		9.805*	8.032*	-18.1%	125.6*	127.2*	1.3%
Manganese	mg/L	Total	0.1 ¹ , 0.05 ³	0.453*	0.359*	-20.8%	1.838*	1.807*	-1.7%
Nickel	mg/L	Dissolved	0.1 ¹	0.00222	0.00185	-16.7%	0.00533	0.00471	-11.6%
Potassium	mg/L	Total		2.19*	1.716*	-21.6%	8.56*	7.614*	-11.1%
Selenium	mg/L	Dissolved	0.03 ¹ , 0.05 ²	All NDs	All NDs	--	All NDs	All NDs	--
Silver	mg/L	Dissolved	0.03 ¹ , 0.1 ³	All NDs	All NDs	--	All NDs	All NDs	--
Sodium	mg/L	Total		4.604	3.857	-16.2%	72.73*	73.01*	0.4%
Thallium	mg/L	Total	0.0006 ¹ , 0.002 ²	0.00031005	0.00032676	5.4%	97% NDs	0.00023714	--
Zinc	mg/L	Dissolved	2 ¹ , 5 ³	0.00914	0.00784	-14.2%	0.0146	0.0111	-24.0%

Large Table 7
Surficial Groundwater Elevation Data at the Mine Site
Poly Met Mining Inc.

Location	Date	Elevation, ft/MSL
MW-05-02	03/23/2005	1580.30
MW-05-02	11/20/2006	1578.27
MW-05-02	03/17/2009	1580.78
MW-05-02	05/03/2010	1583.58
MW-05-02	07/27/2010	1581.29
MW-05-02	10/05/2010	1580.05
MW-05-02	04/26/2011	1585.71
MW-05-02	07/20/2011	1580.84
MW-05-02	05/08/2012	1585.13
MW-05-02	06/21/2012	1586.55
MW-05-02	07/05/2012	1585.56
MW-05-02	08/23/2012	1583.29
MW-05-02	10/22/2012	1580.20
MW-05-02	05/02/2013	1585.64
MW-05-02	07/23/2013	1585.30
MW-05-02	10/01/2013	1580.90
Average of All Data		1582.71
Raw Difference (ft)		-1.87
MW-05-08	03/23/2005	1593.95
MW-05-08	11/28/2006	1593.14
MW-05-08	05/07/2009	1593.42
MW-05-08	05/05/2010	1593.06
MW-05-08	07/29/2010	1590.75
MW-05-08	10/07/2010	1592.75
MW-05-08	04/26/2011	1593.12
MW-05-08	07/21/2011	1592.50
MW-05-08	10/05/2011	1591.67
MW-05-08	11/02/2011	1592.93
MW-05-08	12/08/2011	1592.47
MW-05-08	03/26/2012	1592.93
MW-05-08	04/24/2012	1592.94
MW-05-08	05/04/2012	1593.02
MW-05-08	06/21/2012	1593.38
MW-05-08	07/26/2012	1592.92
MW-05-08	08/23/2012	1592.51
MW-05-08	10/22/2012	1592.62
MW-05-08	05/13/2013	1593.05
MW-05-08	07/23/2013	1593.92
MW-05-08	10/17/2013	1594.81
Average of All Data		1592.95
Raw Difference (ft)		-0.48

Location	Date	Elevation, ft/MSL
MW-05-09	03/23/2005	1608.70
MW-05-09	10/05/2006	1614.91
MW-05-09	03/17/2009	1608.31
MW-05-09	05/05/2010	1609.77
MW-05-09	10/07/2010	1607.54
MW-05-09	03/24/2011	1608.74
MW-05-09	04/26/2011	1611.14
MW-05-09	07/21/2011	1607.10
MW-05-09	10/05/2011	1607.34
MW-05-09	12/06/2011	1606.48
MW-05-09	01/11/2012	1606.31
MW-05-09	02/13/2012	1606.06
MW-05-09	03/01/2012	1605.98
MW-05-09	04/09/2012	1608.26
MW-05-09	05/08/2012	1610.34
MW-05-09	06/01/2012	1610.90
MW-05-09	07/13/2012	1609.51
MW-05-09	08/21/2012	1607.97
MW-05-09	10/29/2012	1606.53
MW-05-09	04/22/2013	1608.15
MW-05-09	07/30/2013	1611.63
MW-05-09	10/02/2013	1610.12
Average of All Data		1608.72
Raw Difference (ft)		-2.66
MW-1	11/07/2011	1591.56
MW-1	12/08/2011	1591.39
MW-1	01/09/2012	1590.97
MW-1	02/13/2012	1589.89
MW-1	03/19/2012	1592.45
MW-1	04/18/2012	1593.43
MW-1	05/04/2012	1593.07
MW-1	06/13/2012	1592.67
MW-1	07/26/2012	1592.83
MW-1	08/27/2012	1591.59
MW-1	10/19/2012	1591.71
MW-1	05/08/2013	1593.48
MW-1	07/23/2013	1593.76
MW-1	10/17/2013	1594.27
Average of All Data		1592.36
Raw Difference (ft)		-2.47

 = not used in model

Large Table 7
Surficial Groundwater Elevation Data at the Mine Site
Poly Met Mining Inc.

Location	Date	Elevation, ft/MSL
MW-2	11/07/2011	1576.58
MW-2	11/09/2011	1576.56
MW-2	12/06/2011	1577.00
MW-2	01/04/2012	1575.65
MW-2	02/13/2012	1574.84
MW-2	03/27/2012	1577.68
MW-2	04/04/2012	1577.71
MW-2	04/09/2012	1577.76
MW-2	05/08/2012	1578.95
MW-2	06/11/2012	1579.18
MW-2	07/13/2012	1578.81
MW-2	08/14/2012	1577.31
MW-2	10/26/2012	1576.47
MW-2	04/25/2013	1575.91
MW-2	07/25/2013	1578.81
MW-2	10/01/2013	1577.80
Average of All Data		1577.31
Raw Difference (ft)		-1.66
MW-3	11/08/2011	1554.04
MW-3	12/12/2011	1553.49
MW-3	01/17/2012	1552.83
MW-3	02/14/2012	1552.20
MW-3	03/05/2012	1551.89
MW-3	04/19/2012	1556.59
MW-3	05/07/2012	1556.60
MW-3	06/08/2012	1556.89
MW-3	07/09/2012	1556.62
MW-3	08/06/2012	1556.18
MW-3	10/09/2012	1553.53
MW-3	04/23/2013	1555.23
MW-3	07/19/2013	1556.63
MW-3	10/18/2013	1555.65
Average of All Data		1554.88
Raw Difference (ft)		-2.68
MW-4	11/08/2011	1553.85
MW-4	12/07/2011	1553.45
MW-4	01/17/2012	1552.59
MW-4	02/14/2012	1551.76
MW-4	03/05/2012	1551.76
MW-4	04/19/2012	1555.63
MW-4	05/07/2012	1555.43
MW-4	06/08/2012	1555.67
MW-4	07/09/2012	1555.71
MW-4	08/06/2012	1555.33
MW-4	10/09/2012	1553.84
MW-4	05/07/2013	1555.65
MW-4	07/19/2013	1555.64
MW-4	10/18/2013	1555.20
Average of All Data		1554.39
Raw Difference (ft)		-2.63

Location	Date	Elevation, ft/MSL
MW-5	11/07/2011	1574.75
MW-5	11/08/2011	1574.71
MW-5	11/09/2011	1574.72
MW-5	12/06/2011	1574.70
MW-5	01/04/2012	1574.29
MW-5	02/13/2012	1573.93
MW-5	03/01/2012	1573.82
MW-5	04/04/2012	1575.54
MW-5	04/09/2012	1575.70
MW-5	05/08/2012	1577.16
MW-5	06/11/2012	1579.85
MW-5	07/13/2012	1579.81
MW-5	08/14/2012	1577.72
MW-5	10/26/2012	1575.28
MW-5	04/22/2013	1575.63
MW-5	07/31/2013	1579.71
MW-5	10/02/2013	1576.20
Average of All Data		1576.09
Raw Difference (ft)		-2.16
MW-6S	10/06/2010	1570.37
MW-6S	11/07/2011	1569.58
MW-6S	11/08/2011	1569.50
MW-6S	12/09/2011	1569.39
MW-6S	01/10/2012	1569.09
MW-6S	02/15/2012	1568.95
MW-6S	03/06/2012	1568.93
MW-6S	04/06/2012	1570.37
MW-6S	05/02/2012	1572.59
MW-6S	06/07/2012	1574.39
MW-6S	07/10/2012	1574.43
MW-6S	08/07/2012	1572.62
MW-6S	10/11/2012	1569.59
MW-6S	04/24/2013	1570.53
MW-6S	07/17/2013	1574.57
MW-6S	10/25/2013	1571.44
Average of All Data		1571.02
Raw Difference (ft)		-2.07

 = not used in model

Large Table 7
Surficial Groundwater Elevation Data at the Mine Site
Poly Met Mining Inc.

Location	Date	Elevation, ft/MSL
MW-6D	11/07/2011	1569.35
MW-6D	11/08/2011	1569.61
MW-6D	12/09/2011	1569.53
MW-6D	01/10/2012	1569.42
MW-6D	02/15/2012	1569.10
MW-6D	03/06/2012	1569.07
MW-6D	04/06/2012	1570.91
MW-6D	05/02/2012	1572.70
MW-6D	06/07/2012	1574.51
MW-6D	07/10/2012	1574.63
MW-6D	08/07/2012	1572.78
MW-6D	10/11/2012	1569.68
MW-6D	04/24/2013	1570.54
MW-6D	07/17/2013	1574.86
MW-6D	10/25/2013	1571.10
Average of All Data		1571.19
Raw Difference (ft)		-2.09
MW-7	11/07/2011	1539.59
MW-7	11/09/2011	1538.95
MW-7	12/12/2011	1538.53
MW-7	01/24/2012	1539.54
MW-7	02/15/2012	1537.23
MW-7	03/07/2012	1537.11
MW-7	04/23/2012	1540.31
MW-7	05/30/2012	1541.20
MW-7	06/26/2012	1540.80
MW-7	07/30/2012	1540.29
MW-7	08/20/2012	1539.38
MW-7	10/12/2012	1538.45
MW-7	04/18/2013	1539.03
MW-7	07/31/2013	1539.73
MW-7	10/23/2013	1539.45
Average of All Data		1539.31
Raw Difference (ft)		-2.08

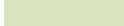
Location	Date	Elevation, ft/MSL
MW-8S	11/07/2011	1604.63
MW-8S	12/13/2011	1604.51
MW-8S	01/09/2012	1604.19
MW-8S	02/13/2012	1603.75
MW-8S	03/16/2012	1604.33
MW-8S	04/27/2012	1606.23
MW-8S	05/24/2012	1607.05
MW-8S	06/18/2012	1607.08
MW-8S	07/20/2012	1606.32
MW-8S	08/16/2012	1604.59
MW-8S	08/16/2012	1604.59
MW-8S	10/08/2012	1604.16
MW-8S	04/18/2013	1605.82
MW-8S	07/29/2013	1606.95
MW-8S	10/24/2013	1606.05
Average of All Data		1605.35
Raw Difference (ft)		-1.60
MW-8D	12/21/2011	1604.12
MW-8D	01/09/2012	1603.91
MW-8D	02/03/2012	1602.56
MW-8D	03/16/2012	1604.77
MW-8D	04/27/2012	1606.03
MW-8D	05/24/2012	1606.76
MW-8D	06/18/2012	1606.65
MW-8D	07/20/2012	1605.65
MW-8D	08/16/2012	1605.05
MW-8D	10/08/2012	1603.71
MW-8D	04/18/2013	1605.76
MW-8D	07/29/2013	1606.46
MW-8D	10/24/2013	1605.80
Average of All Data		1605.17
Raw Difference (ft)		-2.61

 = not used in model

Large Table 7
Surficial Groundwater Elevation Data at the Mine Site
Poly Met Mining Inc.

Location	Date	Elevation, ft/MSL
MW-9	12/20/2011	1592.11
MW-9	01/23/2012	1591.84
MW-9	02/02/2012	1591.77
MW-9	03/19/2012	1592.39
MW-9	04/20/2012	1594.11
MW-9	05/16/2012	1593.77
MW-9	06/22/2012	1594.84
MW-9	07/17/2012	1593.72
MW-9	08/15/2012	1593.53
MW-9	10/30/2012	1593.17
MW-9	05/08/2013	1594.58
MW-9	07/25/2013	1593.81
MW-9	10/21/2013	1593.36
Average of All Data		1593.31
Raw Difference (ft)		-1.54
% Difference		-0.10%
MW-10S	12/19/2011	1537.99
MW-10S	01/04/2012	1537.84
MW-10S	06/26/2012	1546.70
MW-10S	07/12/2012	1547.30
MW-10S	08/08/2012	1544.42
MW-10S	10/23/2012	1541.12
MW-10S	05/15/2013	1540.81
MW-10S	07/22/2013	1550.14
MW-10S	10/28/2013	1544.81
Average of All Data		1543.46
Raw Difference (ft)		-5.62
% Difference		-0.37%
MW-10D	12/19/2011	1537.37
MW-10D	01/16/2012	1536.99
MW-10D	02/01/2012	1536.69
MW-10D	03/02/2012	1536.41
MW-10D	04/17/2012	1536.75
MW-10D	05/09/2012	1537.57
MW-10D	06/12/2012	1540.01
MW-10D	07/12/2012	1543.42
MW-10D	08/08/2012	1542.50
MW-10D	10/23/2012	1539.73
MW-10D	04/22/2013	1537.55
MW-10D	07/22/2013	1546.47
MW-10D	10/28/2013	1543.33
Average of All Data		1539.60
Raw Difference (ft)		-2.91
% Difference		-0.19%

Location	Date	Elevation, ft/MSL
MW-11	12/20/2011	1573.68
MW-11	01/16/2012	1573.19
MW-11	02/02/2012	1572.71
MW-11	03/07/2012	1572.42
MW-11	04/17/2012	1575.57
MW-11	05/09/2012	1575.74
MW-11	06/12/2012	1576.04
MW-11	07/11/2012	1576.31
MW-11	08/20/2012	1575.23
MW-11	04/25/2013	1574.66
MW-11	07/29/2013	1577.14
MW-11	10/23/2013	1576.34
Average of All Data		1574.92
Raw Difference (ft)		-2.21
% Difference		-0.14%
MW-12	02/22/2012	1597.93
MW-12	03/14/2012	1598.10
MW-12	04/18/2012	1599.97
MW-12	05/21/2012	1600.05
MW-12	06/25/2012	1601.38
MW-12	07/30/2012	1599.91
MW-12	08/28/2012	1598.84
MW-12	10/22/2012	1598.25
MW-12	05/22/2013	1601.31
MW-12	07/31/2013	1600.84
MW-12	10/22/2013	1601.04
Average of All Data		1599.78
Raw Difference (ft)		-1.85
% Difference		-0.12%
MW-13	02/22/2012	1581.31
MW-13	03/14/2012	1581.77
MW-13	04/20/2012	1583.25
MW-13	05/16/2012	1583.06
MW-13	06/22/2012	1584.90
MW-13	07/17/2012	1583.81
MW-13	08/15/2012	1583.67
MW-13	10/30/2012	1583.22
MW-13	04/23/2013	1582.69
MW-13	07/25/2013	1585.05
MW-13	10/21/2013	1585.28
Average of All Data		1583.46
Raw Difference (ft)		-2.15
% Difference		-0.14%

 = not used in model

Large Table 7
Surficial Groundwater Elevation Data at the Mine Site
Poly Met Mining Inc.

Location	Date	Elevation, ft/MSL
MW-14	02/23/2012	1612.05
MW-14	03/26/2012	1613.06
MW-14	04/30/2012	1613.48
MW-14	05/14/2012	1613.49
MW-14	06/06/2012	1614.51
MW-14	07/27/2012	1613.92
MW-14	08/29/2012	1612.93
MW-14	05/13/2013	1614.41
MW-14	07/24/2013	1614.30
MW-14	10/29/2013	1613.02
Average of All Data		1613.52
Raw Difference (ft)		-1.47
MW-15	02/23/2012	1603.64
MW-15	03/29/2012	1604.06
MW-15	04/30/2012	1604.16
MW-15	05/30/2012	1604.33
MW-15	06/27/2012	1604.37
MW-15	07/27/2012	1604.28
MW-15	08/21/2012	1604.21
MW-15	05/23/2013	1604.29
MW-15	07/30/2013	1604.41
MW-15	10/29/2013	1604.22
Average of All Data		1604.20
Raw Difference (ft)		-0.56
MW-16	02/24/2012	1543.95
MW-16	03/20/2012	1545.71
MW-16	04/24/2012	1545.96
MW-16	05/15/2012	1545.24
MW-16	06/06/2012	1545.97
MW-16	07/11/2012	1545.74
MW-16	08/28/2012	1544.31
MW-16	10/23/2012	1544.76
MW-16	05/15/2013	1546.17
MW-16	07/29/2013	1545.50
MW-16	10/28/2013	1545.08
Average of All Data		1545.31
Raw Difference (ft)		-1.36
MW-17	02/23/2012	1577.93
MW-17	03/20/2012	1579.60
MW-17	04/23/2012	1581.10
MW-17	05/15/2012	1580.83
MW-17	06/27/2012	1581.23
MW-17	07/27/2012	1581.27
MW-17	08/29/2012	1579.86
MW-17	10/19/2012	1580.15
MW-17	05/07/2013	1581.37
MW-17	07/24/2013	1580.75
MW-17	10/22/2013	1580.56
Average of All Data		1580.42
Raw Difference (ft)		-2.49

Location	Date	Elevation, ft/MSL
MW-18	02/23/2012	1621.76
MW-18	03/27/2012	1624.81
MW-18	04/04/2012	1624.96
MW-18	04/09/2012	1624.93
MW-18	05/14/2012	1625.15
MW-18	06/11/2012	1625.48
MW-18	07/13/2012	1625.06
MW-18	08/14/2012	1624.12
MW-18	10/26/2012	1623.74
MW-18	05/03/2013	1626.01
MW-18	07/31/2013	1625.35
MW-18	10/01/2013	1623.75
Average of All Data		1624.59
Raw Difference (ft)		-2.83

 = not used in model

Large Table 8
Bedrock Groundwater Elevation Data at the Mine Site
Poly Met Mining Inc.

Location	Date	Elevation, ft/MSL
OB-1	10/05/2006	1599.99
OB-1	12/13/2006	1600.61
OB-1	03/17/2009	1601.86
OB-1	05/07/2010	1602.76
OB-1	07/29/2010	1601.26
OB-1	10/07/2010	1601.46
OB-1	10/13/2011	1600.71
OB-1	09/24/2012	1600.69
OB-1	10/24/2012	1600.36
OB-1	09/25/2013	1601.01
Average of All Data		1601.07
Raw Difference (ft)		-0.46
OB-2	10/03/2006	1602.02
OB-2	12/13/2006	1601.95
OB-2	03/17/2009	1601.86
OB-2	05/07/2010	1602.95
OB-2	07/29/2010	1602.38
OB-2	10/07/2010	1602.64
OB-2	10/12/2011	1602.03
OB-2	09/25/2012	1602.02
OB-2	10/24/2012	1602.13
OB-2	09/24/2013	1602.42
Average of All Data		1602.24
Raw Difference (ft)		-0.29
OB-3	10/16/2006	1607.20
OB-3	12/13/2006	1607.38
OB-3	03/19/2009	1610.52
OB-3	05/07/2010	1610.35
OB-3	07/27/2010	1608.04
OB-3	10/07/2010	1608.96
OB-3	10/12/2011	1607.32
OB-3	09/25/2012	1607.95
OB-3	10/24/2012	1608.12
OB-3	09/24/2013	1608.65
Average of All Data		1608.45
Raw Difference (ft)		-1.07
OB-4	10/04/2006	1605.26
OB-4	12/13/2006	1605.62
OB-4	03/19/2009	1607.74
OB-4	05/05/2010	1607.40
OB-4	07/27/2010	1606.32
OB-4	10/06/2010	1605.97
OB-4	10/12/2011	1605.59
OB-4	09/25/2012	1606.22
OB-4	10/24/2012	1606.93
OB-4	09/23/2013	1606.79
Average of All Data		1606.38
Raw Difference (ft)		-0.76

Location	Date	Elevation, ft/MSL
OB-5	10/04/2006	1599.39
OB-5	12/13/2006	1599.80
OB-5	03/19/2009	1602.76
OB-5	05/05/2010	1602.28
OB-5	07/27/2010	1600.96
OB-5	10/06/2010	1600.17
OB-5	10/12/2011	1599.41
OB-5	09/24/2012	1600.97
OB-5	10/24/2012	1600.33
OB-5	09/23/2013	1601.59
Average of All Data		1600.77
Raw Difference (ft)		-0.97
P-1	12/13/2006	1601.26
P-2	12/13/2006	1602.15
P-3	12/13/2006	1607.71
P-4	12/13/2006	1598.85

= not used in model

Large Table 9
Surficial Groundwater Elevation Data at the Plant Site
Poly Met Mining Inc.

Location	Date	Elevation, ft/MSL
GW-001	07/19/2011	1485.11
GW-001	10/04/2011	1484.90
GW-001	11/01/2011	1485.45
GW-001	04/25/2012	1485.81
GW-001	07/19/2012	1485.76
GW-001	10/02/2012	1485.78
GW-001	04/29/2013	1485.83
GW-001	07/03/2013	1485.60
GW-001	10/03/2013	1485.60
GW-001	10/10/2013	1485.62
Average of post-December 2010 data		1485.55
Final transient calibration target elevation		1485.93
Difference (ft)		0.38
GW-002	04/21/2011	1785.35
GW-002	07/18/2011	1784.90
GW-002	04/11/2012	1783.34
GW-002	07/19/2012	1784.97
GW-002	10/01/2012	1784.48
GW-002	04/29/2013	1785.71
GW-002	07/05/2013	1784.74
GW-002	10/03/2013	1784.68
GW-002	10/10/2013	1784.63
Average of post-December 2010 data		1784.76
Final transient calibration target elevation		1784.65
Difference (ft)		-0.11
GW-005	07/18/2011	1600.52
GW-005	10/03/2011	1600.27
GW-005	04/26/2012	1599.89
GW-005	07/19/2012	1608.62
GW-005	10/02/2012	1600.42
GW-005	04/02/2013	1600.19
GW-005	07/05/2013	1600.52
GW-005	10/07/2013	1600.82
Average of post-December 2010 data		1601.41
Final transient calibration target elevation		1602.43
Difference (ft)		1.02
GW-006	04/22/2011	1487.88
GW-006	07/19/2011	1486.78
GW-006	10/04/2011	1486.66
GW-006	11/01/2011	1486.97
GW-006	04/25/2012	1487.61
GW-006	07/18/2012	1486.84
GW-006	10/01/2012	1486.55
GW-006	04/03/2013	1487.44
GW-006	07/02/2013	1487.90
GW-006	10/04/2013	1486.93
GW-006	10/10/2013	1486.98
Average of post-December 2010 data		1487.14
Final transient calibration target elevation		1486.84
Difference (ft)		-0.30

Location	Date	Elevation, ft/MSL
GW-007	04/22/2011	1505.56
GW-007	07/19/2011	1505.39
GW-007	10/04/2011	1505.59
GW-007	04/11/2012	1505.46
GW-007	07/18/2012	1505.41
GW-007	10/01/2012	1505.58
GW-007	04/03/2013	1505.46
GW-007	07/02/2013	1505.48
GW-007	10/04/2013	1506.56
GW-007	10/10/2013	1505.56
Average of post-December 2010 data		1505.61
Final transient calibration target elevation		1506.04
Difference (ft)		0.43
GW-008	04/22/2011	1559.22
GW-008	07/19/2011	1557.62
GW-008	10/03/2011	1557.16
GW-008	04/25/2012	1558.62
GW-008	07/18/2012	1557.60
GW-008	10/02/2012	1557.00
GW-008	04/16/2013	1556.93
GW-008	07/03/2013	1558.55
GW-008	10/07/2013	1557.19
Average of post-December 2010 data		1557.77
Final transient calibration target elevation		1557.51
Difference (ft)		-0.26
GW-009	05/02/2011	1469.89
GW-009	07/25/2011	1468.29
GW-009	10/14/2011	1467.89
GW-009	04/10/2012	1469.87
GW-009	07/24/2012	1469.06
GW-009	10/03/2012	1468.64
GW-009	05/01/2013	1470.82
GW-009	07/10/2013	1469.94
GW-009	10/11/2013	1469.54
Average of post-December 2010 data		1469.33
Final transient calibration target elevation		1470.60
Difference (ft)		1.27
GW-010	07/25/2011	1473.34
GW-010	10/14/2011	1473.60
GW-010	04/10/2012	1473.47
GW-010	07/24/2012	1473.27
GW-010	10/03/2012	1473.32
GW-010	05/01/2013	1473.88
GW-010	07/10/2013	1472.51
GW-010	10/11/2013	1473.44
Average of post-December 2010 data		1473.35
Final transient calibration target elevation		1473.56
Difference (ft)		0.21

 = not used in model

Large Table 9
Surficial Groundwater Elevation Data at the Plant Site
Poly Met Mining Inc.

Location	Date	Elevation, ft/MSL
GW-011	04/28/2011	1468.53
GW-011	07/22/2011	1470.56
GW-011	07/23/2012	1472.27
GW-011	10/10/2012	1469.17
GW-011	07/18/2013	1472.34
GW-011	10/14/2013	1469.37
Average of post-December 2010 data		1470.37
Final transient calibration target elevation		1471.72
Difference (ft)		1.35
GW-012	04/27/2011	1490.39
GW-012	07/19/2011	1489.69
GW-012	10/04/2011	1488.90
GW-012	11/01/2011	1489.98
GW-012	04/26/2012	1490.17
GW-012	07/25/2012	1490.22
GW-012	10/10/2012	1490.00
GW-012	04/03/2013	1490.19
GW-012	07/08/2013	1490.29
GW-012	10/17/2013	1490.44
Average of post-December 2010 data		1490.03
Final transient calibration target elevation		1490.75
Difference (ft)		0.72
GW-013	07/20/2011	1462.11
GW-013	10/07/2011	1459.73
GW-013	07/23/2012	1461.76
GW-013	10/10/2012	1459.19
GW-013	04/30/2013	1462.45
GW-013	07/08/2013	1461.85
GW-013	10/16/2013	1460.68
Average of post-December 2010 data		1461.11
Final transient calibration target elevation		1461.09
Difference (ft)		-0.02
GW-014	04/27/2011	1447.74
GW-014	07/20/2011	1446.64
GW-014	10/07/2011	1445.86
GW-014	04/12/2012	1447.01
GW-014	07/23/2012	1445.96
GW-014	10/04/2012	1445.79
GW-014	04/04/2013	1445.45
GW-014	07/18/2013	1446.93
GW-014	10/14/2013	1446.58
Average of post-December 2010 data		1446.44
Final transient calibration target elevation		1446.39
Difference (ft)		-0.05

Location	Date	Elevation, ft/MSL
GW-015	07/22/2011	1416.93
GW-015	10/13/2011	1415.85
GW-015	04/12/2012	1417.14
GW-015	07/25/2012	1417.20
GW-015	10/04/2012	1416.43
GW-015	05/06/2013	1417.84
GW-015	07/09/2013	1417.55
GW-015	10/16/2013	1417.18
Average of post-December 2010 data		1417.02
Final transient calibration target elevation		1416.63
Difference (ft)		-0.38
GW-016	08/21/2013	1448.25
GW-016	10/14/2013	1448.31
Average of post-December 2010 data		1448.28
Final transient calibration target elevation		NA*
Difference (ft)		NA

*Monitoring well was not in service at time of model calibration

= not used in model

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			PM-1	PM-1	PM-1	PM-1	PM-1	PM-1	PM-1	PM-1	PM-1	PM-1	PM-2	PM-2	PM-2	PM-2	PM-2	PM-2	
Date			4/14/2004	5/20/2004	6/23/2004	7/28/2004	8/25/2004	9/28/2004	10/25/2004	11/16/2004	7/11/2006	5/29/2008	4/14/2004	5/20/2004	6/23/2004	7/28/2004	8/25/2004	9/28/2004	10/25/2004
Sample Type			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location																	
General Parameters																			
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	92 mg/l	96 mg/l	93 mg/l	92.3 mg/l	93 mg/l	96.8 mg/l	93.4 mg/l	106 mg/l	98.9 mg/l	84.3 mg/l	52 mg/l	46 mg/l	98.1 mg/l	111 mg/l	92.6 mg/l	66.1 mg/l	65 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	1.8 mg/l	1.9 mg/l	2.3 mg/l	2.1 mg/l	--	2.4 mg/l	--	1.9 mg/l	2.4 mg/l	2.2 mg/l	9.5 mg/l	15.3 mg/l	6.4 mg/l	8.5 mg/l	--	25.9 mg/l	--
Chemical Oxygen Demand	NA	Lab	24 mg/l	< 1 mg/l	14 mg/l	2.2 mg/l	--	9 mg/l	--	4 mg/l	< 10 mg/l	--	40 mg/l	38 mg/l	26 mg/l	14.2 mg/l	--	65.2 mg/l	--
Chloride	NA	Lab	0.9 mg/l	1.2 mg/l	1.6 mg/l	1.8 mg/l	1.8 mg/l	1.9 mg/l	1.8 mg/l	1.5 mg/l	1.81 mg/l	2.09 mg/l	1.2 mg/l	1.4 mg/l	1.4 mg/l	0.7 mg/l	2 mg/l	3.4 mg/l	2.5 mg/l
Cyanide	NA	Lab	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	--	--	--	--	--	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	--	--	--
Dissolved oxygen	NA	Lab	15.2 mg/l	9.3 mg/l	--	--	--	--	--	--	9.58 mg/l	--	12.8 mg/l	7.2 mg/l	--	--	--	--	--
Dissolved oxygen	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoride	NA	Lab	0.12 mg/l	0.16 mg/l	0.15 mg/l	0.17 mg/l	0.14 mg/l	0.14 mg/l	0.13 mg/l	0.11 mg/l	0.15 mg/l	--	< 0.1 mg/l	0.14 mg/l	0.14 mg/l	0.17 mg/l	0.14 mg/l	0.12 mg/l	0.1 mg/l
Hardness, as CaCO3	NA	Lab	77.5 mg/l	81 mg/l	80.5 mg/l	102 mg/l	108 mg/l	105 mg/l	101 mg/l	102 mg/l	110 mg/l	103 mg/l	44.4 mg/l	38.5 mg/l	76.2 mg/l	109 mg/l	99.8 mg/l	75 mg/l	67.7 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.14 mg/l	0.2 mg/l	0.2 mg/l	< 0.1 mg/l	--	0.16 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	--
Nitrogen, ammonia as N	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	--	--
pH	NA	Lab	8 pH units	8.44 pH units	8.73 pH units	8.66 pH units	8.23 pH units	8.19 pH units	8.04 pH units	8.2 pH units	8.5 pH units	--	7.8 pH units	7.14 pH units	7.55 pH units	7.24 pH units	6.97 pH units	7.43 pH units	7.74 pH units
pH	NA	Field	--	--	--	--	--	--	--	--	8.46 pH units	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.14 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.004 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.2 mg/l	--	< 0.1 mg/l	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	107 mg/l	116 mg/l	144 mg/l	93 mg/l	116 mg/l	131 mg/l	100 mg/l	123 mg/l	130 mg/l	129 mg/l	80 mg/l	78 mg/l	137 mg/l	106 mg/l	115 mg/l	136 mg/l	100 mg/l
Solids, total suspended	NA	Lab	3 mg/l	< 1 mg/l	2 mg/l	1 mg/l	--	1 mg/l	--	< 1 mg/l	< 1 mg/l	2 mg/l	< 1 mg/l	< 1 mg/l	1 mg/l	7 mg/l	--	15 mg/l	--
Specific Conductance @ 25 °C	NA	Lab	214 umhos/cm	225.6 umhos/cm	215.2 umhos/cm	221.1 umhos/cm	245.7 umhos/cm	246.9 umhos/cm	231.1 umhos/cm	233.5 umhos/cm	236 umhos/cm	--	117 umhos/cm	111 umhos/cm	196 umhos/cm	213.1 umhos/cm	218 umhos/cm	152.4 umhos/cm	150.8 umhos/cm
Specific Conductance @ 25 °C	NA	Field	--	--	--	--	--	--	--	--	244.8 umhos/cm	--	--	--	--	--	--	--	--
Sulfate, as SO4	NA	Lab	19.3 mg/l	20.7 mg/l	22.5 mg/l	22 mg/l	19.6 mg/l	21.4 mg/l	26.1 mg/l	24 mg/l	22.9 mg/l	19.2 mg/l	10.2 mg/l	9.9 mg/l	6.2 mg/l	0.13 mg/l	< 1 mg/l	< 1 mg/l	8.8 mg/l
Temperature, °C	NA	Lab	4.1 deg C	13.5 deg C	16.3 deg C	21.4 deg C	20.8 deg C	13.1 deg C	9.1 deg C	4 deg C	21.1 deg C	--	0.6 deg C	11.6 deg C	18 deg C	20.5 deg C	18.4 deg C	12.7 deg C	8.5 deg C
Temperature, °C	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Lab	1 NTU	1.2 NTU	--	--	--	--	--	--	0.47 NTU	--	2 NTU	1.2 NTU	--	--	--	--	--
Turbidity	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																			
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	< 10 ug/l	10.1 ug/l	11.8 ug/l	25.8 ug/l	33.9 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	28.1 ug/l	27.4 ug/l	34.5 ug/l	70.7 ug/l	13 ug/l	25.9 ug/l	46.4 ug/l	83.8 ug/l	37.6 ug/l
Antimony	Total	Lab	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	--	--	--	--	--	--	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	6.8 ug/l	< 2 ug/l	6.6 ug/l	11.7 ug/l	--	--	--	--	--	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	--	--	--
Barium	Total	Lab	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	--	--	--	--	--	--	< 10 ug/l	< 10 ug/l	12.3 ug/l	16.2 ug/l	--	--	--
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--
Boron	Total	Lab	80.9 ug/l	99.6 ug/l	88.8 ug/l	95.4 ug/l	108 ug/l	116 ug/l	93.5 ug/l	93 ug/l	88.5 ug/l	--	< 35 ug/l	37.7 ug/l	87.1 ug/l	85 ug/l	61.9 ug/l	55.5 ug/l	50 ug/l
Cadmium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--	< 0.20 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--
Calcium	Total	Lab	24100 ug/l	25300 ug/l	24900 ug/l	23100 ug/l	25300 ug/l	24500 ug/l	23400 ug/l	23700 ug/l	25900 ug/l	25300 ug/l	14300 ug/l	12800 ug/l	25300 ug/l	27800 ug/l	25400 ug/l	18800 ug/l	17200 ug/l
Chromium	Total	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	--	--	--	--	< 0.50 ug/l	1.5 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	< 1 ug/l	--	< 1 ug/l	< 1 ug/l	0.10 j ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	< 1 ug/l	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	< 5 ug/l	< 5 ug/l	< 5 ug/l	1.9 ug/l	1.4 ug/l	0.95 ug/l	< 0.66 ug/l	< 0.66 ug/l	2.5 ug/l	0.80 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 0			

Large Table 10 Surface Water Quality Data in the Partridge River Watershed PolyMet Mining Company																			
Location			PM-2	PM-2	PM-2	PM-2		PM-2	PM-2	PM-2	PM-3	PM-3	PM-3	PM-3	PM-3	PM-3	PM-3	PM-3	PM-3
Date			6/17/2013	7/22/2013	8/19/2013	9/10/2013		10/28/2013	11/21/2013	12/17/2013	4/13/2004	5/20/2004	6/23/2004	7/28/2004	8/25/2004	9/28/2004	10/25/2004	11/16/2004	7/11/2006
Sample Type			N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location																	
General Parameters																			
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	120 mg/l	--	--	--	135 mg/l	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	120 mg/l	--	--	--	135 mg/l	--	--	42 mg/l	42 mg/l	80.1 mg/l	98.8 mg/l	151 mg/l	65.5 mg/l	58.1 mg/l	66.3 mg/l	107 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	5.4 mg/l	6.8 mg/l	5.4 mg/l	11.7 mg/l	12.0 mg/l	5.3 mg/l	10.5 mg/l	11.7 mg/l	14.5 mg/l	16.9 mg/l	10.5 mg/l	12.7 mg/l	--	25.9 mg/l	--	13.2 mg/l	9.1 mg/l
Chemical Oxygen Demand	NA	Lab	--	22.4 mg/l	--	--	--	30.9 mg/l	--	--	55 mg/l	40 mg/l	16.5 mg/l	19.5 mg/l	--	62 mg/l	--	38 mg/l	35.8 mg/l
Chloride	NA	Lab	35.6 mg/l	32.0 mg/l	34.9 mg/l	33.6 mg/l	33.6 mg/l	39.4 mg/l	35.3 mg/l	36.7 mg/l	2.9 mg/l	3.1 mg/l	2.8 mg/l	3.2 mg/l	3.4 mg/l	4.4 mg/l	4.2 mg/l	6.6 mg/l	6.61 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	12.1 mg/l	11.2 mg/l	--	--	--	--	--	--	7.2 mg/l
Dissolved oxygen	NA	Field	8.36 mg/l	6.29 mg/l	4.66 mg/l	4.06 mg/l	--	11.07 mg/l	--	6.62 mg/l	--	--	--	--	--	--	--	--	--
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	0.1 mg/l	0.12 mg/l	0.14 mg/l	0.17 mg/l	0.14 mg/l	0.12 mg/l	< 0.1 mg/l	0.1 mg/l	0.16 mg/l
Hardness, as CaCO3	NA	Lab	138 mg/l	167 mg/l	185 mg/l	163 mg/l	163 mg/l	156 mg/l	164 mg/l	198 mg/l	37.5 mg/l	35.7 mg/l	65.5 mg/l	100 mg/l	95 mg/l	70.1 mg/l	61.6 mg/l	62.3 mg/l	110 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	0.21 mg/l	--	--	--	< 0.10 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia as N	NA	Lab	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	--	--	--	--
pH	NA	Lab	--	--	--	--	--	--	--	--	8 pH units	7.52 pH units	7.95 pH units	7.56 pH units	7.18 pH units	7.36 pH units	7.74 pH units	7.74 pH units	7.6 pH units
pH																			
Phosphorus, total, as P	NA	Field	7.12 pH units	7.36 pH units	7.26 pH units	7.11 pH units	--	7.45 pH units	6.74 pH units	6.78 pH units	--	--	--	--	--	--	--	--	7.5 pH units
Phosphorus, total, as P	NA	Lab	--	0.012 mg/l	--	--	--	0.0040 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.18 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	255 mg/l	266 mg/l	327 mg/l	307 mg/l	298 mg/l	297 mg/l	279 mg/l	343 mg/l	75 mg/l	76 mg/l	139 mg/l	120 mg/l	107 mg/l	125 mg/l	88.6 mg/l	102 mg/l	149 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	< 1 mg/l	2.7 mg/l	2 mg/l	6 mg/l	--	3 mg/l	--	3 mg/l	3 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	92 umhos/cm	105 umhos/cm	171 umhos/cm	196.5 umhos/cm	198.8 umhos/cm	151.8 umhos/cm	133.4 umhos/cm	156.1 umhos/cm	243 umhos/cm
Specific Conductance @ 25 °C																			
Specific Conductance @ 25 °C	NA	Field	416 umhos/cm	455.9 umhos/cm	511.9 umhos/cm	446.4 umhos/cm	--	379.6 umhos/cm	445.2 umhos/cm	513.8 umhos/cm	--	--	--	--	--	--	--	--	252.7 umhos/cm
Sulfate, as SO4	NA	Lab	52.9 mg/l	55.0 mg/l	70.5 mg/l	33.4 mg/l	33.3 mg/l	46.8 mg/l	46.0 mg/l	36.5 mg/l	< 1 mg/l	10.7 mg/l	6.1 mg/l	0.41 mg/l	1.4 mg/l	1.3 mg/l	8.7 mg/l	7.5 mg/l	10.4 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	1.4 deg C	12.8 deg C	18 deg C	19.8 deg C	16.9 deg C	12.3 deg C	8 deg C	1.1 deg C	20.7 deg C
Temperature, °C	NA	Field	14.1 deg C	18.76 deg C	20.24 deg C	18.25 deg C	--	3.1 deg C	0.57 deg C	3.19 deg C	--	--	--	--	--	--	--	--	--
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	2 NTU	3.4 NTU	--	--	--	--	--	--	4.9 NTU
Turbidity	NA	Field	12.1 NTU	13.9 NTU	0 NTU	0 NTU	--	0 NTU	0 NTU	0.9 NTU	--	--	--	--	--	--	--	--	--
Metals																			
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	28.9 ug/l	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	< 20.0 ug/l	21.4 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	36.2 ug/l	30.8 ug/l	64 ug/l	95.2 ug/l	49.9 ug/l	58.1 ug/l	40.4 ug/l	62.5 ug/l	64 ug/l	63.6 ug/l	45 ug/l
Antimony	Total	Lab	--	< 0.50 ug/l	--	--	--	< 0.50 ug/l	--	--	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	--	--	--	--	--
Arsenic	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	1.1 ug/l	1.1 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 1.0 ug/l	0.89 ug/l	0.88 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	--	--	--	--	--
Barium	Total	Lab	--	19.1 ug/l	--	--	--	13.5 ug/l	--	--	< 10 ug/l	< 10 ug/l	12.7 ug/l	17.2 ug/l	--	--	--	--	--
Beryllium	Total	Lab	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--
Boron	Total	Lab	--	387 ug/l	--	--	--	274 ug/l	--	--	< 35 ug/l	48.7 ug/l	85.6 ug/l	93.2 ug/l	64.2 ug/l	58.5 ug/l	50.9 ug/l	72.3 ug/l	104 ug/l
Cadmium	Total	Lab	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--
Calcium	Total	Lab	26600 ug/l	32300 ug/l	36100 ug/l	32200 ug/l	32400 ug/l	28700 ug/l	30300 ug/l	37700 ug/l	11600 ug/l	11200 ug/l	21500 ug/l	24500 ug/l	23000 ug/l	17000 ug/l	14900 ug/l	14700 ug/l	26500 ug/l
Chromium	Total	Lab	--	< 1.0 ug/l	--	--	--	< 1.0 ug/l	--	--									

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location Date Sample Type		PM-3 8/29/2006 N	PM-3 9/20/2006 N	PM-3 10/13/2006 N	PM-3 11/8/2006 N	PM-3 3/23/2007 N	PM-3 4/24/2007 N	PM-3 5/22/2007 N	PM-3 6/12/2007 N	PM-3 7/24/2007 N	PM-3 8/23/2007 N	PM-3 9/20/2007 N	PM-3 10/25/2007 N	PM-3 11/15/2007 N	PM-3 5/21/2008 N	PM-3 6/11/2008		PM-3 7/22/2008 N	PM-3 10/8/2008 N	PM-3 6/27/2012 N
		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Parameter	Total or Dissolved	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67.6 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	99.8 mg/l	96.8 mg/l	85 mg/l	88.6 mg/l	130 mg/l	46.7 mg/l	57.0 mg/l	59.3 mg/l	124 mg/l	139 mg/l	53.5 mg/l	57.4 mg/l	73.0 mg/l	51.5 mg/l	49.2 mg/l	49.9 mg/l	98.2 mg/l	67.6 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	6.8 mg/l	6.2 mg/l	7.7 mg/l	4.8 mg/l	6.7 mg/l	22.8 mg/l	19.8 mg/l	18.5 mg/l	9.8 mg/l	9.4 mg/l	29.7 mg/l	17.3 mg/l	10.4 mg/l	8.6 mg/l	15.8 mg/l	15.5 mg/l	9.2 mg/l	28.2 mg/l
Chemical Oxygen Demand	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	74.1 mg/l
Chloride	NA	Lab	12.4 mg/l	10.7 mg/l	15.7 mg/l	9.9 mg/l	19.3 mg/l	5.64 mg/l	8.9 mg/l	12.9 mg/l	28.3 mg/l	21.6 mg/l	7.92 mg/l	27.2 mg/l	12.7 mg/l	10.8 mg/l	7.31 mg/l	7.34 mg/l	7.19 mg/l	14.3 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	7.55 mg/l	9.02 mg/l	11.66 mg/l	13.81 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	--	--	--	13.1 mg/l	13.86 mg/l	4.9 mg/l	2.7 mg/l	5.2 mg/l	--	5.29 mg/l	9.9 mg/l	8.6 mg/l	--	--	--	9.34 mg/l	7.15 mg/l
Fluoride	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	0.16 mg/l	< 0.1 mg/l	0.11 mg/l	0.12 mg/l	< 0.1 mg/l	0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	110 mg/l	113 mg/l	107 mg/l	104 mg/l	139 mg/l	62.6 mg/l	67.4 mg/l	75.2 mg/l	123 mg/l	134 mg/l	67.6 mg/l	81 mg/l	88.1 mg/l	68.8 mg/l	66.4 mg/l	66.4 mg/l	106 mg/l	95.2 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.10 mg/l
pH	NA	Lab	7.35 pH units	7.38 pH units	7.98 pH units	7.13 pH units	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	--	--	--	--	7.67 pH units	7.04 pH units	7.7 pH units	7.2 pH units	8.1 pH units	--	7.61 pH units	7.7 pH units	7.2 pH units	--	--	--	7.51 pH units	7.48 pH units
Phosphorus, total, as P	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.004 mg/l	< 0.004 mg/l	< 0.004 mg/l	0.009 * mg/l	--	0.020 mg/l
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	165 mg/l	175 mg/l	176 mg/l	163 mg/l	199 mg/l	133 mg/l	133 mg/l	147 mg/l	201 mg/l	227 mg/l	123 mg/l	132 mg/l	153 mg/l	111 mg/l	126 mg/l	114 mg/l	150 mg/l	174 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	2 b mg/l	2.0 mg/l	4.0 mg/l	2.8 mg/l	--	--
Specific Conductance @ 25 °C	NA	Lab	278.1 umhos/cm	250.5 umhos/cm	258.7 umhos/cm	245.7 umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	--	--	--	--	169.2 umhos/cm	80.6 umhos/cm	157 umhos/cm	192 umhos/cm	356 umhos/cm	--	152 umhos/cm	216 umhos/cm	254 umhos/cm	--	--	--	--	192.1 umhos/cm
Sulfate, as SO4	NA	Lab	12.8 mg/l	11.8 mg/l	15.8 mg/l	22.7 mg/l	13.2 mg/l	12.5 mg/l	14.9 mg/l	12.5 mg/l	14.5 mg/l	6 mg/l	8.6 mg/l	22.1 mg/l	25.7 mg/l	18.8 mg/l	11.9 mg/l	11.9 mg/l	12 mg/l	25.4 mg/l
Temperature, °C	NA	Lab	17.4 deg C	10.4 deg C	2.3 deg C	3.8 deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	--	--	--	--	0.2 deg C	4.1 deg C	10.8 deg C	17.7 deg C	23.6 deg C	--	10.6 deg C	5 deg C	0.8 deg C	--	--	--	9.9 deg C	18.83 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.92 NTU	1.6 NTU
Metals																				
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	106 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	49.6 ug/l	78.6 ug/l	77.4 ug/l	29.2 ug/l	--	151 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.50 ug/l
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.5 ug/l
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.9 ug/l
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 ug/l
Boron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	155 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.054 jb ug/l	--	< 0.20 ug/l
Calcium	Total	Lab	25600 ug/l	25800 ug/l	24200 ug/l	23700 ug/l	33100 ug/l	14500 ug/l	15800 ug/l	17400 ug/l	27400 ug/l	30300 ug/l	15500 ug/l	18300 ug/l	19100 ug/l	15700 ug/l	15400 ug/l	15400 ug/l	25500 ug/l	21100 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	< 1.0 ug/l	0.24 jb ug/l	0.44 jb ug/l	1.2 ug/l	--	< 1.0 ug/l
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.29 ug/l
Cobalt	Total	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	0.14 j ug/l	0.15 j ug/l	0.15 j ug/l	0.26 ug/l	--	0.35 ug/l
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.4 b ug/l
Copper	Total	Lab	0.94 ug/l	0.56 ug/l	0.49 ug/l	0.45 ug/l	0.71 ug/l	1.4 ug/l	1.1 ug/l	< 0.7 ug/l	1 ug/l	1.1 ug/l	1.6 ug/l	0.99 ug/l	0.8 ug/l	0.79 b ug/l	1.1 ug/l	1.2 ug/l	1.2 ug/l	1.4 b ug/l
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1410 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2180 ug/l
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	0.14 jb ug/l	0.23 jb ug/l	0.25 jb ug/l	0.23 jb ug/l	--	< 0.50 ug/l
Magnesium	Total	Lab	11300 ug/l	11700 ug/l	11300 ug/l	11000 ug/l	13600 ug/l	6380 ug/l	6780 ug/l	7700 ug/l	13200 ug/l	14100 ug/l	7020 ug/l	8480 ug/l	9850 ug/l	7200 ug/l	6800 ug/l	6800 ug/l	10400 ug/l	10300 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	77.3 ug/l
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	33 ug/l	32 ug/l	32 ug/l	60 * ug/l	--	103 ug/l
Mercury	Total	Lab	< 0.002 ug/l	< 0.008 ug/l	< 0.002 ug/l	< 0.002 ug/l	< 0.004 ug/l	0.0078 ug/l	< 0.004 ug/l	0.0034 ug/l	< 0.002 ug/l	0.0014 ug/l	0.0054 ug/l	0.0028 ug/l	0.0015 ug/l	0.0020 ug/l	0.0031 ug/l	0.0030 ug/l	0.0014 ug/l	0.0054 ug/l
Methyl Mercury	Total	Lab	--	0.0003 ug/l	--	0.000061 ug/l	--	--	0.000240 ug/l	--	0.000492 ug/l	--	0.000365 ug/l	--	0.000188 ug/l	0.00012 ug/l	0.00030 ug/l	0.00026 ug/l	0.00032 ug/l	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	2.1 ug/l	1.4 ug/l	1.4 ug/l	1.5 ug/l	--	1.8 ug/l
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.0 ug/l
Nickel	Total	Lab	0.37 ug/l	0.56 ug/l	0.29 ug/l	0.24 ug/l	0.79 ug/l	1.0 ug/l	1.1 ug/l	1.2 ug/l	1.1 ug/l	1.6 ug/l	1.8 ug/l	1.4 ug/l	1.4 ug/l	1.2 ug/l	1.2 ug/l	1.2 ug/l	3.9 ug/l	1.1 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2400 ug/l
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.0 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 ug/l
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12900 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.012 j ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3.0 ug/l
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.7 ug/l
Zinc	Total	Lab	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	2.1 jb ug/l	2.3 jb ug/l	2.5 jb ug/l	15 ug/l	--	< 6.0 ug/l

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			PM-3	PM-3	PM-3		PM-3		PM-3	PM-3	PM-3		PM-3		PM-3		PM-3		PM-3			
Date			7/26/2012	7/26/2012	8/23/2012		9/25/2012		10/30/2012	11/26/2012	12/18/2012		1/24/2013		2/25/2013		3/21/2013		4/23/2013		5/9/2013	
Sample Type			FD	N	N	FD	N	FD	N	N	N	FD	N	FD	N	FD	N	FD	N	FD	N	FD
Parameter	Total or Dissolved	Analysis Location																				
General Parameters																						
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	102 mg/l	101 mg/l	--	--	103 mg/l	102 mg/l	--	--	--	--	121 mg/l	120 mg/l	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	102 mg/l	101 mg/l	--	--	103 mg/l	102 mg/l	--	--	--	--	121 mg/l	120 mg/l	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	20.9 mg/l	21.3 mg/l	14.1 mg/l	12.2 mg/l	6.9 mg/l	6.9 mg/l	7.5 mg/l	7.4 mg/l	5.3 mg/l	5.3 mg/l	5.5 mg/l	4.7 mg/l	3.8 mg/l	3.7 mg/l	4.1 mg/l	3.4 mg/l	3.2 mg/l	3.1 mg/l	18.0 mg/l	17.8 mg/l
Chemical Oxygen Demand	NA	Lab	--	--	--	--	16.5 mg/l	27.3 mg/l	--	--	10.5 mg/l	13.2 mg/l	--	--	--	--	14.0 mg/l	< 10.0 mg/l	--	--	--	--
Chloride	NA	Lab	11.4 mg/l	11.4 mg/l	7.1 mg/l	7.2 mg/l	9.8 mg/l	9.6 mg/l	13.0 mg/l	17.3 mg/l	10.8 mg/l	10.8 mg/l	6.9 mg/l	6.7 mg/l	5.2 mg/l	4.3 mg/l	3.7 mg/l	3.7 mg/l	20.1 mg/l	20.2 mg/l	8.0 mg/l	8.0 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	7.35 mg/l	7.72 mg/l	--	10.46 mg/l	--	12.38 mg/l	12.41 mg/l	11.34 mg/l	--	11.51 mg/l	--	13.18 mg/l	--	12.89 mg/l	--	--	--	10.68 mg/l	--
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	108 mg/l	109 mg/l	116 mg/l	115 mg/l	127 mg/l	123 mg/l	115 mg/l	121 mg/l	133 mg/l	127 mg/l	140 mg/l	136 mg/l	134 mg/l	131 mg/l	136 mg/l	134 mg/l	129 mg/l	130 mg/l	55.6 mg/l	55.0 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	--	--	0.53 mg/l	0.54 mg/l	--	--	0.88 mg/l	0.87 mg/l	--	--	--	--	0.22 mg/l	0.16 mg/l	--	--	--	--
Nitrogen, ammonia as N	NA	Lab	--	--	--	--	< 0.10 mg/l	< 0.10 mg/l	--	--	0.16 mg/l	0.16 mg/l	--	--	--	--	0.30 * mg/l	0.35 mg/l	--	--	--	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	--	7.08 pH units	7.81 pH units	--	7.92 pH units	--	7.51 pH units	7.96 pH units	6.93 pH units	--	7.58 pH units	--	7.18 pH units	--	7.03 pH units	--	--	--	6.55 pH units	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	< 0.0040 mg/l	< 0.0040 mg/l	--	--	0.0044 mg/l	0.0062 mg/l	--	--	--	--	0.0090 mg/l	0.013 mg/l	--	--	--	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	182 mg/l	207 mg/l	199 mg/l	198 mg/l	166 mg/l	159 mg/l	188 mg/l	256 mg/l	207 mg/l	203 mg/l	182 mg/l	171 mg/l	165 mg/l	166 mg/l	175 mg/l	180 mg/l	194 mg/l	188 mg/l	92.0 mg/l	97.0 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	--	137.4 umhos/cm	226.3 umhos/cm	--	158.6 umhos/cm	--	258.2 umhos/cm	182.4 umhos/cm	175.6 umhos/cm	--	305.2 umhos/cm	--	262.6 umhos/cm	--	264 umhos/cm	--	--	--	137.7 umhos/cm	--
Sulfate, as SO4	NA	Lab	17.1 mg/l	17.1 mg/l	15.8 mg/l	15.6 mg/l	17.6 mg/l	17.3 mg/l	25.2 mg/l	33.2 mg/l	27.2 mg/l	27.2 mg/l	19.0 mg/l	18.4 mg/l	16.5 mg/l	16.2 mg/l	15.5 mg/l	15.4 mg/l	19.0 mg/l	19.0 mg/l	10.5 mg/l	10.7 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	--	19.88 deg C	19.06 deg C	--	9.16 deg C	--	1.61 deg C	0.57 deg C	0.31 deg C	--	2.75 deg C	--	4.48 deg C	--	4.38 deg C	--	--	--	5.65 deg C	--
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	--	3.3 NTU	0.6 NTU	--	0 NTU	--	0 NTU	0 NTU	0 NTU	--	1.2 NTU	--	0.3 NTU	--	11.9 NTU	--	--	--	3.9 NTU	--
Metals																						
Aluminum	Dissolved	Lab	90.9 ug/l	96.9 ug/l	40.0 ug/l	40.2 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 40.0 ug/l	< 40.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 40.0 ug/l	< 40.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	82.3 ug/l	80.4 ug/l
Aluminum	Total	Lab	121 ug/l	122 ug/l	47.3 ug/l	42.2 ug/l	24.3 ug/l	22.9 ug/l	< 40.0 ug/l	< 40.0 ug/l	22.6 ug/l	22.3 ug/l	25.6 ug/l	22.3 ug/l	< 40.0 ug/l	< 40.0 ug/l	20.3 ug/l	23.5 ug/l	22.2 ug/l	40.7 ug/l	104 ug/l	101 ug/l
Antimony	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	1.4 ug/l	1.2 ug/l	1.2 ug/l	1.4 ug/l	0.60 ug/l	< 0.50 ug/l	0.62 ug/l	< 0.50 ug/l	0.60 ug/l	0.58 ug/l	0.58 ug/l	0.72 ug/l	0.80 ug/l	0.66 ug/l	< 0.82 ug/l	< 0.82 ug/l	1.2 ug/l	1.2 ug/l	1.0 ug/l	1.1 ug/l
Barium	Total	Lab	--	--	--	--	12.1 ug/l	11.8 ug/l	--	--	11.6 ug/l	11.4 ug/l	--	--	--	--	12.5 ug/l	12.4 ug/l	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--
Boron	Total	Lab	--	--	--	--	165 ug/l	150 ug/l	--	--	146 ug/l	135 ug/l	--	--	--	--	83.3 ug/l	84.0 ug/l	--	--	--	--
Cadmium	Total	Lab	--	--	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--
Calcium	Total	Lab	24700 ug/l	24600 ug/l	27200 ug/l	26900 ug/l	29100 ug/l	28100 ug/l	25200 ug/l	25700 ug/l	29900 ug/l	28600 ug/l	33000 ug/l	32100 ug/l	32200 ug/l	31700 ug/l	32900 ug/l	32800 ug/l	28600 ug/l	28800 ug/l	12100 ug/l	11900 ug/l
Chromium	Total	Lab	--	--	--	--	< 1.0 ug/l	< 1.0 ug/l	--	--	< 1.0 ug/l	< 1.0 ug/l	--	--	--	--	< 1.0 ug/l	< 1.0 ug/l				

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location Date Sample Type			PM-3 6/17/2013		PM-3 7/22/2013		PM-3 8/19/2013		PM-3 9/10/2013	PM-3 10/28/2013	
			N	FD	N	FD	N	FD	N	N	FD
Parameter	Total or Dissolved	Analysis Location									
General Parameters											
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	88.9 mg/l	88.4 mg/l	--	--	--	77.3 mg/l	77.2 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	88.9 mg/l	88.4 mg/l	--	--	--	77.3 mg/l	77.2 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	16.2 mg/l	15.8 mg/l	25.5 mg/l	25.7 mg/l	5.8 mg/l	5.3 mg/l	8.1 mg/l	10.4 mg/l	10.7 mg/l
Chemical Oxygen Demand	NA	Lab	--	--	81.8 mg/l	82.4 mg/l	--	--	--	47.5 mg/l	45.2 mg/l
Chloride	NA	Lab	14.3 mg/l	13.8 mg/l	11.4 mg/l	11.4 mg/l	11.1 mg/l	11.1 mg/l	9.2 mg/l	10.9 mg/l	10.9 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	8.32 mg/l	--	7.07 mg/l	--	8.36 mg/l	--	8.58 mg/l	12.66 mg/l	--
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	84.5 mg/l	84.9 mg/l	121 mg/l	121 mg/l	134 mg/l	135 mg/l	128 mg/l	85.9 mg/l	88.8 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	0.12 mg/l	0.13 mg/l	--	--	--	< 0.10 mg/l	0.10 b mg/l
Nitrogen, ammonia as N	NA	Lab	--	--	< 0.10 mg/l	< 0.10 mg/l	--	--	--	0.15 mg/l	0.11 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--
pH	NA	Field	7.04 pH units	--	7.29 pH units	--	7.41 pH units	--	7.76 pH units	7.26 pH units	--
Phosphorus, total, as P	NA	Lab	--	--	0.031 mg/l	0.027 mg/l	--	--	--	0.010 mg/l	0.011 mg/l
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	172 mg/l	175 mg/l	222 mg/l	216 mg/l	216 mg/l	225 mg/l	210 mg/l	174 mg/l	180 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	219 umhos/cm	--	256.7 umhos/cm	--	308.7 umhos/cm	--	292.4 umhos/cm	171.2 umhos/cm	--
Sulfate, as SO4	NA	Lab	23.2 mg/l	23.2 mg/l	20.2 mg/l	20.3 mg/l	31.0 mg/l	30.9 mg/l	14.4 mg/l	14.4 mg/l	14.5 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	14.14 deg C	--	18.97 deg C	--	19.7 deg C	--	18.84 deg C	2.52 deg C	--
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	1.4 NTU	--	7.4 NTU	--	1.7 NTU	--	0.8 NTU	4.8 NTU	--
Metals											
Aluminum	Dissolved	Lab	72.6 ug/l	68.2 ug/l	98.3 ug/l	95.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	25.9 ug/l	26.1 ug/l
Aluminum	Total	Lab	116 ug/l	124 ug/l	129 ug/l	129 ug/l	29.2 ug/l	53.9 ug/l	< 20.0 ug/l	30.2 ug/l	32.8 ug/l
Antimony	Total	Lab	--	--	< 0.50 ug/l	< 0.50 ug/l	--	--	--	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Dissolved	Lab	0.79 ug/l	0.84 ug/l	2.2 ug/l	2.1 ug/l	0.91 ug/l	0.88 ug/l	1.2 ug/l	1.4 ug/l	1.0 ug/l
Arsenic	Total	Lab	0.73 ug/l	0.88 ug/l	2.4 ug/l	2.4 ug/l	< 1.0 ug/l	1.0 ug/l	1.1 ug/l	0.67 ug/l	0.64 ug/l
Barium	Total	Lab	--	--	16.7 ug/l	17.0 ug/l	--	--	--	< 10.0 ug/l	< 10.0 ug/l
Beryllium	Total	Lab	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	< 0.20 ug/l	< 0.20 ug/l
Boron	Total	Lab	--	--	178 ug/l	167 ug/l	--	--	--	99.4 ug/l	113 ug/l
Cadmium	Total	Lab	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	< 0.20 ug/l	< 0.20 ug/l
Calcium	Total	Lab	17800 ug/l	17800 ug/l	26400 ug/l	26600 ug/l	30300 ug/l	30500 ug/l	29400 ug/l	18800 ug/l	19200 ug/l
Chromium	Total	Lab	--	--	< 1.0 ug/l	< 1.0 ug/l	--	--	--	< 1.0 ug/l	< 1.0 ug/l
Cobalt	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	0.41 ug/l	0.38 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	0.22 ug/l	0.22 ug/l	0.43 ug/l	0.40 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l
Copper	Dissolved	Lab	1.2 ug/l	1.2 ug/l	0.81 ug/l	0.76 ug/l	0.63 ug/l	0.98 ug/l	0.61 ug/l	0.69 ug/l	0.70 ug/l
Copper	Total	Lab	1.4 ug/l	1.5 ug/l	0.88 ug/l	0.86 ug/l	0.75 ug/l	0.87 ug/l	0.56 ug/l	0.97 ug/l	0.70 ug/l
Iron	Dissolved	Lab	720 ug/l	665 ug/l	3080 ug/l	3040 ug/l	555 ug/l	558 ug/l	1220 ug/l	977 ug/l	958 ug/l
Iron	Total	Lab	1150 ug/l	1200 ug/l	3840 ug/l	3840 ug/l	839 ug/l	839 ug/l	1440 ug/l	1250 ug/l	1310 ug/l
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	9700 ug/l	9800 ug/l	13300 ug/l	13200 ug/l	14200 ug/l	14200 ug/l	13300 ug/l	9500 ug/l	9900 ug/l
Manganese	Dissolved	Lab	39.0 ug/l	38.8 ug/l	168 ug/l	164 ug/l	29.4 ug/l	29.5 ug/l	51.4 ug/l	49.1 ug/l	48.3 ug/l
Manganese	Total	Lab	62.3 ug/l	65.2 ug/l	185 ug/l	185 ug/l	44.0 * ug/l	60.5 * ug/l	64.3 ug/l	51.3 ug/l	54.2 ug/l
Mercury	Total	Lab	--	--	0.0050 ug/l	0.0046 ug/l	--	--	--	0.0022 ug/l	0.0021 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	2.2 ug/l	2.1 ug/l	--	--	--	1.1 ug/l	1.2 ug/l
Nickel	Dissolved	Lab	0.53 ug/l	0.55 ug/l	0.92 ug/l	0.85 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Nickel	Total	Lab	0.71 ug/l	0.78 ug/l	0.92 ug/l	0.86 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	--	2700 ug/l	2700 ug/l	--	--	--	2800 ug/l	2900 ug/l
Selenium	Total	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Silver	Total	Lab	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	< 0.20 ug/l	< 0.20 ug/l
Sodium	Total	Lab	--	--	14000 ug/l	14200 ug/l	--	--	--	10100 ug/l	10300 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	0.015 j b ug/l	< 0.005 ug/l	0.010 j ug/l	0.005 j ug/l	0.005 j ug/l	< 0.005 ug/l	< 0.005 ug/l	0.007 j ug/l	< 0.002 ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	< 3.0 ug/l	< 3.0 ug/l	--	--	--	< 3.0 ug/l	< 3.0 ug/l
Zinc	Dissolved	Lab	7.1 ug/l	6.0 ug/l	6.6 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l
Zinc	Total	Lab	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l

Large Table 10 Surface Water Quality Data in the Partridge River Watershed PolyMet Mining Company																			
Location			PM-3		PM-3		SW003	SW003	SW003	SW003	SW003	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4
Date			11/21/2013		12/17/2013		5/27/2010	6/17/2010	7/15/2010	8/10/2010	9/22/2010	4/13/2004	5/19/2004	6/22/2004	7/28/2004	8/24/2004	8/25/2004	9/27/2004	10/26/2004
Sample Type			N	FD	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location																	
General Parameters																			
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	13 mg/l	16 mg/l	34 mg/l	63.5 mg/l	95 mg/l	--	41.5 mg/l	37.2 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	9.3 mg/l	8.1 mg/l	8.3 mg/l	8.2 mg/l	--	--	--	--	--	20.3 mg/l	20.6 mg/l	22.8 mg/l	19.4 mg/l	--	--	33 mg/l	24.2 mg/l
Chemical Oxygen Demand	NA	Lab	--	--	--	--	--	--	--	--	--	54 mg/l	33 mg/l	71 mg/l	46 mg/l	--	--	88.5 mg/l	85 mg/l
Chloride	NA	Lab	5.7 mg/l	5.8 mg/l	6.4 mg/l	6.3 mg/l	--	--	--	--	--	1.1 mg/l	1.1 mg/l	1.6 mg/l	2 mg/l	2.2 mg/l	--	2.5 mg/l	2.4 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	10.9 mg/l	10.6 mg/l	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	--	12.04 mg/l	--	8.29 mg/l	7.55 mg/l	6.65 mg/l	6.0 mg/l	7.9 mg/l	--	--	--	--	--	--	--	--
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.16 mg/l	0.11 mg/l	--	0.12 mg/l	0.1 mg/l
Hardness, as CaCO3	NA	Lab	104 mg/l	106 mg/l	115 mg/l	117 mg/l	--	--	--	--	--	16.9 mg/l	20.1 mg/l	34.8 mg/l	65.9 mg/l	78.2 mg/l	--	40.7 mg/l	41.2 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	--	--	--	--	--	--	--	0.14 mg/l	0.1 mg/l	0.13 mg/l	< 0.1 mg/l	--	--	< 0.1 mg/l	--
Nitrogen, ammonia as N	NA	Lab	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	0.17 mg/l	< 0.1 mg/l	--	--	--	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	7.4 pH units	7.92 pH units	7.67 pH units	7.58 pH units	7.8 pH units	--	7.34 pH units	8.19 pH units
pH																			
Phosphorus, total, as P	NA	Field	6 pH units	--	7.05 pH units	--	7.39 pH units	7.47 pH units	7.51 pH units	7.4 pH units	7.5 pH units	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.15 mg/l	--	--	< 0.1 mg/l	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	170 mg/l	175 mg/l	217 mg/l	171 mg/l	--	--	--	--	--	56 mg/l	58 mg/l	155 mg/l	90 mg/l	93 mg/l	--	108 mg/l	93 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	2 mg/l	10 mg/l	8 mg/l	2 mg/l	--	--	4 mg/l	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	35 umhos/cm	59 umhos/cm	78.2 umhos/cm	126.9 umhos/cm	161.7 umhos/cm	--	85.5 umhos/cm	98.8 umhos/cm
Specific Conductance @ 25 °C																			
Specific Conductance @ 25 °C	NA	Field	227.8 umhos/cm	--	243.4 umhos/cm	--	180.0 umhos/cm	238 umhos/cm	349.5 umhos/cm	368 umhos/cm	348 umhos/cm	--	--	--	--	--	--	--	--
Sulfate, as SO4	NA	Lab	22.2 mg/l	21.8 mg/l	14.8 mg/l	14.9 mg/l	--	--	--	--	--	< 1 mg/l	8.1 mg/l	8.5 mg/l	0.78 mg/l	< 1 mg/l	--	1.6 mg/l	8.6 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	0.9 deg C	12.9 deg C	19.5 deg C	21.4 deg C	16.2 deg C	--	16.9 deg C	7.8 deg C
Temperature, °C	NA	Field	0.64 deg C	--	2.45 deg C	--	18.01 deg C	16.50 deg C	22.25 deg C	24.2 deg C	12.9 deg C	--	--	--	--	--	--	--	--
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	1 NTU	3 NTU	--	--	--	--	--	--
Turbidity	NA	Field	0.3 NTU	--	4.9 NTU	--	0.4 NTU	0.6 NTU	0 NTU	0.1 NTU	3.9 NTU	--	--	--	--	--	--	--	--
Metals																			
Aluminum	Dissolved	Lab	< 20.0 ug/l	< 20.0 ug/l	27.0 ug/l	26.5 ug/l	< 25 ug/l	35.3 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	21.5 ug/l	< 20.0 ug/l	31.4 ug/l	32.2 ug/l	40.8 ug/l	69.2 ug/l	27.6 ug/l	33.2 ug/l	25.8 ug/l	140 ug/l	232 ug/l	1550 ug/l	107 ug/l	--	48.3 ug/l	127 ug/l	84.8 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	--	--	--	--
Arsenic	Dissolved	Lab	0.70 ug/l	0.80 ug/l	0.60 ug/l	0.53 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	0.64 ug/l	0.78 ug/l	0.60 ug/l	0.59 ug/l	--	--	--	--	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	< 10 ug/l	< 10 ug/l	20.1 ug/l	< 10 ug/l	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--
Boron	Total	Lab	--	--	--	--	--	--	--	--	--	< 35 ug/l	< 35 ug/l	< 35 ug/l	57.8 ug/l	60 ug/l	--	< 35 ug/l	< 40 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--
Calcium	Total	Lab	22900 ug/l	23600 ug/l	26600 ug/l	26900 ug/l	--	--	--	--	--	3900 ug/l	4900 ug/l	9500 ug/l	14000 ug/l	17600 ug/l	--	8200 ug/l	8900 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	1 ug/l	1.1 ug/l	2.6 ug/l	< 1 ug/l	--	--	--	--
Cobalt	Dissolved	Lab	< 0.20 ug/l	< 0.20 ug/l	0.21 ug/l	< 0.20 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--	--	< 1 ug/l	< 1 ug/l	2.3 ug/l	< 1 ug/l	--	--	< 1 ug/l	--
Copper	Dissolved	Lab	0.70 ug/l	0.66 ug/l	0.60 ug/l	0.54 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	0.66 ug/l	0.65 ug/l	0.83 ug/l	0.64 ug/l	--	--	--	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	1.2 ug/l	1.1 ug/l	--	1.5 ug/l	1.1 ug/l
Iron	Dissolved	Lab	469 ug/l	459 ug/l	1770 ug/l	1750 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	630 ug/l	627 ug/l	2500 ug/l	2520 ug/l	--	--	--	--	--	640 ug/l	970 ug/l	5270 ug/l	2100 ug/l	--	--	1720 ug/l	--
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	< 1 ug/l	1.2 ug/l	12.3 ug/l	< 1 ug/l	1.6 ug/l	--	0.77 ug/l	< 0.3 ug/l
Magnesium	Total	Lab	11200 ug/l	11500 ug/l	11800 ug/l	12000 ug/l	--	--	--	--	--	2700 ug/l	3100 ug/l	5000 ug/l	7500 ug/l	8300 ug/l	--	4900 ug/l	4600 ug/l
Manganese	Dissolved	Lab	63.0 ug/l	60.9 ug/l	301 ug/l	315 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	64.3 ug/l	63.5 ug/l	298 ug/l	321 ug/l	--	--	--	--	--	30 ug/l	60 ug/l	780 ug/l	200 ug/l	--	--	110 ug/l	--
Mercury																			
Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	0.0066 ug/l	0.0029 ug/l	< 0.004 ug/l	< 0.01 ug/l	0.0036 ug/l	--	< 0.008 ug/l	< 0.01 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	--	--	--	--
Nickel	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	--	1.4 ug/l	3.6 ug/l	2 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 0.3 ug/l	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 0.25 ug/l	--	--	--
Potassium	Total	Lab	--	--	--	--	--	--	--	--	--	1000 ug/l	600 ug/l	800 ug/l	1000 ug/l	--	--	900 ug/l	--
Selenium	Total	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	--	--	--	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 3.6 ug/l	--	< 3.6 ug/l	< 3.6 ug/l
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.24 ug/l	--	< 0.24 ug/l	< 0.24 ug/l
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	1200 ug/l	1700 ug/l	2100 ug/l	2800 ug/l	3300 ug/l	--	1900 ug/l	2100 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	17.3 ug/l	22.4 ug/l	48.1 ug/l	67.7 ug/l	--	--	--	--
Thallium	Total	Lab	< 0.0020 ug/l	< 0.0020 ug/l	< 0.002 ug/l	< 0.002 ug/l	--	--	--	--	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 0.4 ug/l	--	< 0.4 ug/l	< 0.4 ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	< 10 ug/l	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	--	--	--	--	--	11.1 ug/l	< 10 ug/l	16.3 ug/l	< 10 ug/l	--	< 10 ug/l	12 ug/l	< 10 ug/l

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4	PM-4		PM-4	PM-4	
Date			7/10/2006	8/28/2006	9/19/2006	10/12/2006	11/7/2006	3/22/2007	4/23/2007	5/21/2007	6/11/2007	7/23/2007	8/22/2007	9/19/2007	10/24/2007	11/14/2007	5/20/2008	6/10/2008		7/21/2008	PM-4
Sample Type			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	PM-4
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, total, as CaCO3	NA	Lab	92 mg/l	88.5 mg/l	103 mg/l	88.6 mg/l	74.8 mg/l	102 mg/l	37.9 mg/l	44.0 mg/l	25.4 mg/l	81 mg/l	120 mg/l	58.0 mg/l	< 0 mg/l	42.2 mg/l	17.5 mg/l	15.4 mg/l	14.6 mg/l	65.6 mg/l	
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, total organic	NA	Lab	19 mg/l	13.5 mg/l	8.6 mg/l	6.6 mg/l	10 mg/l	9.9 mg/l	18.9 mg/l	21.7 mg/l	37.1 mg/l	24.4 mg/l	15.7 mg/l	26.8 mg/l	39.3 mg/l	24.9 mg/l	21.2 mg/l	31.3 mg/l	30.8 mg/l	22.2 mg/l	
Chemical Oxygen Demand	NA	Lab	53.5 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Chloride	NA	Lab	11.3 mg/l	9.71 mg/l	13 mg/l	8.73 mg/l	8.93 mg/l	7.89 mg/l	4.16 mg/l	6.68 mg/l	1.79 mg/l	13 mg/l	20.3 mg/l	6.61 mg/l	2.84 mg/l	6.5 mg/l	2.25 mg/l	0.87 mg/l	0.83 mg/l	5.1 mg/l	
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dissolved oxygen	NA	Lab	--	6.62 mg/l	4.25 mg/l	9.32 mg/l	13.32 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dissolved oxygen	NA	Field	--	--	--	--	--	10.4 mg/l	10.5 mg/l	5.26 mg/l	3.0 mg/l	7.9 mg/l	--	5.23 mg/l	9.3 mg/l	8.8 mg/l	--	--	--	7.19 mg/l	
Fluoride	NA	Lab	0.16 mg/l	< 0.1 mg/l	0.1 mg/l	0.1 mg/l	0.1 mg/l	0.1 mg/l	< 1 mg/l	< 1 mg/l	< 1 mg/l	0.11 mg/l	< 5 mg/l	< 2 mg/l	< 1 mg/l	0.17 mg/l	--	--	--	--	
Hardness, as CaCO3	NA	Lab	93.4 mg/l	103 mg/l	103 mg/l	97.9 mg/l	92.5 mg/l	112 mg/l	50.2 mg/l	55 mg/l	37 mg/l	84.6 mg/l	118 mg/l	74 mg/l	43 mg/l	55.6 mg/l	29.6 mg/l	27.9 mg/l	27.5 mg/l	76.4 mg/l	
Nitrate + Nitrite, as N	NA	Lab	< 0.1 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nitrogen, ammonia as N	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
pH	NA	Lab	8.1 pH units	7.95 pH units	7.94 pH units	8.45 pH units	7.84 pH units	--	--	--	--	--	--	--	--	--	--	--	--	--	
pH	NA	Field	7.59 pH units	--	--	--	--	7.85 pH units	7.6 pH units	7.96 pH units	7.1 pH units	7.6 pH units	--	8.05 pH units	8.1 pH units	7.3 pH units	--	--	--	7.37 pH units	
Phosphorus, total, as P	NA	Lab	< 0.1 mg/l	< 0.1 mg/l	0.21 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 2 mg/l	< 0.5 mg/l	< 1 mg/l	< 0 mg/l	< 1 mg/l	< 0 mg/l	< 1 mg/l	0.15 mg/l	< 10 mg/l	0.009 mg/l	0.008 mg/l	0.010 mg/l	0.021 * mg/l	
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Solids, total dissolved	NA	Lab	149 mg/l	340 mg/l	151 mg/l	155 mg/l	122 mg/l	168 mg/l	122 mg/l	87 mg/l	88 mg/l	188 mg/l	177 mg/l	127 mg/l	142 mg/l	146 mg/l	75 mg/l	71 * mg/l	49 * mg/l	135 mg/l	
Solids, total suspended	NA	Lab	9 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	< 1 mg/l	1.6 mg/l	2.0 mg/l	1.2 mg/l	--	
Specific Conductance @ 25 °C	NA	Lab	212 umhos/cm	240.7 umhos/cm	257 umhos/cm	233 umhos/cm	220.8 umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	
Specific Conductance @ 25 °C	NA	Field	227.1 umhos/cm	--	--	--	--	250.2 umhos/cm	121.4 umhos/cm	140 umhos/cm	68 umhos/cm	205 umhos/cm	--	166 umhos/cm	89.3 umhos/cm	140 umhos/cm	--	--	--	95.2 umhos/cm	
Sulfate, as SO4	NA	Lab	5.14 mg/l	6.79 mg/l	8.77 mg/l	14.7 mg/l	20 mg/l	11.8 mg/l	11.8 mg/l	15.4 mg/l	6.4 mg/l	7.93 mg/l	11.9 mg/l	16.5 mg/l	7.84 mg/l	14.2 mg/l	7.48 mg/l	4.31 mg/l	3.86 mg/l	7.26 mg/l	
Temperature, °C	NA	Lab	24.4 deg C	20.2 deg C	13.8 deg C	4.8 deg C	4.6 deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	
Temperature, °C	NA	Field	--	--	--	--	--	0.8 deg C	10.4 deg C	12.5 deg C	18.8 deg C	26.6 deg C	--	13.04 deg C	6.3 deg C	2.6 deg C	--	--	--	10.4 deg C	
Turbidity	NA	Lab	4.86 NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Turbidity	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.77 NTU	
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Aluminum	Total	Lab	66.8 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	135 ug/l	217 ug/l	213 ug/l	86 ug/l	--	
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Boron	Total	Lab	92 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.051 j ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.2 ug/l	
Calcium	Total	Lab	21000 ug/l	23800 ug/l	23000 ug/l	21900 ug/l	20400 ug/l	25500 ug/l	10700 ug/l	11600 ug/l	7630 ug/l	18100 ug/l	25300 ug/l	15500 ug/l	9100 ug/l	11000 ug/l	6190 ug/l	5720 ug/l	5650 ug/l	16800 ug/l	
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.37 j b ug/l	0.82 b ug/l	0.73 b ug/l	0.37 j b ug/l	
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cobalt	Total	Lab	< 1 ug/l	< 1 ug/l	< 2.5 ug/l	< 1 ug/l	< 1 ug/l	< 25 ug/l	< 0.24 ug/l	< 10 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 2 ug/l	< 1 ug/l	< 25 ug/l	0.23 ug/l	0.30 ug/l	0.30 ug/l	0.38 ug/l	
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Copper	Total	Lab	2.6 ug/l	0.86 ug/l	0.83 ug/l	2.6 ug/l	1.3 ug/l	2.0 ug/l	1.3 ug/l	1.5 ug/l	1 ug/l	2 ug/l	1.2 ug/l	1.8 ug/l	2.3 ug/l	1.5 ug/l	1.8 ug/l	2.2 ug/l	2.2 ug/l	1.5 ug/l	
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	Total	Lab	2.03 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Lead	Total	Lab	< 0.6 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	0.22 j b ug/l	0.26 j b ug/l	0.27 j b ug/l	0.26 j ug/l	
Magnesium	Total	Lab	9970 ug/l	10500 ug/l	11000 ug/l	10500 ug/l	10100 ug/l	11800 ug/l	5680 ug/l	6340 ug/l	4340 ug/l	9550 ug/l	13400 ug/l	8560 ug/l	5000 ug/l	6840 ug/l	3440 ug/l	3310 ug/l	3250 ug/l	8380 ug/l	
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Manganese	Total	Lab	160 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	28 ug/l	42 ug/l	43 ug/l	120 ug/l	
Mercury	Total	Lab	< 0.002 ug/l	0.002 ug/l	0.0011 ug/l	< 0.002															

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location Date Sample Type			PM-4	PM-4	PM-4	PM-4		PM-4	PM-4
			6/28/2012	7/31/2012	8/29/2012	9/26/2012		10/31/2012	11/29/2012
			N	N	N	N	FD	N	N
Parameter	Total or Dissolved	Analysis Location							
General Parameters									
Alkalinity, bicarbonate, as CaCO3	NA	Lab	30.0 mg/l	--	--	93.6 mg/l	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	30.0 mg/l	--	--	93.6 mg/l	--	--	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	72.7 mg/l	39.2 mg/l	20.8 mg/l	9.3 mg/l	--	12.3 mg/l	12.7 mg/l
Chemical Oxygen Demand	NA	Lab	185 mg/l	--	--	26.5 mg/l	--	--	--
Chloride	NA	Lab	2.4 mg/l	3.8 mg/l	5.5 mg/l	6.8 mg/l	--	6.9 mg/l	7.4 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	3.33 mg/l	4.46 mg/l	5.72 mg/l	9.19 mg/l	--	11.09 mg/l	12.22 mg/l
Fluoride	NA	Lab	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	53.8 mg/l	70.3 mg/l	94.8 mg/l	110 mg/l	--	92.4 mg/l	75.1 mg/l
Nitrate + Nitrite, as N	NA	Lab	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	--
Nitrogen, ammonia as N	NA	Lab	0.18 mg/l	--	--	< 0.10 mg/l	--	--	--
pH	NA	Lab	--	--	--	--	--	--	--
pH	NA	Field	6.6 pH units	6.75 pH units	7.7 pH units	7.86 pH units	--	7.81 pH units	7.84 pH units
Phosphorus, total, as P	NA	Lab	0.057 mg/l	--	--	0.0050 mg/l	--	--	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	189 mg/l	165 mg/l	157 mg/l	156 mg/l	--	151 mg/l	163 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	43.8 umhos/cm	85.1 umhos/cm	160.8 umhos/cm	123.7 umhos/cm	--	192.3 umhos/cm	62 umhos/cm
Sulfate, as SO4	NA	Lab	4.5 mg/l	5.7 mg/l	10.2 mg/l	12.9 mg/l	--	16.6 mg/l	18.0 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--
Temperature, °C	NA	Field	20.94 deg C	22.45 deg C	21.38 deg C	10.34 deg C	--	2.41 deg C	0.69 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--
Turbidity	NA	Field	4.3 NTU	58.3 NTU	13.1 NTU	3.4 NTU	--	3.2 NTU	0 NTU
Metals									
Aluminum	Dissolved	Lab	355 ug/l	167 ug/l	54.9 ug/l	26.5 ug/l	--	< 40.0 ug/l	39.8 ug/l
Aluminum	Total	Lab	442 ug/l	233 ug/l	99.5 ug/l	61.2 ug/l	--	70.9 ug/l	82.5 ug/l
Antimony	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--
Arsenic	Total	Lab	3.0 ug/l	2.2 ug/l	1.2 ug/l	< 0.50 ug/l	--	0.65 ug/l	0.58 ug/l
Barium	Total	Lab	16.3 ug/l	--	--	< 10.0 ug/l	--	--	--
Beryllium	Total	Lab	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--
Boron	Total	Lab	< 50.0 ug/l	--	--	136 ug/l	--	--	--
Cadmium	Total	Lab	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--
Calcium	Total	Lab	11200 ug/l	14500 ug/l	20500 ug/l	24100 ug/l	--	20000 ug/l	15200 ug/l
Chromium	Total	Lab	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	--
Cobalt	Dissolved	Lab	2.4 ug/l	0.83 ug/l	0.44 ug/l	0.22 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	2.6 ug/l	0.90 ug/l	0.52 ug/l	0.28 ug/l	--	< 0.20 ug/l	< 0.20 ug/l
Copper	Dissolved	Lab	2.9 ug/l	1.4 ug/l	0.89 ug/l	0.61 ug/l	--	0.78 ug/l	0.92 ug/l
Copper	Total	Lab	3.0 ug/l	1.7 ug/l	1.0 ug/l	0.63 ug/l	--	0.82 ug/l	0.96 ug/l
Iron	Dissolved	Lab	3920 ug/l	4060 ug/l	2370 ug/l	1050 ug/l	--	1030 ug/l	975 ug/l
Iron	Total	Lab	6020 ug/l	5080 ug/l	2600 ug/l	1290 ug/l	--	1340 ug/l	1270 ug/l
Lead	Total	Lab	0.57 ug/l	0.53 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	6300 ug/l	8300 ug/l	10600 ug/l	12100 ug/l	--	10300 ug/l	9000 ug/l
Manganese	Dissolved	Lab	577 ug/l	193 ug/l	201 ug/l	99.9 ug/l	--	49.4 ug/l	46.6 ug/l
Manganese	Total	Lab	632 ug/l	203 ug/l	213 ug/l	109 ug/l	--	51.8 ug/l	48.8 ug/l
Mercury	Total	Lab	0.0184 ug/l	--	--	0.0015 ug/l	0.0015 ug/l	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--
Molybdenum	Total	Lab	0.41 ug/l	--	--	1.3 ug/l	--	--	--
Nickel	Dissolved	Lab	4.5 ug/l	3.3 ug/l	1.0 ug/l	< 0.50 ug/l	--	0.56 ug/l	0.76 ug/l
Nickel	Total	Lab	4.9 ug/l	3.0 ug/l	1.2 ug/l	0.80 ug/l	--	< 0.50 ug/l	0.87 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--
Potassium	Total	Lab	830 ug/l	--	--	3000 ug/l	--	--	--
Selenium	Total	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l
Silver	Total	Lab	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--
Sodium	Total	Lab	3200 ug/l	--	--	7600 ug/l	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--
Thallium	Total	Lab	0.025 * ug/l	< 0.0004 ug/l	< 0.005 ug/l	0.003 j ug/l	--	0.0013 j b ug/l	0.0116 j ug/l
Tin	Total	Lab	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--
Vanadium	Total	Lab	< 3.0 ug/l	--	--	< 3.0 ug/l	--	--	--
Zinc	Dissolved	Lab	11.9 ug/l	< 6.0 ug/l	6.8 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	< 6.0 ug/l
Zinc	Total	Lab	7.4 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	< 6.0 ug/l

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			SW005	SW005		SW005	SW005	PM-5	PM-5	PM-5	PM-5	PM-5
Date			7/15/2010	8/10/2010		9/22/2010	10/20/2011	4/13/2004	5/19/2004	6/22/2004	7/29/2004	5/31/2011
Sample Type			N	N	FD	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location										
General Parameters												
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	78 mg/l	--	--	88 mg/l	--	--	--	--	138 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	78 mg/l	--	--	--	110 mg/l	92 mg/l	142 mg/l	184 mg/l	138 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	--	21.4 mg/l	--	--	--	4 mg/l	6.1 mg/l	9.1 mg/l	11 mg/l	5.6 mg/l
Chemical Oxygen Demand	NA	Lab	--	59.5 mg/l	--	--	--	2.8 mg/l	16 mg/l	25 mg/l	24 mg/l	22.7 mg/l
Chloride	NA	Lab	--	16.9 mg/l	--	--	5.35 mg/l	2.1 mg/l	1.9 mg/l	2.2 mg/l	1.8 mg/l	1.29 mg/l
Cyanide	NA	Lab	--	--	--	--	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	10.7 mg/l	12.1 mg/l	--	--	--
Dissolved oxygen	NA	Field	6.01 mg/l	5.31 mg/l	--	0.84 mg/l	< 0.1 mg/l	--	--	--	--	4.06 mg/l
Fluoride	NA	Lab	--	0.15 mg/l	--	--	--	0.1 mg/l	0.13 mg/l	0.1 mg/l	0.17 mg/l	< 0.1 mg/l
Hardness, as CaCO3	NA	Lab	85.2 mg/l	99.8 mg/l	--	79.9 mg/l	107 mg/l	120 mg/l	121 mg/l	156 mg/l	213 mg/l	191 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	< 0.1 mg/l	--	--	--	0.75 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.13 mg/l
Nitrogen, ammonia as N	NA	Lab	--	< 0.05 mg/l	--	--	--	< 0.1 mg/l	< 0.1 mg/l	0.13 mg/l	0.11 mg/l	< 0.1 mg/l
pH	NA	Lab	--	--	--	--	--	7.7 pH units	8.25 pH units	7.76 pH units	7.3 pH units	--
pH	NA	Field	6.81 pH units	7.21 pH units	--	7.08 pH units	6.00 pH units	--	--	--	--	7.39 pH units
Phosphorus, total, as P	NA	Lab	--	0.019 mg P/L	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.11 mg/l	0.012 mg P/L
Redox (oxidation potential)	NA	Field	--	--	--	--	453 mV	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	188 mg/l	--	--	--	204 mg/l	204 mg/l	260 mg/l	258 mg/l	237 mg/l
Solids, total suspended	NA	Lab	--	2 mg/l	--	--	--	< 1 mg/l	4 mg/l	2 mg/l	7 mg/l	1.5 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	338 umhos/cm	358 umhos/cm	403.6 umhos/cm	449 umhos/cm	--
Specific Conductance @ 25 °C	NA	Field	100 umhos/cm	258 umhos/cm	--	173 umhos/cm	208 umhos/cm	--	--	--	--	385.0 umhos/cm
Sulfate, as SO4	NA	Lab	9.91 mg/l	15.3 mg/l	--	13 mg/l	17.5 mg/l	58.9 mg/l	76.2 mg/l	85.1 mg/l	62.1 mg/l	58.6 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	2.3 deg C	14.5 deg C	18.1 deg C	20 deg C	--
Temperature, °C	NA	Field	23.18 deg C	24.5 deg C	--	12.77 deg C	6.70 deg C	--	--	--	--	13.46 deg C
Turbidity	NA	Lab	--	--	--	--	--	2 NTU	3 NTU	--	--	--
Turbidity	NA	Field	1.0 NTU	1.1 NTU	--	0.6 NTU	2.2 NTU	--	--	--	--	0 NTU
Metals												
Aluminum	Dissolved	Lab	68.3 ug/l	--	--	48.1 ug/l	< 25 ug/l	--	--	--	--	< 25 ug/l
Aluminum	Total	Lab	129 ug/l	64.7 ug/l	--	93.4 ug/l	109 ug/l	14.4 ug/l	11.9 ug/l	31.4 ug/l	90.8 ug/l	< 25 ug/l
Antimony	Total	Lab	--	--	--	--	--	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 0.5 ug/l
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	1.7 ug/l	1.05 ug/l	1.12 ug/l	1.02 ug/l	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	0.98 ug/l
Barium	Total	Lab	--	11.8 ug/l	--	--	--	< 10 ug/l	< 10 ug/l	< 10 ug/l	14.6 ug/l	7.52 ug/l
Beryllium	Total	Lab	--	< 0.2 ug/l	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l
Boron	Total	Lab	--	157 ug/l	--	--	--	55 ug/l	43.7 ug/l	59 ug/l	67.9 ug/l	69.9 ug/l
Cadmium	Total	Lab	--	< 0.02 ug/l	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.03 ug/l
Calcium	Total	Lab	18300 ug/l	22000 ug/l	--	16800 ug/l	23600 ug/l	24300 ug/l	26500 ug/l	30800 ug/l	35400 ug/l	33800 ug/l
Chromium	Total	Lab	--	< 1 ug/l	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 0.2 ug/l
Cobalt	Total	Lab	--	0.3 ug/l	--	--	--	7.8 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.2 ug/l
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	0.32 j ug/l
Copper	Total	Lab	--	1.5 ug/l	--	--	--	< 5 ug/l	< 5 ug/l	< 0.8 ug/l	< 0.8 ug/l	0.35 j ug/l
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	282 ug/l
Iron	Total	Lab	--	1240 ug/l	--	--	--	340 ug/l	240 ug/l	430 ug/l	1320 ug/l	458 ug/l
Lead	Total	Lab	--	0.14 b ug/l	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	0.02 j ug/l
Magnesium	Total	Lab	9600 ug/l	10900 ug/l	--	9210 ug/l	11600 ug/l	20300 ug/l	19700 ug/l	26800 ug/l	30300 ug/l	25800 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	119 ug/l	--	--	--	230 ug/l	70 ug/l	140 ug/l	840 ug/l	143 ug/l
Mercury	Total	Lab	--	0.0028 ug/l	0.0032 ug/l	--	--	0.0014 ug/l	0.0026 ug/l	< 0.004 ug/l	< 0.005 ug/l	0.0010 ug/l
Methyl Mercury	Total	Lab	--	0.00041 ug/l	0.00044 ug/l	--	--	--	--	--	--	0.00016 ug/l
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	1.19 ug/l	--	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	1.33 ug/l
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 0.6 ug/l
Nickel	Total	Lab	--	1.9 ug/l	--	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 0.6 ug/l
Palladium	Total	Lab	--	--	--	--	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	< 25 ug/l	< 50 ug/l	< 25 ug/l	< 25 ug/l	--
Potassium	Total	Lab	--	3070 ug/l	--	--	--	5700 ug/l	4700 ug/l	6400 ug/l	6300 ug/l	5420 ug/l
Selenium	Total	Lab	--	0.36 j ug/l	--	--	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 0.2 ug/l
Silver	Total	Lab	--	< 0.2 ug/l	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.2 ug/l
Sodium	Total	Lab	--	14300 ug/l	--	--	--	13600 ug/l	10600 ug/l	17500 ug/l	17200 ug/l	14600 ug/l
Strontium	Total	Lab	--	149 ug/l	--	--	--	92.3 ug/l	103 ug/l	132 ug/l	147 ug/l	122 ug/l
Thallium	Total	Lab	0.007 j ug/l	0.011 j ug/l	0.008 j ug/l	0.006 j ug/l	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 0.002 ug/l
Tin	Total	Lab	--	< 0.5 ug/l	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	< 10 ug/l	--	--	--	< 10 ug/l
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	< 10 ug/l
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	< 6 ug/l
Zinc	Total	Lab	--	< 6 ug/l	--	--	--	< 10 ug/l	< 10 ug/l	10.2 ug/l	< 10 ug/l	< 6 ug/l

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location Date Sample Type			PM-5 6/30/2011		PM-5 7/25/2011	PM-5 8/22/2011		PM-5 9/19/2011		PM-5 10/19/2011		PM-5 11/21/2011		PM-5 12/28/2011	PM-5 1/24/2012	
			N	FD	N	N	FD	N	FD	N	FD	N	FD	N	N	FD
Parameter	Total or Dissolved	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	142 mg/l	137 mg/l	194 mg/l	189 mg/l	188 mg/l	187 mg/l	184 mg/l	138 mg/l	144 mg/l	127 mg/l	126 mg/l	188 mg/l	200 mg/l	205 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	142 mg/l	137 mg/l	194 mg/l	189 mg/l	188 mg/l	187 mg/l	184 mg/l	138 mg/l	144 mg/l	127 mg/l	126 mg/l	188 mg/l	200 mg/l	205 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	6.0 mg/l	6.1 mg/l	8.1 mg/l	7.4 mg/l	7.5 mg/l	8.4 mg/l	8.4 mg/l	4.9 mg/l	5.0 mg/l	5.6 mg/l	5.5 mg/l	5.5 mg/l	6.2 mg/l	6.2 mg/l
Chemical Oxygen Demand	NA	Lab	15.5 mg/l	15.6 mg/l	< 10 mg/l	30 mg/l	25.4 mg/l	23.4 mg/l	23.2 mg/l	19 mg/l	34 mg/l	23.5 mg/l	16.6 mg/l	18.7 mg/l	20.3 mg/l	22.1 mg/l
Chloride	NA	Lab	0.95 mg/l	0.96 mg/l	0.91 mg/l	0.89 mg/l	0.89 mg/l	2.02 mg/l	2.01 mg/l	2.16 mg/l	2.14 mg/l	2.22 mg/l	2.21 mg/l	2.75 mg/l	2.78 mg/l	2.79 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	4.40 mg/l	--	3.16 mg/l	4.40 mg/l	--	3.36 mg/l	--	8.50 mg/l	--	6.16 mg/l	--	7.93 mg/l	9.21 mg/l	--
Fluoride	NA	Lab	--	--	< 0.1 mg/l	--	--	0.12 mg/l	0.12 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l
Hardness, as CaCO3	NA	Lab	178 mg/l	179 mg/l	209 mg/l	213 mg/l	194 mg/l	217 mg/l	222 mg/l	174 mg/l	175 mg/l	197 mg/l	201 mg/l	239 mg/l	258 mg/l	256 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.2 mg/l	0.21 mg/l	0.21 mg/l	0.2 mg/l	0.22 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.19 mg/l	0.18 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Nitrogen, ammonia as N	NA	Lab	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.11 mg/l	0.12 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.28 mg/l	0.5 mg/l	0.55 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	7.30 pH units	--	7.28 pH units	7.20 pH units	--	6.85 pH units	--	7.43 pH units	--	6.43 pH units	--	6.98 pH units	7.07 pH units	--
Phosphorus, total, as P	NA	Lab	0.01 mg P/L	0.011 mg P/L	0.022 mg P/L	0.024 mg P/L	0.022 mg P/L	0.023 mg P/L	0.028 mg P/L	0.011 mg P/L	0.012 mg P/L	0.01 mg P/L	0.01 mg P/L	< 0.1 mg P/L	0.018 mg P/L	0.02 mg P/L
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	261 mg/l	269 mg/l	272 mg/l	286 mg/l	301 mg/l	301 mg/l	299 mg/l	246 mg/l	238 mg/l	269 mg/l	257 mg/l	319 mg/l	235 mg/l	250 mg/l
Solids, total suspended	NA	Lab	--	--	1.3 mg/l	--	--	8.5 mg/l	9 mg/l	--	--	3.2 mg/l	3.2 mg/l	--	11.3 mg/l	13.3 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	394.0 umhos/cm	--	389.0 umhos/cm	443 umhos/cm	--	461.0 umhos/cm	--	401 umhos/cm	--	366.0 umhos/cm	--	392.0 umhos/cm	403 umhos/cm	--
Sulfate, as SO4	NA	Lab	58.7 mg/l	58.6 mg/l	44 mg/l	42.2 mg/l	42.3 mg/l	55.9 mg/l	56 mg/l	56.1 mg/l	55.9 mg/l	71 mg/l	70.7 mg/l	71.1 mg/l	73.1 mg/l	73.4 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	18.20 deg C	--	18.39 deg C	17.51 deg C	--	10.69 deg C	--	6.98 deg C	--	0.18 deg C	--	0.03 deg C	0.01 deg C	--
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	0.20 NTU	--	1.70 NTU	0.9 NTU	--	6.10 NTU	--	0 NTU	--	1.60 NTU	--	0 NTU	0.3 NTU	--
Metals																
Aluminum	Dissolved	Lab	< 25 ug/l	< 25 ug/l	< 25 ug/l	4.3 b ug/l	4.3 b ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	< 25 ug/l	26.7 ug/l	< 25 ug/l	7.1 b ug/l	5.2 b ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	27.8 ug/l	29.5 ug/l	32.3 ug/l
Antimony	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	0.073 j ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	2.2 ug/l	2.16 ug/l	2.96 ug/l	3.3 ug/l	3.2 ug/l	1.69 ug/l	1.67 ug/l	2.04 ug/l	1.95 ug/l	0.79 ug/l	0.76 ug/l	0.85 ug/l	1.05 ug/l	0.92 ug/l
Barium	Total	Lab	--	--	16 ug/l	--	--	20.6 ug/l	21.8 ug/l	--	--	12.8 ug/l	13.7 ug/l	--	27.3 ug/l	27 ug/l
Beryllium	Total	Lab	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	< 0.2 ug/l	< 0.2 ug/l
Boron	Total	Lab	--	--	72.8 ug/l	--	--	< 50 ug/l	< 50 ug/l	--	--	< 50 ug/l	< 50 ug/l	--	< 50 ug/l	< 50 ug/l
Cadmium	Total	Lab	--	--	< 0.03 ug/l	--	--	< 0.03 ug/l	< 0.03 ug/l	--	--	< 0.04 ug/l	< 0.04 ug/l	--	< 0.2 ug/l	< 0.2 ug/l
Calcium	Total	Lab	29900 ug/l	29900 ug/l	34600 ug/l	38600 ug/l	34700 ug/l	43400 ug/l	44400 ug/l	30500 ug/l	30700 ug/l	39200 ug/l	40200 ug/l	46600 ug/l	51100 ug/l	51300 ug/l
Chromium	Total	Lab	--	--	< 1 ug/l	--	--	< 1 ug/l	< 1 ug/l	--	--	< 1 ug/l	< 1 ug/l	--	< 1 ug/l	< 1 ug/l
Cobalt	Dissolved	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.3 ug/l	0.31 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.35 ug/l	0.54 ug/l	0.52 ug/l
Cobalt	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.26 ug/l	0.26 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.37 ug/l	0.54 ug/l	0.54 ug/l
Copper	Dissolved	Lab	< 0.15 ug/l	< 0.15 ug/l	0.30 j ug/l	0.23 j ug/l	0.25 j ug/l	0.37 j ug/l	0.39 j ug/l	0.34 jb ug/l	0.33 jb ug/l	0.5 b ug/l	0.53 b ug/l	< 0.7 ug/l	< 0.7 ug/l	< 0.7 ug/l
Copper	Total	Lab	< 0.15 ug/l	< 0.15 ug/l	0.41 j ug/l	0.14 b ug/l	< 0.50 ug/l	0.92 ug/l	0.37 j ug/l	0.47 jb ug/l	0.55 jb ug/l	0.67 b ug/l	0.57 b ug/l	0.9 ug/l	< 0.7 ug/l	< 0.7 ug/l
Iron	Dissolved	Lab	311 ug/l	317 ug/l	1060 ug/l	1120 ug/l	1160 ug/l	1340 ug/l	1030 ug/l	436 ug/l	430 ug/l	1010 ug/l	1020 ug/l	1760 ug/l	3580 ug/l	3570 ug/l
Iron	Total	Lab	580 ug/l	609 ug/l	1800 ug/l	1740 ug/l	1690 ug/l	3010 ug/l	3070 ug/l	856 ug/l	843 ug/l	1470 ug/l	1510 ug/l	2710 ug/l	4420 ug/l	4310 ug/l
Lead	Total	Lab	--	--	0.02 j ug/l	--	--	< 0.02 ug/l	< 0.02 ug/l	--	--	0.02 j ug/l	0.02 j ug/l	--	< 0.5 ug/l	< 0.5 ug/l
Magnesium	Total	Lab	25000 ug/l	25400 ug/l	29700 ug/l	28200 ug/l	26000 ug/l	26500 ug/l	27100 ug/l	23800 ug/l	23900 ug/l	24000 ug/l	24500 ug/l	29800 ug/l	31700 ug/l	31100 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	246 ug/l	254 ug/l	1840 ug/l	1410 ug/l	1270 ug/l	2850 ug/l	2890 ug/l	419 ug/l	418 ug/l	873 ug/l	895 ug/l	2580 ug/l	4380 ug/l	4270 ug/l
Mercury	Total	Lab	0.0011 ug/l	0.0011 ug/l	0.0019 ug/l	0.0011 ug/l	0.001 ug/l	0.0009 ug/l	0.0009 ug/l	0.0006 ug/l	0.0006 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	0.0011 ug/l	0.0010 b ug/l	0.0012 b ug/l
Methyl Mercury	Total	Lab	--	--	0.00028 ug/l	--	--	0.00012 ug/l	0.00011 ug/l	--	--	< 0.0001 ug/l	< 0.0001 ug/l	--	0.00012 ug/l	0.00011 ug/l
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	1.66 ug/l	1.73 ug/l	1.87 ug/l	1.7 ug/l	1.6 ug/l	0.93 ug/l	0.91 ug/l	1.2 ug/l	1.22 ug/l	0.38 ug/l	0.42 ug/l	0.36 ug/l	0.35 ug/l	0.36 ug/l
Nickel	Dissolved	Lab	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l
Nickel	Total	Lab	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	0.30 j ug/l	0.59 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	5440 ug/l	5510 ug/l	5950 ug/l	5420 ug/l	5280 ug/l	3380 ug/l	3480 ug/l	5070 ug/l	5080 ug/l	3040 ug/l	3080 ug/l	3440 ug/l	3380 ug/l	3350 ug/l
Selenium	Total	Lab	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	< 1 ug/l	< 1 ug/l
Silver	Total	Lab	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	< 0.2 ug/l	< 0.2 ug/l
Sodium	Total	Lab	15200 ug/l	15400 ug/l	17400 ug/l	15600 ug/l	15200 ug/l	10900 ug/l	11100 ug/l	12700 ug/l	12900 ug/l	9600 ug/l	9660 ug/l	9980 ug/l	11200 ug/l	11000 ug/l
Strontium	Total	Lab	--	--	142 ug/l	--	--	167 ug/l	170 ug/l	--	--	134 ug/l	136 ug/l	--	180 ug/l	177 ug/l
Thallium	Total	Lab	< 0.002 ug/l	< 0.002 ug/l	< 0.002 ug/l	--	--	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	--	< 0.02 ug/l	< 0.02 ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	< 10 ug/l	--	--	< 10 ug/l	< 10 ug/l	--	--	< 10 ug/l	< 10 ug/l	--	< 10 ug/l	< 10 ug/l
Vanadium	Total	Lab	--	--	< 10 ug/l	--	--	< 10 ug/l	< 10 ug/l	--	--	< 10 ug/l	< 10 ug/l	--	< 10 ug/l	< 10 ug/l
Zinc	Dissolved	Lab	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l
Zinc	Total	Lab	< 6 ug/l	< 6 ug/l	< 6 ug/l	--	--	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			PM-16	PM-16	PM-16		PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	PM-16	
Date			7/21/2008	10/8/2008	6/28/2012		7/31/2012	8/30/2012	9/26/2012	10/31/2012	11/27/2012	12/19/2012		1/28/2013	2/26/2013	3/26/2013		4/24/2013	5/9/2013	6/17/2013	7/23/2013		8/19/2013	9/17/2013	10/29/2013	
Sample Type			N	N	N	FD	N	N	N	N	N	N	FD	N	N	N	FD	N	N	N	N	FD	N	N	N	
Parameter	Total or Dissolved	Analysis Location																								
General Parameters																										
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	61.8 mg/l	--	--	--	94.5 mg/l	--	--	94.2 mg/l	--	--	--	116 mg/l	--	--	--	--	81.9 mg/l	--	--	--	60.2 mg/l	
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, total, as CaCO3	NA	Lab	92.4 mg/l	--	61.8 mg/l	--	--	--	94.5 mg/l	--	--	94.2 mg/l	--	--	--	116 mg/l	--	--	--	--	81.9 mg/l	--	--	--	60.2 mg/l	
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, total organic	NA	Lab	13.1 mg/l	--	36.2 mg/l	--	29.0 mg/l	12.8 mg/l	6.0 mg/l	9.3 mg/l	8.4 mg/l	6.1 mg/l	--	13.5 mg/l	3.7 mg/l	4.1 mg/l	--	3.6 mg/l	18.4 mg/l	20.0 mg/l	26.9 mg/l	--	6.3 mg/l	9.8 mg/l	17.0 mg/l	
Chemical Oxygen Demand	NA	Lab	--	--	93.7 mg/l	--	--	--	17.3 mg/l	--	--	21.3 mg/l	--	--	--	< 10.0 mg/l	--	--	--	--	93.0 mg/l	--	--	--	61.1 mg/l	
Chloride	NA	Lab	7.09 mg/l	--	12.2 mg/l	--	8.6 mg/l	6.8 mg/l	8.3 mg/l	11.3 mg/l	15.2 mg/l	9.3 mg/l	--	7.0 mg/l	4.3 mg/l	3.6 mg/l	--	19.0 mg/l	5.0 mg/l	10.4 mg/l	9.9 mg/l	--	11.0 mg/l	8.0 mg/l	7.0 mg/l	
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dissolved oxygen	NA	Field	--	8.66 mg/l	4.32 mg/l	--	4.51 mg/l	5.44 mg/l	9.9 mg/l	11.2 mg/l	9.17 mg/l	8.49 mg/l	--	11.32 mg/l	0 BQS mg/l	11.19 mg/l	--	--	--	6.53 mg/l	8.34 mg/l	--	8.44 mg/l	8.5 mg/l	11.91 mg/l	
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Hardness, as CaCO3	NA	Lab	102 mg/l	--	90.9 mg/l	--	101 mg/l	112 mg/l	115 mg/l	107 mg/l	113 mg/l	116 mg/l	--	149 mg/l	128 mg/l	124 mg/l	--	115 mg/l	40.1 mg/l	70.4 mg/l	103 mg/l	--	131 mg/l	125 mg/l	70.5 mg/l	
Nitrate + Nitrite, as N	NA	Lab	--	--	0.28 mg/l	--	--	--	0.32 mg/l	--	--	0.82 mg/l	--	--	--	0.26 mg/l	--	--	--	--	0.11 mg/l	--	--	--	0.12 mg/l	
Nitrogen, ammonia as N	NA	Lab	--	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	0.12 mg/l	--	--	--	0.29 mg/l	--	--	--	--	0.13 mg/l	--	--	--	0.11 mg/l	
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
pH	NA	Field	--	7.22 pH units	6.36 pH units	--	6.56 pH units	7.17 pH units	7.45 pH units	6.38 pH units	7.53 pH units	7.06 pH units	--	7.02 pH units	7.65 pH units	7.16 pH units	--	--	--	7.54 pH units	7.28 pH units	--	7.64 pH units	8.31 pH units	7.28 pH units	
Phosphorus, total, as P	NA	Lab	0.016 * mg/l	--	0.030 mg/l	--	--	--	< 0.0040 mg/l	--	--	0.0090 mg/l	--	--	--	0.0097 mg/l	--	--	--	--	0.034 mg/l	--	--	--	0.017 mg/l	
Redox (oxidation potential)	NA	Field	--	--	--	--	--	315 mV	211 mV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Solids, total dissolved	NA	Lab	153 mg/l	--	172 mg/l	--	166 mg/l	168 mg/l	166 mg/l	183 mg/l	236 mg/l	189 mg/l	--	173 mg/l	154 mg/l	218 mg/l	--	191 mg/l	92.0 mg/l	158 mg/l	206 mg/l	--	184 mg/l	141 mg/l	138 mg/l	
Solids, total suspended	NA	Lab	4 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Specific Conductance @ 25 °C	NA	Field	--	142.9 umhos/cm	215 umhos/cm	--	211.5 umhos/cm	253.7 umhos/cm	251.5 umhos/cm	233.7 umhos/cm	173.4 umhos/cm	153 umhos/cm	--	281.2 umhos/cm	158.2 umhos/cm	251.2 umhos/cm	--	--	--	175.2 umhos/cm	228.8 umhos/cm	--	297.9 umhos/cm	253.2 umhos/cm	150 umhos/cm	
Sulfate, as SO4	NA	Lab	10.9 mg/l	--	19.6 mg/l	--	12.2 mg/l	11.6 mg/l	18.7 mg/l	22.5 mg/l	29.1 mg/l	25.7 mg/l	--	18.2 mg/l	16.2 mg/l	15.1 mg/l	--	18.0 mg/l	8.6 mg/l	17.2 mg/l	16.3 mg/l	--	30.3 mg/l	11.2 mg/l	10.3 mg/l	
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Temperature, °C	NA	Field	--	9.9 deg C	22.9 deg C	--	20.99 deg C	22.08 deg C	9.05 deg C	1.03 deg C	0.22 deg C	0.32 deg C	--	2.79 deg C	4.54 deg C	7.46 deg C	--	--	--	14.73 deg C	18.74 deg C	--	20.2 deg C	13.03 deg C	4.05 deg C	
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Turbidity	NA	Field	--	2.61 NTU	1.7 NTU	--	3.4 NTU	0 NTU	0 NTU	0.7 NTU	0.5 NTU	0 NTU	--	48.8 NTU	131 NTU	5.7 NTU	--	--	--	0 NTU	8.1 NTU	--	2.6 NTU	0.2 NTU	2.6 NTU	
Metals																										
Aluminum	Dissolved	Lab	--	--	120 ug/l	--	98.2 ug/l	27.1 ug/l	< 20.0 ug/l	< 40.0 ug/l	< 40.0 ug/l	23.7 ug/l	--	< 20.0 ug/l	< 40.0 ug/l	< 20.0 ug/l	--	< 20.0 ug/l	86.2 ug/l	69.1 ug/l	97.3 ug/l	--	25.1 ug/l	20.5 ug/l	61.8 ug/l	
Aluminum	Total	Lab	65.7 ug/l	--	154 ug/l	--	130 ug/l	33.7 ug/l	< 20.0 ug/l	44.5 ug/l	< 40.0 ug/l	24.4 ug/l	--	4600 ug/l	< 40.0 ug/l	22.2 ug/l	--	26.1 ug/l	115 ug/l	102 ug/l	135 ug/l	--	56.2 ug/l	27.4 ug/l	64.1 ug/l	
Antimony	Total	Lab	--	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	--	< 0.50 ug/l	
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.68 ug/l	1.8 ug/l	--	0.93 ug/l	0.92 ug/l	0.69 ug/l	
Arsenic	Total	Lab	--	--	1.8 ug/l	--	1.5 ug/l	1.3 ug/l	< 0.50 ug/l	0.59 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	6.4 ug/l	0.51 ug/l	< 0.82 ug/l	--	1.1 ug/l	0.56 ug/l	0.64 ug/l	2.4 ug/l	--	< 1.0 ug/l	0.94 ug/l	0.99 ug/l	
Barium	Total	Lab	--	--	16.3 ug/l	--	--	--	10.9 ug/l	--	--	10.6 ug/l	--	--	--	11.0 ug/l	--	--	--	--	15.9 ug/l	--	--	--	< 10.0 ug/l	
Beryllium	Total	Lab	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	
Boron	Total	Lab	--	--	136 ug/l	--	--	--	151 ug/l	--	--	128 ug/l	--	--	--	76.3 ug/l	--	--	--	--	150 ug/l	--	--	--	78.9 ug/l	
Cadmium	Total	Lab	< 0.20 ug/l	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	
Calcium	Total	Lab	24100 ug/l	--	19900 ug/l																					

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location -16			PM-16	PM-16	SW004	SW004		SW004	SW004	SW004	SW004	SW004a	SW004a	SW004a		SW004a		SW004a		SW004a
Date /2013			11/25/2013	12/16/2013	5/27/2010	6/17/2010		7/15/2010	8/10/2010	9/22/2010	10/20/2011	5/27/2010	6/17/2010	7/15/2010		8/10/2010		9/22/2010		6/28/2012
Sample Type	FD	N	N	N	N	N	FD	N	N	N	N	N	N	N	FD	N	FD	N	FD	N
Parameter	Total or Dissolved	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	64.6 mg/l	--	--	105 mg/l	--	77.6 mg/l	44.6 mg/l	51.3 mg/l	94.5 mg/l	--	105 mg/l	--	76.1 mg/l	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	64.6 mg/l	--	--	105 mg/l	--	--	44.6 mg/l	51.3 mg/l	94.5 mg/l	--	105 mg/l	--	76.1 mg/l	--	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	--	10.3 mg/l	9.9 mg/l	--	27 mg/l	--	--	15.0 mg/l	--	28.7 mg/l	30.8 mg/l	17.4 mg/l	--	14.0 mg/l	--	22.4 mg/l	--	--
Chemical Oxygen Demand	NA	Lab	--	--	--	32.1 mg/l	--	--	38.8 mg/l	--	--	74.6 mg/l	47.3 mg/l	46.5 mg/l	--	40.2 mg/l	--	60.2 mg/l	--	--
Chloride	NA	Lab	--	5.7 mg/l	6.7 mg/l	--	10.5 mg/l	--	--	24.8 mg/l	--	6.94 mg/l	5.75 mg/l	7.38 mg/l	--	24.2 mg/l	--	18.1 mg/l	--	--
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	12.21 mg/l	12.57 mg/l	6.30 mg/l	5.70 mg/l	--	5.77 mg/l	5.4 mg/l	7.0 mg/l	< 0.1 mg/l	5.30 mg/l	6.40 mg/l	--	6.53 mg/l	--	5.8 mg/l	--	4.49 mg/l
Fluoride	NA	Lab	--	--	--	0.1 mg/l	--	--	0.17 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	0.17 mg/l	--	0.12 mg/l	--	--
Hardness, as CaCO3	NA	Lab	--	105 mg/l	109 mg/l	90.8 mg/l	84.1 mg/l	--	119 mg/l	134 mg/l	117 mg/l	92 mg/l	63.1 mg/l	69.6 mg/l	--	112 mg/l	--	130 mg/l	--	--
Nitrate + Nitrite, as N	NA	Lab	--	--	--	< 0.1 mg/l	--	--	0.16 mg/l	--	--	0.41 mg/l	0.13 mg/l	0.12 mg/l	--	0.14 mg/l	--	< 0.1 mg/l	--	--
Nitrogen, ammonia as N	NA	Lab	--	--	--	0.07 mg/l	--	--	< 0.05 mg/l	--	--	0.06 mg/l	0.19 mg/l	0.08 mg/l	--	< 0.05 mg/l	--	< 0.05 mg/l	--	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	--	7.47 pH units	7.08 pH units	7.30 pH units	7.60 pH units	--	7.21 pH units	7.3 pH units	7.3 pH units	5.6 pH units	6.60 pH units	7.40 pH units	--	6.52 pH units	--	7.2 pH units	--	6.41 pH units
Phosphorus, total, as P	NA	Lab	--	--	--	0.047 mg P/L	--	--	0.018 mg P/L	--	--	0.024 mg P/L	0.03 mg P/L	0.023 mg P/L	--	0.018 mg P/L	--	0.017 mg P/L	--	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	446 mV	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	173 mg/l	256 mg/l	--	162 mg/l	--	--	226 mg/l	--	--	103 mg/l	145 mg/l	--	173 mg/l	--	222 mg/l	--	--
Solids, total suspended	NA	Lab	--	--	--	3.6 mg/l	--	--	3.6 mg/l	--	--	1.6 mg/l	2 mg/l	3.2 mg/l	--	2.4 mg/l	--	2 mg/l	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	--	233 umhos/cm	249.9 umhos/cm	207.0 umhos/cm	184 umhos/cm	--	314.4 umhos/cm	354 umhos/cm	307 umhos/cm	169 umhos/cm	138.0 umhos/cm	143 umhos/cm	--	318.9 umhos/cm	--	371 umhos/cm	--	176.9 umhos/cm
Sulfate, as SO4	NA	Lab	--	20.8 mg/l	15.6 mg/l	14.1 mg/l	13.1 mg/l	--	17.9 mg/l	24 mg/l	27 mg/l	6.61 mg/l	8.48 mg/l	9.4 mg/l	--	15.8 mg/l	--	23.5 mg/l	--	--
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	--	2.17 deg C	0.04 deg C	18.60 deg C	20.30 deg C	--	23.39 deg C	25.6 deg C	12.2 deg C	6 deg C	21.10 deg C	19.70 deg C	--	25.12 deg C	--	25.9 deg C	--	21.92 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	--	0.2 NTU	12.9 NTU	0 NTU	0 NTU	--	0.3 NTU	0.3 NTU	3.1 NTU	2.6 NTU	0 NTU	0 NTU	--	0.1 NTU	--	0 NTU	--	9.7 NTU
Metals																				
Aluminum	Dissolved	Lab	--	27.1 ug/l	35.4 ug/l	55.4 ug/l	53.1 ug/l	--	< 25 ug/l	--	< 25 ug/l	< 25 ug/l	119 ug/l	103 ug/l	--	29.6 ug/l	--	--	--	--
Aluminum	Total	Lab	--	149 ug/l	225 ug/l	67.8 ug/l	97.8 ug/l	--	33.8 ug/l	29.4 ug/l	51.3 ug/l	29 ug/l	128 ug/l	138 ug/l	--	59.5 ug/l	--	30.6 ug/l	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	0.62 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	0.52 ug/l	1.2 ug/l	1.1 ug/l	1.04 ug/l	--	1.2 ug/l	1.24 ug/l	0.88 ug/l	--	1.0 ug/l	1.08 ug/l	--	1.2 ug/l	--	1.15 ug/l	--	--
Barium	Total	Lab	--	--	--	--	11.2 ug/l	--	--	14.6 ug/l	--	--	11.1 ug/l	10.2 ug/l	--	13 ug/l	--	13.4 ug/l	--	--
Beryllium	Total	Lab	--	--	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	< 0.2 ug/l	--	< 0.2 ug/l	--	--
Boron	Total	Lab	--	--	--	--	99.9 ug/l	--	--	211 ug/l	--	--	58.2 ug/l	74.1 ug/l	--	206 ug/l	--	138 ug/l	--	--
Cadmium	Total	Lab	--	--	--	--	0.03 j ug/l	--	--	< 0.02 ug/l	--	--	0.03 j ug/l	< 0.2 ug/l	--	< 0.2 ug/l	--	< 0.02 ug/l	--	--
Calcium	Total	Lab	--	23000 ug/l	24700 ug/l	21000 ug/l	19600 ug/l	--	27200 ug/l	29400 ug/l	25300 ug/l	21300 ug/l	14200 ug/l	15900 ug/l	--	25400 ug/l	--	28500 ug/l	--	--
Chromium	Total	Lab	--	--	--	--	< 1 ug/l	--	--	< 1 ug/l	--	--	< 1 ug/l	< 1 ug/l	--	< 1 ug/l	--	< 1 ug/l	--	--
Cobalt	Dissolved	Lab	--	< 0.20 ug/l	0.21 ug/l	--	0.24 ug/l	--	--	--	--	--	0.38 ug/l	0.26 ug/l	--	0.22 ug/l	--	--	--	--
Cobalt	Total	Lab	--	0.27 ug/l	0.53 ug/l	--	0.2 ug/l	--	--	< 0.2 ug/l	--	--	0.46 ug/l	0.31 ug/l	--	0.28 ug/l	--	< 0.2 ug/l	--	--
Copper	Dissolved	Lab	--	1.1 ug/l	0.69 ug/l	--	1.15 ug/l	--	--	--	--	--	1.81 ug/l	1.47 ug/l	--	0.86 ug/l	--	1.05 ug/l	--	--
Copper	Total	Lab	--	1.8 ug/l	1.3 ug/l	--	1.41 ug/l	--	--	0.74 ug/l	--	--	2.03 ug/l	1.62 ug/l	--	0.91 ug/l	--	0.76 ug/l	--	--
Iron	Dissolved	Lab	--	769 ug/l	1740 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	--	1760 ug/l	3280 ug/l	--	1580 ug/l	--	--	1250 ug/l	--	--	1680 ug/l	1750 ug/l	--	1750 ug/l	--	1190 ug/l	--	--
Lead	Total	Lab	--	< 0.50 ug/l	< 0.50 ug/l	--	0.12 j ug/l	--	--	< 0.03 ug/l	--	--	0.20 j ug/l	0.15 j ug/l	--	0.12 j ug/l	--	< 0.03 ug/l	--	--
Magnesium	Total	Lab	--	11500 ug/l	11500 ug/l	9320 ug/l	8530 ug/l	--	12500 ug/l	14600 ug/l	13100 ug/l	9430 ug/l	6710 ug/l	7270 ug/l	--	11800 ug/l	--	14300 ug/l	--	--
Manganese	Dissolved	Lab	--	70.4 ug/l	217 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	127 ug/l	384 ug/l	--	110 ug/l	--	--	113 ug/l	--	--	219 ug/l	103 ug/l	--	103 ug/l	--	76.3 ug/l	--	--
Mercury	Total	Lab	0.0032 ug/l	--	--	--	0.0068 * ug/l	0.0037 * ug/l	--	0.0028 ug/l	--	--	0.0054 ug/l	0.0047 ug/l	--	0.0027 ug/l	0.0029 ug/l	0.0030 ug/l	0.0026 ug/l	--
Methyl Mercury	Total	Lab	--	--	--	--	0.00060 ug/l	0.00064 ug/l	--	0.00089 ug/l	--	--	0.56 ug/l	0.00059 ug/l	--	0.00076 ug/l	0.00064 ug/l	0.00072 ug/l	0.00030 ug/l	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	1.01 ug/l	--	--	1.73 ug/l	--	--	0.98 ug/l	0.75 ug/l	--	1.32 ug/l	--	1.74 ug/l	--	--
Nickel	Dissolved	Lab	--	< 0.50 ug/l	0.72 ug/l	--	1.38 ug/l	--	--	--	--	--	2.12 ug/l	1.85 ug/l	--	1.53 ug/l	--	--	--	--
Nickel	Total	Lab	--	0.82 ug/l	0.91 ug/l	--	1.48 ug/l	--	--	1.27 ug/l	--	--	2.34 ug/l	2.08 ug/l	--	1.63 ug/l	--	1.31 ug/l	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	--	--	--	2280 ug/l	--	--	4020 ug/l	--	--	1480 ug/l	1680 ug/l	--	3340 ug/l	--	3950 ug/l	--	--
Selenium	Total	Lab	--	< 1.0 ug/l	< 1.0 ug/l	--	0.29 j ug/l	--	--	0.41 j ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	0.2 j ug/l	--	0.39 j ug/l	--	--
Silver	Total	Lab	--	--	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	< 0.2 ug/l	--	< 0.2 ug/l	--	--
Sodium	Total	Lab	--	--	--	--	9670 ug/l	--	--	20200 ug/l	--	--	5870 ug/l	7230 ug/l	--	15600 ug/l	--	19800 ug/l	--	--
Strontium	Total	Lab	--	--	--	--	121 ug/l	--	--	224 ug/l	--	--	83.5 ug/l	93.4 ug/l	--	166 ug/l	--	218 ug/l	--	--
Thallium	Total	Lab	--	< 0.005 ug/l	0.003 j ug/l	< 0.02 ug/l	0.026 ug/l	--	< 0.005 ug/l	0.028 ug/l	< 0.002 ug/l	--	< 0.02 ug/l	0.021 ug/l	--	< 0.005 ug/l	--	0.019 j ug/l	--	--
Tin	Total	Lab	--	--	--	--	< 0.5 ug/l	--	--	< 0.5 ug/l	--	--	< 0.5 ug/l	< 0.5 ug/l	--	< 0.5 ug/l	--	< 0.5 ug/l	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	< 6.0 ug/l	< 6.0 ug/l	--	< 6 ug/l	--	--	--	--	--	7.1 ug/l	< 6 ug/l	--	< 6 ug/l	--	< 6 ug/l	--	--
Zinc	Total	Lab	--	< 6.0 ug/l	< 6.0 ug/l	--	< 6 ug/l	--	--	< 6 ug/l	--	--	< 6 ug/l	< 6 ug/l	--	< 6 ug/l	--	< 6 ug/l	--	--

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location Date Sample Type			SW004a 6/28/2012 N	SW004a 7/31/2012 N	SW004a 8/30/2012 N	SW004a 9/26/2012 N	SW004a 10/31/2012 N	SW004a 11/27/2012 N	SW004a 12/19/2012 N	SW004a 1/28/2013 N	SW004a 2/26/2013 N	SW004a 3/26/2013 N	SW004a 4/24/2013 N	SW004a 5/10/2013 N	SW004a 6/17/2013 N	SW004a 7/23/2013 N	SW004a 8/19/2013 N	SW004a 9/17/2013 N	SW004a 10/29/2013 N
Parameter	Total or Dissolved	Analysis Location																	
General Parameters																			
Alkalinity, bicarbonate, as CaCO3	NA	Lab	49.8 mg/l	--	--	94.2 mg/l	--	--	92.1 mg/l	--	--	114 mg/l	--	--	--	68.2 mg/l	--	--	52.3 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	49.8 mg/l	--	--	94.2 mg/l	--	--	92.1 mg/l	--	--	114 mg/l	--	--	--	68.2 mg/l	--	--	52.3 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	48.3 mg/l	30.4 mg/l	12.4 mg/l	5.8 mg/l	9.8 mg/l	8.7 mg/l	6.3 mg/l	8.4 mg/l	6.2 mg/l	4.3 mg/l	7.6 mg/l	23.0 mg/l	26.3 mg/l	36.2 mg/l	7.9 mg/l	10.5 mg/l	17.2 mg/l
Chemical Oxygen Demand	NA	Lab	131 mg/l	--	--	15.9 mg/l	--	--	18.4 mg/l	--	--	< 10.0 mg/l	--	--	--	127 mg/l	--	--	66.7 mg/l
Chloride	NA	Lab	9.2 mg/l	8.2 mg/l	6.7 mg/l	8.3 mg/l	10.7 mg/l	14.7 mg/l	9.3 mg/l	6.2 mg/l	5.3 mg/l	4.7 mg/l	15.9 mg/l	2.4 mg/l	5.3 mg/l	7.6 mg/l	10.7 mg/l	7.6 mg/l	5.9 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	4.95 mg/l	6.7 mg/l	10.59 mg/l	11.29 mg/l	8.77 mg/l	8.11 mg/l	10.68 mg/l	10.94 mg/l	11.29 mg/l	--	8.7 mg/l	6.23 mg/l	8.7 mg/l	8.62 mg/l	8.76 mg/l	12.56 mg/l
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	80.5 mg/l	100 mg/l	113 mg/l	113 mg/l	104 mg/l	110 mg/l	117 mg/l	127 mg/l	122 mg/l	122 mg/l	104 mg/l	27.5 mg/l	48.2 mg/l	92.3 mg/l	126 mg/l	113 mg/l	62.8 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.22 mg/l	--	--	0.32 mg/l	--	--	0.83 mg/l	--	--	0.25 mg/l	--	--	--	0.10 mg/l	--	--	0.14 mg/l
Nitrogen, ammonia as N	NA	Lab	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	0.12 mg/l	--	--	0.31 mg/l	--	--	--	0.17 mg/l	--	--	0.12 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	--	6.76 pH units	7.21 pH units	7.38 pH units	7.16 pH units	7.8 pH units	7.25 pH units	6.57 pH units	7.74 pH units	7.26 pH units	--	7.05 pH units	7.65 pH units	7.12 pH units	7.69 pH units	8.18 pH units	7.05 pH units
Phosphorus, total, as P	NA	Lab	0.043 mg/l	--	--	< 0.0040 mg/l	--	--	0.010 mg/l	--	--	0.012 mg/l	--	--	--	0.050 mg/l	--	--	0.024 mg/l
Redox (oxidation potential)	NA	Field	--	--	300 mV	170 mV	--	--	--	--	--	--	--	405 mV	--	--	--	--	--
Solids, total dissolved	NA	Lab	190 mg/l	187 mg/l	150 mg/l	156 mg/l	163 mg/l	195 mg/l	185 mg/l	166 mg/l	153 mg/l	215 mg/l	195 mg/l	75.0 mg/l	123 mg/l	211 mg/l	184 mg/l	189 mg/l	135 mg/l
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	--	204.5 umhos/cm	251.8 umhos/cm	251.9 umhos/cm	226.7 umhos/cm	166.9 umhos/cm	148.4 umhos/cm	258.3 umhos/cm	149.4 umhos/cm	282.9 umhos/cm	--	46.8 umhos/cm	102.8 umhos/cm	194.2 umhos/cm	291.8 umhos/cm	245.1 umhos/cm	126.7 umhos/cm
Sulfate, as SO4	NA	Lab	15.3 mg/l	11.6 mg/l	11.6 mg/l	18.7 mg/l	21.5 mg/l	28.3 mg/l	25.3 mg/l	16.5 mg/l	15.1 mg/l	15.0 mg/l	15.6 mg/l	5.4 mg/l	8.9 mg/l	12.6 mg/l	29.3 mg/l	10.9 mg/l	9.0 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	--	21.02 deg C	21.79 deg C	9.66 deg C	1.06 deg C	0.3 deg C	0.35 deg C	2.58 deg C	6.34 deg C	8.99 deg C	--	4.02 deg C	16.02 deg C	18.76 deg C	20.16 deg C	12.44 deg C	3.38 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	--	5 NTU	0 NTU	0 NTU	1.6 NTU	0 NTU	0 NTU	9.5 NTU	131.2 NTU	6.1 NTU	--	0 NTU	2.2 NTU	12.6 NTU	8.1 NTU	3.2 NTU	3.4 NTU
Metals																			
Aluminum	Dissolved	Lab	203 ug/l	102 ug/l	27.3 ug/l	< 20.0 ug/l	< 40.0 ug/l	< 40.0 ug/l	24.5 ug/l	25.7 ug/l	< 40.0 ug/l	< 20.0 ug/l	26.6 ug/l	130 ug/l	117 ug/l	189 ug/l	28.4 ug/l	26.3 ug/l	76.7 ug/l
Aluminum	Total	Lab	406 ug/l	135 ug/l	30.8 ug/l	< 20.0 ug/l	43.9 ug/l	< 40.0 ug/l	37.1 ug/l	43.9 ug/l	< 40.0 ug/l	24.5 ug/l	41.6 ug/l	570 ug/l	155 ug/l	163 ug/l	58.6 ug/l	135 ug/l	180 ug/l
Antimony	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	< 0.50 ug/l
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	0.82 ug/l	2.3 ug/l	0.77 ug/l	0.97 ug/l	0.78 ug/l
Arsenic	Total	Lab	2.6 ug/l	1.9 ug/l	1.2 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.53 ug/l	< 0.50 ug/l	0.84 ug/l	0.52 ug/l	< 0.50 ug/l	1.1 ug/l	< 0.50 ug/l	0.80 ug/l	2.9 ug/l	< 1.0 ug/l	0.90 ug/l	1.1 ug/l
Barium	Total	Lab	18.7 ug/l	--	--	10.7 ug/l	--	--	11.0 ug/l	--	--	11.5 ug/l	--	--	--	17.1 ug/l	--	--	< 10.0 ug/l
Beryllium	Total	Lab	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Boron	Total	Lab	103 ug/l	--	--	127 ug/l	--	--	127 ug/l	--	--	83.8 ug/l	--	--	--	115 ug/l	--	--	68.2 ug/l
Cadmium	Total	Lab	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Calcium	Total	Lab	17800 ug/l	22300 ug/l	26000 ug/l	25300 ug/l	23400 ug/l	23500 ug/l	25700 ug/l	28800 ug/l	28500 ug/l	29200 ug/l	22600 ug/l	5400 ug/l	9800 ug/l	20300 ug/l	28400 ug/l	25200 ug/l	13300 ug/l
Chromium	Total	Lab	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l
Cobalt	Dissolved	Lab	1.8 ug/l	0.62 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.20 ug/l	0.21 ug/l	0.39 ug/l	0.52 ug/l	< 0.20 ug/l	0.26 ug/l	< 0.20 ug/l	0.36 ug/l	1.5 ug/l	0.21 ug/l	0.21 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	2.2 ug/l	0.70 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.20 ug/l	0.22 ug/l	0.94 ug/l	0.56 ug/l	< 0.20 ug/l	0.28 ug/l	< 0.20 ug/l	0.44 ug/l	1.7 ug/l	0.25 ug/l	0.24 ug/l	< 0.20 ug/l
Copper	Dissolved	Lab	1.9 ug/l	1.2 ug/l	0.91 ug/l	0.70 ug/l	0.63 ug/l	0.78 ug/l	0.65 ug/l	0.63 ug/l	0.63 ug/l	0.98 ug/l	0.82 ug/l	1.1 ug/l	0.78 ug/l	1.1 ug/l	0.78 ug/l	1.3 ug/l	1.3 ug/l
Copper	Total	Lab	2.5 ug/l	1.3 ug/l	0.92 ug/l	< 0.50 ug/l	0.76 ug/l	1.1 ug/l	1.1 ug/l	1.9 ug/l	0.74 ug/l	1.2 ug/l	0.89 ug/l	1.9 ug/l	1.9 ug/l	0.83 ug/l	0.82 ug/l	1.2 ug/l	1.2 ug/l
Iron	Dissolved	Lab	3420 ug/l	2800 ug/l	1500 ug/l	526 ug/l	588 ug/l	930 ug/l	754 ug/l	902 ug/l	851 ug/l	593 ug/l	838 ug/l	715 ug/l	848 ug/l	5180 ug/l	927 ug/l	1630 ug/l	1150 ug/l
Iron	Total	Lab	5990 ug/l	3730 ug/l	1710 ug/l	659 ug/l	1150 ug/l	1150 ug/l	1150 ug/l	3710 ug/l	2090 ug/l	1610 ug/l	1250 ug/l	862 ug/l	1260 ug/l	6820 ug/l	1260 ug/l	2240 ug/l	1460 ug/l
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	8700 ug/l	10900 ug/l	11700 ug/l	12200 ug/l	11000 ug/l	12500 ug/l	12800 ug/l	13300 ug/l	12300 ug/l	11900 ug/l	11600 ug/l	3400 ug/l	5800 ug/l	10100 ug/l	13500 ug/l	12200 ug/l	7200 ug/l
Manganese	Dissolved	Lab	525 ug/l	213 ug/l	104 ug/l	57.8 ug/l	37.1 ug/l	117 ug/l	147 ug/l	274 ug/l	283 ug/l	131 ug/l	151 ug/l	26.6 ug/l	80.5 ug/l	409 ug/l	90.5 ug/l	142 ug/l	47.3 ug/l
Manganese	Total	Lab	687 ug/l	245 ug/l	106 ug/l	57.1 ug/l	41.2 ug/l	117 ug/l	153 ug/l	428 ug/l	293 ug/l	135 ug/l	153 ug/l	30.5 ug/l	92.3 ug/l	445 ug/l	101 ug/l	157 ug/l	48.6 ug/l
Mercury	Total	Lab	0.0125 ug/l	--	--	0.00079 ug/l	--	--	0.00091 ug/l	--	--	0.0010 ug/l	--	--	--	0.0078 ug/l	--	--	0.0037 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	1.3 ug/l	--	--	1.6 ug/l	--	--	1.2 ug/l	--	--	1.1 ug/l	--	--	--	1.4 ug/l	--	--	0.59 ug/l
Nickel	Dissolved	Lab	3.4 ug/l	1.8 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.58 ug/l	< 0.50 ug/l	0.73 ug/l	< 0.50 ug/l	1.3 ug/l	1.5 ug/l	2.6 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	1.1 ug/l
Nickel	Total	Lab	3.8 ug/l	1.9 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.62 ug/l	1.4 ug/l	0.61 ug/l	0.78 ug/l	1.0 ug/l	1.2 ug/l	1.7 ug/l	2.8 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.87 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	1800 ug/l	--	--	3300 ug/l	--	--	2700 ug/l	--	--	3200 ug/l	--	--	--	1800 ug/l	--	--	1800 ug/l
Selenium	Total	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Silver	Total	Lab	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Sodium	Total	Lab	9100 ug/l	--	--	8700 ug/l	--	--	8700 ug/l	--	--	5600 ug/l	--	--	--	9400 ug/l	--	--	5900 ug/l
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	0.006 j ug/l	< 0.0004 ug/l	0.009 j ug/l	< 0.002 ug/l	< 0.0004 ug/l	0.0029 j ug/l	< 0.0004 ug/l	< 0.005 ug/l	< 0.002 ug/l	0.008 j ug/l	0.002 j ug/l	0.0054 j ug/l	--	0.005 j ug/l	< 0.005 ug/l	0.018 j ug/l	0.042 ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	< 3.0 ug/l	--	--	< 3.0 ug/l	--	--	< 3.0 ug/l	--	--	< 3.0 ug/l	--	--	--	< 3.0 ug/l	--	--	< 3.0 ug/l
Zinc	Dissolved	Lab	8.8 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	16.3 ug/l	< 6.0 ug/l	7.1 ug/l	7.2 ug/l	6.3 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l
Zinc	Total	Lab	7.5 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	10.8 ug/l	8.3 ug/l	< 6.0 ug/l	19.7 ug/l	< 6.0 ug/l	< 6.0 ug/l	<				

Large Table 10 Surface Water Quality Data in the Partridge River Watershed PolyMet Mining Company																					
Location			SW004a	SW004a	SW004b		SW004b		SW004b		SW004b	SW004b		SW004b		SW004b	SW004b	SW004b	SW004b	SW004b	
Date			11/25/2013	12/16/2013	5/27/2010		6/17/2010		7/15/2010		8/10/2010	9/22/2010		6/28/2012		7/31/2012	8/29/2012	9/26/2012	10/31/2012	11/29/2012	12/20/2012
Sample Type			N	N	N	FD	N	FD	N	FD	N	N	FD	N	FD	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	27.7 mg/l	--	29.9 mg/l	--	68.5 mg/l	--	79.8 mg/l	63.3 mg/l	--	29.8 mg/l	--	--	--	91.1 mg/l	--	--	74.0 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	27.7 mg/l	--	29.9 mg/l	--	68.5 mg/l	--	79.8 mg/l	63.3 mg/l	--	29.8 mg/l	--	--	--	91.1 mg/l	--	--	74.0 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	11.4 mg/l	16.4 mg/l	28.7 mg/l	--	38.6 mg/l	--	31.5 mg/l	--	24.2 mg/l	27.3 mg/l	--	66.2 mg/l	--	39.1 mg/l	19.1 mg/l	7.5 mg/l	13.9 mg/l	13.1 mg/l	11.9 mg/l
Chemical Oxygen Demand	NA	Lab	--	--	72.8 mg/l	--	67.1 mg/l	--	85.7 mg/l	--	71.4 mg/l	72.2 mg/l	--	172 mg/l	--	--	--	20.7 mg/l	--	--	34.2 mg/l
Chloride	NA	Lab	5.8 mg/l	4.5 mg/l	1.73 mg/l	--	2.01 mg/l	--	12.1 mg/l	--	17.4 mg/l	12.1 mg/l	--	2.6 mg/l	--	4.1 mg/l	5.8 mg/l	6.6 mg/l	7.3 mg/l	7.9 mg/l	5.8 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	12.91 mg/l	--	5.43 mg/l	--	6.75 mg/l	--	6.28 mg/l	--	5.60 mg/l	7.25 mg/l	--	5.04 mg/l	--	5.85 mg/l	6.75 mg/l	9.74 mg/l	11.48 mg/l	11.25 mg/l	9.57 mg/l
Fluoride	NA	Lab	--	--	< 0.1 mg/l	--	< 0.1 mg/l	--	0.12 mg/l	--	0.15 mg/l	0.11 mg/l	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	107 mg/l	81.2 mg/l	39 mg/l	--	46.4 mg/l	--	90.5 mg/l	--	103 mg/l	83.1 mg/l	--	51.2 mg/l	--	73.4 mg/l	98.3 mg/l	112 mg/l	88.2 mg/l	82.1 mg/l	89.6 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	< 0.1 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	0.48 mg/l
Nitrogen, ammonia as N	NA	Lab	--	--	0.07 mg/l	--	< 0.1 mg/l	--	0.09 mg/l	--	< 0.05 mg/l	0.1 mg/l	--	0.13 mg/l	--	--	--	< 0.10 mg/l	--	--	0.10 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	7.3 pH units	--	6.59 pH units	--	6.87 pH units	--	6.70 pH units	--	7.37 pH units	7.23 pH units	--	6.82 pH units	--	6.83 pH units	7.83 pH units	7.78 pH units	7.29 pH units	7.54 pH units	6.67 pH units
Phosphorus, total, as P	NA	Lab	--	--	0.024 mg P/L	--	0.028 mg P/L	--	0.031 mg P/L	--	0.022 mg P/L	0.016 mg P/L	--	0.047 mg/l	--	--	--	< 0.0040 mg/l	--	--	0.019 mg/l
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	192 mg/l	220 mg/l	88 mg/l	--	135 mg/l	--	147 mg/l	--	190 mg/l	155 mg/l	--	185 mg/l	--	166 mg/l	154 mg/l	148 mg/l	155 mg/l	159 mg/l	205 mg/l
Solids, total suspended	NA	Lab	--	--	3 mg/l	--	3.6 mg/l	--	3.2 mg/l	--	1.2 mg/l	1.2 mg/l	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	225.3 umhos/cm	--	77.0 umhos/cm	--	84 umhos/cm	--	100 umhos/cm	--	263 umhos/cm	204 umhos/cm	--	46.1 umhos/cm	--	93.3 umhos/cm	171.5 umhos/cm	125.5 umhos/cm	188.1 umhos/cm	82.7 umhos/cm	74.3 umhos/cm
Sulfate, as SO4	NA	Lab	20.6 mg/l	10 mg/l	4.9 mg/l	--	4.66 mg/l	--	10.6 mg/l	--	14.8 mg/l	14.4 mg/l	--	5.1 mg/l	--	6.1 mg/l	10.9 mg/l	15.8 mg/l	16.5 mg/l	19.6 mg/l	18.5 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	1.88 deg C	--	20.47 deg C	--	17.35 deg C	--	25.01 deg C	--	24.2 deg C	12.53 deg C	--	21.02 deg C	--	22.16 deg C	20.81 deg C	9.24 deg C	1.93 deg C	0.92 deg C	2.58 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	2.8 NTU	--	2.6 NTU	--	1.0 NTU	--	1.0 NTU	--	1.0 NTU	0.1 NTU	--	4.1 NTU	--	45.1 NTU	11 NTU	0 NTU	3 NTU	0.1 NTU	0 NTU
Metals																					
Aluminum	Dissolved	Lab	29.4 ug/l	97.3 ug/l	116 ug/l	--	155 ug/l	--	59.9 ug/l	--	--	51.1 ug/l	--	328 ug/l	--	161 ug/l	48.0 ug/l	24.2 ug/l	< 40.0 ug/l	44.6 ug/l	45.3 ug/l
Aluminum	Total	Lab	40.3 ug/l	112 ug/l	165 ug/l	--	249 ug/l	--	119 ug/l	--	64.8 ug/l	75.9 ug/l	--	442 ug/l	--	228 ug/l	95.6 ug/l	40.6 ug/l	66.3 ug/l	83.3 ug/l	75.2 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Dissolved	Lab	0.50 ug/l	0.54 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	< 0.50 ug/l	0.87 ug/l	0.84 ug/l	--	1.17 ug/l	1.14 ug/l	1.6 ug/l	1.7 ug/l	1.19 ug/l	0.95 ug/l	0.96 ug/l	2.3 ug/l	--	1.9 ug/l	1.3 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.51 ug/l
Barium	Total	Lab	--	--	7.37 ug/l	--	8.48 ug/l	--	11.1 ug/l	--	12.6 ug/l	9.31 ug/l	--	14.6 ug/l	--	--	--	< 10.0 ug/l	--	--	< 10.0 ug/l
Beryllium	Total	Lab	--	--	< 0.2 ug/l	--	< 0.2 ug/l	--	< 0.2 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Boron	Total	Lab	--	--	< 50 ug/l	--	< 50 ug/l	--	97.2 ug/l	--	160 ug/l	100 ug/l	--	< 50.0 ug/l	--	--	--	144 ug/l	--	--	79.4 ug/l
Cadmium	Total	Lab	--	--	0.03 j ug/l	--	< 0.02 ug/l	--	< 0.2 ug/l	--	< 0.02 ug/l	< 0.02 ug/l	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Calcium	Total	Lab	23300 ug/l	17500 ug/l	8160 ug/l	--	9960 ug/l	--	19600 ug/l	--	22700 ug/l	17500 ug/l	--	10600 ug/l	--	15300 ug/l	21400 ug/l	24800 ug/l	18900 ug/l	16500 ug/l	18700 ug/l
Chromium	Total	Lab	--	--	< 1 ug/l	--	< 1 ug/l	--	< 1 ug/l	--	< 1 ug/l	< 1 ug/l	--	< 1.0 ug/l	--	--	--	--			

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	LN-1	
Date			7/25/2011	8/22/2011	9/19/2011	10/19/2011	11/21/2011	6/27/2012	7/26/2012	8/23/2012	9/25/2012	10/30/2012	11/26/2012	12/18/2012	5/9/2013	6/17/2013	7/22/2013	8/19/2013	9/10/2013	10/28/2013
Sample Type			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	79.6 mg/l	57.2 mg/l	46.4 mg/l	34.9 mg/l	41.2 mg/l	34.5 mg/l	--	--	56.1 mg/l	--	--	37.5 mg/l	--	--	61.0 mg/l	--	--	22.2 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	79.6 mg/l	57.2 mg/l	46.4 mg/l	34.9 mg/l	41.2 mg/l	34.5 mg/l	--	--	56.1 mg/l	--	--	37.5 mg/l	--	--	61.0 mg/l	--	--	22.2 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	50.1 mg/l	35.6 mg/l	26.1 mg/l	20.2 mg/l	18.9 mg/l	38.8 mg/l	35.9 mg/l	34.7 mg/l	23.6 mg/l	16.8 mg/l	13.4 mg/l	12.5 mg/l	15.5 mg/l	19.5 mg/l	40.8 mg/l	22.2 mg/l	25.7 mg/l	12.1 mg/l
Chemical Oxygen Demand	NA	Lab	131 mg/l	112 mg/l	71.4 mg/l	70.6 mg/l	50.5 mg/l	95.0 mg/l	--	--	64.2 mg/l	--	--	39.9 mg/l	--	--	127 mg/l	--	--	49.2 mg/l
Chloride	NA	Lab	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	0.73 mg/l	0.92 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.50 mg/l	0.64 mg/l	1.0 mg/l	0.88 mg/l	1.1 mg/l	0.56 b mg/l	< 0.50 mg/l	< 0.50 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	0.17 mg/l	0.41 mg/l	2.18 mg/l	9.43 mg/l	1.69 mg/l	4.41 mg/l	2.68 mg/l	4.47 mg/l	5.08 mg/l	10.64 mg/l	6.22 mg/l	3.62 mg/l	8.8 mg/l	5.97 mg/l	2.15 mg/l	4.32 mg/l	5.46 mg/l	9.96 mg/l
Fluoride	NA	Lab	< 0.1 mg/l	--	< 0.1 mg/l	--	< 0.1 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	84.2 mg/l	65.4 mg/l	50.9 mg/l	38.8 mg/l	41.8 mg/l	45.2 mg/l	74.6 mg/l	72.2 mg/l	62.3 mg/l	37.3 mg/l	31.4 mg/l	39.0 mg/l	18.1 mg/l	28.8 mg/l	79.4 mg/l	78.5 mg/l	62.9 mg/l	24.3 mg/l
Nitrate + Nitrite, as N	NA	Lab	0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	0.11 mg/l	--	--	< 0.10 mg/l	--	--	< 0.10 mg/l
Nitrogen, ammonia as N	NA	Lab	0.64 mg/l	0.32 mg/l	0.29 mg/l	< 0.1 mg/l	0.25 mg/l	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	0.18 mg/l	--	--	0.41 mg/l	--	--	0.15 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	6.82 pH units	6.55 pH units	6.57 pH units	7.39 pH units	6.08 pH units	7.19 pH units	6.89 pH units	7.34 pH units	7.45 pH units	6.87 pH units	7.68 pH units	6.65 pH units	6.24 pH units	6.23 pH units	6.5 pH units	7.03 pH units	6.37 pH units	6.93 pH units
Phosphorus, total, as P	NA	Lab	0.092 mg P/L	0.075 mg P/L	0.04 mg P/L	0.023 mg P/L	0.032 mg P/L	0.029 mg/l	--	--	0.023 mg/l	--	--	0.018 mg/l	--	--	0.064 mg/l	--	--	0.015 mg/l
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	192 mg/l	172 mg/l	109 mg/l	113 mg/l	109 mg/l	105 mg/l	171 mg/l	177 mg/l	109 mg/l	92.0 mg/l	108 mg/l	98.0 mg/l	60.0 mg/l	83.0 mg/l	189 mg/l	151 mg/l	158 mg/l	95.0 mg/l
Solids, total suspended	NA	Lab	38 mg/l	--	6 mg/l	--	3.2 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	189.0 umhos/cm	107 umhos/cm	85.0 umhos/cm	82 umhos/cm	80.0 umhos/cm	30.5 umhos/cm	0 umhos/cm	87.6 umhos/cm	0 umhos/cm	66.1 umhos/cm	0 umhos/cm	0 umhos/cm	38.7 umhos/cm	47.5 umhos/cm	123 umhos/cm	121.4 umhos/cm	138 umhos/cm	36.6 umhos/cm
Sulfate, as SO4	NA	Lab	< 1 mg/l	< 1 mg/l	< 1 mg/l	< 1 mg/l	1.1 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	1.5 mg/l	1.6 mg/l	1.8 mg/l	2.2 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 2.0 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	20.10 deg C	19.54 deg C	12.63 deg C	5.98 deg C	2.19 deg C	21.96 deg C	19.08 deg C	16.91 deg C	6.25 deg C	4.48 deg C	0.56 deg C	0.61 deg C	4.64 deg C	13.07 deg C	16.64 deg C	19.12 deg C	19.93 deg C	2.79 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	6.00 NTU	4.8 NTU	10.30 NTU	17.1 NTU	5.50 NTU	2.9 NTU	15.7 NTU	35.7 NTU	17.3 NTU	2.5 NTU	0.3 NTU	0 NTU	0.5 NTU	0 NTU	10.3 NTU	11.6 NTU	6.5 NTU	8.2 NTU
Metals																				
Aluminum	Dissolved	Lab	43.6 ug/l	29.4 b ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	103 ug/l	86.3 ug/l	51.1 ug/l	27.2 ug/l	< 40.0 ug/l	< 40.0 ug/l	33.2 ug/l	37.1 ug/l	61.9 ug/l	136 ug/l	26.2 ug/l	44.2 ug/l	24.1 ug/l
Aluminum	Total	Lab	87.2 ug/l	54.1 ug/l	36 ug/l	28.5 ug/l	33.8 ug/l	121 ug/l	107 ug/l	125 ug/l	72.2 ug/l	< 40.0 ug/l	< 40.0 ug/l	36.8 ug/l	42.4 ug/l	94.6 ug/l	179 ug/l	31.7 ug/l	49.0 ug/l	27.8 ug/l
Antimony	Total	Lab	< 0.5 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	< 0.50 ug/l
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	0.72 ug/l	2.5 ug/l	1.2 ug/l	1.1 ug/l	< 0.50 ug/l
Arsenic	Total	Lab	3.57 ug/l	3.7 ug/l	2.16 ug/l	0.93 ug/l	0.69 ug/l	1.5 ug/l	2.3 ug/l	1.9 ug/l	0.94 ug/l	0.56 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	3.0 ug/l	1.3 ug/l	1.3 ug/l	0.56 ug/l
Barium	Total	Lab	30.6 ug/l	--	10.6 ug/l	--	6.83 ug/l	< 10.0 ug/l	--	--	< 10.0 ug/l	--	--	< 10.0 ug/l	--	--	19.6 ug/l	--	--	< 10.0 ug/l
Beryllium	Total	Lab	< 0.2 ug/l	--	< 0.2 ug/l	--	< 0.2 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Boron	Total	Lab	< 50 ug/l	--	< 50 ug/l	--	< 50 ug/l	< 50.0 ug/l	--	--	< 50.0 ug/l	--	--	< 50.0 ug/l	--	--	< 50.0 ug/l	--	--	< 50.0 ug/l
Cadmium	Total	Lab	0.04 j ug/l	--	< 0.03 ug/l	--	< 0.03 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Calcium	Total	Lab	19700 ug/l	16100 ug/l	11800 ug/l	8910 ug/l	9590 ug/l	10300 ug/l	17800 ug/l	17000 ug/l	14400 ug/l	8600 ug/l	7100 ug/l	8900 ug/l	4000 ug/l	6500 ug/l	18600 ug/l	19200 ug/l	14800 ug/l	5600 ug/l
Chromium	Total	Lab	< 1 ug/l	--	< 1 ug/l	--	< 1 ug/l	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	1.6 ug/l	--	--	< 1.0 ug/l
Cobalt	Dissolved	Lab	3.07 ug/l	0.95 ug/l	0.62 ug/l	< 0.2 ug/l	0.31 ug/l	0.38 ug/l	1.1 ug/l	0.84 ug/l	0.22 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.40 ug/l	< 0.20 ug/l	< 0.20 ug/l	1.9 ug/l	0.30 ug/l	0.30 ug/l	< 0.20 ug/l
Cobalt	Total	Lab	3.67 ug/l	1.1 ug/l	0.59 ug/l	< 0.2 ug/l	0.32 ug/l	0.38 ug/l	1.2 ug/l	1.1 ug/l	0.30 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.44 ug/l	< 0.20 ug/l	< 0.20 ug/l	1.9 ug/l	0.29 ug/l	0.27 ug/l	< 0.20 ug/l
Copper	Dissolved	Lab	0.34 j ug/l	0.56 b ug/l	0.26 j ug/l	0.29 jb ug/l	0.23 b ug/l	0.66 b ug/l	< 0.50 ug/l	0.68 ug/l	1.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.62 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Copper	Total	Lab	0.91 ug/l	0.38 b ug/l	0.46 j ug/l	0.45 jb ug/l	0.29 b ug/l	0.65 b ug/l	< 0.50 ug/l	0.89 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.59 b ug/l	0.50 ug/l	0.65 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Iron	Dissolved	Lab	9180 ug/l	5150 ug/l	3770 ug/l	1400 ug/l	1880 ug/l	1480 ug/l	4030 ug/l	3430 ug/l	2060 ug/l	1020 ug/l	1010 ug/l	1490 ug/l	593 ug/l	516 ug/l	7030 ug/l	2550 ug/l	2090 ug/l	587 ug/l
Iron	Total	Lab	15700 ug/l	11300 ug/l	6250 ug/l	2360 ug/l	3270 ug/l	2370 ug/l	6280 ug/l	6080 ug/l	3700 ug/l	1530 ug/l	1430 ug/l	2390 ug/l	796 ug/l	931 ug/l	9540 ug/l	3250 ug/l	3250 ug/l	1130 ug/l
Lead	Total	Lab	0.33 j ug/l	--	0.19 j ug/l	--	0.09 j ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	8510 ug/l	6110 ug/l	5200 ug/l	4010 ug/l	4350 ug/l	4800 ug/l	7300 ug/l	7200 ug/l	6400 ug/l	3800 ug/l	3300 ug/l	4100 ug/l	2000 ug/l	3000 ug/l	8000 ug/l	7400 ug/l	6300 ug/l	2500 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	193 ug/l	1260 ug/l	1230 ug/l	174 ug/l	88.7 ug/l	134 ug/l	696 ug/l	64.3 ug/l	48.4 ug/l	2090 ug/l	437 ug/l	242 ug/l	57.9 ug/l
Manganese	Total	Lab	4920 ug/l	1110 ug/l	612 ug/l	57.6 ug/l	389 ug/l	199 ug/l	1320 ug/l	1550 ug/l	223 ug/l	92.0 ug/l	152 ug/l	711 ug/l	68.7 ug/l	68.7 ug/l	2120 ug/l	463 ug/l	230 ug/l	72.9 ug/l
Mercury	Total	Lab	0.0048 ug/l	0.0027 ug/l	0.0017 ug/l	0.0022 ug/l	0.0015 ug/l	0.0062 ug/l	--	--	0.0012 ug/l	--	--	0.0016 ug/l	--	--	0.0092 ug/l	--	--	0.0021 ug/l
Methyl Mercury	Total	Lab	0.00023 ug/l	--	< 0.0001 ug/l	--	< 0.0001 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	0.6 ug/l	0.31 j ug/l	0.21 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	0.42 ug/l	--	--	< 0.30 ug/l
Nickel	Dissolved	Lab	1.48 ug/l	0.91 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	0.87 ug/l	0.96 ug/l	0.82 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.62 ug/l	< 0.50 ug/l	1.3 ug/l	< 0.50 ug/l	0.64 ug/l	< 0.50 ug/l
Nickel	Total	Lab	2.09 ug/l	1.2 ug/l	< 0.6 ug/l	< 0.6 ug/l	< 0.6 ug/l	0.96 ug/l	0.95 ug/l	1.0 ug/l	0.55 ug/l	< 0.50 ug/l	0.53 ug/l	< 0.50 ug/l	0.64 b ug/l	< 0.50 ug/l	1.4 ug/l	< 0.50 ug/l	0.53 ug/l	< 0.50 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	870 ug/l	376 ug/l	340 ug/l	640 ug/l	540 ug/l	480 ug/l	--	--	480 ug/l	--	--	490 ug/l	--	--	840 ug/l	--	--	570 ug/l
Selenium	Total	Lab	0.27 j ug/l	--	< 0.2 ug/l	--	< 0.2 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Silver	Total	Lab	< 0.2 ug/l	--	< 0.2 ug/l	--	< 0.2 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Sodium	Total	Lab	2180 ug/l	1710 ug/l	< 2000 ug/l	< 2000 ug/l	2010 ug/l	1600 ug/l	--	--	21									

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location Date Sample Type			LN-1 11/21/2013 N	LN-1 12/17/2013 N	WL-1 3/24/2011 N FD		WL-1 4/25/2011 N	WL-1 5/31/2011 N	WL-1 6/30/2011 N	WL-1 8/22/2011 N	WL-1 9/19/2011 N	WL-1 10/19/2011 N	WL-1 11/21/2011 N	WL-1 6/27/2012 N	WL-1 7/26/2012 N	WL-1 8/23/2012 N	WL-1 9/25/2012 N	WL-1 10/30/2012 N	WL-1 11/26/2012 N	WL-1 12/18/2012 N
Parameter	Total or Dissolved	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	26.3 mg/l	28.6 mg/l	16.6 mg/l	29.5 mg/l	38.5 mg/l	65.6 mg/l	50.4 mg/l	35.5 mg/l	35 mg/l	39.0 mg/l	--	--	56.3 mg/l	--	--	31.6 mg/l
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	< 10 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	26.3 mg/l	28.6 mg/l	--	29.5 mg/l	38.5 mg/l	65.6 mg/l	50.4 mg/l	35.5 mg/l	35 mg/l	39.0 mg/l	--	--	56.3 mg/l	--	--	31.6 mg/l
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	< 3 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	19.3 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	13.1 mg/l	13.1 mg/l	21.6 mg/l	21.6 mg/l	20.2 mg/l	29.6 mg/l	39.5 mg/l	36.5 mg/l	23.0 mg/l	25.2 mg/l	26.2 mg/l	46.1 mg/l	35.2 mg/l	34.3 mg/l	27.0 mg/l	20.0 mg/l	16.5 mg/l	15.3 mg/l
Chemical Oxygen Demand	NA	Lab	--	--	75.9 mg/l	75.1 mg/l	56.4 mg/l	84.4 mg/l	126 mg/l	110 mg/l	68 mg/l	74.3 mg/l	69.2 mg/l	124 mg/l	--	--	84.2 mg/l	--	--	48.8 mg/l
Chloride	NA	Lab	< 1.0 mg/l	1.5 mg/l	9.9 mg/l	6.81 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	< 0.5 mg/l	0.66 mg/l	0.83 mg/l	< 0.5 mg/l	< 0.50 mg/l	< 0.50 mg/l	< 0.50 mg/l	0.64 mg/l	0.90 mg/l	1.4 mg/l	1.2 mg/l
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	--	8.95 mg/l	--	--	6.23 mg/l	1.30 mg/l	1.22 mg/l	1.77 mg/l	5.67 mg/l	11.81 mg/l	9.12 mg/l	4.59 mg/l	6.04 mg/l	5.98 mg/l	9.79 mg/l	8.74 mg/l	7.67 mg/l	7.3 mg/l
Fluoride	NA	Lab	--	--	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	--	--	< 0.1 mg/l	--	< 0.1 mg/l	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	22.7 mg/l	44.1 mg/l	45.3 mg/l	44.2 mg/l	--	42.1 mg/l	53.7 mg/l	74.1 mg/l	56.5 mg/l	43.6 mg/l	38.2 mg/l	51.0 mg/l	64.6 mg/l	62.2 mg/l	58.4 mg/l	37.6 mg/l	41.8 mg/l	50.8 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	0.18 mg/l	0.17 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	0.11 mg/l
Nitrogen, ammonia as N	NA	Lab	--	--	0.4 mg/l	0.4 mg/l	--	< 0.1 mg/l	0.11 mg/l	0.55 mg/l	0.64 mg/l	0.21 mg/l	0.22 mg/l	0.15 mg/l	--	--	0.62 mg/l	--	--	0.15 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	7.21 pH units	7.07 pH units	--	--	6.28 pH units	6.45 pH units	6.27 pH units	6.54 pH units	6.41 pH units	7.32 pH units	6.09 pH units	7.05 pH units	6.82 pH units	6.95 pH units	7.23 pH units	6.71 pH units	7.76 pH units	6.79 pH units
Phosphorus, total, as P	NA	Lab	--	--	< 0.1 mg P/L	< 0.1 mg P/L	--	0.024 mg P/L	0.039 mg P/L	0.056 mg P/L	0.047 mg P/L	0.036 mg P/L	0.039 mg P/L	0.042 mg/l	--	--	0.066 mg/l	--	--	0.025 mg/l
Redox (oxidation potential)	NA	Field	--	--	--	--	469 mV	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	80.0 mg/l	129 mg/l	98 mg/l	103 mg/l	83 mg/l	106 mg/l	149 mg/l	177 mg/l	120 mg/l	100 mg/l	108 mg/l	134 mg/l	156 mg/l	169 mg/l	119 mg/l	105 mg/l	142 mg/l	133 mg/l
Solids, total suspended	NA	Lab	--	--	7 mg/l	7 mg/l	--	< 1 mg/l	--	--	14 mg/l	--	4.5 mg/l	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	44.5 umhos/cm	90.7 umhos/cm	--	--	35.4 umhos/cm	57.0 umhos/cm	69.8 umhos/cm	159 umhos/cm	103.0 umhos/cm	105 umhos/cm	95.0 umhos/cm	52.1 umhos/cm	7.4 umhos/cm	108.3 umhos/cm	1.8 umhos/cm	71.7 umhos/cm	50.2 umhos/cm	54.2 umhos/cm
Sulfate, as SO4	NA	Lab	< 2.0 mg/l	< 2.0 mg/l	4.88 mg/l	4.93 mg/l	5.36 mg/l	1.5 mg/l	< 1 mg/l	1.07 mg/l	3.99 mg/l	5.34 mg/l	2.54 mg/l	1.2 mg/l	1.2 mg/l	1.4 mg/l	2.5 mg/l	5.8 mg/l	15.5 mg/l	17.0 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	5.23 deg C	2.39 deg C	--	--	5.85 deg C	12.48 deg C	17.27 deg C	16.40 deg C	11.08 deg C	5.82 deg C	0.58 deg C	22.71 deg C	20.98 deg C	18.74 deg C	9.86 deg C	3.47 deg C	0.86 deg C	1.24 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	2.8 NTU	15.1 NTU	--	--	0 NTU	0 NTU	0.50 NTU	9.1 NTU	60.20 NTU	12.3 NTU	9.90 NTU	1.8 NTU	13.4 NTU	13.1 NTU	104 NTU	7.1 NTU	0.6 NTU	0 NTU
Metals																				
Aluminum	Dissolved	Lab	24.0 ug/l	24.5 ug/l	84.1 ug/l	64.4 ug/l	--	104 ug/l	140 ug/l	87.3 ug/l	33 ug/l	64.8 ug/l	52.1 ug/l	193 ug/l	96.8 ug/l	95.6 ug/l	57.8 ug/l	47.0 ug/l	55.5 ug/l	58.0 ug/l
Aluminum	Total	Lab	27.0 ug/l	96.6 ug/l	136 ug/l	118 ug/l	--	124 ug/l	144 ug/l	90.9 ug/l	66.6 ug/l	87.2 ug/l	92 ug/l	223 ug/l	108 ug/l	131 ug/l	113 ug/l	108 ug/l	72.1 ug/l	76.7 ug/l
Antimony	Total	Lab	--	--	--	--	--	< 0.5 ug/l	< 0.5 ug/l	0.081 j ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Dissolved	Lab	0.58 ug/l	< 0.50 ug/l	--	--	< 0.5 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	0.54 ug/l	0.73 ug/l	0.62 ug/l	0.61 ug/l	< 0.5 ug/l	0.89 ug/l	1.55 ug/l	2.0 ug/l	1.35 ug/l	1 ug/l	0.83 ug/l	1.7 ug/l	2.0 ug/l	2.4 ug/l	1.7 ug/l	0.96 ug/l	< 0.50 ug/l	0.59 ug/l
Barium	Total	Lab	--	--	9.72 ug/l	11.6 ug/l	--	7.49 ug/l	--	--	15.7 ug/l	--	8.45 ug/l	14.1 ug/l	--	--	16.4 ug/l	--	--	< 10.0 ug/l
Beryllium	Total	Lab	--	--	< 0.2 ug/l	< 0.2 ug/l	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	< 0.2 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Boron	Total	Lab	--	--	< 50 ug/l	< 50 ug/l	--	< 50 ug/l	--	--	< 50 ug/l	--	< 50 ug/l	< 50.0 ug/l	--	--	< 50.0 ug/l	--	--	< 50.0 ug/l
Cadmium	Total	Lab	--	--	< 0.2 ug/l	< 0.2 ug/l	--	< 0.03 ug/l	--	--	< 0.03 ug/l	--	< 0.03 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Calcium	Total	Lab	5000 ug/l	10100 ug/l	9060 ug/l	8830 ug/l	5680 ug/l	9330 ug/l	12200 ug/l	16700 ug/l	11700 ug/l	9160 ug/l	7840 ug/l	11700 ug/l	14200 ug/l	13300 ug/l	12300 ug/l	8000 ug/l	8600 ug/l	10300 ug/l
Chromium	Total	Lab	--	--	< 1 ug/l	< 1 ug/l	--	< 1 ug/l	--	--	< 1 ug/l	--	< 1 ug/l	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l
Cobalt	Dissolved	Lab	< 0.20 ug/l	0.64 ug/l	1.63 ug/l	1.58 ug/l	--	1.29 ug/l	3.39 ug/l	8.24 ug/l	4.84 ug/l	2.76 ug/l	2.31 ug/l	7.1 ug/l	6.9 ug/l	7.1 ug/l	5.2 ug/l	1.1 ug/l	0.60 ug/l	1.8 ug/l
Cobalt	Total	Lab	< 0.20 ug/l	0.77 ug/l	2.09 ug/l	2.02 ug/l	--	1.43 ug/l	3.23 ug/l	8.3 ug/l	4.93 ug/l	3.08 ug/l	2.86 ug/l	7.5 ug/l	7.5 ug/l	7.6 ug/l	6.0 ug/l	1.2 ug/l	0.67 ug/l	1.8 ug/l
Copper	Dissolved	Lab	< 0.50 ug/l	0.53 ug/l	16.3 ug/l	14.7 ug/l	--	3.18 ug/l	3.45 ug/l	1.25 b ug/l	1.44 ug/l	2.12 b ug/l	1.54 b ug/l	6.2 ug/l	1.5 ug/l	1.3 ug/l	1.2 ug/l	2.0 ug/l	2.3 ug/l	1.8 ug/l
Copper	Total	Lab	< 0.50 ug/l	0.54 ug/l	6.53 ug/l	6.29 ug/l	--	3.73 ug/l	3.91 ug/l	1.8 ug/l	3.28 ug/l	3.01 b ug/l	7.3 ug/l	2.8 ug/l	2.3 ug/l	2.1 ug/l	2.6 ug/l	2.2 ug/l	2.6 ug/l	2.2 ug/l
Iron	Dissolved	Lab	643 ug/l	1620 ug/l	1720 ug/l	1600 ug/l	395 ug/l	1360 ug/l	2780 ug/l	14400 ug/l	2970 ug/l	2840 ug/l	1740 ug/l	4260 ug/l	8320 ug/l	13700 ug/l	6890 ug/l	1740 ug/l	1110 ug/l	1680 ug/l
Iron	Total	Lab	1000 ug/l	3510 ug/l	3150 ug/l	3000 ug/l	456 ug/l	2090 ug/l	3500 ug/l	16900 ug/l	8770 ug/l	4350 ug/l	4690 ug/l	5360 ug/l	10400 ug/l	16700 ug/l	14700 ug/l	2920 ug/l	1510 ug/l	2540 ug/l
Lead	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	0.14 j ug/l	--	--	0.18 j ug/l	--	0.17 j ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Magnesium	Total	Lab	2500 ug/l	4600 ug/l	5500 ug/l	5380 ug/l	2970 ug/l	4570 ug/l	5640 ug/l	7860 ug/l	6630 ug/l	5040 ug/l	4520 ug/l	5300 ug/l	7100 ug/l	7000 ug/l	6700 ug/l	4300 ug/l	5000 ug/l	6100 ug/l
Manganese	Dissolved	Lab	104 ug/l	1430 ug/l	379 ug/l	342 ug/l	13.6 ug/l	--	--	--	--	--	--	1330 ug/l	1330 ug/l	1390 ug/l	1110 ug/l	204 ug/l	105 ug/l	387 ug/l
Manganese	Total	Lab	117 ug/l	1540 ug/l	441 ug/l	425 ug/l	15.2 ug/l	204 ug/l	520 ug/l	1990 ug/l	1320 ug/l	608 ug/l	590 ug/l	1430 ug/l	1410 ug/l	1480 ug/l	1240 ug/l	203 ug/l	116 ug/l	403 ug/l
Mercury	Total	Lab	--	--	0.0074 ug/l	0.0079 ug/l	--	0.0084 ug/l	0.0068 ug/l	0.0022 ug/l	0.0026 ug/l	0.0032 ug/l	0.0026 ug/l	0.0098 ug/l	--	--	0.0024 ug/l	--	--	0.0021 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	0.00126 ug/l	--	--	0.00020 ug/l	--	0.00021 ug/l	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	< 0.2 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.28 j ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.22 ug/l	--	--	0.23 ug/l	--	--	< 0.20 ug/l
Nickel	Dissolved	Lab	< 0.50 ug/l	< 0.50 ug/l	5.18 ug/l	6.26 ug/l	--	4.57 ug/l	6.47 ug/l	7.73 ug/l	5.11 ug/l	4.17 ug/l	3.74 ug/l	8.1 ug/l	7.5 ug/l	6.6 ug/l	4.7 ug/l	3.0 ug/l	2.2 ug/l	2.6 ug/l
Nickel	Total	Lab	< 0.50 ug/l	< 0.50 ug/l	4.5 ug/l	4.44 ug/l	--	4.75 ug/l	6.25 ug/l	8.0 ug/l	5.54 ug/l	4.84 ug/l	4.62 ug/l	8.5 ug/l	7.9 ug/l	7.4 ug/l	5.6 ug/l	3.0 ug/l	2.5 ug/l	2.7 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	--	2100 ug/l	2000 ug/l	710 ug/l	870 ug/l	550 ug/l	488 ug/l	1170 ug/l	810 ug/l	560 ug/l	540 ug/l	--	--	680 ug/l	--	--	520 ug/l
Selenium	Total	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	< 0.2 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Silver	Total	Lab	--	--	< 0.2 ug/l	< 0.2 ug/l	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	< 0.2 ug/l	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l
Sodium	Total	Lab	--	--	< 2000 ug/l	1920 ug/l	< 2000 ug/l	< 2000 ug/l	< 2000 ug/l	1710 ug/l	< 2000 ug/l	< 2000 ug/l	< 2000 ug/l	1400 ug/l	--	--	1800 ug/l	--	--	2000 ug/l
Strontium	Total	Lab	--	--	30 ug/l	29.3 ug/l	--	29.9 ug/l	--	--	41.7 ug/l	--	26.2 ug/l	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.0020 ug/l	< 0.002 ug/l	0.006 j ug/l	0.005														

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			WP-1	WP-1	WP-1	WP-1	WP-1	WP-1	LC-1	LC-2	LC-3	LC-4	LC-5	Lcy-1	Lcy-1	Lcy-1	Lcy-1	Lcy-1
Date			6/17/2013	7/22/2013	8/19/2013	9/10/2013	10/28/2013	11/21/2013	11/19/2008	11/19/2008	11/19/2008	11/19/2008	11/19/2008	4/21/2010	5/12/2010	6/16/2010	7/27/2010	8/23/2010
Sample Type			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location																
General Parameters									--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	10.8 mg/l	--	--	< 10.0 mg/l	--	25.7 mg/l	25.0 mg/l	33.2 mg/l	29.4 mg/l	25.7 mg/l	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	10.8 mg/l	--	--	< 10.0 mg/l	--	33.2 mg/l	25.0 mg/l	28.9 mg/l	29.4 mg/l	25.7 mg/l	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	41.3 mg/l	125 mg/l	30.7 mg/l	25.6 mg/l	30.6 mg/l	33.7 mg/l	29.1 mg/l	30.6 mg/l	31.1 mg/l	27.3 mg/l	29.4 mg/l	--	--	--	--	--
Chemical Oxygen Demand	NA	Lab	--	355 mg/l	--	--	129 mg/l	--	79.6 mg/l	86.6 mg/l	87.6 mg/l	80.2 mg/l	81.5 mg/l	--	--	--	--	--
Chloride	NA	Lab	< 0.50 mg/l	0.53 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	2.28 mg/l	1.98 mg/l	2.17 mg/l	2.25 mg/l	2.18 mg/l	--	--	--	--	--
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	2.34 mg/l	0.58 mg/l	7.54 mg/l	7.24 mg/l	4.65 mg/l	--	--	--	--	--	--	10.0 mg/l	9.45 mg/l	8.11 mg/l	7.96 mg/l	6.65 mg/l
Fluoride	NA	Lab	--	--	--	--	--	--	0.1 mg/l	< 0.1 mg/l	0.1 mg/l	0.14 mg/l	< 0.1 mg/l	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	16.1 mg/l	44.3 mg/l	22.5 mg/l	23.2 mg/l	20.3 mg/l	17.8 mg/l	61.7 mg/l	44.4 mg/l	54.6 mg/l	68.5 mg/l	45 mg/l	109 mg/l	101 mg/l	81.6 mg/l	93 mg/l	108 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	< 0.10 mg/l	--	--	0.25 b mg/l	--	0.17 mg/l	0.37 mg/l	0.25 mg/l	0.19 mg/l	0.48 mg/l	--	--	--	--	--
Nitrogen, ammonia as N	NA	Lab	--	0.29 mg/l	--	--	0.18 mg/l	--	< 0.1 mg/l	0.33 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.1 mg/l	--	--	--	--	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	4.95 pH units	5.75 pH units	6.29 pH units	6.44 pH units	5.1 pH units	5.72 pH units	--	--	--	--	--	7.68 mg/l	7.96 mg/l	7.83 mg/l	7.78 mg/l	7.81 mg/l
Phosphorus, total, as P	NA	Lab	--	0.090 mg/l	--	--	0.037 mg/l	--	0.013 mg/l	0.012 mg/l	0.012 mg/l	0.014 mg/l	0.01 mg/l	--	--	--	--	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	114 mg/l	312 mg/l	125 mg/l	124 mg/l	132 mg/l	123 mg/l	119 mg/l	108 mg/l	116 mg/l	128 mg/l	104 mg/l	--	--	--	--	--
Solids, total suspended	NA	Lab	--	--	--	--	--	--	1.2 mg/l	1.6 mg/l	1.2 mg/l	10.4 mg/l	< 1 mg/l	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	23.6 umhos/cm	72.3 umhos/cm	20.9 umhos/cm	40.6 umhos/cm	21.3 umhos/cm	28.8 umhos/cm	--	--	--	--	--	246.9 umhos/cm	226.6 umhos/cm	189 umhos/cm	191 umhos/cm	248.5 umhos/cm
Sulfate, as SO4	NA	Lab	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	< 1.0 mg/l	3.5 mg/l	2.9 mg/l	18.7 mg/l	10.1 mg/l	14.4 mg/l	31.7 mg/l	10.8 mg/l	60.7 mg/l	54 mg/l	36 mg/l	37.9 mg/l	44.1 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	13.43 deg C	18.3 deg C	19.66 deg C	19.18 deg C	2.59 deg C	1.33 deg C	--	--	--	--	--	14.02 deg C	12.20 deg C	17.38 deg C	25.70 deg C	24.10 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	15.5 NTU	22.3 NTU	6.8 NTU	11.8 NTU	2.5 NTU	0 NTU	--	--	--	--	--	0 NTU	0.2 NTU	0.1 NTU	0 NTU	0 NTU
Metals									--	--	--	--	--	--	--	--	--	--
Aluminum	Dissolved	Lab	413 ug/l	1170 ug/l	175 ug/l	112 ug/l	346 ug/l	290 ug/l	135 ug/l	171 ug/l	160 ug/l	154 ug/l	166 ug/l	58.1 ug/l	46.2 ug/l	56.6 ug/l	58.8 ug/l	43.8 ug/l
Aluminum	Total	Lab	434 ug/l	1200 ug/l	214 ug/l	163 ug/l	422 ug/l	301 ug/l	179 ug/l	243 ug/l	203 ug/l	214 ug/l	202 ug/l	71.9 ug/l	69.3 ug/l	68.9 ug/l	87 ug/l	62.9 ug/l
Antimony	Total	Lab	--	< 0.50 ug/l	--	--	< 0.50 ug/l	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--	--	--
Arsenic	Dissolved	Lab	1.1 ug/l	5.8 ug/l	1.8 ug/l	1.3 ug/l	1.3 ug/l	0.87 ug/l	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	0.92 ug/l	6.0 ug/l	2.1 ug/l	2.0 ug/l	1.1 ug/l	1.0 ug/l	0.89 j ug/l	0.81 j ug/l	0.74 j ug/l	0.81 j ug/l	0.83 j ug/l	0.63 ug/l	< 0.5 ug/l	0.78 ug/l	1.1 ug/l	0.95 ug/l
Barium	Total	Lab	--	20.4 ug/l	--	--	< 10.0 ug/l	--	7.4 ug/l	6.9 ug/l	7.0 ug/l	7.6 ug/l	5.7 ug/l	--	--	--	--	--
Beryllium	Total	Lab	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--
Boron	Total	Lab	--	< 50.0 ug/l	--	--	< 50.0 ug/l	--	61.1 ug/l	< 50.0 ug/l	< 50 ug/l	72.1 ug/l	< 50 ug/l	--	--	--	--	--
Cadmium	Total	Lab	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--
Calcium	Total	Lab	3100 ug/l	9000 ug/l	4900 ug/l	5000 ug/l	3800 ug/l	3200 ug/l	13200 ug/l	8950 ug/l	11400 ug/l	15400 ug/l	9100 ug/l	26700 ug/l	24300 ug/l	19700 ug/l	22700 ug/l	26600 ug/l
Chromium	Total	Lab	--	1.4 ug/l	--	--	< 1.0 ug/l	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	--	--	--	--
Cobalt	Dissolved	Lab	0.76 ug/l	4.5 ug/l	0.91 ug/l	0.84 ug/l	0.64 ug/l	0.51 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.4 ug/l	< 0.2 ug/l	--	--	--	--	--
Cobalt	Total	Lab	0.84 ug/l	4.5 ug/l	0.98 ug/l	0.87 ug/l	0.71 ug/l	0.49 ug/l	0.22 ug/l	0.27 ug/l	0.21 ug/l	0.42 ug/l	< 0.2 ug/l	--	--	--	--	--
Copper	Dissolved	Lab	4.2 ug/l	3.5 ug/l	1.1 ug/l	0.90 ug/l	3.9 ug/l	1.1 ug/l	2.7 b ug/l	1.8 b ug/l	2.9 b ug/l	4.1 b ug/l	2.0 b ug/l	--	--	--	--	--
Copper	Total	Lab	4.4 ug/l	3.5 ug/l	0.94 ug/l	0.86 ug/l	5.5 ug/l	3.7 ug/l	2.6 ug/l	1.8 ug/l	2.3 ug/l	3.5 ug/l	1.6 ug/l	--	--	--	--	--
Iron	Dissolved	Lab	2150 ug/l	19800 ug/l	3120 ug/l	2450 ug/l	2000 ug/l	1570 ug/l	858 ug/l	872 ug/l	889 ug/l	813 ug/l	852 ug/l	--	--	--	--	--
Iron	Total	Lab	2310 ug/l	19900 ug/l	6320 ug/l	2330 ug/l	6510 ug/l	1640 ug/l	1140 ug/l	1250 ug/l	1160 ug/l	1110 ug/l	1050 ug/l	733 ug/l	678 ug/l	715 ug/l	1240 ug/l	730 ug/l
Lead	Total	Lab	0.81 ug/l	3.1 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.87 ug/l	0.56 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--	--	--
Magnesium	Total	Lab	2000 ug/l	5300 ug/l	2500 ug/l	2600 ug/l	2600 ug/l	2400 ug/l	6970 ug/l	5360 ug/l	6350 ug/l	7290 ug/l	5420 ug/l	10200 ug/l	9900 ug/l	7870 ug/l	8830 ug/l	10100 ug/l
Manganese	Dissolved	Lab	85.9 ug/l	427 ug/l	163 ug/l	270 ug/l	108 ug/l	86.8 ug/l	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	91.3 ug/l	432 ug/l	186 ug/l	275 ug/l	111 ug/l	82.0 ug/l	45.6 ug/l	64.4 ug/l	38.9 ug/l	43.7 ug/l	28.2 ug/l	25.2 ug/l	34.5 ug/l	68.1 ug/l	76.2 ug/l	125 ug/l
Mercury	Total	Lab	--	0.0281 ug/l	--	--	0.0143 ug/l	--	0.0048 ug/l	0.0060 ug/l	0.0054 ug/l	0.0054 ug/l	0.0052 ug/l	--	--	--	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	0.00049 ug/l	0.00047 ug/l	0.00046 ug/l	< 0.00045 ug/l	0.00042 ug/l	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	0.30 ug/l	--	--	< 0.30 ug/l	--	0.47 ug/l	0.3 ug/l	0.3 ug/l	0.39 ug/l	0.29 ug/l	--	--	--	--	--
Nickel	Dissolved	Lab	6.3 ug/l	22.1 ug/l	2.4 ug/l	2.8 ug/l	5.4 ug/l	4.4 ug/l	2.1 ug/l	1.8 ug/l	1.9 ug/l	2.9 ug/l	1.7 ug/l	--	--	--	--	--
Nickel	Total	Lab	7.0 ug/l	22.4 ug/l	2.4 ug/l	2.1 ug/l	5.3 ug/l	4.3 ug/l	2.6 ug/l	2.3 ug/l	2.3 ug/l	3.1 ug/l	2.0 ug/l	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	850 ug/l	--	--	280 ug/l	--	1040 ug/l	840 ug/l	970 ug/l	1000 ug/l	850 ug/l	--	--	--	--	--
Selenium	Total	Lab	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	--	--	--	--
Silver	Total	Lab	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--
Sodium	Total	Lab	--	1400 ug/l	--	--	1000 ug/l	--	3420 ug/l	2900 ug/l	3290 ug/l	3480 ug/l	3140 ug/l	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	90.3 ug/l	40 ug/l	65.9 ug/l	128 ug/l	40.6 ug/l	--	--	--	--	--
Thallium	Total	Lab	< 0.005 ug/l	0.018 j ug/l	< 0.005 ug/l	< 0.005 ug/l	0.006 j ug/l	0.006 j ug/l	0.46 ug/l	< 0.4 ug/l	< 0.4 ug/l	< 0.4 ug/l	< 0.4 ug/l	0.031 ug/l	0.045 ug/l	0.039 ug/l	0.032 ug/l	0.066 b ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	< 10 ug/l	--	--	--	--	--
Vanadium	Total	Lab	--	9.3 ug/l	--	--	< 3.0 ug/l	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	--	--	--	--
Zinc	Dissolved	Lab	10.5 ug/l	16.1 ug/l	7.2 ug/l	< 6.0 ug/l	< 6.0 ug/l	6.4 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	--	--	--	--	--
Zinc	Total	Lab	8.3 ug/l	14.3 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	--	--	--	--	--

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			Lcy-1	Lcy-1	Lcy-1	Lcy-1	Lcy-1	Lcy-1	Lcy-1	Lcy-2		LCY-2	Lcy-2	Lcy-2		Lcy-2	
Date			9/20/2010	6/18/2013	7/24/2013	8/20/2013	9/18/2013	10/30/2013	11/27/2013	12/18/2013	4/21/2010		5/12/2010	6/16/2010	7/27/2010		8/23/2010
Sample Type			N	N	N	N	N	N	N	N	N	FD	N	N	N	FD	N
Parameter	Total or Dissolved	Analysis Location															
General Parameters			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	46.4 mg/l	--	--	63.6 mg/l	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	46.4 mg/l	--	--	63.6 mg/l	--	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	--	24.6 mg/l	34.0 mg/l	32.0 mg/l	24.7 mg/l	24.5 mg/l	23.9 mg/l	22.2 mg/l	--	--	--	--	--	--	--
Chemical Oxygen Demand	NA	Lab	--	--	111 mg/l	--	--	77.3 mg/l	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	3.1 mg/l	2.9 mg/l	4.4 mg/l	5.3 mg/l	4.8 mg/l	4.5 mg/l	5.1 mg/l	--	--	--	--	--	--	--
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	7.94 mg/l	7.75 mg/l	6.05 mg/l	6.72 mg/l	7.52 mg/l	10.04 mg/l	13.36 mg/l	11.25 mg/l	9.95 mg/l	--	9.63 mg/l	8.31 mg/l	6.11 mg/l	--	6.81 mg/l
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	119 mg/l	46.1 mg/l	70.9 mg/l	78.3 mg/l	92.3 mg/l	92.6 mg/l	94.6 mg/l	93.7 mg/l	83.4 mg/l	84.2 mg/l	85.1 mg/l	66.4 mg/l	89.5 mg/l	90 mg/l	106 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	0.17 mg/l	--	--	0.20 mg/l	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	Lab	--	--	0.33 mg/l	--	--	0.12 mg/l	--	--	--	--	--	--	--	--	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	7.96 mg/l	6.99 mg/l	7.23 mg/l	8.13 mg/l	7.4 mg/l	7.85 mg/l	7.75 mg/l	7.37 mg/l	7.29 mg/l	--	7.70 mg/l	7.69 mg/l	7.59 mg/l	--	7.81 mg/l
Phosphorus, total, as P	NA	Lab	--	--	0.029 mg/l	--	--	0.024 mg/l	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	125 mg/l	173 mg/l	205 mg/l	178 mg/l	195 mg/l	193 mg/l	209 mg/l	--	--	--	--	--	--	--
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	273.5 umhos/cm	95.5 umhos/cm	129 umhos/cm	168.5 umhos/cm	199.7 umhos/cm	200.3 umhos/cm	205.6 umhos/cm	203.8 umhos/cm	189.6 umhos/cm	--	187.6 umhos/cm	165 umhos/cm	201.9 umhos/cm	--	246.4 umhos/cm
Sulfate, as SO4	NA	Lab	46.4 mg/l	12.9 mg/l	9.1 mg/l	18.7 mg/l	24.7 mg/l	29.0 mg/l	31.1 mg/l	37.1 mg/l	39.5 mg/l	39.8 mg/l	36.5 mg/l	20.2 mg/l	33.2 mg/l	33.3 mg/l	38.9 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	15.29 deg C	19.68 deg C	22.93 deg C	24.55 deg C	18.22 deg C	11.19 deg C	1.52 deg C	5.12 deg C	11.95 deg C	--	10.67 deg C	16.01 deg C	25.08 deg C	--	22.85 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	0 NTU	8.4 NTU	0 NTU	2 NTU	1.5 NTU	1.3 NTU	0 NTU	1.2 NTU	0 NTU	--	0 NTU	0 NTU	0 NTU	--	0.2 NTU
Metals			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Dissolved	Lab	< 25 ug/l	108 ug/l	178 ug/l	140 ug/l	90.1 ug/l	65.5 ug/l	89.2 ug/l	81.7 ug/l	46.4 ug/l	46.3 ug/l	42.2 ug/l	71.2 ug/l	54.1 ug/l	55.1 ug/l	38.6 ug/l
Aluminum	Total	Lab	46.7 ug/l	124 ug/l	192 ug/l	133 ug/l	102 ug/l	80.7 ug/l	86.3 ug/l	92.6 ug/l	57.4 ug/l	61 ug/l	69 ug/l	83.3 ug/l	77.8 ug/l	79.5 ug/l	58 ug/l
Antimony	Total	Lab	--	--	< 0.50 ug/l	--	--	< 0.50 ug/l	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	< 2.0 ug/l	1.6 ug/l	1.8 ug/l	1.3 ug/l	1.3 ug/l	0.90 ug/l	0.89 ug/l	--	--	--	--	--	--	--
Arsenic	Total	Lab	0.88 ug/l	< 2.0 ug/l	2.0 ug/l	1.6 ug/l	1.4 ug/l	1.4 ug/l	0.99 ug/l	0.64 ug/l	0.53 ug/l	0.59 ug/l	< 0.5 ug/l	0.94 ug/l	1.0 ug/l	< 0.1 ug/l	0.98 ug/l
Barium	Total	Lab	--	--	11.3 ug/l	--	--	< 10.0 ug/l	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	--	--	53.9 ug/l	--	--	96.3 ug/l	--	--	--	--	--	--	--	--	--
Cadmium	Total	Lab	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	29100 ug/l	9700 ug/l	14600 ug/l	17200 ug/l	20600 ug/l	20600 ug/l	21400 ug/l	21500 ug/l	19600 ug/l	19800 ug/l	19600 ug/l	15300 ug/l	21400 ug/l	21500 ug/l	25500 ug/l
Chromium	Total	Lab	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	< 0.80 ug/l	0.57 ug/l	0.32 ug/l	0.26 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.23 ug/l	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	< 0.80 ug/l	0.64 ug/l	0.37 ug/l	0.40 ug/l	0.22 ug/l	0.23 ug/l	0.20 ug/l	--	--	--	--	--	--	--
Copper	Dissolved	Lab	--	4.4 ug/l	3.2 ug/l	5.6 ug/l	5.1 ug/l	6.9 ug/l	5.6 ug/l	5.9 ug/l	--	--	--	--	--	--	--
Copper	Total	Lab	--	4.4 ug/l	3.5 ug/l	5.7 ug/l	5.3 ug/l	5.7 ug/l	6.0 ug/l	5.8 ug/l	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	767 ug/l	3890 ug/l	3570 ug/l	2650 ug/l	2000 ug/l	1660 ug/l	1440 ug/l	--	--	--	--	--	--	--
Iron	Total	Lab	451 ug/l	875 ug/l	4170 ug/l	3290 ug/l	2710 ug/l	2130 ug/l	1910 ug/l	1580 ug/l	772 ug/l	792 ug/l	765 ug/l	970 ug/l	1320 ug/l	1350 ug/l	769 ug/l
Lead	Total	Lab	--	< 2.0 ug/l	0.66 ug/l	0.83 ug/l	0.86 ug/l	0.77 ug/l	0.64 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--
Magnesium	Total	Lab	11300 ug/l	5300 ug/l	8400 ug/l	8600 ug/l	9900 ug/l	10000 ug/l	10000 ug/l	9800 ug/l	8370 ug/l	8440 ug/l	8780 ug/l	6860 ug/l	8750 ug/l	8820 ug/l	10300 ug/l
Manganese	Dissolved	Lab	--	48.9 ug/l	267 ug/l	172 ug/l	276 ug/l	44.8 ug/l	49.6 ug/l	68.2 ug/l	--	--	--	--	--	--	--
Manganese	Total	Lab	125 ug/l	62.4 ug/l	269 ug/l	201 ug/l	390 ug/l	102 ug/l	69.0 ug/l	75.9 ug/l	28.6 ug/l	27.5 ug/l	39.5 ug/l	82.6 ug/l	80.3 ug/l	79.5 ug/l	102 ug/l
Mercury	Total	Lab	--	--	0.0085 ug/l	--	--	0.0046 ug/l	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	0.76 ug/l	--	--	1.1 ug/l	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	--	< 2.0 ug/l	2.8 ug/l	3.1 ug/l	8.8 ug/l	2.4 ug/l	2.2 ug/l	2.4 ug/l	--	--	--	--	--	--	--
Nickel	Total	Lab	--	< 2.0 ug/l	3.1 ug/l	2.9 ug/l	2.3 ug/l	2.1 ug/l	2.4 ug/l	2.0 ug/l	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	--	1200 ug/l	--	--	1500 ug/l	--	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	< 4.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	4900 ug/l	--	--	6700 ug/l	--	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	0.024 ug/l	0.009 jg ug/l	0.013 j ug/l	0.014 j ug/l	0.036 ug/l	0.009 j ug/l	0.006 j ug/l	0.009 j ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	0.029 ug/l	0.030 ug/l	< 0.005 ug/l	0.053 b ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	< 3.0 ug/l	--	--	< 3.0 ug/l	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	< 24.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	8.1 ug/l	6.8 ug/l	--	--	--	--	--	--	--
Zinc	Total	Lab	--	< 24.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	15.8 ug/l	< 6.0 ug/l	--	--	--	--	--	--	--

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location			Lcy-2	Lcy-2	Lcy-2		Lcy-2	Lcy-2	Lcy-2	Lcy-2	LW-1	LW-1		LW-1		LW-1	
Date			9/20/2010	6/18/2013	7/24/2013		8/20/2013	9/18/2013	10/30/2013	11/27/2013	12/18/2013	4/21/2010	5/12/2010		6/16/2010		7/27/2010
Sample Type			N	N	N	FD	N	N	N	N	N	N	N	FD	N	FD	N
Parameter	Total or Dissolved	Analysis Location															
General Parameters			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	51.9 mg/l	--	--	--	49.2 mg/l	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	51.9 mg/l	--	--	--	49.2 mg/l	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	--	22.3 mg/l	35.9 mg/l	--	29.6 mg/l	24.2 mg/l	21.9 mg/l	18.4 mg/l	20.5 mg/l	--	--	--	--	--	--
Chemical Oxygen Demand	NA	Lab	--	--	121 mg/l	--	--	--	73.7 mg/l	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	3.9 mg/l	3.0 mg/l	--	4.8 mg/l	5.3 mg/l	3.1 mg/l	3.9 mg/l	4.2 mg/l	--	--	--	--	--	--
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	6.91 mg/l	7.86 mg/l	6.13 mg/l	--	6.87 mg/l	7.92 mg/l	11.03 mg/l	13.94 mg/l	12.63 mg/l	11.13 mg/l	9.80 mg/l	--	8.41 mg/l	--	7.08 mg/l
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	117 mg/l	46.3 mg/l	73.0 mg/l	--	82.0 mg/l	96.4 mg/l	73.0 mg/l	74.7 mg/l	77.3 mg/l	85.7 mg/l	89 mg/l	91.6 mg/l	89.6 mg/l	90.2 mg/l	90.8 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	0.20 mg/l	--	--	--	0.17 mg/l	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	Lab	--	--	0.30 mg/l	--	--	--	0.12 mg/l	--	--	--	--	--	--	--	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	7.79 mg/l	6.96 mg/l	7.13 mg/l	--	8.24 mg/l	7.49 mg/l	7.82 mg/l	7.73 mg/l	7.11 mg/l	7.40 mg/l	7.95 mg/l	--	7.80 mg/l	--	8.33 mg/l
Phosphorus, total, as P	NA	Lab	--	--	0.041 mg/l	--	--	--	0.029 mg/l	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	125 mg/l	191 mg/l	--	204 mg/l	165 mg/l	157 mg/l	164 mg/l	184 mg/l	--	--	--	--	--	--
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	248.5 umhos/cm	101.1 umhos/cm	132.7 umhos/cm	--	169.5 umhos/cm	202.5 umhos/cm	143.2 umhos/cm	157.9 umhos/cm	159.8 umhos/cm	206.6 umhos/cm	208.7 umhos/cm	--	181 umhos/cm	--	218.7 umhos/cm
Sulfate, as SO4	NA	Lab	41.7 mg/l	10.1 mg/l	6.6 mg/l	--	16.6 mg/l	23.5 mg/l	15.5 mg/l	18.0 mg/l	14.5 mg/l	35.1 mg/l	34 mg/l	34 mg/l	35.3 mg/l	35.2 mg/l	34.8 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	14.89 deg C	18.77 deg C	22.53 deg C	--	23.91 deg C	18.32 deg C	6.92 deg C	0.42 deg C	1.53 deg C	9.54 deg C	10.16 deg C	--	17.18 deg C	--	23.89 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	0 NTU	51.1 NTU	6.7 NTU	--	0.9 NTU	0.2 NTU	1.8 NTU	3.2 NTU	2.4 NTU	0 NTU	0.1 NTU	--	0 NTU	--	0 NTU
Metals				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Dissolved	Lab	< 25 ug/l	100 ug/l	183 ug/l	--	130 ug/l	82.7 ug/l	83.0 ug/l	90.7 ug/l	94.2 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	42.8 ug/l	118 ug/l	186 ug/l	--	147 ug/l	99.9 ug/l	108 ug/l	93.3 ug/l	108 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Antimony	Total	Lab	--	--	< 0.50 ug/l	--	--	--	< 0.50 ug/l	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	< 2.0 ug/l	1.9 ug/l	--	1.5 ug/l	1.2 ug/l	0.92 ug/l	0.66 ug/l	0.53 ug/l	--	--	--	--	--	--
Arsenic	Total	Lab	0.90 ug/l	< 2.0 ug/l	2.1 ug/l	--	1.8 ug/l	1.3 ug/l	1.2 ug/l	0.69 ug/l	< 0.50 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	0.53 ug/l	0.52 ug/l	0.6 ug/l
Barium	Total	Lab	--	--	11.3 ug/l	--	--	--	< 10.0 ug/l	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	--	--	--	--
Boron	Total	Lab	--	--	50.2 ug/l	--	--	--	60.5 ug/l	--	--	--	--	--	--	--	--
Cadmium	Total	Lab	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	--	--	--	--
Calcium	Total	Lab	28100 ug/l	9400 ug/l	14700 ug/l	--	18000 ug/l	21200 ug/l	15300 ug/l	15300 ug/l	15400 ug/l	20100 ug/l	20500 ug/l	21100 ug/l	20800 ug/l	20900 ug/l	20900 ug/l
Chromium	Total	Lab	--	--	< 1.0 ug/l	--	--	--	< 1.0 ug/l	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	< 0.80 ug/l	0.66 ug/l	--	0.34 ug/l	0.27 ug/l	< 0.20 ug/l	0.21 ug/l	0.20 ug/l	--	--	--	--	--	--
Cobalt	Total	Lab	--	< 0.80 ug/l	0.67 ug/l	--	0.38 ug/l	0.34 ug/l	0.21 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--	--	--
Copper	Dissolved	Lab	--	2.1 ug/l	1.9 ug/l	--	4.7 ug/l	4.8 ug/l	3.5 ug/l	2.6 ug/l	2.8 ug/l	--	--	--	--	--	--
Copper	Total	Lab	--	2.2 ug/l	1.8 ug/l	--	4.8 ug/l	4.9 ug/l	3.6 ug/l	2.5 ug/l	2.8 ug/l	--	--	--	--	--	--
Iron	Dissolved	Lab	--	972 ug/l	4480 ug/l	--	3490 ug/l	2520 ug/l	1580 ug/l	1330 ug/l	1480 ug/l	--	--	--	--	--	--
Iron	Total	Lab	513 ug/l	1130 ug/l	4900 ug/l	--	3350 ug/l	2830 ug/l	1890 ug/l	1550 ug/l	1810 ug/l	53.3 ug/l	50.3 ug/l	52.5 ug/l	72.6 ug/l	76.5 ug/l	< 50 ug/l
Lead	Total	Lab	--	< 2.0 ug/l	< 0.50 ug/l	--	0.73 ug/l	0.78 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--
Magnesium	Total	Lab	11400 ug/l	5600 ug/l	8800 ug/l	--	9000 ug/l	10600 ug/l	8400 ug/l	8900 ug/l	9400 ug/l	8630 ug/l	9170 ug/l	9440 ug/l	9160 ug/l	9220 ug/l	9370 ug/l
Manganese	Dissolved	Lab	--	58.4 ug/l	260 ug/l	--	176 ug/l	194 ug/l	52.7 ug/l	54.1 ug/l	69.3 ug/l	--	--	--	--	--	--
Manganese	Total	Lab	118 ug/l	63.5 ug/l	248 ug/l	--	199 ug/l	283 ug/l	75.7 ug/l	58.5 ug/l	69.4 ug/l	12.8 ug/l	12 ug/l	12 ug/l	8.3 ug/l	8.5 ug/l	7.31 ug/l
Mercury	Total	Lab	--	--	0.0087 ug/l	0.0083 ug/l	--	--	0.0051 ug/l	--	--	--	--	--	--	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	0.73 ug/l	--	--	--	0.62 ug/l	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	--	< 2.0 ug/l	2.7 ug/l	--	2.8 ug/l	2.1 ug/l	1.7 ug/l	1.4 ug/l	1.4 ug/l	--	--	--	--	--	--
Nickel	Total	Lab	--	2.1 ug/l	2.6 ug/l	--	2.8 ug/l	2.1 ug/l	1.7 ug/l	1.4 ug/l	1.1 ug/l	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	--	1300 ug/l	--	--	--	1400 ug/l	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	< 4.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	--	--	--	--	--
Silver	Total	Lab	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	5100 ug/l	--	--	--	5200 ug/l	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	0.026 ug/l	< 0.005 ug/l	0.020 j ug/l	--	0.013 j ug/l	0.017 j ug/l	0.005 j ug/l	0.003 j ug/l	0.004 j ug/l	< 0.02 ug/l	< 0.02 ug/l	< 0.02 ug/l	0.023 ug/l	0.049 ug/l	< 0.005 ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	< 3.0 ug/l	--	--	--	< 3.0 ug/l	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	< 24.0 ug/l	6.6 ug/l	--	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	8.0 ug/l	--	--	--	--	--	--
Zinc	Total	Lab	--	< 24.0 ug/l	< 6.0 ug/l	--	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	6.1 ug/l	--	--	--	--	--	--

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Location Date Sample Type			LWr-1 8/23/2010		LWr-1 9/20/2010		LWr-2 4/21/2010	LWr-2 5/12/2010	LWr-2 6/16/2010	LWr-2 7/27/2010	LWr-2 8/23/2010	LWr-2 9/20/2010
			N	FD	N	FD	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location										
General Parameters			--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Alkalinity, carbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	Lab	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	Lab	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	Lab	--	--	--	--	--	--	--	--	--	--
Chemical Oxygen Demand	NA	Lab	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	Lab	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Lab	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	Field	7.17 mg/l	--	7.65 mg/l	--	11.09 mg/l	10.05 mg/l	8.11 mg/l	7.48 mg/l	7.07 mg/l	7.61 mg/l
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	91.7 mg/l	92 mg/l	92.3 mg/l	92.8 mg/l	86.3 mg/l	90.3 mg/l	91.2 mg/l	89.3 mg/l	92.8 mg/l	91.2 mg/l
Nitrate + Nitrite, as N	NA	Lab	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	Lab	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--
pH	NA	Field	8.02 mg/l	--	8.18 mg/l	--	7.51 mg/l	8.16 mg/l	7.90 mg/l	8.21 mg/l	8.08 mg/l	8.07 mg/l
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	Field	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--
Solids, total suspended	NA	Lab	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	220.2 umhos/cm	--	217.7 umhos/cm	--	207.1 umhos/cm	208.4 umhos/cm	198 umhos/cm	199 umhos/cm	219.7 umhos/cm	219.1 umhos/cm
Sulfate, as SO4	NA	Lab	33.8 mg/l	33.6 mg/l	33.7 mg/l	33.8 mg/l	35.1 mg/l	34.1 mg/l	35.2 mg/l	34.5 mg/l	32.9 mg/l	33.8 mg/l
Temperature, °C	NA	Lab	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	Field	21.84 deg C	--	14.64 deg C	--	10.62 deg C	10.02 deg C	17.03 deg C	23.88 deg C	21.44 deg C	14.60 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	0 NTU	--	0 NTU	--	0 NTU	0.2 NTU	0 NTU	0 NTU	0 NTU	0 NTU
Metals			--	--	--	--	--	--	--	--	--	--
Aluminum	Dissolved	Lab	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	25.4 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	25.1 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	0.59 ug/l	0.56 ug/l	0.58 ug/l	0.62 ug/l	< 0.5 ug/l	< 0.5 ug/l	0.51 ug/l	0.5 j ug/l	0.58 ug/l	0.55 ug/l
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	--	--	--	--	--	--	--	--	--	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	20900 ug/l	21000 ug/l	21200 ug/l	21400 ug/l	20200 ug/l	20800 ug/l	21100 ug/l	20500 ug/l	21200 ug/l	21100 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	62.6 ug/l	57.5 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	9600 ug/l	9600 ug/l	9550 ug/l	9550 ug/l	8720 ug/l	9310 ug/l	9350 ug/l	9250 ug/l	9690 ug/l	9350 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	11.2 ug/l	11.6 ug/l	14.4 ug/l	13 ug/l	12 ug/l	8.97 ug/l	6.87 ug/l	9.97 ug/l	14.6 ug/l	11.9 ug/l
Mercury			--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--
Molybdenum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	0.020 b ug/l	0.020 b ug/l	< 0.002 ug/l	< 0.002 ug/l	< 0.02 ug/l	0.035 ug/l	0.021 ug/l	< 0.005 ug/l	0.021 b ug/l	< 0.002 ug/l
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--

Large Table 10
Surface Water Quality Data in the Partridge River Watershed
PolyMet Mining Company

Data Qualifiers/Footnotes	
Qualifier	Definition
	Not used in water quality modeling as of June 13, 2014
--	Not analyzed/not available.
a	Estimated value, calculated using some or all values that are estimates.
b	Potential false positive value based on blank data validation procedures.
c	Coeluting compound.
e	Estimated value, exceeded the instrument calibration range.
f	Sample was collected at a flowrate exceeding the recommended rate of 200 mL/minute.
h	EPA recommended sample preservation, extraction or analysis holding time was exceeded.
i	Indeterminate value based on failure of blind duplicate data to meet quality assurance criteria.
j	Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
p	Relative percent difference is >40% (25% CLP pesticides) between primary and confirmation GC columns.
pp	Small peak in chromatogram below method detection limit.
r	The presence of the compound is suspect based on the ID criteria of the retention time and relative retention time obtained from the examination of the chromatograms.
s	Potential false positive value based on statistical analysis of blank sample data.
t	Sample positive for total coliforms but negative for <i>E. coli</i> .
v	Sample was collected under a vacuum of greater than XX inches of mercury.
*	Estimated value, QA/QC criteria not met.
**	Unusable value, QA/QC criteria not met.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
AT	Sample chromatogram is noted to be atypical of a petroleum product.
DLND	Not detected, detection limit not determined.
DF	Did not flash
EMPC	Estimated maximum possible concentration.
NA – (Not applicable)	NA indicates that a fractional portion of the sample is not part of the analytical testing or field collection procedures.
ND	Not detected.
TIC	Tentatively identified compound
BQA	Barr-applied project specific qualifier: extraction and/or analyses conducted using an alternative method and/or procedure.
BQC	Barr-applied project specific qualifier: plant shut down.
BQD	Barr-applied project specific qualifier: equipment malfunction.
BQE	Barr-applied project specific qualifier: equipment adjustment.
BQM	Barr-applied project specific qualifier: manual measurement.
BQN	Barr-applied project specific qualifier: unable to be sampled or measured due to various reasons.
BQP	Barr-applied project specific qualifier: atypical chromatographic pattern.
BQQ	Barr-applied project specific qualifier: some aspect of QA/QC was not met.
BQR	Barr-applied project specific qualifier: location was re-sampled.
BQS	Barr-applied project specific qualifier: data is considered suspect.
BQT	Barr-applied project specific qualifier: summed value not displayed due to insufficient field length.
BQU	Barr-applied project specific qualifier: historical qualifier - definition unknown.
BQV	Barr-applied project specific qualifier: estimated value.
BQX	Barr-applied project specific qualifier: see notes for qualifier definition.
BQZ	Barr-applied project specific qualifier: data is considered unusable.
Validated	Laboratory data has been evaluated following Barr QA/QC procedures and/or project-specific data review requirements. Field data has been verified for transcription errors, consistency and completeness. Data transferred from the previous database (9/2009) were categorized as validated, but may be comprised of any one of the following data status categories: Validated, SSource, No QC or Legacy.
No QC	Laboratory data has been excluded from Barr QA/QC procedures.
SSource	Laboratory and/or field data obtained from a secondary source external to Barr. Second source QA/QC evaluation procedures may or may not have been performed beyond the original data generator.
Legacy	Historical laboratory data (internal at Barr). QA/QC evaluation procedures may or may not have been performed beyond the original data generator

Large Table 11
Comparison of Surface Runoff Calibration in the Partridge River Watershed
Poly Met Mining Inc.

		Partridge River (locations SW-002/PM-2, SW-003/PM-3, SW-004/PM-16, SW-004a, SW-004b, SW-005/PM-4)				Difference in normalized RMSE
		WQ Model Version 5.0		All Data		
		Data Points	Normalized RMSE*	Data Points	Normalized RMSE	
Silver	Total	34	5.2%	70	5.4%	0.2%
Aluminum	Total	69	7.2%	184	22.9%	15.7%
Alkalinity	Total	97	3.3%	133	10.9%	7.6%
Arsenic	Total	36	113.9%	150	111.8%	-2.1%
Boron	Total	50	15.7%	86	26.9%	11.1%
Barium	Total	30	23.1%	66	5.6%	-17.5%
Beryllium	Total	30	6.6%	66	6.6%	0.0%
Calcium	Total	104	6.3%	220	21.1%	14.8%
Cadmium	Total	39	28.1%	75	20.1%	-8.0%
Chloride	Total	98	14.9%	214	41.4%	26.4%
Cobalt	Total	93	17.5%	202	26.0%	8.4%
Chromium	Total	39	18.1%	75	26.0%	7.9%
Copper	Total	104	8.9%	212	13.2%	4.2%
Fluoride	Total	88	4.5%	88	4.5%	0.0%
Iron	Total	42	3.7%	156	47.4%	43.7%
Potassium	Total	42	5.1%	78	13.1%	8.0%
Magnesium	Total	104	3.9%	220	19.1%	15.2%
Manganese	Total	47	2.9%	165	32.9%	30.0%
Sodium	Total	50	32.2%	86	26.8%	-5.4%
Nickel	Total	104	7.3%	212	20.1%	12.8%
Lead	Total	59	6.3%	173	8.8%	2.6%
Antimony	Total	16	18.0%	101	62.9%	44.9%
Selenium	Total	18	10.9%	162	108.5%	97.6%
Sulfate	Total	104	10.1%	220	31.6%	21.5%
Thallium	Total	20	780.5%	154	121.9%	-658.5%
Vanadium	Total	no data	--	36	229.6%	--
Zinc	Total	103	18.7%	212	59.8%	41.1%

Large Table 12
Historic Discharge Data for the Partridge River Headwaters
Poly Met Mining, Inc.

Location Date Sample Type Data Status			HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009
			9/01/1999	11/01/2008	12/01/2008	1/01/2009	2/01/2009	3/01/2009	4/01/2009	5/01/2009	7/01/2009	8/01/2009	9/01/2009	10/01/2009	11/01/2009	12/01/2009	1/01/2010	3/01/2010
			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
			SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource
Parameter	Total or Dissolved	Analysis Location																
General Parameters																		
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	89.1 mg/l	98.4 mg/l	89.4 mg/l	92.2 mg/l	126 mg/l	103 mg/l
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	6.5 mg/l	7.67 mg/l	6.61 mg/l	6.52 mg/l	7.505 mg/l	5.055 mg/l
Flow			0.504 mgd 0.72 mgd 15.12 mgd	9 mgd 206.4 MG	9 mgd 149.4 MG	8.3 mgd 109.8 MG	5 mgd 8.3 mgd 82.2 MG	8.3 mgd 115.7 MG	8.3 mgd 118.9 MG	8.3 mgd 149.9 MG	8.2 mgd 199.7 MG	8.3 mgd 189 MG	8.3 mgd 162 MG	8.3 mgd 181 MG	8 mgd 147 MG	8.3 mgd 94.2 MG	8.3 mgd 128.5 MG	8.3 mgd 305.4 MG
Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	128 mg/l	127 mg/l	124 mg/l	128 mg/l	164.5 mg/l	132.5 mg/l
Nitrogen, ammonia as N	NA	Lab	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	0.19 mg/l < 0.145 mg/l	0.28 mg/l < 0.1 mg/l	0.21 mg/l < 0.16 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	--	--	< 0.05 mg/l
Nitrogen, unionized ammonia, as N	NA	Lab	< 0.007 mg/l	--	--	--	--	< 0.01 mg/l	< 0.01 mg/l	0.0049 mg/l < 0.0037 mg/l	0.022 mg/l < 0.017 mg/l	0.007 mg/l	< 0.009 mg/l	< 0.004 mg/l	--	--	--	< 0.0009 mg/l
Oil and Grease - Silica gel cleanup	NA	Lab	< 0.5 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	8.24 pH units 8.44 pH units	8.25 pH units 8.32 pH units	8.25 pH units	7.8 pH units	8 pH units	8 pH units 8.1 pH units	8 pH units 8.35 pH units	8.23 pH units 8.27 pH units	8.3 pH units 8.4 pH units	8.3 pH units 8.4 pH units	8.4 pH units 8.5 pH units	8.4 pH units 8.5 pH units	8.3 pH units 8.4 pH units	8.3 pH units 8.4 pH units	8.2 pH units	8.3 pH units
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	201 mg/l	185 mg/l	154 mg/l	179 mg/l	202 mg/l	166 mg/l
Solids, total suspended	NA	Lab	< 1 mg/l	--	1.2 mg/l	--	< 1 mg/l	--	< 1 mg/l	--	--	< 1 mg/l	--	< 1 mg/l	--	< 1 mg/l	--	--
Specific Conductance @ 25 °C	NA	Field	--	--	--	--	--	--	--	--	--	--	300 umhos/cm	317 umhos/cm	296 umhos/cm	308 umhos/cm	382 umhos/cm	305 umhos/cm
Sulfate, as SO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	34.8 mg/l	37.2 mg/l	28.8 mg/l	30.8 mg/l	41.35 mg/l	25.05 mg/l
Temperature, °C	NA	Lab	15.5 deg C 18 deg C	--	--	--	--	3 deg C	6 deg C 8.2 deg C	13 deg C 13.9 deg C	17 deg C 19 deg C	17.5 deg C 19 deg C	18 deg C 19 deg C	8 deg C 10 deg C	--	--	--	2.15 deg C 3.5 deg C
Turbidity	NA	Field	0.38 NTU 0.5 NTU	0.63 NTU 0.83 NTU	0.45 NTU	0.51 NTU	0.86 NTU	0.65 NTU 0.66 NTU	0.63 NTU 0.65 NTU	1.3 NTU 1.6 NTU	1.2 NTU	1.4 NTU 1.5 NTU	0.75 NTU 0.81 NTU	0.79 NTU 0.87 NTU	1 NTU 1.4 NTU	1.5 NTU 2.2 NTU	1 NTU 1.3 NTU	1.25 NTU 1.6 NTU
Metals																		
Iron	Dissolved	Lab	< 30 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	76 ug/l	60 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Mercury	Total	Lab	--	--	< 0.0005 ug/l	--	--	< 0.0005 ug/l	--	--	--	--	< 0.0008 ug/l	--	--	< 0.0006 ug/l	--	0.0007 ug/l
Total Petroleum Hydrocarbons																		
Diesel Range Organics	NA	Lab	--	< 100 ug/l	< 100 ug/l	< 100 ug/l	< 100 ug/l	< 100 ug/l	< 100 ug/l	< 0.1 ug/l	< 100 ug/l	< 105 ug/l	--	--	--	--	--	--

Large Table 12
Historic Discharge Data for the Partridge River Headwaters
Poly Met Mining, Inc.

Location			HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009
Date			4/01/2010	5/01/2010	6/01/2010	7/01/2010	8/01/2010	10/01/2010	11/01/2010	12/01/2010	1/01/2011	2/01/2011	3/01/2011	4/01/2011	5/01/2011	6/01/2011	10/01/2011
Sample Type			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Data Status			SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource
Parameter	Total or Dissolved	Analysis Location															
General Parameters																	
Alkalinity, bicarbonate, as HCO3	NA	Lab	91 mg/l	98.5 mg/l	97 mg/l	87.7 mg/l	83.4 mg/l	91 mg/l	91.8 mg/l	95.7 mg/l	116 mg/l	117 mg/l	117 mg/l	85.8 mg/l	86.9 mg/l	88.1 mg/l	106 mg/l
Chloride	NA	Lab	6.34 mg/l	7.24 mg/l	15.4 mg/l	21.05 mg/l	18.35 mg/l	13.1 mg/l	11.35 mg/l	13.1 mg/l	10.35 mg/l	6.405 mg/l	6.645 mg/l	12 mg/l	5.085 mg/l	3.18 mg/l	2.91 mg/l
Flow																	
	NA	Lab	8.3 mgd 70.9 MG	5 mgd 77.49 MG	5 mgd 187 MG	5 mgd 257.7 MG	5 mgd 162.6 MG	8.3 mgd 94.2 MG	8.3 mgd 46.9 MG	8.3 mgd 202.8 MG	8.2 mgd 15.3 MG	5 mgd 43.1 MG	5 mgd 56.1 MG	8.2 mgd 107.1 MG	5.8 MG 8.2 mgd	8.2 mgd 21.1 MG	8.2 mgd 162.2 MG
Hardness, as CaCO3	NA	Lab	120 mg/l	128 mg/l	136 mg/l	145.5 mg/l	131 mg/l	133.5 mg/l	138.5 mg/l	144.5 mg/l	148.5 mg/l	146 mg/l	140.5 mg/l	106.5 mg/l	99.1 mg/l	111.5 mg/l	122.5 mg/l
Nitrogen, ammonia as N																	
	NA	Lab	< 0.05 mg/l	< 0.05 mg/l	0.06 mg/l < 0.05 mg/l	0.04 mg/l 0.07 mg/l	0.05 mg/l 0.11 mg/l	< 0.05 mg/l	--	--	--	--	0.025 mg/l 0.1 mg/l	< 0.05 mg/l	0.085 mg/l 0.09 mg/l	0.055 mg/l 0.11 mg/l	0.08 mg/l 0.17 mg/l
Nitrogen, unionized ammonia, as N																	
	NA	Lab	< 0.01 mg/l	< 0.005 mg/l	0.006 mg/l < 0.006 mg/l	0.005 mg/l 0.008 mg/l	0.002 mg/l 0.01 mg/l	< 0.002 mg/l	--	--	--	--	0.0008 mg/l 0.003 mg/l	< 0.0008 mg/l	0.006 mg/l 0.007 mg/l	0.005 mg/l 0.01 mg/l	0.004 mg/l 0.009 mg/l
Oil and Grease - Silica gel cleanup	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH																	
	NA	Lab	8.46 pH units 8.5 pH units	8.48 pH units 8.5 pH units	8.45 pH units 8.46 pH units	8.1 pH units 8.4 pH units	8.4 pH units	8.4 pH units	8.4 pH units	8.3 pH units 8.4 pH units	8.3 pH units 8.5 pH units	8.4 pH units 8.6 pH units	8.5 pH units 8.6 pH units	7.8 pH units 8.3 pH units	8.5 pH units	8.7 pH units	8.3 pH units
Solids, total dissolved	NA	Lab	129 mg/l	177 mg/l	183 mg/l	209 mg/l	236 mg/l	193 mg/l	153 mg/l	188 mg/l	202 mg/l	187 mg/l	209 mg/l	112 mg/l	157 mg/l	150 mg/l	153 mg/l
Solids, total suspended																	
	NA	Lab	< 1 mg/l	--	1.2 mg/l	--	2.8 mg/l	1.6 mg/l	--	< 1 mg/l	--	< 1 mg/l	--	2 mg/l	--	< 1 mg/l	1.2 mg/l
Specific Conductance @ 25 °C	NA	Field	283 umhos/cm	316 umhos/cm	348 umhos/cm	393 umhos/cm	308 umhos/cm	320 umhos/cm	303 umhos/cm	330 umhos/cm	338 umhos/cm	312 umhos/cm	309 umhos/cm	252 umhos/cm	209 umhos/cm	219 umhos/cm	272 umhos/cm
Sulfate, as SO4	NA	Lab	23.5 mg/l	25.7 mg/l	27 mg/l	27.75 mg/l	25.4 mg/l	27.65 mg/l	26.75 mg/l	29.05 mg/l	29.95 mg/l	27.1 mg/l	24.85 mg/l	15.1 mg/l	15.55 mg/l	16.8 mg/l	21.9 mg/l
Temperature, °C																	
	NA	Lab	9.7 deg C 11.7 deg C	13.4 deg C 16.1 deg C	19.8 deg C 20.1 deg C	23.05 deg C 23.9 deg C	20.4 deg C 22.1 deg C	9.2 deg C	--	--	--	--	1.9 deg C 3 deg C	5.5 deg C 8.3 deg C	11.4 deg C 14.4 deg C	15.4 deg C	9.8 deg C 14.6 deg C
Turbidity																	
	NA	Field	0.75 NTU 0.9 NTU	1.3 NTU 1.8 NTU	0.75 NTU 0.8 NTU	1 NTU 1.3 NTU	2 NTU 3.1 NTU	0.96 NTU	0.5 NTU	0.7 NTU 0.8 NTU	0.5 NTU	0.3 NTU 0.4 NTU	0.6 NTU 0.7 NTU	0.5 NTU	0.9 NTU	1 NTU	1 NTU 1.3 NTU
Metals																	
Iron	Dissolved	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Mercury																	
	Total	Lab	--	--	0.0005 ug/l	--	--	--	--	< 0.0005 ug/l	--	--	0.0005 ug/l	--	--	0.001 ug/l	--
Total Petroleum Hydrocarbons																	
Diesel Range Organics	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 12
Historic Discharge Data for the Partridge River Headwaters
Poly Met Mining, Inc.

Location			HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009
Date			11/01/2011	1/01/2012	5/01/2012	6/01/2012	7/01/2012	8/01/2012	9/01/2012	10/01/2012	11/01/2012	12/01/2012	1/01/2013	2/01/2013	3/01/2013	4/01/2013	5/01/2013	6/01/2013	7/01/2013	8/01/2013
Sample Type			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Data Status			SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource	SSource
Parameter	Total or Dissolved	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flow																				
	NA	Lab	8.2 mgd 103.8 MG	9.4 mgd 134 MG	9.4 mgd 24.9 MG	9.4 mgd 142.5 MG	9.8 mgd 241.2 MG	9.4 mgd 162.9 MG	9.8 mgd 276.5 MG	9.8 mgd 293.9 MG	9.4 mgd 58.6 MG	5.8 mgd 92.4 MG	5 mgd 74.8 MG	5 mgd 141 MG	5.8 mgd 150.4 MG	10.4 mgd 206 MG	9.8 mgd 148 MG	9.5 mgd 348.5 MG	9.5 mgd 95.5 MG	9.8 mgd 164.9 MG
Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	Lab	--	--	0.08 mg/l 0.16 mg/l	< 0.05 mg/l	0.025 mg/l 0.1 mg/l	< 0.05 mg/l	< 0.05 mg/l	0.025 mg/l 0.05 mg/l	--	--	--	--	< 0.05 mg/l	0.034 mg/l 0.091 mg/l	0.06 mg/l 0.14 mg/l	0.11 mg/l 0.23 mg/l	< 0.05 mg/l	0.07 mg/l 0.12 mg/l
Nitrogen, unionized ammonia, as N	NA	Lab	--	--	0.002 mg/l 0.004 mg/l	< 0.002 mg/l	0.003 mg/l 0.01 mg/l	< 0.002 mg/l	< 0.002 mg/l	0.001 mg/l 0.005 mg/l	--	--	--	--	< 0.0002 mg/l	0.0002 mg/l 0.0006 mg/l	0.002 mg/l 0.004 mg/l	0.01 mg/l 0.02 mg/l	< 0.003 mg/l	0.006 mg/l 0.01 mg/l
Oil and Grease - Silica gel cleanup	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	Lab	8.4 pH units	8 pH units	8 pH units	7.9 pH units 8.2 pH units	8 pH units 8.5 pH units	7.9 pH units 8.1 pH units	8.1 pH units 8.2 pH units	7.8 pH units 8 pH units	7.9 pH units 8.2 pH units	8 pH units 8.1 pH units	7.6 pH units 8 pH units	7.9 pH units	7.6 pH units 7.7 pH units	7.8 pH units 8 pH units	7.9 pH units 8.2 pH units	8.5 pH units	8.2 pH units	8.3 pH units 8.4 pH units
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended	NA	Lab	--	--	--	2 mg/l	--	< 1 mg/l	--	< 1 mg/l	--	< 1 mg/l	--	< 1 mg/l	--	1.2 mg/l 2.4 mg/l	--	1.8 mg/l 2 mg/l	--	1.6 mg/l
Specific Conductance @ 25 °C	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate, as SO4	NA	Lab	22.9 mg/l	26.5 mg/l	27.3 mg/l	24.35 mg/l	27.1 mg/l	25.3 mg/l	25 mg/l	26.05 mg/l	32.6 mg/l	35.2 mg/l	35.1 mg/l	31.7 mg/l	26.3 mg/l	24.95 mg/l	14 mg/l	17.1 mg/l	16 mg/l	19.4 mg/l
Temperature, °C	NA	Lab	--	--	15.1 deg C	18.35 deg C 18.9 deg C	22.3 deg C 23.5 deg C	21.2 deg C 22 deg C	17.3 deg C 21.7 deg C	10.8 deg C 13 deg C	--	--	--	--	0.3 deg C	2.1 deg C 2.8 deg C	10.8 deg C 17.4 deg C	15.2 deg C	20.9 deg C 21.2 deg C	19.5 deg C 20 deg C
Turbidity	NA	Field	0.7 NTU	0.8 NTU	1.7 NTU	0.9 NTU 1.1 NTU	0.5 NTU 0.6 NTU	1.1 NTU 1.2 NTU	0.7 NTU	0.8 NTU 1 NTU	0.8 NTU 1.2 NTU	0.5 NTU 0.6 NTU	0.9 NTU 1 NTU	0.8 NTU	0.6 NTU	0.9 NTU 1.1 NTU	1.1 NTU 1.3 NTU	0.9 NTU 1 NTU	1.2 NTU	1.5 NTU 1.6 NTU
Metals																				
Iron	Dissolved	Lab	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l	< 50 ug/l
Mercury	Total	Lab	--	--	--	0.00075 ug/l	--	--	0.00055 ug/l	--	--	0.00065 ug/l	--	--	< 0.0005 ug/l	--	--	0.00115 ug/l 0.0013 ug/l	--	--
Total Petroleum Hydrocarbons																				
Diesel Range Organics	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 12
Historic Discharge Data for the Partridge River Headwaters
Poly Met Mining, Inc.

			Location	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009	HIST-SD-009
			Date	9/01/2013	11/01/2013	12/01/2013	2/01/2014	3/01/2014
			Sample Type	N	N	N	N	N
			Data Status	SSource	SSource	SSource	SSource	SSource
Parameter	Total or Dissolved	Analysis Location						
General Parameters								
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--
Flow								
	NA	Lab	5.8 mgd 39.1 MG	9.4 mgd 148.9 MG	5.8 mgd 98.5 MG	8.2 mgd 33.7 MG	8.2 mgd 40.6 MG	
Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	Lab	< 0.05 mg/l	--	--	--	--	< 0.05 mg/l
Nitrogen, unionized ammonia, as N	NA	Lab	< 0.003 mg/l	--	--	--	--	< 0.0004 mg/l
Oil and Grease - Silica gel cleanup	NA	Lab	--	--	--	--	--	--
pH	NA	Lab	8.3 pH units	8.1 pH units 8.2 pH units	8.2 pH units	7.9 pH units	7.9 pH units 8 pH units	
Solids, total dissolved	NA	Lab	--	--	--	--	--	--
Solids, total suspended	NA	Lab	--	--	--	< 1 mg/l	--	--
Specific Conductance @ 25 °C	NA	Field	--	--	--	--	--	--
Sulfate, as SO4	NA	Lab	24.45 mg/l	26 mg/l	--	30 mg/l	32.1 mg/l	
Temperature, °C	NA	Lab	19.3 deg C	--	--	--	--	1.2 deg C 1.4 deg C
Turbidity	NA	Field	1.3 NTU	0.5 NTU 0.6 NTU	0.4 NTU	2.6 NTU	0.5 NTU	
Metals								
Iron	Dissolved	Lab	< 50 ug/l	< 50 ug/l	--	< 50 ug/l	< 50 ug/l	
Mercury	Total	Lab	0.00074 ug/l	--	--	--	0.00051 ug/l	
Total Petroleum Hydrocarbons								
Diesel Range Organics	NA	Lab	--	--	--	--	--	--

Large Table 12
Historic Discharge Data for the Partridge River Headwaters
Poly Met Mining, Inc.

Data Footnotes and Qualifiers

Footnote	
	Not used in water quality modeling as of June 13, 2014
--	Not analyzed/not available.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
NA	NA (not applicable) indicates that a fractional portion of the sample is not part of the analytical testing or field collection procedures.
ND	Not detected.
TIC	Tentatively identified compound
Validated	Laboratory data has been evaluated following Barr QA/QC procedures and/or project-specific data review requirements. Field data has been verified for transcription errors, consistency and completeness. Data transferred from the previous database (9/2009) were categorized as validated, but may be comprised of any one of the following data status categories: Validated, SSource, No QC or Legacy.
No QC	Laboratory data has been excluded from Barr QA/QC procedures.
SSource	Laboratory and/or field data obtained from a secondary source external to Barr. Second source QA/QC evaluation procedures may or may not have been performed beyond the original data generator.
Legacy	Historical laboratory data (internal at Barr). QA/QC evaluation procedures may or may not have been performed beyond the original data generator

Qualifier	
a	Estimated value, calculated using some or all values that are estimates.
b	Potential false positive value based on blank data validation procedures.
c	Coeluting compound.
e	Estimated value, exceeded the instrument calibration range.
f	Sample was collected at a flowrate exceeding the recommended rate of 200 mL/minute.
h	EPA recommended sample preservation, extraction or analysis holding time was exceeded.
i	Indeterminate value based on failure of blind duplicate data to meet quality assurance criteria.
j	Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
p	Relative percent difference is >40% (25% CLP pesticides) between primary and confirmation GC columns.
pp	Small peak in chromatogram below method detection limit.
r	The presence of the compound is suspect based on the ID criteria of the retention time and relative retention time obtained from the examination of the chromatograms.
s	Potential false positive value based on statistical analysis of blank sample data.
t	Sample positive for total coliforms but negative for <i>E. coli</i> .
v	Sample was collected under a vacuum of greater than XX inches of mercury.
*	Estimated value, QA/QC criteria not met.
**	Unusable value, QA/QC criteria not met.
AT	Sample chromatogram is noted to be atypical of a petroleum product.
EMPC	Estimated maximum possible concentration.
BQA	Barr-applied project specific qualifier: extraction and/or analyses conducted using an alternative method and/or procedure.
BQC	Barr-applied project specific qualifier: plant shut down.
BQD	Barr-applied project specific qualifier: equipment malfunction.
BQE	Barr-applied project specific qualifier: equipment adjustment.
BQM	Barr-applied project specific qualifier: manual measurement.
BQN	Barr-applied project specific qualifier: unable to be sampled or measured due to various reasons.
BQP	Barr-applied project specific qualifier: atypical chromatographic pattern.
BQQ	Barr-applied project specific qualifier: some aspect of QA/QC was not met.
BQR	Barr-applied project specific qualifier: location was re-sampled.
BQS	Barr-applied project specific qualifier: data is considered suspect.
BQT	Barr-applied project specific qualifier: summed value not displayed due to insufficient field length.
BQU	Barr-applied project specific qualifier: historical qualifier - definition unknown.
BQV	Barr-applied project specific qualifier: estimated value.
BQX	Barr-applied project specific qualifier: see notes for qualifier definition.
BQZ	Barr-applied project specific qualifier: data is considered unusable.

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Parameter	Location Date Sample Type	MLC-1 3/17/2011		MLC-1 4/12/2011		MLC-1 7/30/2012	MLC-1 8/27/2012	MLC-1 9/24/2012	MLC-1 10/18/2012	MLC-1 12/12/2012	MLC-1 1/23/2013		MLC-1 2/20/2013	MLC-1 3/20/2013		MLC-1 4/9/2013	MLC-1 5/8/2013	MLC-1 6/5/2013	MLC-1 7/10/2013	MLC-1 8/12/2013	MLC-1 10/14/2013	MLC-1 11/20/2013	MLC-1 12/23/2013	MLC-2 5/24/2011
		N	FD	N	FD	N	N	N	N	N	N	FD	N	N	FD	N	N	N	N	N	N	N	N	N
		Total or Dissolved																						
General Parameters																								
Alkalinity, bicarbonate, as CaCO3	NA	394 mg/l	--	97.7 mg/l	--	--	--	218 mg/l	--	166 mg/l	--	--	--	282 mg/l	--	--	--	--	189 mg/l	--	179 mg/l	--	--	--
Alkalinity, total, as CaCO3	NA	394 mg/l	--	97.7 mg/l	--	--	--	218 mg/l	--	166 mg/l	--	--	--	282 mg/l	--	--	--	--	189 mg/l	--	179 mg/l	--	--	--
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	15.8 mg/l	--	12.1 mg/l	--	39.4 mg/l	43.8 mg/l	25.4 mg/l	19.7 mg/l	13.7 mg/l	21.4 mg/l	20.3 mg/l	24.1 mg/l	31.3 mg/l	--	21.1 mg/l	10.7 mg/l	13.2 mg/l	27.3 mg/l	36.5 mg/l	14.0 mg/l	11.9 mg/l	12.7 mg/l	--
Chemical Oxygen Demand	NA	48.2 mg/l	--	38.9 mg/l	--	--	--	69.9 mg/l	--	37.0 mg/l	--	--	--	80.2 mg/l	--	--	--	--	78.5 mg/l	--	53.0 mg/l	--	--	--
Chloride	NA	18.6 mg/l	--	4.02 mg/l	--	3.2 mg/l	3.1 mg/l	5.0 mg/l	5.7 mg/l	9.9 mg/l	14.5 mg/l	15.7 mg/l	12.8 mg/l	11.2 mg/l	--	21.6 mg/l	4.7 mg/l	3.8 mg/l	2.6 mg/l	2.5 mg/l	7.5 mg/l	8.0 mg/l	11.7 mg/l	--
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	--	--	--	--	5.16 mg/l	3.56 mg/l	4.79 mg/l	7.34 mg/l	7.4 mg/l	7.41 mg/l	--	7.72 mg/l	9.58 mg/l	--	11.13 mg/l	7.97 mg/l	7.92 mg/l	4.68 mg/l	6.33 mg/l	4.27 mg/l	10.23 mg/l	8.24 mg/l	3.42 mg/l
Fluoride	NA	0.31 mg/l	--	0.15 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	383 mg/l	--	92.6 mg/l	--	171 mg/l	206 mg/l	199 mg/l	167 mg/l	138 mg/l	242 mg/l	242 mg/l	241 mg/l	240 mg/l	--	378 mg/l	113 mg/l	99.2 mg/l	169 mg/l	213 mg/l	146 mg/l	116 mg/l	208 mg/l	--
Nitrate + Nitrite, as N	NA	< 0.1 mg/l	--	--	--	--	--	< 0.10 mg/l	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	--	--	< 0.10 mg/l	--	< 0.10 mg/l	--	--	--
Nitrogen, ammonia as N	NA	0.18 mg/l	--	0.11 mg/l	--	--	--	< 0.10 mg/l	--	< 0.10 mg/l	--	--	--	1.7 mg/l	--	--	--	--	< 0.10 mg/l	--	< 0.10 mg/l	--	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	--	--	--	--	7.04 pH units	7.04 pH units	7.26 pH units	7.07 pH units	7.39 pH units	7.37 pH units	--	6.66 pH units	6.88 pH units	--	7.25 pH units	6.84 pH units	7.06 pH units	7.24 pH units	6.84 pH units	7.01 pH units	7.56 pH units	7.24 pH units	7.28 pH units
Phosphorus, total, as P	NA	< 0.1 mg P/L	--	< 0.1 mg P/L	--	--	--	0.019 mg/l	--	0.0066 mg/l	--	--	--	0.14 mg/l	--	--	--	--	0.040 mg/l	--	0.046 mg/l	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	512 mg/l	--	141 mg/l	--	297 mg/l	371 mg/l	283 mg/l	239 mg/l	225 mg/l	336 mg/l	344 mg/l	374 mg/l	371 mg/l	--	553 mg/l	184 mg/l	177 mg/l	279 mg/l	323 mg/l	238 mg/l	219 mg/l	322 mg/l	--
Solids, total suspended	NA	4 mg/l	--	2 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	--	--	--	--	326.8 umhos/cm	405.5 umhos/cm	335.6 umhos/cm	364.5 umhos/cm	249.7 umhos/cm	563.6 umhos/cm	--	586.2 umhos/cm	591.9 umhos/cm	--	843.9 umhos/cm	271.6 umhos/cm	238.7 umhos/cm	347.9 umhos/cm	447.5 umhos/cm	348.2 umhos/cm	302.4 umhos/cm	472.6 umhos/cm	267.0 umhos/cm
Sulfate, as SO4	NA	35.1 mg/l	--	11.9 mg/l	--	< 1.0 mg/l	1.1 mg/l	< 1.0 mg/l	1.6 mg/l	11.5 mg/l	9.5 mg/l	9.4 mg/l	1.9 mg/l	1.2 mg/l	--	82.3 mg/l	16.2 mg/l	6.4 mg/l	< 1.0 mg/l	< 1.0 mg/l	3.8 mg/l	7.9 mg/l	14.2 mg/l	--
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S2-	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	--	--	--	--	21.96 deg C	23.61 deg C	10.15 deg C	10.06 deg C	0.68 deg C	1.17 deg C	--	0.43 deg C	1.64 deg C	--	3.35 deg C	10.96 deg C	10.59 deg C	19.45 deg C	16.83 deg C	9.28 deg C	1.75 deg C	0.08 deg C	13.50 deg C
Turbidity	NA	--	--	--	--	80.3 NTU	4.6 NTU	30.2 NTU	13.5 NTU	0 NTU	3.2 NTU	--	2.4 NTU	50.2 NTU	--	4.3 NTU	0.3 NTU	1.2 NTU	2.4 NTU	7.6 NTU	8.2 NTU	2.6 NTU	6.8 NTU	5.3 NTU
Metals																								
Aluminum	Total	< 25 ug/l	--	< 25 ug/l	--	58.3 ug/l	46.1 ug/l	35.2 ug/l	48.4 ug/l	26.4 ug/l	33.9 ug/l	34.2 ug/l	44.6 ug/l	40.6 ug/l	--	26.6 ug/l	23.6 ug/l	< 20.0 ug/l	44.1 ug/l	49.0 ug/l	24.2 ug/l	< 20.0 ug/l	26.2 ug/l	--
Aluminum	Dissolved	< 25 ug/l	--	< 25 ug/l	--	51.1 ug/l	34.3 ug/l	29.6 ug/l	28.2 ug/l	< 20.0 ug/l	< 20.0 ug/l	20.4 ug/l	28.9 ug/l	31.2 ug/l	--	22.5 ug/l	< 20.0 ug/l	28.2 ug/l	32.3 ug/l	38.3 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--
Antimony	Total	--	--	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	--	--	--
Arsenic	Total	--	--	0.84 ug/l	0.79 ug/l	5.2 ug/l	7.0 ug/l	2.7 ug/l	1.8 ug/l	0.61 ug/l	2.3 ug/l	2.5 ug/l	3.8 ug/l	7.0 ug/l	--	1.0 ug/l	1.0 ug/l	0.80 ug/l	3.2 ug/l	4.1 ug/l	2.2 ug/l	0.65 ug/l	< 0.50 ug/l	--
Barium	Total	34.1 ug/l	--	11 ug/l	--	--	--	32.5 ug/l	--	17.7 ug/l	--	--	--	93.8 ug/l	--	--	--	--	34.7 ug/l	--	28.6 ug/l	--	--	--
Beryllium	Total	< 0.2 ug/l	--	< 0.2 ug/l	--	--	--	< 0.20 ug/l	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	< 0.20 ug/l	--	< 0.20 ug/l	--	--	--
Boron	Total	70.5 ug/l	--	< 50 ug/l	--	--	--	< 50.0 ug/l	--	67.9 ug/l	--	--	--	85.3 ug/l	--	--	--	--	60.0 ug/l	--	66.6 ug/l	--	--	--
Cadmium	Total	< 0.03 ug/l	--	< 0.03 ug/l	--	--	--	< 0.20 ug/l	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	< 0.20 ug/l	--	< 0.20 ug/l	--	--	--
Calcium	Total	58.6 mg/l	--	14.5 mg/l	--	29.5 mg/l	35.6 mg/l	32.0 mg/l	27.4 mg/l	20.5 mg/l	39.6 mg/l	39.7 mg/l	42.2 mg/l	43.2 mg/l	--	52.1 mg/l	16.4 mg/l	15.3 mg/l	27.7 mg/l	35.3 mg/l	22.3 mg/l	17.1 mg/l	31.3 mg/l	--
Chromium	Total	< 1 ug/l	--	< 1 ug/l	--	--	--	< 1.0 ug/l	--	< 1.0 ug/l	--	--	--	1.2 ug/l	--	--	--	--	< 1.0 ug/l	--	< 1.0 ug/l	--	--	--
Cobalt	Total	< 0.2 ug/l	--	< 0.2 ug/l	--	0.89 ug/l	1.1 ug/l	0.40 ug/l	0.37 ug/l	< 0.20 ug/l	0.65 ug/l	0.67 ug/l	0.65 ug/l	0.60 ug/l	--	0.23 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.71 ug/l	0.85 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.22 ug/l	--
Cobalt	Dissolved	< 0.2 ug/l	--	< 0.2 ug/l	--	0.94 ug/l	1.0 ug/l	0.38 ug/l	0.33 ug/l	< 0.20 ug/l	0.67 ug/l	0.65 ug/l	0.63 ug/l	0.62 ug/l	--	0.22 ug/l	< 0.20 ug/l	0.23 ug/l	0.70 ug/l	0.84 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.24 ug/l	--
Copper	Total	0.43 j ug/l	--	0.64 j ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	1.1 ug/l	1.1 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	0.61 ug/l	< 0.50 ug/l	0.72 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Copper	Dissolved	0.68 ug/l	--	1.55 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	1.6 ug/l	0.81 ug/l	< 0.50 ug/l	0.93 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	0.93 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Iron	Total	1780 ug/l	--	817 ug/l	--	12000 ug/l	19900 ug/l	6120 ug/l	5130 ug/l	2060 ug/l	17100 ug/l	17400 ug/l	30400 ug/l	37600 ug/l	--	1690 ug/l	2020 ug/l	373 ug/l	7090 ug/l	11200 ug/l	3870 ug/l	999 ug/l	3620 ug/l	--
Iron	Dissolved	1470 ug/l	--	524 ug/l	--	9790 ug/l	12900 ug/l	1870 ug/l	2040 ug/l	1480 ug/l	15400 ug/l	15600 ug/l	28900 ug/l	35600 ug/l	--	1270 ug/l	2000 ug/l	302 ug/l	3810 ug/l	8740 ug/l	793 ug/l	2400 ug/l	2950 ug/l	--
Lead	Total	< 0.02 ug/l	--	0.11 j ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Lead	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Magnesium	Total	57.5 mg/l	--	13.7 mg/l	--	23.7 mg/l	28.3 mg/l	28.9 mg/l	24.0 mg/l	21.0 mg/l	34.8 mg/l	34.6 mg/l	32.8 mg/l	32.1 mg/l	--	60.2 mg/l	17.4 mg/l	14.8 mg/l	24.2 mg/l	30.4 mg/l	21.8 mg/l	17.8 mg/l	31.5 mg/l	--
Manganese	Total	270 ug/l	--	44 ug/l	--	816 ug/l	1040 ug/l	460 ug/l	331 ug/l	130 ug/l	779 ug/l	789 ug/l	858 ug/l	817 ug/l	--	135 ug/l	47.4 ug/l	14.8 mg/l	561 ug/l	710 ug/l	176 ug/l	28.0 ug/l	217 ug/l	--
Manganese	Dissolved	270 ug/l	--	41.4 ug/l	--	802 ug/l	1030 ug/l	405 ug/l	307 ug/l	133 ug/l	829 ug/l	800 ug/l	853 ug/l	888 ug/l	--	141 ug/l	44.6 ug/l	14.3 ug/l	555 ug/l	679 ug/l	156 ug/l	29.8 ug/l	222 ug/l	--
Mercury	Total	1.3 ng/l	1.4 ng/l	3.8 ng/l	3.7 ng/l	--	--	1.4 ng/l	--	1.1 ng/l	--	--	--	1.7 ng/l	2.1 ng/l	--	--	--	4.0 ng/l	--	1.8 ng/l	--	--	--
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	1.06 ug/l	--	0.68 ug/l	--	--	--	0.35 ug/l	--	0.47 ug/l	--	--	--	< 0.30 ug/l	--	--								

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location		MLC-2	MLC-2		MLC-2	MLC-2	MLC-2		MLC-2	MLC-2		MLC-2		MLC-2	MLC-2	MLC-2	MLC-2	MLC-2	MLC-2	MLC-2	MLC-2	MLC-2	MLC-2	MLC-2	
Date		6/30/2011	7/25/2011		7/26/2011	8/24/2011	9/20/2011		10/20/2011	11/22/2011		12/28/2011		1/25/2012		6/26/2012	7/25/2012	8/28/2012	9/24/2012	10/23/2012	11/21/2012	12/12/2012	1/22/2013	2/20/2013	3/20/2013
Sample Type		N	N	FD	N	N	N	FD	N	N	FD	N	FD	N	FD	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved																								
General Parameters																									
Alkalinity, bicarbonate, as CaCO3	NA	81.2 mg/l	166 mg/l	166 mg/l	--	99.4 mg/l	107 mg/l	--	90.3 mg/l	98.1 mg/l	--	130 mg/l	129 mg/l	201 mg/l	--	76.5 mg/l	--	--	130 b mg/l	--	--	93.1 mg/l	--	--	142 mg/l
Alkalinity, total, as CaCO3	NA	81.2 mg/l	166 mg/l	166 mg/l	--	99.4 mg/l	107 mg/l	--	90.3 mg/l	98.1 mg/l	--	130 mg/l	129 mg/l	201 mg/l	--	76.5 mg/l	--	--	130 b mg/l	--	--	93.1 mg/l	--	--	142 mg/l
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130 b mg/l	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	26.1 mg/l	43.0 mg/l	36.1 mg/l	--	26.4 mg/l	23.2 mg/l	--	20.2 mg/l	18.5 mg/l	--	21.5 mg/l	21.4 mg/l	38.8 mg/l	--	30.4 mg/l	48.0 mg/l	45.3 mg/l	30.3 mg/l	18.2 mg/l	13.3 mg/l	12.9 mg/l	24.2 mg/l	23.6 mg/l	23.8 mg/l
Chemical Oxygen Demand	NA	72.6 mg/l	95.6 mg/l	96.9 mg/l	--	70.7 mg/l	63.7 mg/l	--	60.1 mg/l	49.2 mg/l	--	59.8 mg/l	52.6 mg/l	111 mg/l	--	77.0 b mg/l	--	--	83.7 mg/l	--	--	34.8 mg/l	--	--	71.7 mg/l
Chloride	NA	1.81 mg/l	2.66 mg/l	2.66 mg/l	2.52 mg/l	5.48 mg/l	6.77 mg/l	--	8.06 mg/l	8.75 mg/l	--	11 mg/l	10.9 mg/l	12.7 mg/l	--	1.7 mg/l	3.1 mg/l	2.4 mg/l	4.6 mg/l	5.7 mg/l	6.0 mg/l	7.2 mg/l	11.5 mg/l	10.8 mg/l	11.4 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	3.47 mg/l	0.46 mg/l	--	0.41 mg/l	0.27 mg/l	2.03 mg/l	--	< 0.1 mg/l	6.22 mg/l	--	7.24 mg/l	--	7.01 mg/l	--	2.85 mg/l	0.97 mg/l	0.55 mg/l	3.17 mg/l	5.7 mg/l	8.76 mg/l	6.28 mg/l	7.2 mg/l	5.94 mg/l	4.09 mg/l
Fluoride	NA	--	0.33 mg/l	0.33 mg/l	--	--	0.23 mg/l	--	--	0.2 mg/l	--	--	--	0.25 mg/l	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	79.9 mg/l	155 mg/l	152 mg/l	--	95.2 mg/l	102 mg/l	--	89.2 mg/l	88.2 mg/l	--	117 mg/l	117 mg/l	178 mg/l	--	72.8 mg/l	120 mg/l	178 mg/l	130 mg/l	119 mg/l	73.2 mg/l	87.5 mg/l	98.4 mg/l	135 mg/l	127 mg/l
Nitrate + Nitrite, as N	NA	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	0.10 mg/l	--	--	< 0.10 mg/l
Nitrogen, ammonia as N	NA	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	--	0.37 mg/l	0.38 mg/l	2.08 mg/l	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	1.8 mg/l
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	6.99 pH units	6.93 pH units	--	6.91 pH units	7.08 pH units	6.80 pH units	--	6.9 pH units	6.48 pH units	--	6.58 pH units	--	6.83 pH units	--	7.48 pH units	7.25 pH units	7.31 pH units	7.58 pH units	7.06 pH units	7.65 pH units	7.56 pH units	7.36 pH units	6.67 pH units	6.54 pH units
Phosphorus, total, as P	NA	0.014 mg P/L	0.04 mg P/L	0.035 mg P/L	--	0.04 mg P/L	0.072 mg P/L	--	0.017 mg P/L	0.025 mg P/L	--	< 0.1 mg P/L	< 0.1 mg P/L	0.25 mg P/L	--	0.015 b mg/l	--	--	0.0090 mg/l	--	--	< 0.0040 mg/l	--	--	0.11 mg/l
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	456 mV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	175 mg/l	292 mg/l	268 mg/l	--	173 mg/l	189 mg/l	--	194 mg/l	152 mg/l	--	203 mg/l	206 mg/l	256 mg/l	--	156 mg/l	268 mg/l	281 mg/l	199 mg/l	178 mg/l	117 mg/l	148 mg/l	172 mg/l	223 mg/l	221 mg/l
Solids, total suspended	NA	--	2.7 mg/l	4 mg/l	--	--	7.5 mg/l	--	1.6 mg/l	< 1 mg/l	--	--	--	24 mg/l	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	197.0 umhos/cm	441.0 umhos/cm	--	444.0 umhos/cm	206.0 umhos/cm	222.0 umhos/cm	--	211 umhos/cm	230 umhos/cm	--	245.0 umhos/cm	--	287 umhos/cm	--	155.7 umhos/cm	211.1 umhos/cm	325.2 umhos/cm	153.9 umhos/cm	230.4 umhos/cm	58.4 umhos/cm	91.5 umhos/cm	79.3 umhos/cm	322 umhos/cm	313.3 umhos/cm
Sulfate, as SO4	NA	< 1 mg/l	< 1 mg/l	< 1 mg/l	< 1 mg/l	< 1 mg/l	2.61 mg/l	--	12.3 mg/l	7.87 mg/l	--	5.26 mg/l	5.3 mg/l	1.44 mg/l	--	1.5 mg/l	1.0 mg/l	1.2 mg/l	1.2 mg/l	2.5 mg/l	5.0 mg/l	6.6 mg/l	6.8 mg/l	3.3 mg/l	2.3 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	2.54 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S ²⁻	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	17.21 deg C	17.06 deg C	--	12.19 deg C	17.40 deg C	10.92 deg C	--	4.8 deg C	0.65 deg C	--	0.34 deg C	--	0.21 deg C	--	15.45 deg C	18.93 deg C	16.45 deg C	8.44 deg C	7.22 deg C	1.28 deg C	0.21 deg C	-0.01 deg C	0.09 deg C	1.39 deg C
Turbidity	NA	0 NTU	0.7 NTU	--	1.0 NTU	6.9 NTU	40.4 NTU	--	0 NTU	0 NTU	--	3.4 NTU	--	2.2 NTU	--	0 NTU	4.9 NTU	0.1 NTU	5.4 NTU	24.9 NTU	0 NTU	0 NTU	18.7 NTU	4.3 NTU	102 NTU
Metals																									
Aluminum	Total	52.2 ug/l	34.6 ug/l	33.3 ug/l	41.6 ug/l	< 25 ug/l	25.6 ug/l	--	< 25 ug/l	< 25 ug/l	--	104 ug/l	97.9 ug/l	112 ug/l	--	67.5 ug/l	78.3 ug/l	56.6 ug/l	34.9 ug/l	22.9 ug/l	< 20.0 ug/l	31.5 ug/l	31.5 ug/l	43.9 ug/l	56.7 ug/l
Aluminum	Dissolved	48 ug/l	< 25 ug/l	< 25 ug/l	36.5 ug/l	< 25 ug/l	27 ug/l	--	< 25 ug/l	< 25 ug/l	--	104 ug/l	97.9 ug/l	112 ug/l	--	67.5 ug/l	78.3 ug/l	56.6 ug/l	34.9 ug/l	22.9 ug/l	< 20.0 ug/l	31.5 ug/l	31.5 ug/l	43.9 ug/l	56.7 ug/l
Antimony	Total	< 0.5 ug/l	< 0.5																						

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location Date	Sample	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11		
		6/10/2008	7/22/2008	8/21/2008	9/16/2008	10/8/2008	10/9/2008	11/12/2008	7/9/2009	7/21/2009	FD	7/28/2009	FD	8/20/2009	FD	8/26/2009	FD	9/10/2009	FD	10/13/2009	FD	11/3/2009	FD	7/26/2010	8/25/2010	9/9/2010	9/14/2010
Parameter	Total or Dissolved	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
General Parameters																											
Alkalinity, bicarbonate, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, total, as CaCO3	NA	122 mg/l	288 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	340 mg/l	--	--	343 mg/l	
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3 mg/l	--	--	< 3 mg/l	
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, dissolved organic	NA	--	--	--	--	--	--	11.7 mg/l	9.8 mg/l	9.8 mg/l	12.0 mg/l	11.0 mg/l	12.1 mg/l	12.1 mg/l	13.3 mg/l	13.3 mg/l	12.0 mg/l	12.6 mg/l	8.7 mg/l	8.8 mg/l	10.5 mg/l	10.6 mg/l	14.3 mg/l	--	--	11.9 mg/l	
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, total organic	NA	12.7 mg/l	14.7 mg/l	12.8 mg/l	10.4 mg/l	--	10.6 mg/l	8.5 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.5 mg/l	--	--	10.3 mg/l	
Chemical Oxygen Demand	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	36.8 mg/l	--	--	35.8 mg/l	
Chloride	NA	6.2 mg/l	9.2 mg/l	--	--	--	--	--	8.71 mg/l	10.4 mg/l	10.4 mg/l	11.5 mg/l	11.5 mg/l	14.2 mg/l	14.3 mg/l	14.4 mg/l	14.4 mg/l	17.4 mg/l	17.4 mg/l	25.4 mg/l	25.4 mg/l	19.9 mg/l	19.9 mg/l	13.2 mg/l	19.3 mg/l	18.4 mg/l	19.5 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	14.3 mg/l	14.2 mg/l	--	--	--	--	--	--	--	--	--	--	
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	70 color units	70 color units	70 color units	70 color units	70 color units	70 color units	40 color units	45 color units	75 color units	75 color units	--	--	--	
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dissolved oxygen	NA	--	--	--	--	--	7.07 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.28 mg/l	4.11 mg/l	6.23 mg/l	6.7 mg/l	
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Hardness, as CaCO3	NA	180 mg/l	353 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	417 mg/l	--	--	441 mg/l	
Nitrate + Nitrite, as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	--	--	< 0.1 mg/l	
Nitrogen, ammonia as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.17 mg/l	--	--	1.21 mg/l	
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.17 mg/l	--	--	1.11 mg/l	
Orthophosphate, as PO4	NA	--	--	--	--	--	--	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	0.02 mg/l	< 0.02 mg/l	< 0.02 mg/l	< 0.07 mg/l	< 0.07 mg/l	< 0.02 mg/l	< 0.02 mg/l	--	--	--	--	
pH	NA	7.22 pH units	7.62 pH units	8.21 pH units	7.88 pH units	7.74 pH units	7.74 pH units	7.83 pH units	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.66 pH units	7.85 pH units	7.80 pH units	7.79 pH units	
Phosphorus, total, as P	NA	0.017 mg/l	0.031 * mg/l	0.027 mg/l	0.015 mg/l	--	0.021 mg/l	0.011 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.046 mg P/L	--	--	0.014 mg P/L	
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	0.009 mg/l	0.008 mg/l	0.007 mg/l	0.007 mg/l	0.007 mg/l	0.013 mg/l	0.012 mg/l	0.013 mg/l	0.011 mg/l	0.012 mg/l	0.01 mg/l	0.005 mg/l	0.006 mg/l	0.007 mg/l	0.008 mg/l	--	--	--		
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Solids, total dissolved	NA	226 mg/l	465 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	565 mg/l	--	--	564 mg/l	
Solids, total suspended	NA	3.6 mg/l	3.2 mg/l	--	--	--	--	--	< 1 mg/l	2.4 mg/l	2.4 mg/l	4 mg/l	2.4 mg/l	6 mg/l	2.4 mg/l	< 1 mg/l	2.8 mg/l	1.6 mg/l	< 1 mg/l	< 1 mg/l	1.6 mg/l	1.6 mg/l	2.4 mg/l	4 mg/l	--	2.5 mg/l	
Specific Conductance @ 25 °C	NA	--	--	--	--	--	937 umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	912 umhos/cm	1055 umhos/cm	1003 umhos/cm	919.1 umhos/cm	
Sulfate, as SO4	NA	62.5 mg/l	106 mg/l	122 mg/l	167 mg/l	--	166 mg/l	130 mg/l	147 mg/l	151 mg/l	150 mg/l	150 mg/l	150 mg/l	140 mg/l	141 mg/l	124 mg/l	--	155 mg/l	155 mg/l	188 mg/l	188 mg/l	159 mg/l	160 mg/l	122 mg/l	120 mg/l	131 mg/l	143 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	124 mg/l	122 mg/l	--	--	--	--	--	--	--	--	--	
Sulfide, as S²-	NA	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	
Temperature, °C	NA	--	--	--	--	--	9.7 deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	21.90 deg C	17.17 deg C	11.63 deg C	12.23 deg C	
Turbidity	NA	--	--	--	--	--	2.0 NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0 NTU	1.8 NTU	1.9 NTU	0 NTU	
Metals																											
Aluminum	Total	69.4 ug/l	26.8 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Aluminum	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Antimony	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Arsenic	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Barium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Beryllium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Boron	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cadmium	Total	0.021 j ug/l	0.069 jb ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Calcium	Total	25.6 mg/l	44.5 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Chromium	Total	0.33 jb ug/l	0.57 j ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cobalt	Total	0.19 j ug/l	0.28 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cobalt	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Copper	Total	0.80 ug/l	0.73 b ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.82 ug/l	--	--	0.86 ug/l	
Copper	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	309 ug/l	--	--	243 ug/l	
Iron	Dissolved	--	--	--	--	--	--	106 ug/l	80 ug/l	86.5 ug/l	133 ug/l	122 ug/l	178 ug/l	168 ug/l	218 ug/l	214 ug/l	185 ug/l	190 ug/l	81.6 ug/l	82.9 ug/l	240 * ug/l	363 * ug/l	--	--	--	--	
Lead	Total	0.15 jb ug/l	0.11 jb ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.5 ug/l	--	--	0.06 j ug/l	
Lead	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Magnesium	Total	28.2 mg/l	58.7 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73 mg/l	--	--	78.6 mg/l	
Manganese	Total	60 ug/l	130 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	138 ug/l	--	--	65.1 ug/l	
Manganese	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Mercury	Total	0.0027 ug/l	0.0019 ug/l	0.0019 ug/l	0.0012 ug/l	--	0.0014 ug/l	0.0011 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Mercury	Dissolved	--	--	--	--	--	--	--	0.0014 ug/l	0.0019 ug/l	0.0014 ug/l	0.0016 ug/l	0.0013 ug/l	0.0025 ug/l	0.0012 ug/l	0.0011 ug/l	0.0017 ug/l	0.0016 ug/l	0.0014 ug/l	0.6 ng/l	0.8 ng/l	1.6 ng/l	1.7 ng/l	--	--	--	
Methyl Mercury	Total	0.00042 ug/l	0.00046 ug/l	0.00020 ug/l	0.00018 ug/l	--	0.00024 ug/l	0.00015 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	0.00021 ug/l	< 0.0001 ug/l	0.00011 ug/l	0.00014 ug/l	0.00015 ug/l	0.30 ng/l	0.31 ng/l	0.55 ng/l	0.24 ng/l	0.19 ng/l	0.13 ng/l	0.13 ng/l	0.12 ng/l	0.19 ng/l	0.12 ng/l	--	--	--	
Molybdenum	Total	11 ug/l	19 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.5 ug/l	--	--	13 ug/l	
Nickel	Total	1.2 ug/l	1.3 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.52 ug/l	--	--	1.33 ug/l	
Nickel	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Palladium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Platinum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Potassium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.22 mg/l	--	--	8.22 mg/l	
Selenium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 ug/l	--	--	0.61 j ug/l	
Silver	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	
Sodium	Total	--	--	--	--	--	--	--	--	--	--																

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location		PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-11	PM-12	PM-12	PM-12	PM-12	PM-12	PM-12	PM-12	PM-12	PM-12	PM-12	PM-12		
Date		3/21/2013	4/9/2013	5/8/2013	6/6/2013	7/9/2013	8/13/2013	9/12/2013	10/14/2013	11/20/2013	12/23/2013	4/13/2004	5/20/2004	6/23/2004	7/28/2004	8/25/2004	9/28/2004	10/25/2004	11/16/2004	7/11/2006	8/29/2006	9/20/2006	10/13/2006
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved																						
General Parameters																							
Alkalinity, bicarbonate, as CaCO3	NA	421 mg/l	--	--	--	181 mg/l	--	--	350 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	421 mg/l	--	--	--	181 mg/l	--	--	350 mg/l	--	--	16 mg/l	20 mg/l	41.3 mg/l	75.7 mg/l	152 mg/l	45 mg/l	36.8 mg/l	47.4 mg/l	79 mg/l	69.8 mg/l	81.4 mg/l	58.6 mg/l
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	7.0 mg/l	9.1 mg/l	10.4 mg/l	12.5 mg/l	23.3 mg/l	15.7 mg/l	13.5 mg/l	10.1 mg/l	9.5 mg/l	8.0 mg/l	14.7 mg/l	19.5 mg/l	24.3 mg/l	18.1 mg/l	--	29.4 mg/l	--	20.4 mg/l	21.7 mg/l	17.6 mg/l	12.1 mg/l	14.8 mg/l
Chemical Oxygen Demand	NA	16.2 mg/l	--	--	--	65.8 mg/l	--	--	38.0 mg/l	--	--	52 mg/l	27 mg/l	47 mg/l	46 mg/l	--	63.2 mg/l	--	41.4 mg/l	44 mg/l	--	--	--
Chloride	NA	29.9 mg/l	20.9 mg/l	5.7 mg/l	8.2 mg/l	3.1 mg/l	5.2 mg/l	13.6 mg/l	21.8 mg/l	25.7 mg/l	24.7 mg/l	2.1 mg/l	2.3 mg/l	3 mg/l	3.4 mg/l	4.7 mg/l	5.8 mg/l	5.1 mg/l	3.4 mg/l	3.76 mg/l	7.5 mg/l	5.59 mg/l	7.89 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	< 20 ug/l	< 20 ug/l	< 20 ug/l	< 20 ug/l	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	12.26 mg/l	12.07 mg/l	7.07 mg/l	4.58 mg/l	2.13 mg/l	4.27 mg/l	4.7 mg/l	6.2 mg/l	8.98 mg/l	9.66 mg/l	11.8 mg/l	7.71 mg/l	--	--	--	--	--	--	3.39 mg/l	4.5 mg/l	4.8 mg/l	8.55 mg/l
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	0.1 mg/l	0.11 mg/l	0.15 mg/l	0.2 mg/l	0.14 mg/l	0.13 mg/l	0.1 mg/l	< 0.1 mg/l	0.17 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.18 mg/l
Hardness, as CaCO3	NA	592 mg/l	452 mg/l	143 mg/l	193 mg/l	184 mg/l	291 mg/l	346 mg/l	418 mg/l	425 mg/l	506 mg/l	19 mg/l	18.6 mg/l	34.1 mg/l	77.1 mg/l	75.7 mg/l	51.1 mg/l	39.6 mg/l	34.2 mg/l	83.4 mg/l	78.5 mg/l	87.2 mg/l	73.4 mg/l
Nitrate + Nitrite, as N	NA	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	< 100 ug/l	< 100 ug/l	120 ug/l	< 100 ug/l	--	< 100 ug/l	--	< 100 ug/l	--	--	--	--
Nitrogen, ammonia as N	NA	0.17 mg/l	--	--	--	0.10 mg/l	--	--	< 0.10 mg/l	--	--	< 100 ug/l	< 100 ug/l	< 100 ug/l	< 100 ug/l	--	--	--	--	--	--	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	7.06 pH units	7.33 pH units	6.64 pH units	6.98 pH units	7.27 pH units	7.35 pH units	7.64 pH units	7.59 pH units	7.39 pH units	7.35 pH units	7.6 pH units	6.7 pH units	7.37 pH units	7.64 pH units	7.13 pH units	7.36 pH units	6.9 pH units	7.81 pH units	7.25 pH units	7.43 pH units	7.18 pH units	7.92 pH units
Phosphorus, total, as P	NA	0.018 mg/l	--	--	--	0.037 mg/l	--	--	0.014 mg/l	--	--	0.11 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.22 mg/l	--	0.14 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	781 mg/l	564 mg/l	198 mg/l	292 mg/l	256 mg/l	361 mg/l	452 mg/l	508 mg/l	544 mg/l	657 mg/l	46 mg/l	62 mg/l	197 mg/l	110 mg/l	105 mg/l	118 mg/l	101 mg/l	86 mg/l	145 mg/l	142 mg/l	121 mg/l	145 mg/l
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	< 1 mg/l	< 1 mg/l	1 mg/l	3 mg/l	--	2 mg/l	--	< 1 mg/l	--	--	--	--
Specific Conductance @ 25 °C	NA	1123 umhos/cm	837 umhos/cm	320.6 umhos/cm	414.2 umhos/cm	374.9 umhos/cm	610.6 umhos/cm	746.4 umhos/cm	833.9 umhos/cm	883.6 umhos/cm	912.1 umhos/cm	37 umhos/cm	53 umhos/cm	87.2 umhos/cm	149.2 umhos/cm	166.2 umhos/cm	115.3 umhos/cm	94.4 umhos/cm	--	163 umhos/cm	160.3 umhos/cm	181.7 umhos/cm	151.4 umhos/cm
Sulfate, as SO4	NA	218 mg/l	155 mg/l	46.7 mg/l	54.7 mg/l	13.5 mg/l	35.9 mg/l	39.4 mg/l	96.0 mg/l	166 mg/l	179 mg/l	5.3 mg/l	6.9 mg/l	8.9 mg/l	0.5 mg/l	< 1 mg/l	1.1 mg/l	8.5 mg/l	6.5 mg/l	2.47 mg/l	2.3 mg/l	1.39 mg/l	8.19 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S ²⁻	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	4.4 deg C	2.1 deg C	8.23 deg C	11.71 deg C	21.46 deg C	16.16 deg C	17.14 deg C	9.21 deg C	2.87 deg C	3.76 deg C	2.2 deg C	10.5 deg C	14.1 deg C	19 deg C	19.9 deg C	12.3 deg C	7.7 deg C	0.5 deg C	20.9 deg C	16.6 deg C	10.5 deg C	2.6 deg C
Turbidity	NA	13.5 NTU	3.8 NTU	0 NTU	0 NTU	0 NTU	1.3 NTU	4 NTU	0.2 NTU	0 NTU	2 NTU	1 NTU	1.1 NTU	--	--	--	--	--	--	2.98 NTU	--	--	--
Metals																							
Aluminum	Total	35.6 ug/l	29.0 ug/l	40.1 ug/l	< 20.0 ug/l	30.6 ug/l	28.4 ug/l	26.9 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	122 ug/l	121 ug/l	104 ug/l	101 ug/l	44.3 ug/l	93.5 ug/l	85.9 ug/l	143 ug/l	75.6 ug/l	--	--	--
Aluminum	Dissolved	23.6 ug/l	20.8 ug/l	27.6 ug/l	< 20.0 ug/l	24.1 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	20.3 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	--	< 0.50 ug/l	--	--	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	--	--	--	--	--	--	--	--
Arsenic	Total	< 0.82 ug/l	0.62 ug/l	0.91 ug/l	0.53 ug/l	1.2 ug/l	< 1.0 ug/l	0.93 ug/l	0.74 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	--	--	--	--	--	--	--	--
Barium	Total	67.9 ug/l	--	--	--	27.9 ug/l	--	--	35.1 ug/l	--	--	< 10 ug/l	< 10 ug/l	18 ug/l	27.2 ug/l	--	18.7 ug/l	--	< 10 ug/l	29.9 ug/l	--	--	--
Beryllium	Total	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--	--	--	--
Boron	Total	277 ug/l	--	--	--	148 ug/l	--	--	228 ug/l	--	--	< 35 ug/l	< 35 ug/l	< 35 ug/l	< 35 ug/l	--	--	< 35 ug/l	--	--	--	--	--
Cadmium	Total	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	--	--	--	--
Calcium	Total	69.9 mg/l	54.2 mg/l	18.2 mg/l	25.8 mg/l	26.3 mg/l	37.9 mg/l	44.0 mg/l	49.9 mg/l	47.0 mg/l	56.7 mg/l	4.6 mg/l	5.3 mg/l	11.2 mg/l	19.3 mg/l	18.9 mg/l	12.2 mg/l	9.1 mg/l	7.9 mg/l	21.4 mg/l	19.6 mg/l	21.5 mg/l	18.2 mg/l
Chromium	Total	< 1.0 ug/l	--	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	2.3 ug/l	1.4 ug/l	< 1 ug/l	1.5 ug/l	--	--	--	--	--	--	--	--
Cobalt	Total	0.34 ug/l	0.25 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	< 1 ug/l	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l
Cobalt	Dissolved	0.32 ug/l	0.26 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	0.84 ug/l	0.68 ug/l	0.89 ug/l	0.58 ug/l	0.58 ug/l	0.60 ug/l	0.50 ug/l	0.64 ug/l	0.80 ug/l	1.1 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 0.9 ug/l	< 0.66 ug/l	1 ug/l	1.2 ug/l	0.91 ug/l	1 ug/l	0.54 ug/l	0.7 ug/l	2.8 ug/l
Copper	Dissolved	0.85 ug/l	0.65 ug/l	0.70 ug/l	0.50 ug/l	0.50 ug/l	0.61 ug/l	< 0.50 ug/l	0.57 ug/l	0.86 ug/l	1.1 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	549 ug/l	836 ug/l	1070 ug/l	402 ug/l	875 ug/l	430 ug/l	373 ug/l	240 ug/l	369 ug/l	426 ug/l	460 ug/l	500 ug/l	3430 ug/l	2260 ug/l	--	2550 ug/l	--	1140 ug/l	1.66 ug/l	--	--	--
Iron	Dissolved	160 ug/l	351 ug/l	747 ug/l	323 ug/l	746 ug/l	253 ug/l	260 ug/l	153 ug/l	239 ug/l	192 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.3 ug/l	< 0.3 ug/l	< 0.3 ug/l	< 0.3 ug/l	< 0.6 ug/l	--	--	--
Lead	Dissolved	--	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	101 mg/l	76.8 mg/l	23.7 mg/l	31.3 mg/l	28.7 mg/l	47.6 mg/l	57.3 mg/l	71.3 mg/l	74.8 mg/l	88.4 mg/l	2.9 mg/l	2.6 mg/l	4.2 mg/l	7 mg/l	6.9 mg/l	5 mg/l	4.1 mg/l	3.5 mg/l	7.3 mg/l	7.17 mg/l	8.13 mg/l	6.8 mg/l
Manganese	Total	820 ug/l	643 ug/l	177 ug/l	79.9 ug/l	259 ug/l	217 ug/l	164 ug/l	66.0 ug/l	71.9 ug/l	302 ug/l	20 ug/l	20 ug/l	170 ug/l	340 ug/l	--	100 ug/l	--	110 ug/l	379 ug/l	--	--	--
Manganese	Dissolved	784 ug/l	657 ug/l	154 ug/l	80.9 ug/l	256 ug/l	190 ug/l	146 ug/l	53.1 ug/l	75.0 ug/l	321 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	0.60 ng/l	--	--	--	2.7 ng/l	--	--	1.4 ng/l	--	--	0.0065 ug/l	0.0067 ug/l	< 0.004 ug/l	< 0.01 ug/l	0.0025 ug/l	0.0099 ug/l	< 0.01 ug/l	< 0.01 ug/l	0.002 ug/l	0.0027 ug/l	< 0.008 ug/l	0.003 ug/l
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.000323 ug/l	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	8.5 ug/l	--	--	--	3.7 ug/l	--	--	4.5 ug/l	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	--	< 5 ug/l	--	< 5 ug/l	< 5 ug/l	--	--	--
Nickel	Total	1.1 ug/l	0.92 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	2.2 ug/l							

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location Date Sample Type		PM-12 11/8/2006 N	PM-12 3/23/2007 N	PM-12 4/24/2007 N	PM-12 5/22/2007 N	PM-12 6/12/2007 N	PM-12 7/24/2007 N	PM-12 8/23/2007 N	PM-12 9/20/2007 N	PM-12 10/25/2007 N	PM-12 11/15/2007 N	PM-12 5/21/2008 N	PM-12 6/10/2008 N	PM-12 7/22/2008		PM-12 8/21/2008 N	PM-12 9/16/2008 N	PM-12 10/8/2008 N	PM-12 10/9/2008 N	PM-12 11/12/2008 N	PM-12 7/9/2009 N	PM-12 7/21/2009 N	PM-12 7/28/2009 N	PM-12 8/20/2009 N	PM-12 8/26/2009 N	PM-12 9/10/2009 N	PM-12 10/13/2009 N
		N		N		N		N		N		N		N		N	N	N	N	N	N	N	N	N	N	N	N
Parameter		Total or Dissolved												N	FD	N	N	N	N	N	N	N	N	N	N	N	N
General Parameters		NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as CaCO3	NA																										
Alkalinity, total, as CaCO3	NA	38.4 mg/l	39.1 mg/l	21.6 mg/l	52.5 mg/l	25 mg/l	76.4 mg/l	84.2 mg/l	45.8 mg/l	27.4 mg/l	22.9 mg/l	15.2 mg/l	17.8 mg/l	48.2 mg/l	51.8 mg/l	--	--	--	--	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24.8 mg/l	20.2 mg/l	24.4 mg/l	27.2 mg/l	29.0 mg/l	22.8 mg/l	15.6 mg/l
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	13.9 mg/l	15.7 mg/l	28.5 mg/l	29.6 mg/l	36.4 mg/l	31.4 mg/l	27.0 mg/l	26.5 mg/l	28.1 mg/l	21.8 mg/l	15.7 mg/l	23.4 mg/l	29.1 mg/l	29.0 mg/l	19.5 mg/l	15.2 mg/l	--	22.4 mg/l	21.0 mg/l	--	--	--	--	--	--	--
Chemical Oxygen Demand	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	7.24 mg/l	10.4 mg/l	3.23 mg/l	4.45 mg/l	1.98 mg/l	3.16 mg/l	3.23 mg/l	6.15 mg/l	2.17 mg/l	2.33 mg/l	1.74 mg/l	1.5 mg/l	2.88 mg/l	2.89 mg/l	--	--	--	--	--	3.85 mg/l	7.72 mg/l	5.05 mg/l	5.46 mg/l	6.1 mg/l	5.86 mg/l	7.41 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.9 mg/l	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	200 color units	400 color units	200 color units	140 color units
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	11.23 mg/l	9.34 mg/l	10.74 mg/l	4.2 mg/l	1.8 mg/l	4.3 mg/l	--	3.23 mg/l	8 mg/l	9.1 mg/l	--	--	--	--	--	--	--	5.82 mg/l	--	--	--	--	--	--	--	--
Fluoride	NA	0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.14 mg/l	< 0.1 mg/l	--	< 0.2 mg/l	< 0.2 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	54.8 mg/l	41.5 mg/l	48.5 mg/l	34.1 mg/l	37.5 mg/l	77.6 mg/l	84.0 mg/l	171 mg/l	31 mg/l	26.7 mg/l	21 mg/l	31.1 mg/l	61 mg/l	61.7 mg/l	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate + Nitrite, as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.03 mg/l	0.03 mg/l	0.02 mg/l	0.02 mg/l	0.03 mg/l	0.02 mg/l	< 0.07 mg/l
pH	NA	6.87 pH units	7.7 pH units	6.58 pH units	7.7 pH units	6.4 pH units	7.6 pH units	--	6.9 pH units	7.7 pH units	6.8 pH units	--	6.10 pH units	6.72 pH units	--	7.36 pH units	6.92 pH units	6.77 pH units	6.77 pH units	6.31 pH units	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.009 mg/l	0.012 mg/l	0.055 * mg/l	0.056 mg/l	0.024 mg/l	0.024 mg/l	--	0.039 mg/l	0.014 mg/l	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.024 mg/l	0.016 mg/l	0.016 mg/l	0.035 mg/l	0.029 mg/l	0.026 mg/l	0.01 mg/l
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	100 mg/l	111 mg/l	120 mg/l	105 mg/l	120 mg/l	159 mg/l	173 mg/l	258 mg/l	88 mg/l	87 mg/l	48 mg/l	74 mg/l	139 mg/l	135 mg/l	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	1.6 b mg/l	2.8 mg/l	1.6 mg/l	2 mg/l	--	--	--	--	--	2.5 mg/l	2.4 mg/l	3.2 mg/l	4 mg/l	1.2 mg/l	< 1 mg/l	2 mg/l
Specific Conductance @ 25 °C	NA	121.8 umhos/cm	126 umhos/cm	66.0 umhos/cm	777 umhos/cm	73.5 umhos/cm	152 umhos/cm	--	361 umhos/cm	266 umhos/cm	61 umhos/cm	--	--	--	--	--	--	--	116.2 umhos/cm	--	--	--	--	--	--	--	--
Sulfate, as SO4	NA	8.41 mg/l	3.03 mg/l	18.2 mg/l	5.78 mg/l	2.68 mg/l	< 1 mg/l	< 1 mg/l	116 mg/l	3.09 mg/l	2.72 mg/l	2.81 mg/l	6.52 mg/l	< 1 mg/l	< 1 mg/l	1.05 mg/l	11.9 mg/l	--	7.66 mg/l	4.31 mg/l	< 1 mg/l	< 1 mg/l	1.05 mg/l	1.73 mg/l	< 1 mg/l	1.18 mg/l	1.4 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.07 mg/l	--	--
Sulfide, as S²-	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l
Temperature, °C	NA	4 deg C	0.4 deg C	2.5 deg C	11.2 deg C	18.8 deg C	25.3 deg C	--	10.4 deg C	4.6 deg C	1.3 deg C	--	--	--	--	--	--	--	8.5 deg C	--	--	--	--	--	--	--	--
Turbidity	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.3 NTU	--	--	--	--	--	--	--	--
Metals																											
Aluminum	Total	--	--	--	--	--	--	--	--	--	--	105 ug/l	147 ug/l	87.4 ug/l	87 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location		PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	PM-12.1	
Date		8/24/2011	9/20/2011	10/20/2011	6/26/2012	7/25/2012	8/28/2012	9/24/2012	10/23/2012	11/21/2012	12/13/2012	1/22/2013	2/20/2013	3/11/2013	4/8/2013	5/7/2013	6/6/2013	7/8/2013	8/13/2013	9/11/2013	10/10/2013	11/19/2013	12/19/2013
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved																						
General Parameters																							
Alkalinity, bicarbonate, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinty, total, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	--	--	--	14.4 mg/l	14.1 mg/l	10.4 mg/l	9.4 mg/l	10.0 mg/l	6.3 mg/l	6.0 mg/l	7.1 mg/l	4.5 mg/l	4.2 mg/l	6.4 mg/l	8.0 mg/l	9.2 mg/l	12.6 mg/l	11.3 mg/l	12.1 mg/l	10.9 mg/l	6.8 mg/l	5.5 mg/l
Chemical Oxygen Demand	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	1.22 mg/l	2.2 b mg/l	3.56 mg/l	0.62 mg/l	3.1 mg/l	2.4 mg/l	2.2 mg/l	4.0 mg/l	3.8 mg/l	3.8 mg/l	4.9 mg/l	4.2 mg/l	4.0 mg/l	3.5 mg/l	1.2 mg/l	1.2 mg/l	0.68 mg/l	1.3 mg/l	2.2 mg/l	2.9 mg/l	3.3 mg/l	4.0 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	5.91 mg/l	--	< 0.1 mg/l	7.27 mg/l	5.72 mg/l	6.13 mg/l	10.36 mg/l	8.48 mg/l	9.6 mg/l	10.22 mg/l	11 mg/l	10.73 mg/l	10.76 mg/l	11.14 mg/l	11.01 mg/l	8.82 mg/l	5.92 mg/l	6.51 mg/l	3.97 mg/l	7.93 mg/l	11.75 mg/l	9.93 mg/l
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate + Nitrite, as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	7.71 pH units	--	8.6 pH units	7.64 pH units	7.64 pH units	7.75 pH units	8.04 pH units	7.36 pH units	7.48 pH units	7.6 pH units	7 pH units	6.68 pH units	7.71 pH units	7.08 pH units	6.93 pH units	7.08 pH units	7.53 pH units	7.36 pH units	7.45 pH units	7.43 pH units	7.62 pH units	7.11 pH units
Phosphorus, total, as P	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	439 mV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	801.0 umhos/cm	--	1134 umhos/cm	644.9 umhos/cm	616.6 umhos/cm	896.3 umhos/cm	664.4 umhos/cm	1147 umhos/cm	1094 umhos/cm	853.7 umhos/cm	1660 umhos/cm	1752 umhos/cm	1400 umhos/cm	1365 umhos/cm	513.4 umhos/cm	626.8 umhos/cm	753 umhos/cm	910.3 umhos/cm	985.4 umhos/cm	1063 umhos/cm	1062 umhos/cm	1480 umhos/cm
Sulfate, as SO4	NA	224 mg/l	81.6 mg/l	438 mg/l	235 mg/l	191 mg/l	297 mg/l	217 mg/l	427 mg/l	488 mg/l	567 mg/l	944 mg/l	882 mg/l	815 mg/l	640 mg/l	188 mg/l	230 mg/l	263 mg/l	296 mg/l	308 mg/l	410 mg/l	471 mg/l	659 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S²-	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	14.01 deg C	--	5.4 deg C	17.59 deg C	18.56 deg C	14.46 deg C	8.12 deg C	8.25 deg C	2.14 deg C	0.65 deg C	-0.06 deg C	0.79 deg C	2.11 deg C	0.36 deg C	3.6 deg C	11.45 deg C	19.93 deg C	15.07 deg C	15.41 deg C	11.58 deg C	0.71 deg C	1.82 deg C
Turbidity	NA	0 NTU	--	0 NTU	0 NTU	2.1 NTU	0 NTU	0 NTU	4.8 NTU	0 NTU	0 NTU	0 NTU	0.5 NTU	497 NTU	14.4 NTU	6 NTU	0 NTU	0 NTU	0.95 NTU 3000 NTU	3.6 NTU	0 NTU	0 NTU	0 NTU
Metals																							
Aluminum	Total	< 25 ug/l	81.2 ug/l	30 ug/l	48.7 ug/l	122 ug/l	210 ug/l	33.3 ug/l	69.2 ug/l	61.7 ug/l	78.1 ug/l	69.8 ug/l	56.9 ug/l	36.5 ug/l	64.0 ug/l	41.4 ug/l	45.9 ug/l	49.9 ug/l	32.5 ug/l	92.2 ug/l	< 40.0 ug/l	< 20.0 ug/l	21.1 ug/l
Aluminum	Dissolved	< 25 ug/l	< 25 ug/l	< 25 ug/l	21.7 ug/l	21.8 ug/l	< 20.0 ug/l	20.5 ug/l	36.2 ug/l	< 40.0 ug/l	< 20.0 ug/l	25.4 ug/l	24.0 ug/l	22.7 ug/l	23.9 ug/l	23.3 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l
Antimony	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location Date Sample Type		PM-12.2 8/25/2010 N	PM-12.2 9/9/2010 N	PM-12.2 9/23/2010 N	PM-12.2 10/6/2010 N	PM-12.2 7/26/2011 N	PM-12.2 8/24/2011 N	PM-12.2 9/20/2011 N	PM-12.2 10/20/2011 N	PM-12.2 6/26/2012 N	PM-12.2 7/25/2012 N	PM-12.2 8/28/2012 N	PM-12.2 9/24/2012 N	PM-12.2 10/23/2012 N	PM-12.2 11/21/2012 N	PM-12.2 12/13/2012 N	PM-12.2 1/22/2013 N	PM-12.2 2/20/2013 N	PM-12.2 3/11/2013 N	PM-12.2 4/8/2013 N	PM-12.2 5/7/2013 N	PM-12.2 6/6/2013 N	PM-12.2 7/8/2013 N
Parameter	Total or Dissolved																						
General Parameters																							
Alkalinity, bicarbonate, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	--	--	--	--	--	--	--	--	46.6 mg/l	44.0 mg/l	45.9 mg/l	41.8 mg/l	35.5 mg/l	20.5 mg/l	15.9 mg/l	13.7 mg/l	8.5 mg/l	8.2 mg/l	8.7 mg/l	15.7 mg/l	22.7 mg/l	34.1 mg/l
Chemical Oxygen Demand	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	2.64 mg/l	3.68 mg/l	3.12 mg/l	3.69 mg/l	2.09 mg/l	1.89 mg/l	2.4 b mg/l	2.5 mg/l	1.3 mg/l	2.2 mg/l	2.7 mg/l	2.8 mg/l	2.8 mg/l	5.2 mg/l	5.8 mg/l	4.0 mg/l	4.5 mg/l	4.6 mg/l	10.3 mg/l	2.0 mg/l	2.4 mg/l	1.9 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	2.75 mg/l	3.88 mg/l	2.2 mg/l	4.95 mg/l	2.17 mg/l	2.18 mg/l	--	< 0.1 mg/l	0.17 mg/l	< 0.1 mg/l	1.76 mg/l	1.47 mg/l	4.58 mg/l	5.08 mg/l	2.51 mg/l	0.37 mg/l	9.72 mg/l	9.87 mg/l	5.94 mg/l	5.57 mg/l	5.22 mg/l	1.36 mg/l
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate + Nitrite, as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	7.12 pH units	6.91 pH units	7.1 pH units	6.88 pH units	6.95 pH units	7.04 pH units	--	6.1 pH units	7.01 pH units	7.05 pH units	7.51 pH units	7.74 pH units	7.12 pH units	7.14 pH units	7.2 pH units	8.09 pH units	6.79 pH units	7.06 pH units	6.78 pH units	6.09 pH units	6.08 pH units	6.9 pH units
Phosphorus, total, as P	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	437 mV	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	322 umhos/cm	377.4 umhos/cm	11.5 umhos/cm	376 umhos/cm	316.0 umhos/cm	544.0 umhos/cm	--	549 umhos/cm	124 umhos/cm	223.3 umhos/cm	318.3 umhos/cm	356.1 umhos/cm	427.9 umhos/cm	355.6 umhos/cm	447.1 umhos/cm	746.6 umhos/cm	1166 umhos/cm	1600 umhos/cm	793.1 umhos/cm	150.6 umhos/cm	164.2 umhos/cm	228 umhos/cm
Sulfate, as SO4	NA	49.2 mg/l	81.2 mg/l	124 mg/l	95.4 mg/l	53.8 mg/l	91.8 mg/l	71 mg/l	73.1 mg/l	30.4 mg/l	39.6 mg/l	43.3 mg/l	52.8 mg/l	52.6 mg/l	131 mg/l	191 mg/l	157 mg/l	490 mg/l	434 mg/l	318 mg/l	41.8 mg/l	38.8 mg/l	45.7 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S2-	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	18.81 deg C	12.2 deg C	456 deg C	10.23 deg C	20.15 deg C	17.56 deg C	--	6.4 deg C	18.85 deg C	20.44 deg C	19.47 deg C	10.25 deg C	8.37 deg C	2.28 deg C	0.81 deg C	0.09 deg C	0.07 deg C	1.25 deg C	2.64 deg C	8.2 deg C	11.63 deg C	21.48 deg C
Turbidity	NA	5.1 NTU	5.8 NTU	4.8 NTU	1.5 NTU	7.1 NTU	3.1 NTU	--	0 NTU	1.1 NTU	7.2 NTU	0.7 NTU	31.4 NTU	19.7 NTU	0 NTU	4.5 NTU	3.2 NTU	5.6 NTU	17.4 NTU	57.5 NTU	2.7 NTU	0.6 NTU	9.4 NTU
Metals																							
Aluminum	Total	--	--	--	--	148 ug/l	130 ug/l	44.7 ug/l	36 ug/l	170 ug/l	91.1 ug/l	62.4 ug/l	174 ug/l	48.0 ug/l	60.4 ug/l	67.4 ug/l	57.0 ug/l	39.8 ug/l	41.6 ug/l	54.5 ug/l	78.4 ug/l	119 ug/l	143 ug/l
Aluminum	Dissolved	--	--	--	--	47.4 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	160 ug/l	77.4 ug/l	45.1 ug/l	46.9 ug/l	33.8 ug/l	< 40.0 ug/l	46.5 ug/l	31.7 ug/l	24.9 ug/l	21.5 ug/l	30.8 ug/l	62.1 ug/l	95.5 ug/l	110 ug/l
Antimony	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	--	--	--	--	--	--	--	--	2640 ug/l	3280 ug/l	2030 ug/l	1640 ug/l	982 ug/l	2500 ug/l	2830 ug/l	4450 ug/l	2230 ug/l	2050 ug/l	2630 ug/l	1090 ug/l	1440 ug/l	4370 ug/l
Iron	Dissolved	--	--	--	--	--	--	--	--	1890 ug/l	3040 ug/l	1130 ug/l	1310 ug/l	862 ug/l	1970 ug/l	1840 ug/l	1990 ug/l	432 ug/l	346 ug/l	1210 ug/l	766 ug/l	944 ug/l	2970 ug/l
Lead	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	--	--	--	--	--	--	--	--	776 ug/l	1440 ug/l	1140 ug/l	559 ug/l	225 ug/l	615 ug/l	807 ug/l	1250 ug/l	832 ug/l	625 ug/l	449 ug/l	90.9 ug/l	78.9 ug/l	1060 ug/l
Manganese	Dissolved	--	--	--	--	--	--	--	--	795 b ug/l	1390 ug/l	1120 ug/l	534 ug/l	219 ug/l	627 ug/l	644 ug/l	1280 ug/l	869 ug/l	645 ug/l	448 ug/l	88.1 ug/l	75.3 ug/l	934 ug/l
Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

	Location Date Sample Type	PM-12.2 8/13/2013	PM-12.2 8/13/2013	PM-12.2 9/11/2013	PM-12.2 10/10/2013	PM-12.2 11/19/2013	PM-12.2 12/19/2013	PM-12.3 8/25/2010	PM-12.3 9/9/2010	PM-12.3 9/23/2010	PM-12.3 10/6/2010	PM-12.3 7/26/2011	PM-12.3 8/24/2011	PM-12.3 9/20/2011	PM-12.3 10/20/2011	PM-12.3 6/26/2012	PM-12.3 7/25/2012	PM-12.3 8/28/2012	PM-12.3 9/24/2012	PM-12.3 10/23/2012	PM-12.3 11/21/2012	PM-12.3 12/13/2012	PM-12.3 1/22/2013
		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved																						
General Parameters																							
Alkalinity, bicarbonate, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	27.6 mg/l	--	20.4 mg/l	15.1 mg/l	13.8 mg/l	12.4 mg/l	--	--	--	--	--	--	--	--	46.3 mg/l	39.4 mg/l	44.7 mg/l	29.4 mg/l	19.8 mg/l	15.1 mg/l	15.9 mg/l	14.4 mg/l
Chemical Oxygen Demand	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	2.3 mg/l	--	2.3 mg/l	3.6 mg/l	5.3 mg/l	5.1 mg/l	2.87 mg/l	4.97 mg/l	3.53 mg/l	3.82 mg/l	1.67 mg/l	2.18 mg/l	3.62 b mg/l	5.63 mg/l	1.5 mg/l	2.1 mg/l	2.2 mg/l	3.3 mg/l	4.3 mg/l	7.2 mg/l	7.5 mg/l	9.1 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	--	4.49 mg/l	3.86 mg/l	8.07 mg/l	9.57 mg/l	5.72 mg/l	4.40 mg/l	6.68 mg/l	1.0 mg/l	6.80 mg/l	5.18 mg/l	6.68 mg/l	--	< 0.1 mg/l	2.96 mg/l	4.58 mg/l	4.64 mg/l	6.5 mg/l	8.34 mg/l	9.62 mg/l	8.21 mg/l	11.34 mg/l
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate + Nitrite, as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	--	6.85 pH units	7.43 pH units	7.52 pH units	7.56 pH units	6.68 pH units	7.29 pH units	6.99 pH units	7.3 pH units	7.25 pH units	7.03 pH units	7.52 pH units	--	7.2 pH units	7.35 pH units	7.47 pH units	7.79 pH units	7.89 pH units	7.32 pH units	7.46 pH units	7.03 pH units	7.85 pH units
Phosphorus, total, as P	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	463 mV	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	--	377.7 umhos/cm	500.9 umhos/cm	685.9 umhos/cm	391.3 umhos/cm	746 umhos/cm	207 umhos/cm	213.7 umhos/cm	246 umhos/cm	204 umhos/cm	173.0 umhos/cm	184.0 umhos/cm	--	329 umhos/cm	95.7 umhos/cm	114.5 umhos/cm	165.8 umhos/cm	227.1 umhos/cm	277.1 umhos/cm	263.2 umhos/cm	244.9 umhos/cm	141.4 umhos/cm
Sulfate, as SO4	NA	85.3 mg/l	--	109 mg/l	221 mg/l	137 mg/l	280 mg/l	9.71 mg/l	18 mg/l	29.5 mg/l	24.3 mg/l	7.94 mg/l	5.64 mg/l	5.86 mg/l	8.68 mg/l	14.8 mg/l	10.7 mg/l	8.1 mg/l	36.1 mg/l	16.7 mg/l	78.7 mg/l	79.8 mg/l	115 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S2-	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	--	18.59 deg C	18.65 deg C	13.52 deg C	0.86 deg C	2.64 deg C	19.73 deg C	11.71 deg C	11.5 deg C	10.08 deg C	20.67 deg C	20.01 deg C	--	5.4 deg C	18.57 deg C	22.72 deg C	20.75 deg C	11.63 deg C	8 deg C	1.9 deg C	0.27 deg C	-0.01 deg C
Turbidity	NA	3.7 NTU	3000 NTU	4.4 NTU	5.5 NTU	2.1 NTU	0 NTU	4.0 NTU	3.0 NTU	6.9 NTU	1.5 NTU	2.1 NTU	0 NTU	--	0 NTU	3.1 NTU	4.5 NTU	0.3 NTU	1.5 NTU	18.6 NTU	2.8 NTU	1 NTU	6 NTU
Metals																							
Aluminum	Total	106 ug/l	--	< 20.0 ug/l	49.2 ug/l	63.6 ug/l	51.2 ug/l	--	--	--	--	103 ug/l	36 ug/l	26.8 ug/l	36.2 ug/l	367 ug/l	150 ug/l	134 ug/l	55.7 ug/l	64.3 ug/l	283 ug/l	84.7 ug/l	72.8 ug/l
Aluminum	Dissolved	45.9 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	38.1 ug/l	39.5 ug/l	--	--	--	--	65.9 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	133 ug/l	68.3 ug/l	97.3 ug/l	42.1 ug/l	41.6 ug/l	< 40.0 ug/l	47.2 ug/l	30.0 ug/l
Antimony	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	2690 ug/l	--	862 ug/l	642 ug/l	1070 ug/l	2060 ug/l	--	--	--	--	--	--	--	--	2680 ug/l	6620 ug/l	6590 ug/l	1530 ug/l	1690 ug/l	1560 ug/l	2010 ug/l	2710 ug/l
Iron	Dissolved	2290 ug/l	--	679 ug/l	420 ug/l	726 ug/l	1430 ug/l	--	--	--	--	--	--	--	--	1900 ug/l	6240 ug/l	6060 ug/l	1330 ug/l	1410 ug/l	809 ug/l	1400 ug/l	1590 ug/l
Lead	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	375 ug/l	--	379 ug/l	143 ug/l	128 ug/l	948 ug/l	--	--	--	--	--	--	--	--	402 ug/l	1660 ug/l	1350 ug/l	974 ug/l	285 ug/l	247 ug/l	169 ug/l	828 ug/l
Manganese	Dissolved	307 ug/l	--	340 ug/l	118 ug/l	139 ug/l	916 ug/l	--	--	--	--	--	--	--	--	366 b ug/l	1640 ug/l	1360 ug/l	887 ug/l	270 ug/l	79.2 ug/l	319 ug/l	791 ug/l
Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location Date Sample Type		PM-12.3 2/20/2013 N	PM-12.3 3/11/2013 N	PM-12.3 4/8/2013 N	PM-12.3 5/7/2013 N	PM-12.3 6/6/2013 N	PM-12.3 7/8/2013 N	PM-12.3 8/13/2013 N	PM-12.3 9/11/2013 N	PM-12.3 10/10/2013 N	PM-12.3 11/19/2013 N	PM-12.3 12/19/2013 N	PM-12.4 8/25/2010 N	PM-12.4 9/9/2010 N	PM-12.4 9/23/2010 N	PM-12.4 10/6/2010 N	PM-12.4 7/26/2011 N	PM-12.4 8/24/2011 N	PM-12.4 9/20/2011 N	PM-12.4 10/20/2011 N	PM-12.4 6/26/2012 N	PM-12.4 7/25/2012 N	PM-12.4 8/28/2012 N
Parameter	Total or Dissolved																						
General Parameters																							
Alkalinity, bicarbonate, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	11.7 mg/l	11.2 mg/l	9.9 mg/l	17.0 mg/l	23.1 mg/l	32.9 mg/l	29.0 mg/l	22.4 mg/l	19.1 mg/l	14.1 mg/l	12.3 mg/l	--	--	--	--	--	--	--	--	44.6 mg/l	36.2 mg/l	35.5 mg/l
Chemical Oxygen Demand	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	10.4 mg/l	8.9 mg/l	11.2 mg/l	2.0 mg/l	2.5 mg/l	2.0 mg/l	2.4 mg/l	2.7 mg/l	5.2 mg/l	6.5 mg/l	7.0 mg/l	3.52 mg/l	4.79 mg/l	3.84 mg/l	4.13 mg/l	2.26 mg/l	4.36 mg/l	4.57 mg/l	3.89 mg/l	1.6 mg/l	2.4 mg/l	3.0 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	11.96 mg/l	9.65 mg/l	9.42 mg/l	7.75 mg/l	7.45 mg/l	4.79 mg/l	6.05 mg/l	5.29 mg/l	8.14 mg/l	12.35 mg/l	9.18 mg/l	5.14 mg/l	7.14 mg/l	0.8 mg/l	8.11 mg/l	5.71 mg/l	6.36 mg/l	--	< 0.1 mg/l	3.75 mg/l	5.26 mg/l	5.62 mg/l
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate + Nitrite, as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, ammonia as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	7.01 pH units	6.82 pH units	7.11 pH units	6.27 pH units	6.42 pH units	6.86 pH units	6.95 pH units	7.38 pH units	7.42 pH units	7.51 pH units	6.51 pH units	7.37 pH units	6.89 pH units	7.4 pH units	7.27 pH units	7.10 pH units	7.69 pH units	--	7.2 pH units	7.41 pH units	7.56 pH units	7.8 pH units
Phosphorus, total, as P	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	441 mV	--	--	--
Solids, total dissolved	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	790.3 umhos/cm	400 umhos/cm	641.5 umhos/cm	105.3 umhos/cm	114.8 umhos/cm	168 umhos/cm	234.6 umhos/cm	216.2 umhos/cm	352.5 umhos/cm	283.2 umhos/cm	444 umhos/cm	214 umhos/cm	202.3 umhos/cm	226 umhos/cm	211 umhos/cm	175.0 umhos/cm	334.0 umhos/cm	--	228 umhos/cm	91.3 umhos/cm	115.7 umhos/cm	171.6 umhos/cm
Sulfate, as SO4	NA	221 mg/l	200 mg/l	177 mg/l	17.6 mg/l	13.8 mg/l	16.3 mg/l	22.6 mg/l	15.7 mg/l	43.4 mg/l	56.3 mg/l	101 mg/l	10.4 mg/l	14.7 mg/l	24.3 mg/l	20.9 mg/l	7.73 mg/l	11.2 mg/l	5.67 mg/l	9.45 mg/l	14.3 mg/l	12.1 mg/l	8.8 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S2-	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	0.73 deg C	1.61 deg C	1.9 deg C	6.54 deg C	11.66 deg C	21.45 deg C	17.9 deg C	18.12 deg C	12.18 deg C	0.23 deg C	1.96 deg C	19.63 deg C	11.57 deg C	7.2 deg C	10.68 deg C	20.25 deg C	18.54 deg C	--	7.1 deg C	19.07 deg C	22.95 deg C	19.72 deg C
Turbidity	NA	3.3 NTU	8.5 NTU	27.6 NTU	6 NTU	2.2 NTU	0.3 NTU	3000 NTU	8.6 NTU	3.2 NTU	0 NTU	0 NTU	4.6 NTU	4.7 NTU	11.3 NTU	2.0 NTU	1.4 NTU	0 NTU	--	0 NTU	2.8 NTU	3.8 NTU	0.1 NTU
Metals																							
Aluminum	Total	58.9 ug/l	63.9 ug/l	56.8 ug/l	250 ug/l	169 ug/l	182 ug/l	433 ug/l	152 ug/l	47.4 ug/l	86.7 ug/l	83.7 ug/l	--	--	--	--	108 ug/l	39.3 ug/l	< 25 ug/l	39.6 ug/l	318 ug/l	161 ug/l	97.2 ug/l
Aluminum	Dissolved	26.9 ug/l	25.9 ug/l	25.7 ug/l	27.6 ug/l	85.7 ug/l	92.3 ug/l	65.1 ug/l	28.9 ug/l	< 20.0 ug/l	28.8 ug/l	34.2 ug/l	--	--	--	--	67.4 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	133 ug/l	65.6 ug/l	65.3 ug/l
Antimony	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	1690 ug/l	1420 ug/l	1580 ug/l	999 ug/l	1570 ug/l	4090 ug/l	4370 ug/l	2910 ug/l	1080 ug/l	1120 ug/l	1690 ug/l	--	--	--	--	--	--	--	--	2390 ug/l	5790 ug/l	4830 ug/l
Iron	Dissolved	630 ug/l	659 ug/l	800 ug/l	556 ug/l	1040 ug/l	3500 ug/l	3480 ug/l	2650 ug/l	855 ug/l	829 ug/l	1120 ug/l	--	--	--	--	--	--	--	--	1710 ug/l	5540 ug/l	4450 ug/l
Lead	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	838 ug/l	458 ug/l	450 ug/l	43.3 ug/l	160 ug/l	640 ug/l	553 ug/l	1020 ug/l	255 ug/l	88.0 ug/l	382 ug/l	--	--	--	--	--	--	--	--	263 ug/l	1050 ug/l	487 ug/l
Manganese	Dissolved	841 ug/l	464 ug/l	460 ug/l	30.5 ug/l	138 ug/l	590 ug/l	499 ug/l	1030 ug/l	240 ug/l	85.4 ug/l	370 ug/l	--	--	--	--	--	--	--	--	243 b ug/l	1020 ug/l	452 ug/l
Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location Date Sample Type		PM-12.4 9/24/2012 N	PM-12.4 10/23/2012 N	PM-12.4 11/21/2012 N	PM-12.4 12/13/2012 N	PM-12.4 1/22/2013 N	PM-12.4 2/20/2013 N	PM-12.4 3/11/2013 N	PM-12.4 4/8/2013 N	PM-12.4 5/8/2013 N	PM-12.4 6/6/2013 N	PM-12.4 7/8/2013 N	PM-12.4 8/13/2013 N	PM-12.4 9/11/2013 N	PM-12.4 10/10/2013 N	PM-12.4 11/19/2013 N	PM-12.4 12/19/2013 N	PM-13 4/12/2004 N	PM-13 5/20/2004 N	PM-13 6/23/2004 N	PM-13 7/28/2004 N	PM-13 8/24/2004 N	PM-13 8/25/2004 N
Parameter General Parameters	Total or Dissolved																						
	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26 mg/l	36 mg/l	74.4 mg/l	130 mg/l	174 mg/l	--
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	23.2 mg/l	22.4 mg/l	16.9 mg/l	15.4 mg/l	13.6 mg/l	10.9 mg/l	9.6 mg/l	9.4 mg/l	17.1 mg/l	22.8 mg/l	34.1 mg/l	27.5 mg/l	21.9 mg/l	19.0 mg/l	13.9 mg/l	11.9 mg/l	15.1 mg/l	18.3 mg/l	17.4 mg/l	13.6 mg/l	--	--
Chemical Oxygen Demand	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	21 mg/l	40 mg/l	36 mg/l	28 mg/l	--	--
Chloride	NA	4.4 mg/l	2.6 mg/l	5.3 mg/l	7.3 mg/l	12.3 mg/l	9.9 mg/l	8.3 mg/l	13.0 mg/l	2.5 b mg/l	2.9 mg/l	2.3 mg/l	2.7 mg/l	4.0 mg/l	5.0 mg/l	6.6 mg/l	6.9 mg/l	3.8 mg/l	4.7 mg/l	4.2 mg/l	6.7 mg/l	11.5 mg/l	--
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 20 ug/l	< 20 ug/l	< 20 ug/l	< 20 ug/l	--	--
Dissolved oxygen	NA	7.44 mg/l	8.4 mg/l	10.1 mg/l	9.81 mg/l	10.87 mg/l	10.38 mg/l	9.74 mg/l	10.17 mg/l	7.41 mg/l	7.93 mg/l	5.54 mg/l	6.59 mg/l	6.04 mg/l	8.55 mg/l	11.98 mg/l	9.92 mg/l	9.9 mg/l	10.4 mg/l	--	--	--	--
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.18 mg/l	0.22 mg/l	0.32 mg/l	0.46 mg/l	0.81 mg/l	--
Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	35.6 mg/l	37.6 mg/l	73.7 mg/l	139 mg/l	193 mg/l	--
Nitrate + Nitrite, as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	150 ug/l	< 100 ug/l	120 ug/l	< 100 ug/l	--	--
Nitrogen, ammonia as N	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 100 ug/l	< 100 ug/l	< 100 ug/l	< 100 ug/l	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	8.13 pH units	7.28 pH units	7.45 pH units	7.73 pH units	8.16 pH units	7.33 pH units	6.67 pH units	7.09 pH units	6.44 pH units	6.52 pH units	7.06 pH units	7.08 pH units	7.52 pH units	7.37 pH units	8.13 pH units	6.79 pH units	8.6 pH units	7.92 pH units	7.93 pH units	7.81 pH units	7.54 pH units	--
Phosphorus, total, as P	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.18 mg/l	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68 mg/l	88 mg/l	205 mg/l	176 mg/l	290 mg/l	--
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12 mg/l	9 mg/l	6 mg/l	5 mg/l	--	--
Specific Conductance @ 25 °C	NA	193 umhos/cm	241.3 umhos/cm	151.1 umhos/cm	221.5 umhos/cm	358.1 umhos/cm	664.5 umhos/cm	600 umhos/cm	574.5 umhos/cm	106.7 umhos/cm	110.4 umhos/cm	167.2 umhos/cm	229.6 umhos/cm	261.1 umhos/cm	325.5 umhos/cm	264.5 umhos/cm	423.5 umhos/cm	94 umhos/cm	117 umhos/cm	207.2 umhos/cm	305.2 umhos/cm	473.8 umhos/cm	--
Sulfate, as SO4	NA	24.9 mg/l	22.8 mg/l	50.7 mg/l	72.2 mg/l	103 mg/l	153 mg/l	181 mg/l	145 mg/l	18.7 mg/l	12.5 mg/l	15.9 mg/l	20.4 mg/l	16.7 mg/l	37.3 mg/l	50.5 mg/l	90.7 mg/l	17.2 mg/l	15.4 mg/l	28.4 mg/l	24.6 mg/l	46.6 mg/l	--
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S2-	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	10.76 deg C	8.08 deg C	1.71 deg C	0.26 deg C	0.16 deg C	1.58 deg C	1.79 deg C	2.31 deg C	8.81 deg C	11.8 deg C	21.46 deg C	17.98 deg C	17.81 deg C	11.75 deg C	0.15 deg C	1.43 deg C	1.8 deg C	10.8 deg C	15.4 deg C	20.7 deg C	14.4 deg C	--
Turbidity	NA	0 NTU	18.2 NTU	4.3 NTU	1.3 NTU	12 NTU	5.4 NTU	226.4 NTU	12.4 NTU	9.1 NTU	1.1 NTU	0.7 NTU	3000 NTU	17.9 NTU	6.6 NTU	0.3 NTU	0 NTU	5 NTU	3 NTU	--	--	--	--
Metals																							
Aluminum	Total	130 ug/l	54.2 ug/l	292 ug/l	118 ug/l	88.5 ug/l	60.0 ug/l	41.3 ug/l	67.4 ug/l	349 ug/l	222 ug/l	185 ug/l	129 ug/l	119 ug/l	43.8 ug/l	62.7 ug/l	79.6 ug/l	337 ug/l	356 ug/l	166 ug/l	129 ug/l	--	43.9 ug/l
Aluminum	Dissolved	43.0 ug/l	35.6 ug/l	< 40.0 ug/l	45.0 ug/l	28.7 ug/l	24.0 ug/l	22.8 ug/l	26.5 ug/l	70.7 ug/l	87.2 ug/l	97.2 ug/l	58.5 ug/l	26.8 ug/l	< 20.0 ug/l	30.0 ug/l	30.7 ug/l	--	--	--	--	--	--
Antimony	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3 ug/l	< 3 ug/l	< 3 ug/l	< 3 ug/l	--	--
Arsenic	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	--	--
Barium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.3 ug/l	16.5 ug/l	30.7 ug/l	41.7 ug/l	--	--
Beryllium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--
Boron	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	46 ug/l	< 35 ug/l	44.9 ug/l	68.9 ug/l	--	--
Cadmium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--
Calcium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7 mg/l	8.1 mg/l	16.3 mg/l	26.2 mg/l	31.9 mg/l	--
Chromium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.3 ug/l	1.5 ug/l	< 1 ug/l	1.4 ug/l	--	--
Cobalt	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	--
Cobalt	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	1.6 ug/l	1.1 ug/l	--
Copper	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	1310 ug/l	1930 ug/l	1720 ug/l	1760 ug/l	2290 ug/l	1500 ug/l	1330 ug/l	1360 ug/l	1130 ug/l	1530 ug/l	3970 ug/l	3850 ug/l	2380 ug/l	1020 ug/l	1170 ug/l	1540 ug/l	730 ug/l	720 ug/l	1750 ug/l	1700 ug/l	--	--
Iron	Dissolved	1070 ug/l	1810 ug/l	961 ug/l	1300 ug/l	1570 ug/l	686 ug/l	667 ug/l	773 ug/l	650 ug/l	980 ug/l	3570 ug/l	3650 ug/l	2130 ug/l	855 ug/l	835 ug/l	1060 ug/l	--	--	--	--	--	--
Lead	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.3 ug/l	--
Lead	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.1 mg/l	6.2 mg/l	12 mg/l	17.8 mg/l	27.4 mg/l	--
Manganese	Total	581 ug/l	300 ug/l	233 ug/l	216 ug/l	631 ug/l	610 ug/l	390 ug/l	374 ug/l	53.7 ug/l	158 ug/l	542 ug/l	394 ug/l	767 ug/l	288 ug/l	89.4 ug/l	292 ug/l	30 ug/l	40 ug/l	170 ug/l	200 ug/l	--	--
Manganese	Dissolved	491 ug/l	302 ug/l	83.7 ug/l	267 ug/l	647 ug/l	625 ug/l	406 ug/l	375 ug/l	35.2 ug/l	143 ug/l	491 ug/l	377 ug/l	748 ug/l	279 ug/l	84.5 ug/l	280 ug/l	--	--	--	--	--	--
Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0049 ug/l	0.0043 ug/l	< 0.004 ug/l	< 0.01 ug/l	0.003 ug/l	--
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	--	--
Nickel	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 5 ug/l	< 5 ug/l	< 5 ug/l	< 5 ug/l	--	1.7 ug/l
Nickel	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 0.3 ug/l	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 0.25 ug/l	--
Potassium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2200 ug/l	1500 ug/l	2200 ug/l	2900 ug/l	--	--
Selenium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 3.6 ug/l	--
Silver	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 0.24 ug/l	--
Sodium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5200 ug/l	6400 ug/l	9900 ug/l	16100 ug/l	28300 ug/l	--
Strontium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	29.1 ug/l	34.5 ug/l	65.7 ug/l	104 ug/l	--	--
Thallium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 2 ug/l	< 0.4 ug/l	--
Tin	Total	--	--																				

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

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Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location-13			PM-13		PM-13		PM-13		PM-13		PM-13		PM-13		PM-13		PM-13		PM-13		PM-13		PM-13		PM-13					
Date 2011			6/26/2012		7/25/2012		8/28/2012		9/24/2012		10/23/2012		11/21/2012		12/13/2012		1/22/2013		2/20/2013		3/11/2013		4/8/2013		5/8/2013		6/6/2013		7/8/2013	
Sample Type			N	FD	N	FD	N	FD	N	FD	N	FD	N	FD	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter			Total or Dissolved																											
General Parameters																														
Alkalinity, bicarbonate, as CaCO3			NA	--	51.3 mg/l	51.6 mg/l	--	--	--	--	132 b mg/l	131 b mg/l	--	--	--	--	100 mg/l	101 mg/l	--	--	197 mg/l	202 mg/l	--	--	--	--	--	--	--	73.8 mg/l
Alkalinity, total, as CaCO3			NA	--	51.3 mg/l	51.6 mg/l	--	--	--	--	132 b mg/l	131 b mg/l	--	--	--	--	100 mg/l	101 mg/l	--	--	197 mg/l	202 mg/l	--	--	--	--	--	--	--	73.8 mg/l
Biochemical Oxygen Demand (5-day)			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic			Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic			NA	--	46.6 mg/l	46.0 mg/l	35.2 mg/l	33.8 mg/l	34.7 mg/l	35.5 mg/l	23.9 mg/l	25.0 mg/l	21.4 mg/l	21.2 mg/l	15.0 mg/l	15.7 mg/l	16.5 mg/l	16.7 mg/l	13.0 mg/l	10.2 mg/l	9.2 mg/l	9.4 mg/l	9.3 mg/l	17.6 mg/l	17.1 mg/l	26.0 mg/l	37.3 mg/l			
Chemical Oxygen Demand			NA	--	120 b* mg/l	< 10.0 * mg/l	--	--	--	--	68.4 mg/l	67.4 mg/l	--	--	--	--	42.1 mg/l	47.0 mg/l	--	--	29.7 mg/l	24.6 mg/l	--	--	--	--	--	--	117 mg/l	
Chloride			NA	5.6 mg/l	2.0 mg/l	2.0 mg/l	3.6 mg/l	3.6 mg/l	4.2 mg/l	4.2 mg/l	5.5 mg/l	5.4 mg/l	3.6 mg/l	3.6 mg/l	5.8 mg/l	5.8 mg/l	8.2 mg/l	8.3 mg/l	9.4 mg/l	10.0 mg/l	9.1 mg/l	9.2 mg/l	11.9 mg/l	2.9 b mg/l	2.9 b mg/l	3.5 mg/l	2.9 mg/l			
Chloride			Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen			NA	--	3.01 mg/l	--	4.82 mg/l	--	5.81 mg/l	--	8.74 mg/l	--	8.8 mg/l	--	10.21 mg/l	--	7.97 mg/l	--	6.33 mg/l	11.09 mg/l	9.14 mg/l	--	--	8.57 mg/l	6.72 mg/l	--	7.93 mg/l	4.71 mg/l		
Fluoride			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3			NA	--	71.4 mg/l	72.1 mg/l	114 mg/l	117 mg/l	127 mg/l	124 mg/l	163 mg/l	161 mg/l	112 mg/l	112 mg/l	120 mg/l	120 mg/l	148 mg/l	144 mg/l	234 mg/l	321 mg/l	337 mg/l	330 mg/l	281 mg/l	48.8 mg/l	49.1 mg/l	57.2 mg/l	94.7 mg/l			
Nitrate + Nitrite, as N			NA	--	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	0.11 mg/l	0.14 mg/l	--	--	0.23 mg/l	0.20 mg/l	--	--	--	--	--	0.13 mg/l		
Nitrogen, ammonia as N			NA	--	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	0.14 mg/l	0.14 mg/l	--	--	0.15 mg/l	0.17 mg/l	--	--	--	--	--	0.15 mg/l		
Nitrogen, total			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH			NA	--	7.41 pH units	--	7.48 pH units	--	7.93 pH units	--	7.97 pH units	--	7.33 pH units	--	7.52 pH units	--	6.9 pH units	--	7.65 pH units	6.66 pH units	6.7 pH units	--	7.05 pH units	6.3 pH units	--	6.5 pH units	6.85 pH units			
Phosphorus, total, as P			NA	--	0.059 b* mg/l	< 0.0040 * mg/l	--	--	--	--	0.030 mg/l	0.028 mg/l	--	--	--	--	0.022 mg/l	0.026 mg/l	--	--	0.021 mg/l	0.021 mg/l	--	--	--	--	--	0.062 mg/l		
Phosphorus, total, as P			Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved			NA	--	175 mg/l	176 mg/l	225 mg/l	220 mg/l	202 mg/l	221 mg/l	234 mg/l	230 mg/l	172 mg/l	163 mg/l	178 mg/l	195 mg/l	239 mg/l	241 mg/l	307 mg/l	440 mg/l	494 mg/l	488 mg/l	433 mg/l	117 mg/l	116 mg/l	145 mg/l	199 mg/l			
Solids, total suspended			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C			NA	--	106.9 umhos/cm	--	120.6 umhos/cm	--	221.1 umhos/cm	--	220 umhos/cm	--	222.3 umhos/cm	--	169 umhos/cm	--	238.9 umhos/cm	--	391.9 umhos/cm	672.2 umhos/cm	698.2 BQS umhos/cm	--	583.4 umhos/cm	113.2 umhos/cm	--	124.2 umhos/cm	184.1 umhos/cm			
Sulfate, as SO4			NA	7.55 mg/l	14.4 mg/l	14.4 mg/l	11.2 mg/l	11.0 mg/l	11.7 mg/l	11.7 mg/l	24.9 mg/l	24.8 mg/l	14.5 mg/l	14.3 mg/l	53.1 mg/l	53.1 mg/l	70.5 mg/l	70.8 mg/l	93.0 mg/l	154 mg/l	173 mg/l	174 mg/l	146 mg/l	18.9 mg/l	18.8 mg/l	14.3 mg/l	14.6 mg/l			
Sulfate, as SO4			Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S2-			NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C			NA	--	19.66 deg C	--	22.88 deg C	--	21.7 deg C	--	11.27 deg C	--	8.12 deg C	--	1.79 deg C	--	0.27 deg C	--	0.04 deg C	1.71 deg C	0.8 deg C	--	0.3 deg C	9.05 deg C	--	11.74 deg C	21.3 deg C			
Turbidity			NA	--	5.1 NTU	--	17.6 NTU	--	1.9 NTU	--	25 NTU	--	37.9 NTU	--	1.5 NTU	--	1.4 NTU	--	10.7 NTU	3 NTU	7.7 NTU	--	21 NTU	6.8 NTU	--	1.2 NTU	3 NTU			
Metals																														
Aluminum			Total	82.2 ug/l	231 ug/l	207 ug/l	301 ug/l	295 ug/l	178 ug/l	187 ug/l	111 ug/l	108 ug/l	99.9 ug/l	96.8 ug/l	288 * ug/l	211 * ug/l	132 ug/l	139 ug/l	96.5 ug/l	99.6 ug/l	70.3 ug/l	65.7 ug/l	57.0 ug/l	293 ug/l	354 ug/l	213 ug/l	242 ug/l			
Aluminum			Dissolved	< 25 ug/l	138 ug/l	135 ug/l	64.6 ug/l	67.2 ug/l	61.5 ug/l	59.0 ug/l	39.2 ug/l	37.4 ug/l	34.3 ug/l	34.1 ug/l	< 40.0 ug/l	< 40.0 ug/l	45.5 ug/l	43.5 ug/l	26.8 ug/l											

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location Date Sample Type	Parameter	PM-13 8/13/2013		PM-13 9/11/2013		PM-13 10/10/2013		PM-13 11/19/2013		PM-13 12/19/2013		PM-19 7/9/2009	PM-19 7/21/2009	PM-19 7/28/2009	PM-19 8/20/2009	PM-19 8/26/2009	PM-19 9/10/2009	PM-19 10/13/2009	PM-19 11/3/2009	PM-19 7/26/2010	PM-19 8/25/2010	PM-19 9/9/2010	PM-19 9/14/2010		PM-19 9/23/2010	PM-19 10/6/2010
		N	FD	N	FD	N	FD	N	FD	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
		Total or Dissolved																				N	FD	N	N	
General Parameters	NA	--	--	--	--	128 mg/l	125 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Alkalinity, bicarbonate, as CaCO3	NA	--	--	--	--	128 mg/l	125 mg/l	--	--	--	--	--	--	--	--	--	--	--	286 mg/l	--	--	296 mg/l	295 mg/l	--	--	
Alkalinity, total, as CaCO3	NA	--	--	--	--	128 mg/l	125 mg/l	--	--	--	--	--	--	--	--	--	--	--	< 3 mg/l	--	--	< 3 mg/l	< 3 mg/l	--	--	
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	16.8 mg/l	13.7 mg/l	16.2 mg/l	17.7 mg/l	17.2 mg/l	15.7 mg/l	11.1 mg/l	15.6 mg/l	24.5 mg/l	--	--	16.6 mg/l	16.4 mg/l	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon, total organic	NA	28.9 mg/l	28.4 mg/l	19.8 mg/l	20.9 mg/l	19.2 mg/l	19.6 mg/l	14.7 mg/l	14.3 mg/l	12.6 mg/l	12.3 mg/l	--	--	--	--	--	--	--	--	24.5 mg/l	--	--	25.2 mg/l	25.3 mg/l	--	--
Chemical Oxygen Demand	NA	--	--	--	--	63.9 mg/l	73.1 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	65.5 mg/l	--	--	42.4 mg/l	42.4 mg/l	--	--
Chloride	NA	3.2 mg/l	3.2 mg/l	3.4 mg/l	3.5 mg/l	5.1 mg/l	5.3 mg/l	7.6 mg/l	7.6 mg/l	8.0 mg/l	7.9 mg/l	9.43 mg/l	8.75 mg/l	8.95 mg/l	9.27 mg/l	9.79 mg/l	11.4 mg/l	17.3 mg/l	16.4 mg/l	9.98 mg/l	12.4 mg/l	12.4 mg/l	12.9 mg/l	12.9 mg/l	13.6 mg/l	14.1 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	9.59 mg/l	--	--	--	--	--	--	--	--	--	--	
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	85 color units	100 color units	70 color units	50 color units	90 color units	--	--	--	--	--	--	
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dissolved oxygen	NA	6.16 mg/l	--	5.72 mg/l	--	8.15 mg/l	--	12.13 mg/l	--	8.51 mg/l	--	--	--	--	--	--	--	--	--	3.70 mg/l	2.97 mg/l	5.83 mg/l	5.70 mg/l	--	< 0.1 mg/l	5.65 mg/l
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Hardness, as CaCO3	NA	117 mg/l	115 mg/l	122 mg/l	122 mg/l	141 mg/l	143 mg/l	117 mg/l	114 mg/l	194 mg/l	192 mg/l	--	--	--	--	--	--	--	--	249 mg/l	--	--	262 mg/l	264 mg/l	--	--
Nitrate + Nitrite, as N	NA	--	--	--	--	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	--	--	< 0.1 mg/l	< 0.1 mg/l	--	--
Nitrogen, ammonia as N	NA	--	--	--	--	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.42 mg/l	--	--	1.47 mg/l	1.76 mg/l	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.42 mg/l	--	--	1.37 mg/l	1.66 mg/l	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	0.03 mg/l	0.02 mg/l	< 0.02 mg/l	0.02 mg/l	< 0.02 mg/l	0.02 mg/l	< 0.07 mg/l	< 0.02 mg/l	--	--	--	--	--	--	
pH	NA	7.03 pH units	--	7.31 pH units	--	7.39 pH units	--	7.79 pH units	--	6.67 pH units	--	--	--	--	--	--	--	--	--	7.50 pH units	7.68 pH units	7.54 pH units	7.59 pH units	--	7.7 pH units	7.57 pH units
Phosphorus, total, as P	NA	--	--	--	--	0.026 mg/l	0.026 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	0.034 mg P/L	--	--	0.02 mg P/L	0.02 mg P/L	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	0.022 mg/l	0.016 mg/l	0.015 mg/l	0.028 mg/l	0.023 mg/l	0.02 mg/l	0.014 mg/l	0.015 mg/l	--	--	--	--	--	--	
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Solids, total dissolved	NA	206 mg/l	196 mg/l	272 mg/l	229 mg/l	242 mg/l	272 mg/l	212 mg/l	225 mg/l	315 mg/l	280 mg/l	--	--	--	--	--	--	--	--	361 mg/l	--	--	353 mg/l	357 mg/l	--	--
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	19.5 mg/l	2.4 mg/l	2.4 mg/l	5.2 mg/l	< 1 mg/l	< 1 mg/l	10 mg/l	1.2 mg/l	3.2 mg/l	--	--	3.2 mg/l	2.8 mg/l	--	--
Specific Conductance @ 25 °C	NA	243.1 umhos/cm	--	261.5 umhos/cm	--	302.2 umhos/cm	--	272.4 umhos/cm	--	434.8 umhos/cm	--	--	--	--	--	--	--	--	--	600 umhos/cm	709 umhos/cm	573.3 umhos/cm	619.6 umhos/cm	--	627 umhos/cm	596 umhos/cm
Sulfate, as SO4	NA	19.1 mg/l	19.2 mg/l	15.8 mg/l	15.8 mg/l	29.8 mg/l	29.9 mg/l	48.4 mg/l	48.3 mg/l	88.6 mg/l	88.7 mg/l	10.1 mg/l	18.4 mg/l	15.9 mg/l	7.82 mg/l	6.91 mg/l	7.69 mg/l	33.6 mg/l	40.6 mg/l	4.31 mg/l	1.89 mg/l	15.1 mg/l	10.5 mg/l	12.7 mg/l	12.5 mg/l	19.8 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	8.3 mg/l	--	--	--	--	--	--	--	--	--	--	
Sulfide, as S2-	NA	--	--	--	--	--	--	--	--	--	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.10 mg/l	< 0.10 mg/l	< 0.10 mg/l	--	--	--	--	--	--	
Temperature, °C	NA	17.9 deg C	--	18 deg C	--	12.27 deg C	--	0.27 deg C	--	2.07 deg C	--	--	--	--	--	--	--	--	--	20.36 deg C	16.75 deg C	11.51 deg C	12.44 deg C	--	5.6 deg C	9.62 deg C
Turbidity	NA	3000 NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	NA	6.6 NTU	--	6.5 NTU	--	8.7 NTU	--	0 NTU	--	0 NTU	--	--	--	--	--	--	--	--	--	0 NTU	3.0 NTU	0.2 NTU	0 NTU	--	10.8 NTU	0 NTU
Metals																										
Aluminum	Total	252 ug/l	262 ug/l	110 ug/l	88.4 ug/l	56.1 ug/l	54.2 ug/l	128 * ug/l	80.5 * ug/l	97.5 ug/l	87.3 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Dissolved	59.3 ug/l	57.4 ug/l	24.2 ug/l	25.3 ug/l	< 20.0 ug/l	< 20.0 ug/l	27.3 ug/l	30.2 ug/l	31.1 ug/l	29.9 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	--	--	--	--	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	1.8 ug/l	1.8 ug/l	1.5 ug/l	1.5 ug/l	0.97 ug/l	0.89 ug/l	0.58 ug/l	0.65 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	1.5 ug/l	--	--	1.15 ug/l	1.12 ug/l	--	--
Barium	Total	--	--	--	--	34.4 ug/l	33.9 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	78.7 ug/l	--	--	62.6 ug/l	63 ug/l	--	--
Beryllium	Total	--	--	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	--
Boron	Total	--	--	--	--	< 50.0 ug/l	< 50.0 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	149 ug/l	--	--	143 ug/l	145 ug/l	--	--
Cadmium	Total	--	--	--	--	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 ug/l	--	--	< 0.02 ug/l	< 0.02 ug/l	--	--
Calcium	Total	21.7 mg/l	21.6 mg/l	24.2 mg/l	24.2 mg/l	23.9 mg/l	24.1 mg/l	17.6 mg/l	17.1 mg/l	27.3 mg/l	27.3 mg/l	--	--	--	--	--	--	--	--	42.2 mg/l	--	--	43 mg/l	43.4 mg/l	--	--
Chromium	Total	--	--	--	--	< 1.0 ug/l	< 1.0 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	< 1 ug/l	--	--	< 1 ug/l	< 1 ug/l	--	--
Cobalt																										
Cobalt	Total	0.57 ug/l	0.58 ug/l	0.46 ug/l	0.44 ug/l	0.26 ug/l	0.27 ug/l	0.21 ug/l	< 0.20 ug/l	0.23 ug/l	0.23 ug/l	--	--	--	--	--	--	--	--	0.27 ug/l	--	--	< 0.2 ug/l	< 0.2 ug/l	--	--
Cobalt	Dissolved	0.40 ug/l	0.43 ug/l	0.41 ug/l	0.43 ug/l	0.27 ug/l	0.33 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																										
Copper	Total	1.4 ug/l	1.5 ug/l	1.4 ug/l	1.4 ug/l	0.90 ug/l	0.96 ug/l	0.88 ug/l	0.76 ug/l	1.1 ug/l	1.0 ug/l	--	--	--	--	--	--	--	--	0.74 ug/l	--	--	0.77 ug/l	0.78 ug/l	--	--
Copper	Dissolved	1.1 ug/l	1.2 ug/l	1.2 ug/l	1.3 ug/l	1.1 ug/l	1.2 ug/l	0.88 ug/l	0.82 ug/l	0.96 ug/l	1.0 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	4080 ug/l	4120 ug/l	2440 ug/l	2380 ug/l	1300 ug/l	1310 ug/l	1310 ug/l	1210 ug/l	1800 ug/l	1820 ug/l	--	--	--	--	--	--	--	--	1650 ug/l	--	--	596 ug/l	610 ug/l	--	--
Iron	Dissolved	3660 ug/l	3560 ug/l	2120 ug/l	2140 ug/l	1110 ug/l	1090 ug/l	834 ug/l	888 ug/l	1150 ug/l	1200 ug/l	331 ug/l	318 ug/l	306 ug/l	355 ug/l	314 ug/l	422 ug/l	242 ug/l	259 ug/l	--	--	--	--	--	--	--
Lead	Total	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	< 0.5 ug/l	--	--	0.05 j ug/l	0.09 j ug/l	--	--
Lead	Dissolved	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	15.2 mg/l	14.9 mg/l	15.0 mg/l	15.0 mg/l	19.8 mg/l	20.1 mg/l	17.6 mg/l	17.2 mg/l	30.4 mg/l	30.1 mg/l	--	--	--	--	--	--	--	--	34.8 mg/l	--	--	37.5 mg/l	37.7 mg/l	--	--
Manganese	Total	379 ug/l	391 ug/l	601 ug/l	572 ug/l	295 ug/l	304 ug/l	97.6 ug/l	92.0 ug/l	315 ug/l	307 ug/l	--	--	--	--	--	--	--	--	199 ug/l	--	--	80.6 ug/l	81 ug/l	--	--
Manganese	Dissolved	346 ug/l	362 ug/l	564 ug/l	586 ug/l	317 ug/l	308 ug/l	93.8 ug/l	98.7 ug/l	299 ug/l	299 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	--	--	--	--	1.7 ng/l	2.3 ng/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	0.0018 ug/l	0.0014 ug/l	0.0021 ug/l	0.0018 ug/l	0.0018 ug/l	0.0014 ug/l	0.6 ng/l	1.9 ng/l	--	--	--	--	--	--	
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	0.00060 ug/l	0.00035 ug/l	0.00055 ug/l	0.36 ng/l	0.67 ng/l										

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

	Location Date Sample Type	PM-19 6/2/2011 N	PM-19 7/25/2011 N	PM-19 7/26/2011 N	PM-19 8/24/2011 N	PM-19 9/20/2011 N	PM-19 10/20/2011 N	PM-19 11/22/2011 N	PM-19 12/28/2011 N	PM-19 1/25/2012 N	PM-19 2/29/2012		PM-19 6/26/2012 N	PM-19 7/25/2012 N	PM-19 8/28/2012 N	PM-19 9/24/2012 N	PM-19 10/23/2012 N	PM-19 11/21/2012 N	PM-19 12/12/2012 N	PM-19 1/18/2013 N	PM-19 2/20/2013 N	PM-19 3/20/2013 N	PM-19 4/8/2013 N
											N	FD											
Parameter	Total or Dissolved																						
General Parameters																							
Alkalinity, bicarbonate, as CaCO3	NA	--	357 mg/l	--	397 mg/l	396 mg/l	321 mg/l	338 mg/l	436 mg/l	504 mg/l	494 mg/l	--	190 mg/l	--	--	311 mg/l	--	--	332 mg/l	--	--	514 mg/l	--
Alkalinity, total, as CaCO3	NA	197 mg/l	357 mg/l	--	397 mg/l	396 mg/l	321 mg/l	338 mg/l	436 mg/l	504 mg/l	494 mg/l	--	190 mg/l	--	--	311 mg/l	--	--	332 mg/l	--	--	514 mg/l	--
Biochemical Oxygen Demand (5-day)	NA	< 2.4 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	16.6 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	17.2 mg/l	27.2 mg/l	--	21.5 mg/l	19.8 mg/l	14.8 mg/l	12.6 mg/l	14.4 mg/l	14.6 mg/l	13.5 mg/l	--	33.7 mg/l	25.3 mg/l	33.0 mg/l	17.2 mg/l	12.3 mg/l	11.1 mg/l	11.1 mg/l	15.7 mg/l	10.9 mg/l	11.2 mg/l	10.9 mg/l
Chemical Oxygen Demand	NA	52.1 mg/l	67.0 mg/l	--	55.7 mg/l	49 mg/l	42.2 mg/l	36.8 mg/l	35.2 mg/l	33.6 mg/l	45.5 mg/l	--	79.7 b mg/l	--	--	55.4 mg/l	--	--	29.8 mg/l	--	--	32.5 mg/l	--
Chloride	NA	11.3 mg/l	9.98 mg/l	10.1 mg/l	10.2 mg/l	12.2 mg/l	20.9 mg/l	24.9 mg/l	28.3 mg/l	30 mg/l	30.2 mg/l	--	6.8 mg/l	8.3 mg/l	8.2 mg/l	11.9 mg/l	19.7 mg/l	21.7 mg/l	26.7 mg/l	33.3 mg/l	29.3 mg/l	27.2 mg/l	55.1 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	8.93 mg/l	1.17 mg/l	1.13 mg/l	0.89 mg/l	1.76 mg/l	< 0.1 mg/l	5.20 mg/l	5.97 mg/l	7.01 mg/l	7.45 mg/l	--	2.71 mg/l	1.19 mg/l	0.62 mg/l	6.04 mg/l	6.31 mg/l	9.01 mg/l	6.4 mg/l	3.51 mg/l	10.81 mg/l	9.64 mg/l	10.18 mg/l
Fluoride	NA	--	--	--	--	0.95 mg/l	--	0.87 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	191 mg/l	302 mg/l	--	322 mg/l	329 mg/l	302 mg/l	333 mg/l	407 mg/l	489 mg/l	487 mg/l	--	173 mg/l	281 mg/l	272 mg/l	267 mg/l	276 mg/l	249 mg/l	371 mg/l	442 mg/l	530 mg/l	502 mg/l	278 mg/l
Nitrate + Nitrite, as N	NA	< 0.1 mg/l	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--
Nitrogen, ammonia as N	NA	--	< 0.1 mg/l	--	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	< 0.1 mg/l	0.22 mg/l	0.39 mg/l	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	0.31 mg/l	--
Nitrogen, total	NA	1.27 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	1.27 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	7.64 pH units	7.51 pH units	7.50 pH units	7.57 pH units	7.38 pH units	6.1 pH units	6.67 pH units	6.54 pH units	6.68 pH units	6.97 pH units	--	7.41 pH units	7.55 pH units	7.53 pH units	7.49 pH units	7.23 pH units	7.54 pH units	7.07 pH units	7.29 pH units	6.65 pH units	7.1 pH units	7.07 pH units
Phosphorus, total, as P	NA	0.023 mg/l	0.056 mg P/L	--	0.063 mg P/L	0.036 mg P/L	0.014 mg P/L	0.01 mg P/L	< 0.1 mg P/L	0.021 mg P/L	0.022 mg P/L	--	0.037 b mg/l	--	--	0.027 mg/l	--	--	< 0.0040 mg/l	--	--	0.019 mg/l	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	468 mV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	284 mg/l	441 mg/l	--	476 mg/l	513 mg/l	467 mg/l	522 mg/l	626 mg/l	644 mg/l	665 mg/l	--	291 mg/l	403 mg/l	395 mg/l	371 mg/l	419 mg/l	367 mg/l	549 mg/l	631 mg/l	708 mg/l	705 mg/l	455 mg/l
Solids, total suspended	NA	2 mg/l	--	--	--	6.8 mg/l	3.6 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	440 umhos/cm	704.0 umhos/cm	710.0 umhos/cm	775.0 umhos/cm	769.0 umhos/cm	735 umhos/cm	813 umhos/cm	854.0 umhos/cm	900 umhos/cm	957 umhos/cm	--	379.8 umhos/cm	574.9 umhos/cm	572.2 umhos/cm	551.6 umhos/cm	665.8 umhos/cm	558.8 umhos/cm	703.4 umhos/cm	1008 umhos/cm	990.3 umhos/cm	1058 umhos/cm	696.5 umhos/cm
Sulfate, as SO4	NA	22 mg/l	< 1 mg/l	1.01 mg/l	< 1 mg/l	3.47 mg/l	40.9 mg/l	79 mg/l	67 mg/l	78.4 mg/l	80.2 mg/l	--	12.1 mg/l	5.9 mg/l	1.6 mg/l	9.3 mg/l	56.7 mg/l	72.3 mg/l	94.1 mg/l	81.1 mg/l	117 mg/l	113 mg/l	51.2 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S ²⁻	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	11.78 deg C	18.76 deg C	18.81 deg C	18.39 deg C	10.97 deg C	4.7 deg C	0.02 deg C	0.01 deg C	0.01 deg C	0.09 deg C	--	16.23 deg C	19.74 deg C	17.09 deg C	8.02 deg C	7.26 deg C	1.05 deg C	0.2 deg C	0.78 deg C	0.33 deg C	3.54 deg C	1.91 deg C
Turbidity	NA	0 NTU	1.1 NTU	1.4 NTU	4.0 NTU	3.4 NTU	0 NTU	0 NTU	0.3 NTU	0.1 NTU	0 NTU	--	0 NTU	9.8 NTU	0.5 NTU	3.1 NTU	0 NTU	0 NTU	0 NTU	0.7 NTU	1.3 NTU	18.8 NTU	40.4 NTU
Metals																							
Aluminum	Total	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	31.2 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	27.2 ug/l	33.2 ug/l	--	58.9 ug/l	63.5 ug/l	31.6 ug/l	32.4 ug/l	26.0 ug/l	< 20.0 ug/l	< 40.0 ug/l	31.5 ug/l	63.8 ug/l	37.1 ug/l	184 ug/l
Aluminum	Dissolved	--	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	< 25 ug/l	--	51.2 ug/l	28.5 ug/l	< 20.0 ug/l	37.4 ug/l	27.8 ug/l	23.8 ug/l	< 20.0 ug/l	22.1 ug/l	27.2 ug/l	25.9 ug/l	26.1 ug/l
Antimony	Total	< 0.5 ug/l	< 0.5 ug/l	--	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	< 0.5 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Total	< 0.5 ug/l	2.49 ug/l	--	2.67 ug/l	1.13 ug/l	0.64 ug/l	< 0.5 ug/l	0.55 ug/l	0.77 ug/l	0.57 ug/l	--	1.5 ug/l	3.9 ug/l	3.9 ug/l	1.6 ug/l	0.64 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.52 ug/l	< 0.82 ug/l	< 0.50 ug/l
Barium	Total	52 ug/l	--	--	--	107 ug/l	--	70.9 ug/l	--	--	--	--	55.1 ug/l	--	--	87.6 ug/l	--	--	87.0 ug/l	--	--	129 ug/l	--
Beryllium	Total	< 0.2 ug/l	--	--	--	< 0.2 ug/l	--	< 0.2 ug/l	--	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--
Boron	Total	138 ug/l	--	--	--	132 ug/l	--	--	--	--	--	--	128 ug/l	--	--	142 ug/l	--	--	142 ug/l	--	--	157 ug/l	--
Cadmium	Total	< 0.2 ug/l	--	--	--	< 0.03 ug/l	--	< 0.03 ug/l	--	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--
Calcium	Total	31.7 mg/l	48.2 mg/l	--	53.4 mg/l	52.9 mg/l	46.7 mg/l	49.2 mg/l	60 mg/l	71.7 mg/l	73.6 mg/l	--	28.5 mg/l	48.7 mg/l	46.5 mg/l	42.5 mg/l	41.4 mg/l	35.7 mg/l	53.6 mg/l	65.7 mg/l	77.1 mg/l	73.9 mg/l	45.8 mg/l
Chromium	Total	< 1 ug/l	--	--	--	< 1 ug/l	--	< 1 ug/l	--	--	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--
Cobalt	Total	< 0.2 ug/l	0.44 ug/l	--	0.35 ug/l	0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.22 ug/l	0.36 ug/l	0.32 ug/l	--	0.23 ug/l	0.78 ug/l	0.98 ug/l	0.30 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.22 ug/l	0.37 ug/l	0.38 ug/l	0.34 ug/l	0.35 ug/l
Cobalt	Dissolved	--	0.38 ug/l	--	0.31 ug/l	0.25 ug/l	< 0.2 ug/l	< 0.2 ug/l	0.21 ug/l	0.36 ug/l	0.31 ug/l	--	0.22 b ug/l	0.71 ug/l	0.86 ug/l	0.32 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.22 ug/l	0.37 ug/l	0.36 ug/l	0.38 ug/l	< 0.20 ug/l
Copper	Total	< 0.7 ug/l	0.29 j ug/l	--	0.37 jb ug/l	0.35 j ug/l	0.47 j ug/l	0.47 j ug/l	0.98 ug/l	0.78 ug/l	0.87 ug/l	--	< 0.50 ug/l	0.53 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.55 ug/l	0.62 ug/l	0.55 ug/l	0.99 ug/l	0.80 ug/l	1.6 ug/l	2.4 ug/l
Copper	Dissolved	--	0.18 j ug/l	--	0.18 j ug/l	0.82 ug/l	< 0.15 ug/l	0.44 j ug/l	< 0.7 ug/l	0.82 ug/l	0.29 j ug/l	--	0.99 b ug/l	< 0.7 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.63 ug/l	0.81 ug/l	0.95 ug/l	0.84 ug/l	0.95 ug/l	1.7 ug/l	--
Iron	Total	350 ug/l	2380 ug/l	--	2530 ug/l	1610 ug/l	274 ug/l	244 ug/l	318 ug/l	1430 ug/l	1190 ug/l	--	1460 ug/l	5360 ug/l	939 ug/l	5830 ug/l	1470 ug/l	334 ug/l	226 ug/l	654 ug/l	669 ug/l	477 ug/l	862 ug/l
Iron	Dissolved	--	1280 ug/l	--	363 ug/l	264 ug/l	185 ug/l	154 ug/l	180 ug/l	486 ug/l	235 ug/l	--	1390 ug/l	2130 ug/l	2560 ug/l	506 ug/l	224 ug/l	2150 ug/l	212 ug/l	224 ug/l	181 ug/l	128 ug/l	240 ug/l
Lead	Total	< 0.5 ug/l	--	--	--	< 0.02 ug/l	--	< 0.02 ug/l	--	--	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Lead	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	27.2 mg/l	44 mg/l	--	45.7 mg/l	47.8 mg/l	45.1 mg/l	51.1 mg/l	62.4 mg/l	75.3 mg/l	73.7 mg/l	--	24.7 mg/l	38.8 mg/l	37.9 mg/l	39.2 mg/l	41.8 mg/l	38.9 mg/l	57.7 mg/l	67.5 mg/l	81.8 mg/l	77.2 mg/l	39.6 mg/l
Manganese	Total	24.2 ug/l	1630 ug/l	--	1060 ug/l	491 ug/l	43.5 ug/l	76.8 ug/l	318 ug/l	1430 ug/l	1190 ug/l	--	143 ug/l	3810 ug/l	3990 ug/l	820 ug/l	90.1 ug/l	29.2 ug/l	297 ug/l	1130 ug/l	1290 ug/l	673 ug/l	504 ug/l
Manganese	Dissolved	--	1510 ug/l	--	1070 ug/l	468 ug/l	40.8 ug/l	77.5 ug/l	317 ug/l	1460 ug/l	1190 ug/l	--	139 b ug/l	3620 ug/l	4140 ug/l	815 ug/l	84.9 ug/l	36.2 ug/l	295 ug/l	1130 ug/l	1300 ug/l	698 ug/l	489 ug/l
Mercury	Total	--	2.0 ng/l	--	1.5 j ng/l	1.0 ng/l	0.9 ng/l	0.5 ng/l	1.3 ng/l	0.6 ng/l	0.9 ng/l	0.8 ng/l	3.9 ng/l	--	--	1.4 ng/l	--	--	1.1 ng/l	--	--	0.80 ng/l	--
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	0.16 ng/l	--	< 0.1 ng/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	1.6 ug/l	2.45 ug/l																				

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Location Date Sample Type		PM-19	PM-19	PM-19	PM-19	PM-19	PM-19	PM-19	PM-19	TC-1A	TC-1A		TC-1A	TC-1A	TC-1A	TC-1A	TC-1A	TC-1A	TC-1A	TC-1A	TC-1A			
		5/7/2013	6/5/2013	7/10/2013	8/12/2013	9/12/2013	10/14/2013	11/20/2013	12/23/2013	11/19/2012	12/12/2012	1/18/2013	2/20/2013	3/20/2013	4/8/2013	5/8/2013	6/5/2013	7/10/2013	8/12/2013	9/12/2013	10/14/2013			
		N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	FD			
Parameter	Total or Dissolved																							
General Parameters																								
Alkalinity, bicarbonate, as CaCO3	NA	--	--	270 mg/l	--	--	321 mg/l	--	--	--	355 mg/l	--	--	--	243 mg/l	--	--	284 mg/l	--	--	338 mg/l	--		
Alkalinity, total, as CaCO3	NA	--	--	270 mg/l	--	--	321 mg/l	--	--	--	355 mg/l	--	--	--	243 mg/l	--	--	284 mg/l	--	--	338 mg/l	--		
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Carbon, total organic	NA	13.1 mg/l	15.6 mg/l	24.9 mg/l	24.0 mg/l	18.8 mg/l	14.6 mg/l	12.0 mg/l	11.9 mg/l	11.3 mg/l	11.0 mg/l	--	14.6 mg/l	11.0 mg/l	10.6 mg/l	11.9 mg/l	11.0 mg/l	14.3 mg/l	21.2 mg/l	--	23.2 mg/l	16.7 mg/l	13.1 mg/l	--
Chemical Oxygen Demand Chloride	NA	--	--	71.8 mg/l	--	--	50.8 mg/l	--	--	--	31.0 mg/l	--	--	--	31.0 mg/l	--	--	59.6 mg/l	--	--	44.4 mg/l	--		
Chloride	NA	7.9 mg/l	10.3 mg/l	8.3 mg/l	7.2 mg/l	9.8 mg/l	15.2 mg/l	20.9 mg/l	25.1 mg/l	22.8 mg/l	27.9 mg/l	--	33.5 mg/l	29.0 mg/l	27.1 mg/l	24.5 mg/l	8.3 mg/l	11.2 mg/l	8.7 mg/l	--	7.4 mg/l	11.3 mg/l	16.1 mg/l	--
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Dissolved oxygen	NA	6.3 mg/l	4.75 mg/l	3.63 mg/l	3.25 mg/l	1.96 mg/l	8.25 mg/l	8.77 mg/l	8.33 mg/l	10.53 mg/l	4.63 mg/l	--	2.17 mg/l	9.35 mg/l	9.7 mg/l	5.1 mg/l	6.26 mg/l	4.75 mg/l	2.71 mg/l	--	2.5 mg/l	3.6 mg/l	6.2 mg/l	--
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Hardness, as CaCO3	NA	123 mg/l	166 mg/l	244 mg/l	262 mg/l	266 mg/l	282 mg/l	258 mg/l	406 mg/l	265 mg/l	370 mg/l	--	443 mg/l	532 mg/l	510 mg/l	402 mg/l	147 mg/l	188 mg/l	246 mg/l	--	270 mg/l	290 mg/l	307 mg/l	--
Nitrate + Nitrite, as N	NA	--	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--
Nitrogen, ammonia as N	NA	--	--	0.12 mg/l	--	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	--	0.31 mg/l	--	--	--	0.14 mg/l	--	--	--	< 0.10 mg/l	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
pH	NA	6.69 pH units	7.09 pH units	7.37 pH units	7.17 pH units	7.47 pH units	7.58 pH units	7.27 pH units	6.3 pH units	7.79 pH units	6.98 pH units	--	7.34 pH units	7.42 pH units	7.07 pH units	7.02 pH units	6.85 pH units	7.1 pH units	7.36 pH units	--	7.05 pH units	7.51 pH units	7.44 pH units	--
Phosphorus, total, as P	NA	--	--	0.039 mg/l	--	--	0.017 mg/l	--	--	--	< 0.0040 mg/l	--	--	--	0.016 mg/l	--	--	--	0.048 mg/l	--	--	--	0.016 mg/l	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Solids, total dissolved	NA	195 mg/l	278 mg/l	389 mg/l	372 mg/l	402 mg/l	390 mg/l	389 mg/l	539 mg/l	445 mg/l	542 mg/l	--	604 mg/l	722 mg/l	719 mg/l	576 mg/l	231 mg/l	312 mg/l	405 mg/l	--	368 mg/l	406 mg/l	428 mg/l	--
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Specific Conductance @ 25 °C	NA	285.3 umhos/cm	401.7 umhos/cm	516.3 umhos/cm	596.5 umhos/cm	642.3 umhos/cm	643.2 umhos/cm	618.6 umhos/cm	790.1 umhos/cm	598.9 umhos/cm	825.4 umhos/cm	--	1011 umhos/cm	1076 umhos/cm	1078 umhos/cm	847.1 umhos/cm	345.6 umhos/cm	461.5 umhos/cm	543.5 umhos/cm	--	627.5 umhos/cm	687.3 umhos/cm	676.8 umhos/cm	--
Sulfate, as SO4	NA	24.0 mg/l	23.5 mg/l	3.9 mg/l	< 1.0 mg/l	8.0 mg/l	17.8 mg/l	62.2 mg/l	72.9 mg/l	75.3 mg/l	94.1 mg/l	--	76.6 mg/l	119 mg/l	111 mg/l	85.7 mg/l	27.9 mg/l	28.9 mg/l	4.8 mg/l	--	1.0 mg/l	2.0 mg/l	22.7 mg/l	--
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sulfide, as S ²⁻	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Temperature, °C	NA	4.31 deg C	10.36 deg C	19.41 deg C	15.35 deg C	16.04 deg C	8.83 deg C	1.81 deg C	0.19 deg C	1.76 deg C	0.21 deg C	--	-0.04 deg C	0.63 deg C	1.79 deg C	0.01 deg C	4.09 deg C	10.47 deg C	18.67 deg C	--	14.58 deg C	14.9 deg C	7.71 deg C	--
Turbidity	NA	3.5 NTU	0 NTU	0 NTU	5.7 NTU	8.8 NTU	2.5 NTU	0 NTU	0.8 NTU	0 NTU	0 NTU	--	0.6 NTU	0.5 NTU	10.4 NTU	2.4 NTU	0 NTU	12.4 NTU	7.4 NTU	--	42.4 NTU	7.8 NTU	3.2 NTU	--
Metals																								
Aluminum	Total	68.2 ug/l	38.9 ug/l	45.7 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	25.9 ug/l	< 20.0 ug/l	< 40.0 ug/l	--	29.3 ug/l	32.1 ug/l	37.1 ug/l	37.4 ug/l	31.9 ug/l	22.3 ug/l	37.0 ug/l	--	21.6 ug/l	< 20.0 ug/l	< 20.0 ug/l	--
Aluminum	Dissolved	66.3 ug/l	23.0 ug/l	29.8 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--	22.5 ug/l	26.0 ug/l	26.1 ug/l	22.7 ug/l	< 20.0 ug/l	< 20.0 ug/l	24.6 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l	--
Antimony	Total	< 0.50 ug/l	--	< 0.50 ug/l	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Arsenic	Total	< 0.50 ug/l	0.83 ug/l	1.5 ug/l	2.0 ug/l	1.8 ug/l	1.1 ug/l	0.53 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	0.70 ug/l	0.50 ug/l	< 0.82 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.79 ug/l	1.9 ug/l	--	2.7 ug/l	1.5 ug/l	0.98 ug/l	--
Barium	Total	--	--	87.1 ug/l	--	--	72.5 ug/l	--	--	--	88.1 ug/l	--	--	--	137 ug/l	--	--	--	119 ug/l	--	--	--	83.2 ug/l	--
Beryllium	Total	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--
Boron	Total	--	--	148 ug/l	--	--	128 ug/l	--	--	--	142 ug/l	--	--	--	163 ug/l	--	--	--	173 ug/l	--	--	--	142 ug/l	--
Cadmium	Total	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--
Calcium	Total	18.5 mg/l	25.7 mg/l	40.0 mg/l	43.8 mg/l	44.6 mg/l	42.9 mg/l	37.1 mg/l	58.3 mg/l	37.4 mg/l	52.9 mg/l	--	66.1 mg/l	77.6 mg/l	75.4 mg/l	59.5 mg/l	22.1 mg/l	28.6 mg/l	40.2 mg/l	--	44.1 mg/l	46.3 mg/l	46.1 mg/l	--
Chromium	Total	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	--	< 1.0 ug/l	--	--	--	--	--	--	--	< 1.0 ug/l	--	--	--	< 1.0 ug/l	--
Cobalt	Total	< 0.20 ug/l	< 0.20 ug/l	0.34 ug/l	0.41 ug/l	0.52 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.21 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	0.42 ug/l	0.36 ug/l	0.33 ug/l	0.27 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.56 ug/l	--	0.66 ug/l	0.32 ug/l	< 0.20 ug/l	--
Cobalt	Dissolved	< 0.20 ug/l	< 0.20 ug/l	0.31 ug/l	0.39 ug/l	0.44 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.21 ug/l	< 0.20 ug/l	< 0.20 ug/l	--	0.42 ug/l	0.35 ug/l	0.34 ug/l	0.24 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.51 ug/l	--	0.61 ug/l	0.22 ug/l	< 0.20 ug/l	--
Copper	Total	0.61 ug/l	0.54 ug/l	0.51 ug/l	< 0.50 ug/l	0.51 ug/l	0.56 ug/l	0.54 ug/l	0.84 ug/l	0.53 ug/l	0.55 ug/l	--	0.56 ug/l	0.72 ug/l	0.85 ug/l	0.66 ug/l	< 0.50 ug/l	0.73 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Copper	Dissolved	0.57 ug/l	< 0.50 ug/l	0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.50 ug/l	0.76 ug/l	0.51 ug/l	0.59 ug/l	--	0.61 ug/l	0.88 ug/l	0.72 ug/l	0.57 ug/l	< 0.50 ug/l	1.2 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Iron	Total	776 ug/l	409 ug/l	1230 ug/l	2910 ug/l	2330 ug/l	572 ug/l	261 ug/l	585 ug/l	317 ug/l	232 ug/l	--	604 ug/l	420 ug/l	409 ug/l	693 ug/l	620 ug/l	326 ug/l	1930 ug/l	--	4040 ug/l	1380 ug/l	475 ug/l	--
Iron	Dissolved	633 ug/l	314 ug/l	919 ug/l	1810 ug/l	873 ug/l	305 ug/l	161 ug/l	155 ug/l	177 ug/l	140 ug/l	--	238 ug/l	162 ug/l	102 ug/l	334 ug/l	386 ug/l	378 ug/l	1180 ug/l	--	2990 ug/l	566 ug/l	252 ug/l	--
Lead	Total	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Lead	Dissolved	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--
Magnesium	Total	18.6 mg/l	24.7 mg/l	34.9 mg/l	37.1 mg/l	37.4 mg/l	42.5 mg/l	40.2 mg/l	63.2 mg/l	41.8 mg/l	57.7 mg/l	--	67.4 mg/l	82.1 mg/l	78.2 mg/l	61.6 mg/l	22.3 mg/l	28.4 mg/l	35.3 mg/l	--	38.9 mg/l	42.3 mg/l	46.6 mg/l	--
Manganese	Total	100 ug/l	57.9 ug/l	544 ug/l	1530 ug/l	2700 ug/l	240 ug/l	62.5 ug/l	348 ug/l	46.6 ug/l	157 ug/l	--	1650 ug/l	1250 ug/l	697 ug/l	776 ug/l	51.9 ug/l	1660 ug/l	1580 ug/l	--	1680 ug/l	122 ug/l	122 ug/l	--
Manganese	Dissolved	93.1 ug/l	50.0 ug/l	518 ug/l	1320 ug/l	2810 ug/l	217 ug/l	63.7 ug/l	356 ug/l	40.9 ug/l	157 ug/l	--	1650 ug/l	1250 ug/l	730 ug/l	769 ug/l	37.0 ug/l	56.8 ug/l	1350 ug/l	--	1490 ug/l	585 ug/l	110 ug/l	--
Mercury	Total	--	--	3.8 ng/l	--	--	1.7 ng/l	--	--	--	0.90 ng/l	0.94 ng/l	--	--	0.91 ng/l	--	--	--	5.1 ng/l	4.7 ng/l	--	--	2.9 ng/l	2.9 ng/l
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	--	--	1.7 ug/l	--	--	0.64 ug/l	--	--	--	1.4 ug/l	--	--	--	0.91 ug/l	--	--	--	1.5 ug/l	--	--	--	0.63 ug/l	--
Nickel	Total	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.70 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--												

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

	Location Date Sample Type	TC-1A 11/20/2013	TC-1A 12/23/2013	UC-1 7/30/2012	UC-1 8/27/2012	UC-1 9/24/2012	UC-1 10/18/2012	UC-1 11/19/2012	UC-1 12/12/2012	UC-1 1/18/2013	UC-1 2/21/2013		UC-1 3/21/2013		UC-1 4/9/2013		UC-1 5/8/2013
		N	N	N	N	N	N	N	N	N	N	FD	N	FD	N	FD	N
	Total or Dissolved																
General Parameters																	
Alkalinity, bicarbonate, as CaCO3	NA	--	--	--	--	471 mg/l	--	--	399 mg/l	--	--	--	442 mg/l	--	--	--	--
Alkalinity, total, as CaCO3	NA	--	--	--	--	471 mg/l	--	--	399 mg/l	--	--	--	442 mg/l	--	--	--	--
Biochemical Oxygen Demand (5-day)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, dissolved organic	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon, total organic	NA	11.6 mg/l	11.9 mg/l	15.4 mg/l	18.0 mg/l	14.9 mg/l	11.1 mg/l	9.4 * mg/l	11.1 mg/l	11.2 mg/l	10.3 mg/l	9.5 mg/l	7.7 mg/l	--	9.5 mg/l	9.0 mg/l	7.1 mg/l
Chemical Oxygen Demand	NA	--	--	--	--	45.3 mg/l	--	--	30.7 mg/l	--	--	--	22.7 mg/l	--	--	--	--
Chloride	NA	22.2 mg/l	25.4 mg/l	11.0 mg/l	15.7 mg/l	26.5 mg/l	28.8 mg/l	27.6 mg/l	29.5 mg/l	39.1 mg/l	43.9 mg/l	42.3 mg/l	34.6 mg/l	--	17.5 mg/l	17.4 mg/l	11.7 mg/l
Chloride	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Color	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved oxygen	NA	9.11 mg/l	7.61 mg/l	4.66 mg/l	3.48 mg/l	5.73 mg/l	7.21 mg/l	4.46 mg/l	0.8 mg/l	0.68 mg/l	9.01 mg/l	--	12.03 mg/l	--	11.66 mg/l	--	7.76 mg/l
Fluoride	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	274 mg/l	399 mg/l	456 mg/l	483 mg/l	542 mg/l	533 mg/l	479 mg/l	547 mg/l	686 mg/l	844 mg/l	837 mg/l	714 mg/l	--	367 mg/l	396 mg/l	313 mg/l
Nitrate + Nitrite, as N	NA	--	--	--	--	< 0.10 mg/l	--	--	< 0.10 mg/l	--	--	--	< 0.10 mg/l	--	--	--	--
Nitrogen, ammonia as N	NA	--	--	--	--	< 0.10 mg/l	--	--	0.24 mg/l	--	--	--	0.11 mg/l	--	--	--	--
Nitrogen, total	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrogen, total kjeldahl (TKN)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orthophosphate, as PO4	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH	NA	7.42 pH units	7.48 pH units	7.59 pH units	7.65 pH units	7.75 pH units	7.63 pH units	7.45 pH units	6.97 pH units	7.01 pH units	7.03 pH units	--	7.21 pH units	--	7.57 pH units	--	7.32 pH units
Phosphorus, total, as P	NA	--	--	--	--	0.0080 mg/l	--	--	0.045 mg/l	--	--	--	0.027 mg/l	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redox (oxidation potential)	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	427 mg/l	553 mg/l	518 mg/l	558 mg/l	621 mg/l	616 mg/l	645 mg/l	691 mg/l	844 mg/l	1030 mg/l	1030 mg/l	912 mg/l	--	486 mg/l	475 mg/l	410 mg/l
Solids, total suspended	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	675.8 umhos/cm	382.2 umhos/cm	843.3 umhos/cm	957.5 umhos/cm	1054 umhos/cm	1025 umhos/cm	887.3 umhos/cm	1093 umhos/cm	1293 umhos/cm	1558 umhos/cm	--	1263 umhos/cm	--	688.4 umhos/cm	--	573.1 umhos/cm
Sulfate, as SO4	NA	69.4 mg/l	71.1 mg/l	83.7 mg/l	67.5 mg/l	96.8 mg/l	134 mg/l	180 mg/l	175 mg/l	333 mg/l	380 mg/l	373 mg/l	311 mg/l	--	151 mg/l	152 mg/l	123 mg/l
Sulfate, as SO4	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulfide, as S2-	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, °C	NA	1.61 deg C	-0.09 deg C	21.19 deg C	20.77 deg C	9.71 deg C	10.06 deg C	2.95 deg C	2.8 deg C	1.69 deg C	3.43 deg C	--	3.15 deg C	--	2.42 deg C	--	4.81 deg C
Turbidity	NA	0 NTU	3.8 NTU	2 NTU	0 NTU	2.9 NTU	2.5 NTU	0 NTU	3.4 NTU	1.2 NTU	1 NTU	--	3.3 NTU	--	0.8 NTU	--	0 NTU
Metals																	
Aluminum	Total	< 20.0 ug/l	23.3 ug/l	26.4 ug/l	< 20.0 ug/l	30.6 ug/l	27.9 ug/l	< 20.0 ug/l	< 40.0 ug/l	33.8 ug/l	47.3 ug/l	40.9 ug/l	36.0 ug/l	--	44.2 ug/l	34.2 ug/l	< 20.0 ug/l
Aluminum	Dissolved	< 20.0 ug/l	20.8 ug/l	21.5 ug/l	< 20.0 ug/l	29.8 ug/l	30.3 ug/l	< 20.0 ug/l	< 20.0 ug/l	28.2 ug/l	29.5 ug/l	27.9 ug/l	28.1 ug/l	--	< 20.0 ug/l	< 20.0 ug/l	< 20.0 ug/l
Antimony	Total	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Arsenic	Total	< 0.50 ug/l	< 0.50 ug/l	1.1 ug/l	1.6 ug/l	1.6 ug/l	0.74 ug/l	< 0.50 ug/l	1.3 ug/l	0.79 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.82 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Barium	Total	--	--	--	--	45.3 ug/l	--	--	59.5 ug/l	--	--	--	54.3 ug/l	--	--	--	--
Beryllium	Total	--	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--
Boron	Total	--	--	--	--	333 ug/l	--	--	228 ug/l	--	--	--	270 ug/l	--	--	--	--
Cadmium	Total	--	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--
Calcium	Total	39.1 mg/l	57.4 mg/l	53.5 mg/l	56.7 mg/l	62.1 mg/l	60.0 mg/l	51.9 mg/l	80.8 mg/l	91.7 mg/l	90.5 mg/l	--	44.1 mg/l	--	47.1 mg/l	35.9 mg/l	--
Chromium	Total	--	--	--	--	< 1.0 ug/l	--	--	< 1.0 ug/l	--	--	--	< 1.0 ug/l	--	--	--	--
Cobalt	Total	< 0.20 ug/l	< 0.20 ug/l	0.22 ug/l	0.23 ug/l	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.24 ug/l	0.32 ug/l	0.34 ug/l	0.32 ug/l	0.33 ug/l	--	< 0.20 ug/l	0.20 ug/l	< 0.20 ug/l
Cobalt	Dissolved	< 0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.28 ug/l	0.20 ug/l	< 0.20 ug/l	< 0.20 ug/l	0.23 ug/l	0.34 ug/l	0.34 ug/l	0.34 ug/l	0.29 ug/l	--	< 0.20 ug/l	< 0.20 ug/l	0.21 ug/l
Copper	Total	0.51 ug/l	0.70 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.61 b ug/l	0.82 ug/l	1.1 ug/l	0.81 ug/l	2.2 ug/l	3.2 ug/l	2.7 ug/l	1.4 ug/l	--	3.8 ug/l	4.4 ug/l	0.65 ug/l
Copper	Dissolved	< 0.50 ug/l	0.59 ug/l	0.79 ug/l	0.60 ug/l	0.54 b ug/l	0.70 ug/l	1.1 ug/l	0.84 ug/l	1.9 ug/l	3.5 ug/l	2.8 ug/l	3.7 ug/l	--	3.7 ug/l	3.7 ug/l	0.61 ug/l
Iron	Total	261 ug/l	480 ug/l	188 ug/l	254 ug/l	263 ug/l	199 ug/l	351 ug/l	1590 ug/l	1080 ug/l	501 ug/l	475 ug/l	477 ug/l	--	281 ug/l	229 ug/l	269 ug/l
Iron	Dissolved	163 ug/l	164 ug/l	79.3 ug/l	65.4 ug/l	108 ug/l	73.0 ug/l	180 ug/l	1050 ug/l	727 ug/l	129 ug/l	123 ug/l	169 ug/l	--	80.1 ug/l	80.5 ug/l	166 ug/l
Lead	Total	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	--	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l
Lead	Dissolved	< 0.50 ug/l	< 0.50 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	42.9 mg/l	62.0 mg/l	78.2 mg/l	83.0 mg/l	94.0 mg/l	93.2 mg/l	84.9 mg/l	94.6 mg/l	118 mg/l	149 mg/l	148 mg/l	125 mg/l	--	62.4 mg/l	67.6 mg/l	54.2 mg/l
Manganese	Total	43.9 ug/l	194 ug/l	78.2 ug/l	607 ug/l	158 ug/l	157 ug/l	129 ug/l	1520 ug/l	593 ug/l	249 ug/l	247 ug/l	245 ug/l	--	154 ug/l	182 ug/l	174 ug/l
Manganese	Dissolved	43.7 ug/l	205 ug/l	27.9 ug/l	370 ug/l	103 ug/l	98.7 ug/l	129 ug/l	1520 ug/l	578 ug/l	240 ug/l	241 ug/l	212 ug/l	--	150 ug/l	149 ug/l	157 ug/l
Mercury	Total	--	--	--	--	1.0 ng/l	--	--	1.4 ng/l	--	--	--	1.0 ng/l	1.1 ng/l	--	--	--
Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	--	--	--	--	4.4 ug/l	--	--	5.2 ug/l	--	--	--	7.6 ug/l	--	--	--	--
Nickel	Total	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.74 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.55 ug/l	< 0.50 ug/l	1.4 ug/l	--	1.2 ug/l	0.92 ug/l	< 0.50 ug/l
Nickel	Dissolved	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	0.69 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	< 0.50 ug/l	1.1 ug/l	< 0.50 ug/l	0.94 ug/l	--	0.91 ug/l	0.89 ug/l	< 0.50 ug/l
Palladium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	--	--	--	--	4.7 mg/l	--	--	4.1 mg/l	--	--	--	6.3 mg/l	--	--	--	--
Selenium	Total	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l	--	< 1.0 ug/l	< 1.0 ug/l	< 1.0 ug/l
Silver	Total	--	--	--	--	< 0.20 ug/l	--	--	< 0.20 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--
Sodium	Total	--	--	--	--	45.9 mg/l	--	--	44.7 mg/l	--	--	--	52.3 mg/l	--	--	--	--
Strontium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	< 0.002 ug/l	< 0.005 ug/l	< 0.0004 ug/l	< 0.005 ug/l	< 0.002 ug/l	< 0.0004 ug/l	< 0.0004 ug/l	< 0.002 ug/l	< 0.0004 ug/l	--	--	0.0012 jg ug/l	--	0.006 j ug/l	0.006 j ug/l	< 0.0004 ug/l
Tin	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	--	--	--	--	< 3.0 ug/l	--	--	< 3.0 ug/l	--	--	--	< 3.0 ug/l	--	--	--	--
Zinc	Total	< 6.0 ug/l	11.5 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	6.2 ug/l	25.4 ug/l	13.2 ug/l	< 6.0 ug/l	--	30.3 ug/l	30.0 ug/l	< 6.0 ug/l
Zinc	Dissolved	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	< 6.0 ug/l	7.9 ug/l	26.0 ug/l	14.7 ug/l	6.3 ug/l	--	30.3 ug/l	30.4 ug/l	< 6.0 ug/l

Large Table 13
Surface Water Quality Data in the Embarrass River Watershed
Poly Met Mining Inc.

Data Footnotes and Qualifiers

Footnote	
	Not used in water quality modeling as of June 13, 2014
--	Not analyzed/not available.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
NA	NA (not applicable) indicates that a fractional portion of the sample is not part of the analytical testing or field collection procedures.
ND	Not detected.
TIC	Tentatively identified compound
Validated	Laboratory data has been evaluated following Barr QA/QC procedures and/or project-specific data review requirements. Field data has been verified for transcription errors, consistency and completeness. Data transferred from the previous database (9/2009) were categorized as validated, but may be comprised of any one of the following data status categories: Validated, SSource, No QC or Legacy.
No QC	Laboratory data has been excluded from Barr QA/QC procedures.
SSource	Laboratory and/or field data obtained from a secondary source external to Barr. Second source QA/QC evaluation procedures may or may not have been performed beyond the original data generator.
Legacy	Historical laboratory data (internal at Barr). QA/QC evaluation procedures may or may not have been performed beyond the original data generator

Qualifier	
a	Estimated value, calculated using some or all values that are estimates.
b	Potential false positive value based on blank data validation procedures.
c	Coeluting compound.
e	Estimated value, exceeded the instrument calibration range.
f	Sample was collected at a flowrate exceeding the recommended rate of 200 mL/minute.
h	EPA recommended sample preservation, extraction or analysis holding time was exceeded.
i	Indeterminate value based on failure of blind duplicate data to meet quality assurance criteria.
j	Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
p	Relative percent difference is >40% (25% CLP pesticides) between primary and confirmation GC columns.
pp	Small peak in chromatogram below method detection limit.
r	The presence of the compound is suspect based on the ID criteria of the retention time and relative retention time obtained from the examination of the chromatograms.
s	Potential false positive value based on statistical analysis of blank sample data.
t	Sample positive for total coliforms but negative for <i>E. coli</i> .
v	Sample was collected under a vacuum of greater than XX inches of mercury.
*	Estimated value, QA/QC criteria not met.
**	Unusable value, QA/QC criteria not met.
AT	Sample chromatogram is noted to be atypical of a petroleum product.
EMPC	Estimated maximum possible concentration.
BQA	Barr-applied project specific qualifier: extraction and/or analyses conducted using an alternative method and/or procedure.
BQC	Barr-applied project specific qualifier: plant shut down.
BQD	Barr-applied project specific qualifier: equipment malfunction.
BQE	Barr-applied project specific qualifier: equipment adjustment.
BQM	Barr-applied project specific qualifier: manual measurement.
BQN	Barr-applied project specific qualifier: unable to be sampled or measured due to various reasons.
BQP	Barr-applied project specific qualifier: atypical chromatographic pattern.
BQQ	Barr-applied project specific qualifier: some aspect of QA/QC was not met.
BQR	Barr-applied project specific qualifier: location was re-sampled.
BQS	Barr-applied project specific qualifier: data is considered suspect.
BQT	Barr-applied project specific qualifier: summed value not displayed due to insufficient field length.
BQU	Barr-applied project specific qualifier: historical qualifier - definition unknown.
BQV	Barr-applied project specific qualifier: estimated value.
BQX	Barr-applied project specific qualifier: see notes for qualifier definition.
BQZ	Barr-applied project specific qualifier: data is considered unusable.

Large Table 14
Comparison of Surface Runoff Calibration in the Embarrass River Watershed
Poly Met Mining Inc.

		Embarrass River (location PM-12)				Difference in normalized RMSE
		WQ Model Version 5.0		All Data		
		Data Points	Normalized RMSE	Data Points	Normalized RMSE	
Silver	Total	7	7.81%	13	11.87%	4.05%
Aluminum	Total	21	6.42%	40	7.42%	1.00%
Alkalinity	Total	27	4.02%	33	5.28%	1.26%
Arsenic	Total	5	4.44%	24	75.49%	71.06%
Boron	Total	7	5.55%	13	15.96%	10.41%
Barium	Total	9	35.30%	15	28.51%	-6.79%
Beryllium	Total	6	45.22%	12	45.69%	0.47%
Calcium	Total	27	2.73%	46	5.30%	2.57%
Cadmium	Total	9	13.15%	15	18.36%	5.21%
Chloride	Total	42	4.71%	42	3.04%	-1.67%
Cobalt	Total	25	29.13%	44	133.04%	103.92%
Chromium	Total	9	8.36%	15	30.09%	21.72%
Copper	Total	27	12.33%	46	20.48%	8.15%
Fluoride	Total	21	9.69%	21	9.39%	-0.29%
Iron	Total	8	15.04%	27	45.64%	30.60%
Potassium	Total	9	24.36%	15	23.48%	-0.87%
Magnesium	Total	27	14.15%	46	12.20%	-1.94%
Manganese	Total	12	18.25%	31	102.65%	84.40%
Sodium	Total	11	13.01%	17	14.31%	1.29%
Nickel	Total	27	35.29%	46	34.35%	-0.94%
Lead	Total	14	7.66%	33	18.36%	10.71%
Antimony	Total	1	8.27%	15	7.66%	-0.62%
Selenium	Total	5	27.49%	24	35.89%	8.41%
Sulfate	Total	45	25.49%	64	99.97%	74.48%
Thallium	Total	7	17.22%	25	227.22%	210.00%
Vanadium	Total	no data	no data	6	256.61%	--
Zinc	Total	27	15.84%	46	56.07%	40.23%

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-004- MPCA Oct-05 N	HIST-SD-004-NTS 10/04/2005 N	HIST-SD-004- MPCA Dec-05 N	HIST-SD-004-NTS 12/08/2005 N	HIST-SD-004- MPCA Mar-06 N	HIST-SD-004-NTS 3/02/2006 N	HIST-SD-004- MPCA Apr-06 N	HIST-SD-004-NTS 4/13/2006 N	HIST-SD-004- MPCA Jun-06 N	HIST-SD-004-NTS 6/06/2006 N	HIST-SD-004- MPCA Aug-06 N	HIST-SD-004-NTS 8/23/2006 N	HIST-SD-004- MPCA Sep-06 N	HIST-SD-004-NTS 9/06/2006 N	HIST-SD-004- MPCA Oct-06 N	HIST-SD-004-NTS 10/03/2006 N	HIST-SD-004-NTS 10/04/2006 N	HIST-SD-004- MPCA Dec-06 N	HIST-SD-004-NTS 12/08/2006 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	426 mg/l	--	403 mg/l	--	--	--	432 mg/l	--	--	--	440 mg/l	--	--	--	--	435 mg/l
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	426 mg/l	--	403 mg/l	--	--	--	432 mg/l	--	--	--	440 mg/l	--	--	--	--	435 mg/l	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	27.9 mg/l	--	--	--	--	--	--	--	--	28 mg/l
Flow																					
	NA	Field	--	0.004 mgd	0.004 mgd 0.12 MG	0.004 mgd	0.003 mgd 0.09 MG	0.003 mgd	--	0.003 mgd	0.0036 mgd 0.11 MG	0.0036 mgd	--	--	0.003 mgd 2 MG	0.003 mgd	--	--	0.002 mgd	0.003 mgd 0.09 MG	0.003 mgd
Fluoride	NA	Lab	--	--	2.3 mg/l	2.3 mg/l	2.3 mg/l	2.3 mg/l	--	--	2.2 mg/l	2.2 mg/l	--	--	0.6 mg/l	0.6 mg/l	--	--	--	2.02 mg/l	2.02 mg/l
Hardness, as CaCO3																					
	NA	Lab	--	--	426 mg/l	426 mg/l 692 mg/l	403 mg/l	403 mg/l 154 mg/l	--	--	432 mg/l	432 mg/l 147 mg/l	--	--	440 mg/l	440 mg/l 671 mg/l	--	--	--	435 mg/l	435 mg/l 650 mg/l
pH																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH																					
	NA	Field	--	7.68 pH units	7.6 pH units	7.6 pH units	7.5 pH units	7.5 pH units	--	7.6 pH units	7.8 pH units	7.8 pH units	--	--	7.7 pH units	7.7 pH units	--	--	7.54 pH units	7.4 pH units	7.4 pH units
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended																					
	NA	Lab	--	7.2 mg/l	4.4 mg/l	4.4 mg/l	9.2 mg/l	9.2 mg/l	--	7.2 mg/l	14 mg/l	14 mg/l	--	--	16 mg/l	16 mg/l	--	--	79.2 mg/l	15.2 mg/l	15.2 mg/l
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	--	1363 umhos/cm	1380 umhos/cm	1380 umhos/cm	1290 umhos/cm	1290 umhos/cm	--	1246 umhos/cm	838 umhos/cm	838 umhos/cm	--	--	1376 umhos/cm	1376 umhos/cm	--	7.54 umhos/cm	1463 umhos/cm	1301 umhos/cm	1301 umhos/cm
Sulfate, as SO4	NA	Lab	--	307 mg/l	--	--	--	--	--	297 mg/l	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	--	9.7 deg C	--	7.2 deg C	--	6.9 deg C	--	7.5 deg C	--	10.8 deg C	--	--	--	11.1 deg C	--	--	9.6 deg C	--	8.9 deg C
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	--	5.4 NTU	5.4 NTU	38 NTU	38 NTU	--	--	11 NTU	11 NTU	--	--	23 NTU	23 NTU	--	--	--	56.2 NTU	56.2 NTU
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	--	511 ug/l	511 ug/l	547 ug/l	547 ug/l	--	--	495 ug/l	495 ug/l	--	--	493 ug/l	493 ug/l	--	--	--	514 ug/l	514 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	69500 ug/l	69500 ug/l	--	--	--	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	< 2.5 ug/l	2.5 ug/l	< 2.5 ug/l	2.5 ug/l	--	--	< 2.5 ug/l	2.5 ug/l	--	--	< 1 ug/l	1 ug/l	--	--	--	1.6 ug/l	1.6 ug/l
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	3700 ug/l	3700 ug/l	2870 ug/l	2870 ug/l	--	--	2570 ug/l	2570 ug/l	--	--	2450 ug/l	2450 ug/l	--	--	--	2920 ug/l	2920 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	121000 ug/l	121000 ug/l	--	--	--	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	--	640 ug/l	640 ug/l	590 ug/l	590 ug/l	--	--	600 ug/l	600 ug/l	--	--	620 ug/l	620 ug/l	--	--	--	590 ug/l	590 ug/l
Mercury	Total	Lab	< 0.0005 ug/l	0.0005 ug/l	--	--	--	--	0.0009 ug/l	0.0009 ug/l	< 0.002 ug/l	0.002 ug/l	0.0008 ug/l	0.0008 ug/l	--	--	< 0.004 ug/l	--	0.004 ug/l	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	56.4 ug/l	--	--	--	--	--	--	--	--	50 ug/l
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	11500 ug/l	11500 ug/l	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	69500 ug/l	69500 ug/l	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-004- MPCA Mar-07 N	HIST-SD-004-NTS 3/06/2007 N	HIST-SD-004- MPCA Apr-07 N	HIST-SD-004-NTS 4/06/2007 N	HIST-SD-004- MPCA Jun-07 N	HIST-SD-004-NTS 6/06/2007 N	HIST-SD-004- MPCA Aug-07 N	HIST-SD-004-NTS 8/07/2007 N	HIST-SD-004- MPCA Sep-07 N	HIST-SD-004-NTS 9/05/2007 N	HIST-SD-004- MPCA Oct-07 N	HIST-SD-004-NTS 10/03/2007 N	HIST-SD-004- MPCA Dec-07 N	HIST-SD-004-NTS 12/03/2007 N	HIST-SD-004- MPCA Mar-08 N	HIST-SD-004-NTS 3/11/2008 N	HIST-SD-004- MPCA Apr-08 N	HIST-SD-004-NTS 4/10/2008 N	HIST-SD-004- MPCA Jun-08 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	430 mg/l	--	--	--	420 mg/l	--	--	--	460 mg/l	--	--	--	514 mg/l	--	553 mg/l	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	430 mg/l	--	--	--	420 mg/l	--	--	--	460 mg/l	--	--	--	514 mg/l	--	553 mg/l	--	--	--	562 mg/l
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flow																					
	NA	Field	0.003 mgd 0.09 MG	0.003 mgd	--	0.003 mgd	0.006 mgd 0.17 MG	0.006 mgd	--	0.014 mgd	0.03 mgd 0.86 MG	0.029 mgd	--	0.029 mgd	0.003 mgd 0.09 MG	0.003 mgd	0.022 mgd 0.67 MG	0.022 mgd	--	--	0.01 mgd 0.32 MG
Fluoride	NA	Lab	2.08 mg/l	2.08 mg/l	--	--	2.25 mg/l	2.25 mg/l	--	--	1.92 mg/l	1.92 mg/l	--	--	1.31 mg/l	1.31 mg/l	1.96 mg/l	1.96 mg/l	--	--	2.29 mg/l
Hardness, as CaCO3	NA	Lab	430 mg/l	430 mg/l 703 mg/l	--	--	420 mg/l	420 mg/l 651 mg/l	--	--	460 mg/l	460 mg/l 717 mg/l	--	--	514 mg/l	514 mg/l 828 mg/l	553 mg/l	553 mg/l 838 mg/l	--	--	562 mg/l
pH																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH																					
	NA	Field	7.4 pH units	7.4 pH units	--	7.2 pH units	7.3 pH units	7.3 pH units	--	7.6 pH units	7.4 pH units	7.4 pH units	--	7.5 pH units	7.5 pH units	7.5 pH units	7.5 pH units	7.5 pH units	--	7 pH units	7.5 pH units
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended																					
	NA	Lab	6.4 mg/l	6.4 mg/l	--	10 mg/l	4 mg/l	4 mg/l	--	2.8 mg/l	2.5 mg/l	2.5 mg/l	--	21.2 mg/l	7.2 mg/l	7.2 mg/l	8.4 mg/l	8.4 mg/l	--	9.2 mg/l	8 mg/l
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	1311 umhos/cm	1311 umhos/cm	--	1408 umhos/cm	1325 umhos/cm	1325 umhos/cm	--	1496 umhos/cm	1518 umhos/cm	1518 umhos/cm	--	1385 umhos/cm	1575 umhos/cm	1575 umhos/cm	1487 umhos/cm	1487 umhos/cm	--	1652 umhos/cm	1576 umhos/cm
Sulfate, as SO4	NA	Lab	--	--	--	--	310 mg/l	--	--	338 mg/l	--	--	--	331 mg/l	--	--	--	--	--	--	382 mg/l
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	--	6.1 deg C	--	5.7 deg C	--	11.5 deg C	--	10.4 deg C	--	9.9 deg C	--	9.7 deg C	--	7.8 deg C	--	3.9 deg C	--	6.3 deg C	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	25.9 NTU	25.9 NTU	--	--	22 NTU	22 NTU	--	--	8.6 NTU	8.6 NTU	--	--	39.8 NTU	39.8 NTU	49.2 NTU	49.2 NTU	--	--	65.1 NTU
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	503 ug/l	503 ug/l	--	--	453 ug/l	453 ug/l	--	--	479 ug/l	479 ug/l	--	--	504 ug/l	504 ug/l	496 ug/l	496 ug/l	--	--	476 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	73900 ug/l	--	--	--	66200 ug/l	--	--	71300 ug/l	71300 ug/l	--	--	--	79400 ug/l	--	79800 ug/l	--	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	< 1 ug/l	1 ug/l	--	--	1.1 ug/l	1.1 ug/l	--	--	< 1 ug/l	1 ug/l	--	--	1.3 ug/l	1.3 ug/l	< 2 ug/l	2 ug/l	--	--	< 2 ug/l
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	2760 ug/l	2760 ug/l	--	--	2510 ug/l	2510 ug/l	--	--	2680 ug/l	2680 ug/l	--	--	2840 ug/l	2840 ug/l	4140 ug/l	4140 ug/l	--	--	4610 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	126000 ug/l	--	--	--	118000 ug/l	--	--	131000 ug/l	131000 ug/l	--	--	--	153000 ug/l	--	155000 ug/l	--	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	564 ug/l	564 ug/l	--	--	538 ug/l	538 ug/l	--	--	549 ug/l	549 ug/l	--	--	620 ug/l	620 ug/l	632 ug/l	632 ug/l	--	--	657 ug/l
Mercury	Total	Lab	--	--	< 0.0005 ug/l	0.0005 ug/l	< 0.004 ug/l	0.004 ug/l	< 0.0005 ug/l	0.0005 ug/l	--	--	< 0.0005 ug/l	0.0005 ug/l	--	--	--	--	0.0005 ug/l	0.0005 ug/l	< 0.0005 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	--	11000 ug/l	11000 ug/l	--	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	--	--	--	--	--	66200 ug/l	66200 ug/l	--	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-004-NTS 6/09/2008 N	HIST-SD-004-MPCA Aug-08 N	HIST-SD-004-NTS 8/14/2008 N	HIST-SD-004-MPCA Sep-08 N	HIST-SD-004-NTS 9/03/2008 N	HIST-SD-004-MPCA Oct-08 N	HIST-SD-004-NTS 10/02/2008 N	HIST-SD-004-MPCA Dec-08 N	HIST-SD-004-NTS 12/11/2008 N	HIST-SD-004-MPCA Mar-09 N	HIST-SD-004-NTS 3/17/2009 N	HIST-SD-004-MPCA Aug-09 N	HIST-SD-004-NTS 8/07/2009 N	HIST-SD-004-MPCA Sep-09 N	HIST-SD-004-NTS 9/15/2009 N	HIST-SD-004-MPCA Oct-09 N	HIST-SD-004-NTS 10/12/2009 N	HIST-SD-004-MPCA Dec-09 N	HIST-SD-004-NTS 12/01/2009 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	562 mg/l	--	--	--	563 mg/l	--	--	546 mg/l	--	555 mg/l	556 mg/l	--	--	--	556 mg/l	--	--	--	610 mg/l
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	563 mg/l	--	--	--	546 mg/l	--	555 mg/l	--	--	--	556 mg/l	--	--	--	610 mg/l	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flow																					
	NA	Field	0.01 mgd	--	0.012 mgd	0.01 mgd 0.324 MG	0.01 mgd	--	0.005 mgd	0.005 mgd 0.018 MG	0.005 mgd	0.004 mgd 0.12 MG	0.004 mgd	--	0.005 mgd	0.005 mgd 0.15 MG	0.005 mgd	--	0.005 mgd	0.005 mgd 0.16 MG	0.005 mgd
Fluoride	NA	Lab	2.29 mg/l	--	--	1.77 mg/l	1.77 mg/l	--	--	1.84 mg/l	1.84 mg/l	1.9 mg/l	1.9 mg/l	--	--	1.88 mg/l	1.88 mg/l	--	--	1.89 mg/l	1.89 mg/l
Hardness, as CaCO3	NA	Lab	562 mg/l 871 mg/l	--	--	563 mg/l	563 mg/l 850 mg/l	--	--	546 mg/l	546 mg/l 914 mg/l	555 mg/l	555 mg/l 936 mg/l	--	--	556 mg/l	556 mg/l 1040 mg/l	--	--	610 mg/l	610 mg/l 1020 mg/l
pH																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH																					
	NA	Field	7.5 pH units	--	7.12 pH units	7.3 pH units	7.3 pH units	--	7.36 pH units	7.28 pH units	7.28 pH units	7.25 pH units	7.25 pH units	--	7.11 pH units	6.7 pH units	6.73 pH units	--	6.96 pH units	7.2 pH units	7.2 pH units
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended																					
	NA	Lab	8 mg/l	--	13 mg/l	12.4 mg/l	12.4 mg/l	--	11 mg/l	20.4 mg/l	20.4 mg/l	13 mg/l	13 mg/l	--	15.3 mg/l	16 mg/l	16 mg/l	--	15.5 mg/l	19.2 mg/l	19.2 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	1576 umhos/cm	--	1651 umhos/cm	1601 umhos/cm	1601 umhos/cm	--	1646 umhos/cm	1656 umhos/cm	1656 umhos/cm	1675 umhos/cm	1675 umhos/cm	--	1736 umhos/cm	1751 umhos/cm	1751 umhos/cm	--	1812 umhos/cm	830 umhos/cm	830 umhos/cm
Sulfate, as SO4	NA	Lab	--	--	374 mg/l	--	--	--	373 mg/l	--	--	--	--	--	448 mg/l	--	--	--	449 mg/l	--	--
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature	NA	Field	9.09 deg C	--	12.58 deg C	--	8.92 deg C	--	9.4 deg C	--	7.6 deg C	--	5.8 deg C	--	10.3 deg C	--	10 deg C	--	6.2 deg C	--	7.6 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	65.1 NTU	--	--	92.9 NTU	92.9 NTU	--	--	99.4 NTU	99.4 NTU	89.3 NTU	89.3 NTU	--	--	88.6 NTU	88.6 NTU	--	--	113 NTU	113 NTU
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	476 ug/l	--	--	488 ug/l	488 ug/l	--	--	526 ug/l	526 ug/l	515 ug/l	515 ug/l	--	--	518 ug/l	518 ug/l	--	--	470 ug/l	470 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	78400 ug/l	--	--	78400 ug/l	78400 ug/l	--	--	--	85500 ug/l	--	86100 ug/l	--	--	92400 ug/l	92400 ug/l	--	--	--	89500 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	2 ug/l	--	--	< 2 ug/l	2 ug/l	--	--	< 2 ug/l	2 ug/l	< 2 ug/l	2 ug/l	--	--	1.2 ug/l	1.2 ug/l	--	--	1.2 ug/l	1.2 ug/l
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	4610 ug/l	--	--	5540 ug/l	5540 ug/l	--	--	5970 ug/l	5970 ug/l	6440 ug/l	6440 ug/l	--	--	6230 ug/l	6230 ug/l	--	--	6890 ug/l	6890 ug/l
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	164000 ug/l	--	--	159000 ug/l	159000 ug/l	--	--	--	170000 ug/l	--	175000 ug/l	--	--	196000 ug/l	196000 ug/l	--	--	--	194000 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	657 ug/l	--	--	586 ug/l	586 ug/l	--	--	619 ug/l	619 ug/l	613 ug/l	613 ug/l	--	--	620 ug/l	620 ug/l	--	--	602 ug/l	602 ug/l
Mercury	Total	Lab	0.0005 ug/l	0.0011 ug/l	0.0011 ug/l	--	--	0.0008 ug/l	0.0008 ug/l	--	--	--	--	< 0.0005 ug/l	0.0005 ug/l	--	--	0.0008 ug/l	0.0008 ug/l	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	10200 ug/l	10200 ug/l	--	--	--	--	--	--	--	--	11900 ug/l	11900 ug/l	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	64800 ug/l	64800 ug/l	--	--	--	--	--	--	--	--	74500 ug/l	74500 ug/l	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-004- MPCA Mar-10 N	HIST-SD-004- MPCA Apr-10 N	HIST-SD-004- MPCA Jun-10 N	HIST-SD-004- MPCA Aug-10 N	HIST-SD-004- MPCA Sep-10 N	HIST-SD-004- MPCA Oct-10 N	HIST-SD-004- MPCA Dec-10 N	HIST-SD-004- MPCA Mar-11 N	HIST-SD-004- MPCA Apr-11 N	HIST-SD-004- MPCA Jun-11 N	HIST-SD-004- MPCA Aug-13 N
Parameter	Total or Dissolved	Analysis Location											
General Parameters													
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	567 mg/l	--	525 mg/l	--	549 mg/l	--	518 mg/l	521 mg/l	--	537 mg/l	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Flow													
	NA	Field	0.005 mgd 0.16 MG	--	0.0043 mgd 0.13 MG	--	0.0043 mgd 0.13 MG	--	0.0043 mgd 0.13 MG	0.0043 mgd 0.13 MG	--	0.0058 mgd 0.17 MG	--
Fluoride	NA	Lab	1.77 mg/l	--	1.8 mg/l	--	1.9 mg/l	--	1.8 mg/l	1.7 mg/l	--	1.7 mg/l	--
Hardness, as CaCO3													
	NA	Lab	567 mg/l	--	525 mg/l	--	549 mg/l	--	518 mg/l	521 mg/l	--	537 mg/l	--
pH													
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
pH													
	NA	Field	7.4 pH units	--	7.2 pH units	--	7.3 pH units	--	7.4 pH units	7.4 pH units	--	7.3 pH units	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended													
	NA	Lab	17.3 mg/l	--	19 mg/l	--	13 mg/l	--	16 mg/l	23 mg/l	--	18 mg/l	--
Specific Conductance @ 25 °C													
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C													
	NA	Field	1765 umhos/cm	--	1715 umhos/cm	--	1740 umhos/cm	--	1686 umhos/cm	1702 umhos/cm	--	1745 umhos/cm	--
Sulfate, as SO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Temperature													
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Temperature													
	NA	Field	--	--	--	--	--	--	--	--	--	--	--
Turbidity													
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Turbidity													
	NA	Field	95 NTU	--	103 NTU	--	100 NTU	--	92 NTU	90 NTU	--	80 NTU	--
Metals													
Aluminum													
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Aluminum													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Antimony													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Arsenic													
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Arsenic													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Barium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Beryllium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Boron													
	Total	Lab	431 ug/l	--	520 ug/l 548 ug/l	--	536 ug/l	--	509 ug/l	491 ug/l	--	523 ug/l	--
Cadmium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Calcium													
	Total	Lab	--	--	--	--	91000 ug/l	--	--	--	--	--	--
Chromium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Cobalt													
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Cobalt													
	Total	Lab	1.2 ug/l	--	1.2 ug/l	--	1.1 ug/l	--	1 ug/l	0.93 ug/l	--	1.2 ug/l	--
Copper													
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Copper													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Iron													
	Dissolved	Lab	2000 ug/l	--	6600 ug/l	--	6500 ug/l	--	600 ug/l	5600 ug/l	--	5700 ug/l	--
Iron													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Lead													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Lithium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Magnesium													
	Total	Lab	--	--	--	--	184000 ug/l	--	--	--	--	--	--
Manganese													
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Manganese													
	Total	Lab	599 ug/l	--	593 ug/l	--	595 ug/l	--	570 ug/l	542 ug/l	--	600 ug/l	--
Mercury													
	Total	Lab	--	< 0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l	--	< 0.0005 ug/l	--	--	< 0.0005 ug/l	< 0.0005 ug/l	< 0.0005 ug/l
Methyl Mercury													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Molybdenum													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Nickel													
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Nickel													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Palladium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P													
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Platinum													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Potassium													
	Total	Lab	--	--	--	--	12000 ug/l	--	--	--	--	--	--
Selenium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Silver													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Sodium													
	Total	Lab	--	--	--	--	70000 ug/l	--	--	--	--	--	--
Strontium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Thallium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Tin													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Titanium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Vanadium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Zinc													
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Zinc													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-026- MPCA Jun-04 N	HIST-SD-026- MPCA Jul-04 N	HIST-SD-026- MPCA Aug-04 N	HIST-SD-026- MPCA Sep-04 N	HIST-SD-026- MPCA Oct-04 N	HIST-SD-026- MPCA Nov-04 N	HIST-SD-026- MPCA Dec-04 N	HIST-SD-026- MPCA Jan-05 N	HIST-SD-026-NTS 1/04/2005 N	HIST-SD-026- MPCA Feb-05 N	HIST-SD-026-NTS 2/01/2005 N	HIST-SD-026- MPCA Mar-05 N	HIST-SD-026-NTS 3/02/2005 N	HIST-SD-026- MPCA Apr-05 N	HIST-SD-026-NTS 4/04/2005 N	HIST-SD-026- MPCA May-05 N	HIST-SD-026-NTS 5/04/2005 N	HIST-SD-026- MPCA Jun-05 N	HIST-SD-026-NTS 6/06/2005 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	433 mg/l	--	--	--	--	--	346 mg/l
Alkalinity, bicarbonate, as HCO3	NA	Lab	374 mg/l	--	--	408 mg/l	--	--	428 mg/l	--	--	--	--	433 mg/l	--	--	--	--	--	346 mg/l	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	416 mg/l	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	18.3 mg/l	--	--	--	--	--	--	--	--
Flow																					
	NA	Field	0.75 mgd 22.5 MG	0.58 mgd 17.94 MG	0.73 mgd 22.7 MG	0.58 mgd 17.5 MG	0.6605 mgd 20.5 MG	0.23 mgd 6.83 MG	0.74 mgd 23 MG	0.27 mgd 8.24 MG	--	0.55 mgd 17 MG	0.55 mgd	0.18 mgd 5.7 MG	0.18 mgd	1.09 mgd 32.6 MG	1.09 mgd	1 mgd 31 MG	1 mgd	1.1 mgd 33.1 MG	1.1 mgd
Fluoride	NA	Lab	2.7 mg/l	--	--	3.8 mg/l	--	--	3.3 mg/l	--	--	--	3.3 mg/l	3.6 mg/l	3.6 mg/l	--	--	--	--	2.5 mg/l	2.5 mg/l
Hardness, as CaCO3																					
	NA	Lab	454 mg/l	--	--	175 mg/l	--	--	456 mg/l	--	--	--	--	433 mg/l	433 mg/l 493 mg/l	--	--	--	--	346 mg/l	346 mg/l 460 mg/l
pH																					
	NA	Lab	8.22 pH units	8 pH units	8.1 pH units	7.92 pH units	8.09 pH units	8.09 pH units	8.13 pH units 8.55 pH units	7.81 pH units	--	8.4 pH units	--	7.6 pH units	--	7.89 pH units	--	8.03 pH units	--	8.04 pH units	--
pH																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	8.4 pH units	--	7.6 pH units	--	7.89 pH units	--	8.03 pH units	--	8.04 pH units
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	0.11 mg/l	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	650 mg/l	--	--	--	--	--	--	--	--
Solids, total suspended																					
	NA	Lab	< 1 mg/l	1 mg/l	1.5 mg/l	1.5 mg/l	1 mg/l	2 mg/l	< 1 mg/l	2.4 mg/l	2.4 mg/l	< 1 mg/l	1 mg/l	2.5 mg/l	2.5 mg/l	2.5 mg/l	2.5 mg/l	< 1 mg/l	1 mg/l	< 1 mg/l	1 mg/l
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	988 umhos/cm	1077 umhos/cm	1010 umhos/cm	1075 umhos/cm	1102 umhos/cm	1018 umhos/cm	1067 umhos/cm	992 umhos/cm	--	1108 umhos/cm	1108 umhos/cm 1080 umhos/cm	898 umhos/cm	898 umhos/cm	777 umhos/cm	777 umhos/cm	1053 umhos/cm	1053 umhos/cm	881 umhos/cm	881 umhos/cm
Sulfate, as SO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	0.9 NTU	--	--	--	--	--	--	--	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	25 ug/l	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	3 ug/l	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	2 ug/l	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	20.6 ug/l	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	0.2 ug/l	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	230 ug/l	--	--	256 ug/l	--	--	233 ug/l	--	--	--	248 ug/l	252 ug/l	252 ug/l	--	--	--	--	212 ug/l	212 ug/l
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	69800 ug/l	--	--	--	--	--	--	76200 ug/l 0.2 ug/l	--	--	--	--	--	--	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	1.1 ug/l	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	< 1 ug/l	--	--	< 1 ug/l	--	--	< 1 ug/l	--	--	--	1 ug/l	< 1 ug/l	1 ug/l	--	--	--	--	< 2.5 ug/l	2.5 ug/l
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	2 ug/l	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	200 ug/l	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	1 ug/l	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	25.6 ug/l	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	--	70700 ug/l	--	--	--	--	--	--	81800 ug/l	--	--	--	--	--	--	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	300 ug/l	--	--	200 ug/l	--	--	450 ug/l	--	--	--	--	350 ug/l	350 ug/l	--	--	--	--	270 ug/l	270 ug/l
Mercury	Total	Lab	< 0.01 ug/l	--	0.0008 ug/l	--	0.0012 ug/l	--	--	--	--	--	--	--	--	0.0013 ug/l	0.0013 ug/l	--	--	0.0005 ug/l	0.0005 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	23 ug/l	--	--	30 ug/l	--	--	28.1 ug/l	--	--	--	25.9 ug/l	27.2 ug/l	27.2 ug/l	--	--	--	--	21.6 ug/l	21.6 ug/l
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	5 ug/l	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	9100 ug/l	--	--	--	--	--	--	9300 ug/l 9300 ug/l	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	2 ug/l	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	1 ug/l	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	54300 ug/l	--	--	--	--	--	--	57200 ug/l	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	291 ug/l	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	2 ug/l	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	10 ug/l	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	10 ug/l	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	4 ug/l	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	10 ug/l	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-026-MPCA Jul-05 N	HIST-SD-026-NTS 7/07/2005 N	HIST-SD-026-MPCA Aug-05 N	HIST-SD-026-NTS 8/04/2005 N	HIST-SD-026-MPCA Sep-05 N	HIST-SD-026-NTS 9/08/2005 N	HIST-SD-026-MPCA Oct-05 N	HIST-SD-026-NTS 10/06/2005 N	HIST-SD-026-MPCA Nov-05 N	HIST-SD-026-NTS 11/01/2005 N	HIST-SD-026-MPCA Dec-05 N	HIST-SD-026-NTS 12/05/2005 N	HIST-SD-026-MPCA Jan-06 N	HIST-SD-026-NTS 1/06/2006 N	HIST-SD-026-MPCA Feb-06 N	HIST-SD-026-NTS 2/08/2006 N	HIST-SD-026-MPCA Mar-06 N	HIST-SD-026-NTS 3/06/2006 N	HIST-SD-026-MPCA Apr-06 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	446 mg/l	--	--	--	--	--	439 mg/l	--	--	--	--	--	431 mg/l	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	--	446 mg/l	--	--	--	--	--	439 mg/l	--	--	--	--	--	431 mg/l	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flow																					
	NA	Field	0.65 mgd 20.2 MG	0.65 mgd	0.65 mgd 20.2 MG	0.65 mgd	0.57 mgd 17.16 MG	0.57 mgd	0.65 mgd 20.2 MG	0.65 mgd	0.59 mgd 17.55 MG	0.59 mgd	0.51 mgd 15.8 MG	0.51 mgd	0.44 mgd 13.5 MG	0.67 cfs 0.44 mgd	0.39 mgd 10.9 MG	0.39 mgd	0.41 mgd 12.8 MG	0.41 mgd	1.25 mgd 37.6 MG
Fluoride	NA	Lab	--	--	--	--	2.7 mg/l	2.7 mg/l	--	--	--	--	3.4 mg/l	3.4 mg/l	--	--	--	--	3.1 mg/l	3.1 mg/l	--
Hardness, as CaCO3	NA	Lab	--	--	--	--	446 mg/l	446 mg/l 593 mg/l	--	--	--	--	439 mg/l	439 mg/l 780 mg/l	--	--	--	--	431 mg/l	431 mg/l 518 mg/l	--
pH																					
	NA	Lab	7.97 pH units	--	8.08 pH units	--	8.1 pH units	--	8.1 pH units	--	8.04 pH units	--	8.1 pH units	--	8.2 pH units	--	8.3 pH units	--	8.2 pH units	--	8.3 pH units
pH																					
	NA	Field	--	7.97 pH units	--	8.08 pH units	--	8.1 pH units	--	8.1 pH units	--	8.04 pH units	--	8.1 pH units	--	8.2 pH units	--	8.3 pH units	--	8.2 pH units	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended																					
	NA	Lab	1.5 mg/l	1.5 mg/l	16 mg/l	16 mg/l	2 mg/l	2 mg/l	< 1 mg/l	1 mg/l	2.4 mg/l	2.4 mg/l	2.4 mg/l	2.4 mg/l	2.8 mg/l	2.8 mg/l	< 1 mg/l	1 mg/l	1.6 mg/l	1.6 mg/l	2 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	1075 umhos/cm	1075 umhos/cm	1080 umhos/cm	1080 umhos/cm	1089 umhos/cm	1089 umhos/cm	1039 umhos/cm	1039 umhos/cm	1010 umhos/cm	1010 umhos/cm	1004 umhos/cm	1004 umhos/cm	1012 umhos/cm	1012 umhos/cm	1088 umhos/cm	1088 umhos/cm	1103 umhos/cm	1103 umhos/cm	989 umhos/cm
Sulfate, as SO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3 deg C	--	--	--
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	--	--	--	281 ug/l	281 ug/l	--	--	--	--	248 ug/l	248 ug/l	--	--	--	--	279 ug/l	279 ug/l	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	--	84600 ug/l	84600 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	--	--	< 2.5 ug/l	2.5 ug/l	--	--	--	--	< 2.5 ug/l	2.5 ug/l	--	--	--	--	< 2.5 ug/l	2.5 ug/l	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	--	--	92700 ug/l	92700 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	--	--	--	320 ug/l	320 ug/l	--	--	--	--	1000 ug/l	1000 ug/l	--	--	--	--	0.73 ug/l	0.73 ug/l	--
Mercury	Total	Lab	--	--	0.0013 ug/l	0.0013 ug/l	--	--	< 0.0005 ug/l	0.0005 ug/l	--	--	--	--	--	--	--	--	--	--	0.0009 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	31.8 ug/l	31.8 ug/l	--	--	--	--	28.2 ug/l	28.2 ug/l	--	--	--	--	27.8 ug/l	27.8 ug/l	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	9900 ug/l	9900 ug/l	--	--	--	--	--	14800 ug/l	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	--	52900 ug/l	52900 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location			HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS	HIST-SD-026-MPCA	HIST-SD-026-NTS
Date			4/03/2006	May-06	5/04/2006	Jun-06	6/12/2006	Jul-06	7/05/2006	Aug-06	8/02/2006	Sep-06	9/05/2006	Oct-06	10/05/2006	Nov-06	11/08/2006	Dec-06	12/05/2006	Jan-07	1/04/2007
Sample Type			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	401 mg/l	--	--	--	--	465 mg/l	--	--	--	--	--	465 mg/l	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	401 mg/l	--	--	--	--	--	465 mg/l	--	--	--	--	--	465 mg/l	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flow																					
	NA	Field	1.25 mgd 1.94 cfs	0.7 mgd 21.6 MG	0.7 mgd 1.08 cfs	0.59 mgd 17.6 MG	0.59 mgd	0.64 mgd 19.72 MG	0.64 mgd	0.55 mgd 16.9 MG	0.55 mgd	0.42 mgd 12.74 MG	0.42 mgd	0.52 mgd 16.2 MG	0.52 mgd	0.61 mgd 18.22 MG	0.61 mgd	0.49 mgd 15.06 MG	0.49 mgd	0.43 mgd 13.2 MG	0.66 cfs 0.43 mgd
Fluoride	NA	Lab	--	--	--	2.2 mg/l	2.2 mg/l	--	--	--	--	3.2 mg/l	3.2 mg/l	--	--	--	--	2.78 mg/l	2.78 mg/l	--	--
Hardness, as CaCO3	NA	Lab	--	--	--	401 mg/l	401 mg/l 448 mg/l	--	--	--	--	465 mg/l	465 mg/l 569 mg/l	--	--	--	--	465 mg/l	465 mg/l 568 mg/l	--	--
pH																					
	NA	Lab	--	8.1 pH units	--	7.8 pH units	--	7.9 pH units	--	8.1 pH units	--	8 pH units	--	8.2 pH units	--	8.2 pH units	--	8.1 pH units	--	8.2 pH units	--
pH																					
	NA	Field	8.3 pH units	--	8.1 pH units	--	7.8 pH units	--	7.9 pH units	--	8.1 pH units	--	8 pH units	--	8.2 pH units	--	8.2 pH units	--	8.1 pH units	--	8.2 pH units
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended																					
	NA	Lab	2 mg/l	2.8 mg/l	2.8 mg/l	2.4 mg/l	2.4 mg/l	3.6 mg/l	3.6 mg/l	24 mg/l	2.4 mg/l	2 mg/l	2 mg/l	1.6 mg/l	1.6 mg/l	< 1 mg/l	1 mg/l	2 mg/l	2 mg/l	2 mg/l	2 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	989 umhos/cm	1048 umhos/cm	--	1097 umhos/cm	1048 umhos/cm	1162 umhos/cm	1162 umhos/cm	1166 umhos/cm	1166 umhos/cm	1183 umhos/cm	1183 umhos/cm	1140 umhos/cm	1140 umhos/cm	1080 umhos/cm	1080 umhos/cm	1011 umhos/cm	1011 umhos/cm	1028 umhos/cm	1028 umhos/cm
Sulfate, as SO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	2.9 deg C	--	--	--	15.3 deg C	--	--	--	--	18.3 deg C	--	14.2 deg C	--	7.4 deg C	--	--	--	--	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	--	--	227 ug/l	227 ug/l	--	--	--	--	234 ug/l	234 ug/l	--	--	--	--	262 ug/l	262 ug/l	--	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	76100 ug/l	76100 ug/l	--	--	--	--	--	--	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	--	< 2.5 ug/l	2.5 ug/l	--	--	--	--	< 25 ug/l	2.5 ug/l	--	--	--	< 2.5 ug/l	2.5 ug/l	--	--	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	--	--	--	--	--	--	--	92200 ug/l	92200 ug/l	--	--	--	--	--	--	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	--	--	310 ug/l	310 ug/l	--	--	--	--	161 ug/l	161 ug/l	--	--	--	--	1520 ug/l	1520 ug/l	--	--
Mercury	Total	Lab	0.0009 ug/l	--	--	0.0005 ug/l	0.0005 ug/l	--	--	< 0.0005 ug/l	0.0005 ug/l	--	--	0.0021 ug/l	0.0021 ug/l	--	--	--	--	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	28.5 ug/l	28.5 ug/l	--	--	--	--	32.5 ug/l	32.5 ug/l	--	--	--	--	28 ug/l	28 ug/l	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	9420 ug/l	9420 ug/l	--	--	--	--	--	11300 ug/l	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	524000 ug/l	52400 ug/l	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--</				

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-026- MPCA Feb-07 N	HIST-SD-026-NTS 2/06/2007 N	HIST-SD-026- MPCA Mar-07 N	HIST-SD-026-NTS 3/07/2007 N	HIST-SD-026- MPCA Apr-07 N	HIST-SD-026-NTS 4/02/2007 N	HIST-SD-026- MPCA May-07 N	HIST-SD-026-NTS 5/03/2007 N	HIST-SD-026- MPCA Jun-07 N	HIST-SD-026-NTS 6/07/2007 N	HIST-SD-026- MPCA Jul-07 N	HIST-SD-026-NTS 7/06/2007 N	HIST-SD-026- MPCA Aug-07 N	HIST-SD-026-NTS 8/03/2007 N	HIST-SD-026- MPCA Sep-07 N	HIST-SD-026-NTS 9/06/2007 N	HIST-SD-026- MPCA Oct-07 N	HIST-SD-026-NTS 10/02/2007 N	HIST-SD-026- MPCA Nov-07 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	468 mg/l	--	--	--	--	277 mg/l	277 mg/l	--	--	--	--	--	463 mg/l	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	468 mg/l	--	--	--	--	--	277 mg/l	--	--	--	--	--	463 mg/l	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flow																					
	NA	Field	0.32 mgd 9 MG	0.32 mgd 0.5 cfs	0.382 mgd 11.83 MG	0.38 mgd 0.59 cfs	0.6 mgd 17.97 MG	0.6 mgd 0.93 cfs	0.78 mgd 24.3 MG	0.784 mgd 1.21 cfs	1.49 mgd 44.6 MG	1.49 mgd 2.3 cfs	0.64 mgd 19.77 MG	0.64 mgd 0.99 cfs	0.57 mgd 17.74 MG		0.48 mgd 14.4 MG	0.48 mgd	1.82 mgd 56.3 MG	1.82 mgd	0.71 mgd 21.38 MG
Fluoride	NA	Lab	--	--	3.01 mg/l	3.01 mg/l	--	--	--	--	1.53 mg/l	1.53 mg/l	--	--	--	--	2.7 mg/l	2.7 mg/l	--	--	--
Hardness, as CaCO3	NA	Lab	--	--	468 mg/l	468 mg/l 648 mg/l	--	--	--	--	277 mg/l	277 mg/l 361 mg/l	--	--	--	--	463 mg/l	463 mg/l 622 mg/l	--	--	--
pH																					
	NA	Lab	8.1 pH units	--	8.2 pH units	--	7.8 pH units	--	7.7 pH units	--	7.3 pH units	--	7.9 pH units	--	8.1 pH units	--	8.1 pH units	--	8 pH units	--	7.6 pH units
pH																					
	NA	Field	--	8.1 pH units	--	8.2 pH units	--	7.8 pH units	--	7.7 pH units	--	7.3 pH units	--	7.9 pH units	--	8.1 pH units	--	8.1 pH units	--	8 pH units	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended																					
	NA	Lab	< 1 mg/l	1 mg/l	1.2 mg/l	1.2 mg/l	1.2 mg/l	1.2 mg/l	2.4 mg/l	2.4 mg/l	2.4 mg/l	2.4 mg/l	4 mg/l	4 mg/l	5 mg/l	5 mg/l	2 mg/l	2 mg/l	2 mg/l	2 mg/l	2.4 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	1001 umhos/cm	1001 umhos/cm	1018 umhos/cm	1018 umhos/cm	995 umhos/cm	995 umhos/cm	1011 umhos/cm	1011 umhos/cm	728 umhos/cm	728 umhos/cm	1104 umhos/cm	1104 umhos/cm	1247 umhos/cm	1247 umhos/cm	1227 umhos/cm	1227 umhos/cm	1051 umhos/cm	1051 umhos/cm	1099 umhos/cm
Sulfate, as SO4	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	--	0.8 deg C	--	--	--	--	--	--	--	15.1 deg C	--	--	--	18.5 deg C	--	18.2 deg C	--	13.2 deg C	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	--	286 ug/l	286 ug/l	--	--	--	--	158 ug/l	158 ug/l	--	--	--	--	270 ug/l	270 ug/l	--	--	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	89600 ug/l	--	--	--	--	--	53200 ug/l	--	--	--	--	84300 ug/l	84300 ug/l	--	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	< 1 ug/l	1 ug/l	--	--	--	--	< 2.5 ug/l	2.5 ug/l	--	--	--	--	< 2.5 ug/l	2.5 ug/l	--	--	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	--	103000 ug/l	--	--	--	--	--	55500 ug/l	--	--	--	--	100000 ug/l	100000 ug/l	--	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	--	856 ug/l	856 ug/l	--	--	--	--	300 ug/l	300 ug/l	--	--	--	--	394 ug/l	394 ug/l	--	--	--
Mercury	Total	Lab	--	--	--	--	0.0013 ug/l	0.0013 ug/l	--	--	< 0.004 ug/l	0.004 ug/l	--	--	0.0007 ug/l	0.0007 ug/l	--	--	< 0.0005 ug/l	0.0005 ug/l	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	34 ug/l	34 ug/l	--	--	--	--	14.2 ug/l	14.2 ug/l	--	--	--	--	38.6 ug/l	38.6 ug/l	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8550 ug/l	8550 ug/l	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	48800 ug/l	48800 ug/l	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-026-NTS 11/08/2007 N	HIST-SD-026-MPCA Dec-07 N	HIST-SD-026-NTS 12/10/2007 N	HIST-SD-026-MPCA Jan-08 N	HIST-SD-026-NTS 1/15/2008 N	HIST-SD-026-MPCA Feb-08 N	HIST-SD-026-NTS 2/08/2008 N	HIST-SD-026-MPCA Mar-08 N	HIST-SD-026-NTS 3/12/2008 N	HIST-SD-026-MPCA Apr-08 N	HIST-SD-026-NTS 4/01/2008 N	HIST-SD-026-MPCA May-08 N	HIST-SD-026-NTS 5/15/2008 N	HIST-SD-026-MPCA Jun-08 N	HIST-SD-026-NTS 6/11/2008 N	HIST-SD-026-MPCA Jul-08 N	HIST-SD-026-NTS 7/25/2008 N	HIST-SD-026-MPCA Aug-08 N	HIST-SD-026-NTS 8/12/2008 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	461 mg/l	--	465 mg/l	--	481 mg/l	--	472 mg/l	--	254 mg/l	--	311 mg/l	--	390 mg/l	--	449 mg/l	--	687 mg/l
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	461 mg/l	--	465 mg/l	--	481 mg/l	--	472 mg/l	--	254 mg/l	--	311 mg/l	--	390 mg/l	--	449 mg/l	--	687 mg/l	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	16.7 mg/l	16.7 mg/l	15.5 mg/l	15.5 mg/l	15.7 mg/l	15.7 mg/l	15.9 mg/l	15.9 mg/l	12.2 mg/l	12.2 mg/l	12.5 mg/l	12.5 mg/l	14.3 mg/l	14.3 mg/l	15.1 mg/l	15.1 mg/l
Flow																					
	NA	Field	0.71 mgd	0.61 mgd 19.1 MG	0.61 mgd	0.39 mgd 12.22 MG	0.3943 mgd	0.42 mgd 12.2 MG	0.42 mgd 0.65 cfs	0.51 mgd 15.77 MG	0.5088 mgd 0.7872 cfs	0.56 mgd 16.8 MG	0.5597 mgd	0.97 MG 29.97 mgd	0.9667 mgd	0.73 mgd 21.9 MG	0.73 mgd	0.027 mgd 0.85 MG	0.027300350000 mgd	0.7 mgd 21.7 MG	0.7 mgd
Fluoride	NA	Lab	--	1.66 mg/l	1.66 mg/l	--	--	--	--	2.41 mg/l	2.41 mg/l	--	--	--	--	2.62 mg/l	2.62 mg/l	--	--	--	--
Hardness, as CaCO3	NA	Lab	--	461 mg/l	461 mg/l 618 mg/l	465 mg/l	461 mg/l	481 mg/l	481 mg/l 632 mg/l	472 mg/l	472 mg/l 586 mg/l	254 mg/l	254 mg/l 647 mg/l	311 mg/l	311 mg/l 481 mg/l	390 mg/l	390 mg/l 502 mg/l	449 mg/l	449 mg/l 602 mg/l	626 mg/l	626 mg/l
pH																					
	NA	Lab	--	8 pH units	--	8.2 pH units	--	8.2 pH units	--	8.3 pH units	--	8.1 pH units	--	7.8 pH units	--	7.9 pH units	--	7.8 pH units	--	7.8 pH units	--
pH																					
	NA	Field	7.6 pH units	--	8 pH units	--	8.2 pH units	--	8.2 pH units	--	8.3 pH units	--	8.1 pH units	--	7.8 pH units	--	7.87 pH units	--	7.78 pH units	--	7.81 pH units
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	774 mg/l	774 mg/l	775 mg/l	775 mg/l	723 mg/l	723 mg/l	752 mg/l	752 mg/l	485 mg/l	485 mg/l	596 mg/l	596 mg/l	684 mg/l	684 mg/l	748 mg/l	748 mg/l
Solids, total suspended																					
	NA	Lab	2.4 mg/l	2 mg/l	2 mg/l	< 1 mg/l	1 mg/l	1.2 mg/l	1.2 mg/l	3.5 mg/l	3.5 mg/l	< 1 mg/l	1 mg/l	< 1 mg/l	1 mg/l	< 1 mg/l	1 mg/l	1.2 mg/l	1.2 mg/l	< 1 mg/l	1 mg/l
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	1099 umhos/cm	1169 umhos/cm	1169 umhos/cm	1119 umhos/cm	1119 umhos/cm	1144 umhos/cm	1144 umhos/cm	1197 umhos/cm	1197 umhos/cm	1187 umhos/cm	1187 umhos/cm	924 umhos/cm	924 umhos/cm	954 umhos/cm	954 umhos/cm	1191 umhos/cm	1191 umhos/cm	1243 umhos/cm	1243 umhos/cm
Sulfate, as SO4	NA	Lab	--	--	--	216 mg/l	216 mg/l	209 mg/l	209 mg/l	190 mg/l	190 mg/l	190 mg/l	190 mg/l	149 mg/l	149 mg/l	175 mg/l	175 mg/l	194 mg/l	194 mg/l	198 mg/l	198 mg/l
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature	NA	Field	--	--	0.5 deg C	--	0.3 deg C	--	0.4 deg C	--	0.4 deg C	--	2.3 deg C	--	8.8 deg C	--	10.44 deg C	--	16.3 deg C	--	14.8 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	238 ug/l	238 ug/l	--	--	--	--	242 ug/l	242 ug/l	--	--	--	--	188 ug/l	188 ug/l	--	--	--	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	84100 ug/l	--	82600 ug/l	--	84800 ug/l	--	78900 ug/l	--	87600 ug/l	--	68300 ug/l	--	69200 ug/l	--	81000 ug/l	--	82700 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	< 2.5 ug/l	2.5 ug/l	--	--	--	--	< 2 ug/l	2 ug/l	--	--	--	--	< 2 ug/l	2 ug/l	--	--	--	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	99100 ug/l	--	98500 ug/l	--	102000 ug/l	--	94500 ug/l	--	104000 ug/l	--	75400 ug/l	--	80000 ug/l	--	97100 ug/l	--	102000 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	818 ug/l	818 ug/l	--	--	--	--	729 ug/l	729 ug/l	--	--	--	--	391 ug/l	391 ug/l	--	--	--	--
Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	< 0.0005 ug/l	0.0005 ug/l	--	--	0.0006 ug/l	0.0006 ug/l	--	--	< 0.0005 ug/l	0.0005 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	22.5 ug/l	22.5 ug/l	--	--	--	--	22.5 ug/l	22.5 ug/l	--	--	--	--	18.3 ug/l	18.3 ug/l	--	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--</	

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-026- MPCA Sep-08 N	HIST-SD-026-NTS 9/04/2008 N	HIST-SD-026- MPCA Oct-08 N	HIST-SD-026-NTS 10/01/2008 N	HIST-SD-026- MPCA Nov-08 N	HIST-SD-026-NTS 11/05/2008 N	HIST-SD-026-NTS 11/10/2008 N	HIST-SD-026- MPCA Dec-08 N	HIST-SD-026-NTS 12/08/2008 N	HIST-SD-026-NTS 12/09/2008 N	HIST-SD-026- MPCA Jan-09 N	HIST-SD-026-NTS 1/08/2009 N	HIST-SD-026-NTS 1/09/2009 N	HIST-SD-026- MPCA Feb-09 N	HIST-SD-026-NTS 2/05/2009 N	HIST-SD-026- MPCA Mar-09 N	HIST-SD-026-NTS 3/09/2009 N	HIST-SD-026- MPCA Apr-09 N	HIST-SD-026-NTS 4/06/2009 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	461 mg/l	--	458 mg/l	--	441 mg/l	--	--	--	456 mg/l	--	--	488 mg/l	--	512 mg/l	--	492 mg/l	--	418 mg/l
Alkalinity, bicarbonate, as HCO3	NA	Lab	461 mg/l	--	458 mg/l	--	441 mg/l	--	--	456 mg/l	--	--	488 mg/l	--	--	512 mg/l	--	492 mg/l	--	418 mg/l	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	488 mg/l	--	--	512 mg/l	--	492 mg/l	--	418 mg/l
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	15.4 mg/l	15.4 mg/l	14.8 mg/l	14.8 mg/l	15.2 mg/l	15.2 mg/l	--	14.8 mg/l	--	14.8 mg/l	14.5 mg/l	--	14.5 mg/l	14.8 mg/l	14.8 mg/l	14.3 mg/l	14.3 mg/l	13 mg/l	13 mg/l
Flow																					
	NA	Field	0.66 mgd 19.84 MG	0.66 mgd	0.78 mgd 24.25 MG	0.78 mgd	0.956 mgd 28.7 MG	0.96 mgd	--	0.67 mgd 20.69 MG	--	0.667 mgd	0.648 mgd 20.1 MG	--	0.648 mgd	0.587 mgd 16.4 MG	0.59 mgd	0.59 mgd 18 MG	0.585 mgd	0.74 mgd 22 MG	0.74 mgd
Fluoride	NA	Lab	2.16 mg/l	2.16 mg/l	--	--	--	--	--	2.17 mg/l	--	2.17 mg/l	--	--	--	--	--	2.23 mg/l	2.23 mg/l	--	--
Hardness, as CaCO3	NA	Lab	461 mg/l	461 mg/l 620 mg/l	458 mg/l	458 mg/l 631 mg/l	441 mg/l	441 mg/l 639 mg/l	--	456 mg/l	648 mg/l	456 mg/l	488 mg/l	675 mg/l	488 mg/l	512 mg/l	512 mg/l 654 mg/l	492 mg/l	492 mg/l 681 mg/l	418 mg/l	418 mg/l 574 mg/l
pH																					
	NA	Lab	7.98 pH units	--	8.06 pH units	--	8.05 pH units	--	--	7.98 pH units	--	--	7.88 pH units	--	--	7.92 pH units	--	8.09 pH units	--	8.04 pH units	--
pH																					
	NA	Field	--	7.98 pH units	--	8.06 pH units	--	8.05 pH units	--	--	--	7.98 pH units	--	--	7.88 pH units	--	7.92 pH units	--	8.09 pH units	--	8.04 pH units
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	0.014 mg/l	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	719 mg/l	719 mg/l	701 mg/l	701 mg/l	693 mg/l	693 mg/l	--	765 mg/l	--	765 mg/l	732 mg/l	--	732 mg/l	794 mg/l	794 mg/l	825 mg/l	825 mg/l	679 mg/l	679 mg/l
Solids, total suspended																					
	NA	Lab	< 1 mg/l	1 mg/l	< 1 mg/l	1 mg/l	1.6 mg/l	1.6 mg/l	--	2 mg/l	--	2 mg/l	1.6 mg/l	--	1.6 mg/l	2 mg/l	2 mg/l	1.2 mg/l	1.2 mg/l	2.8 mg/l	2.8 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	1166 umhos/cm	1166 umhos/cm	1184 umhos/cm	1184 umhos/cm	1160 umhos/cm	1160 umhos/cm	--	1260 umhos/cm	--	1260 umhos/cm	1298 umhos/cm	--	1298 umhos/cm	1322 umhos/cm	1322 umhos/cm	1251 umhos/cm	1251 umhos/cm	1104 umhos/cm	1104 umhos/cm
Sulfate, as SO4	NA	Lab	193 mg/l	193 mg/l	194 mg/l	194 mg/l	194 mg/l	194 mg/l	--	206 mg/l	--	206 mg/l	206 mg/l	--	206 mg/l	216 mg/l	216 mg/l	199 mg/l	199 mg/l	185 mg/l	185 mg/l
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature	NA	Field	--	12.88 deg C	--	9.2 deg C	--	9.2 deg C	--	--	0.6 deg C	--	--	0.3 deg C	--	--	0.3 deg C	--	2.2 deg C	--	4.7 deg C
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	2 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	222 ug/l	222 ug/l	--	--	--	--	--	240 ug/l	--	240 ug/l	--	--	--	--	--	251 ug/l	251 ug/l	--	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	81600 ug/l	81600 ug/l	--	84400 ug/l	--	86200 ug/l	--	--	--	86400 ug/l	--	--	88800 ug/l	--	87000 ug/l	--	88200 ug/l	--	76400 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	< 2 ug/l	2 ug/l	--	--	--	--	--	< 2 ug/l	--	2 ug/l	--	--	--	--	--	< 2 ug/l	2 ug/l	--	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	2 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	--	--	--	--	--	--	480 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	101000 ug/l	101000 ug/l	--	102000 ug/l	--	103000 ug/l	--	--	--	105000 ug/l	--	--	110000 ug/l	--	106000 ug/l	--	112000 ug/l	--	93000 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	279 ug/l	279 ug/l	--	--	--	--	--	1060 ug/l	--	1060 ug/l	--	--	--	--	--	682 ug/l	682 ug/l	--	--
Mercury	Total	Lab	--	--	0.0006 ug/l	0.0006 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0006 ug/l	0.0006 ug/l
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	28.2 ug/l	28.2 ug/l	--	--	--	--	--	25.4 ug/l	--	25.4 ug/l	--	--	--	--	--	24.5 ug/l	24.5 ug/l	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	2 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	8410 ug/l	8410 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	2 ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	44200 ug/l	44200 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	25 ug/l	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-026- MPCA Jan-10 N	HIST-SD-026- MPCA Feb-10 N	HIST-SD-026- MPCA Mar-10 N	HIST-SD-026- MPCA Apr-10 N	HIST-SD-026- MPCA May-10 N	HIST-SD-026- MPCA Jun-10 N	HIST-SD-026- MPCA Jul-10 N	HIST-SD-026- MPCA Aug-10 N	HIST-SD-026- MPCA Sep-10 N	HIST-SD-026- MPCA Oct-10 N	HIST-SD-026- MPCA Nov-10 N	HIST-SD-026- MPCA Dec-10 N	HIST-SD-026- MPCA Jan-11 N	HIST-SD-026- MPCA Feb-11 N	HIST-SD-026- MPCA Mar-11 N	HIST-SD-026- MPCA Apr-11 N	HIST-SD-026- MPCA May-11 N	HIST-SD-026- MPCA Jun-11 N	HIST-SD-026- MPCA Jul-11 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	528 mg/l	537 mg/l	521 mg/l	458 mg/l	476 mg/l	466 mg/l	485 mg/l	471 mg/l	497 mg/l	494 mg/l	472 mg/l	495 mg/l	533 mg/l	474 mg/l	496 mg/l	294 mg/l	364 mg/l	458 mg/l	455 mg/l
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	12.3 mg/l	12 mg/l	11.8 mg/l	10.9 mg/l	11.2 mg/l	11 mg/l	11 mg/l	11 mg/l	12 mg/l	11 mg/l	11 mg/l	11 mg/l	11 mg/l	11 mg/l	11 mg/l	7.5 mg/l	9.2 mg/l	9.4 mg/l	10.3 mg/l
Flow																					
	NA	Field	0.615 mgd 19.06 MG	0.74 mgd 20.58 MG	0.94 mgd 29 MG	0.76 mgd 23 MG	0.64 mgd 20 MG	--	0.52 mgd 16 MG	1.1 mgd 35 MG	0.64 mgd 20 MG	0.64 mgd 20 MG	0.64 mgd 19 MG	0.61 mgd 19 MG	0.58 mgd 18 MG	0.55 mgd 15.3 MG	0.46 mgd 14 MG	1.6 mgd 46 MG	1 mgd 31 MG	0.3 mgd 8.9 MG	0.78 mgd 24 MG
Fluoride	NA	Lab	--	--	1.94 mg/l	--	--	2 mg/l	--	--	2.1 mg/l	--	--	1.9 mg/l	--	--	1.8 mg/l	--	--	1.6 mg/l	--
Hardness, as CaCO3																					
	NA	Lab	528 mg/l	537 mg/l	521 mg/l	458 mg/l	476 mg/l	466 mg/l	485 mg/l	471 mg/l	497 mg/l	494 mg/l	472 mg/l	495 mg/l	533 mg/l	474 mg/l	496 mg/l	294 mg/l	364 mg/l	458 mg/l	455 mg/l
pH																					
	NA	Lab	7.8 pH units	7.9 pH units	8 pH units	8.1 pH units	8.2 pH units	8.1 pH units	8.1 pH units	7.9 pH units	8.1 pH units	8.1 pH units	8.2 pH units	8 pH units	8.1 pH units	7.9 pH units	8 pH units	7.8 pH units	8.3 pH units	8 pH units	7.9 pH units
pH																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	791 mg/l	851 mg/l	815 mg/l	740 mg/l	732 mg/l	811 mg/l	744 mg/l	737 mg/l	741 mg/l	767 mg/l	706 mg/l	714 mg/l	735 mg/l	750 mg/l	748 mg/l	483 mg/l	645 mg/l	667 mg/l	747 mg/l
Solids, total suspended																					
	NA	Lab	< 1 mg/l	8 mg/l	2.4 mg/l	2.4 mg/l	3 mg/l	2.8 mg/l	4 mg/l	4 mg/l	2 mg/l	1 mg/l	2 mg/l	4 mg/l	3 mg/l	3 mg/l	2 mg/l	4 mg/l	3 mg/l	7 mg/l 8 mg/l	< 1 mg/l
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	1298 umhos/cm	1350 umhos/cm	1316 umhos/cm	1170 umhos/cm	1175 umhos/cm	1190 umhos/cm	1181 umhos/cm	1190 umhos/cm	1215 umhos/cm	1170 umhos/cm	1141 umhos/cm	1211 umhos/cm	1182 umhos/cm	1233 umhos/cm	1254 umhos/cm	832 umhos/cm	885 umhos/cm	1094 umhos/cm	1137 umhos/cm
Sulfate, as SO4	NA	Lab	201 mg/l	207 mg/l	195 mg/l	173 mg/l	171 mg/l	167 mg/l	164 mg/l	153 mg/l	163 mg/l	162 mg/l	159 mg/l	157 mg/l	154 mg/l	152 mg/l	154 mg/l	122 mg/l	142 mg/l	153 mg/l	168 mg/l
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	--	265 ug/l	--	--	250 ug/l	--	--	257 ug/l	--	--	241 ug/l	--	--	236 ug/l	--	--	228 ug/l	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	--	--	--	--	82000 ug/l	--	--	--	--	--	--	--	--	--	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	0.7 ug/l	--	--	0.49 ug/l	--	--	0.27 ug/l	--	--	< 1 ug/l	--	--	0.35 ug/l	--	--	< 0.2 ug/l	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	--	--	--	--	--	--	106000 ug/l	--	--	--	--	--	--	--	--	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	--	980 ug/l	--	--	178 ug/l	--	--	259 ug/l	--	--	707 ug/l	--	--	544 ug/l	--	--	172 ug/l	--
Mercury	Total	Lab	--	--	--	< 0.0005 ug/l	--	< 0.0005 ug/l	--	0.0006 ug/l	--	< 0.0005 ug/l	--	--	--	--	0.0008 ug/l	--	--	0.0007 ug/l	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	22.9 ug/l	--	--	53 ug/l	--	--	38 ug/l	--	--	21 ug/l	--	--	23 ug/l	--	--	22 ug/l	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	8600 ug/l	--	--	--	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	--	--	--	--	--	--	--	--	44000 ug/l	--	--	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-026- MPCA Mar-13 N	HIST-SD-026- MPCA Apr-13 N	HIST-SD-026- MPCA May-13 N	HIST-SD-026- MPCA Jun-13 N	HIST-SD-026- MPCA Jul-13 N	HIST-SD-026- MPCA Aug-13 N	HIST-SD-026- MPCA Sep-13 N	HIST-SD-026- MPCA Oct-13 N	HIST-SD-026- MPCA Nov-13 N	HIST-SD-026- MPCA Dec-13 N	HIST-SD-026- MPCA Jan-14 N	HIST-SD-026- MPCA Feb-14 N	HIST-SD-026- MPCA Mar-14 N	HIST-SD-026- MPCA Apr-14 N
Parameter	Total or Dissolved	Analysis Location														
General Parameters																
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	447 mg/l	344 mg/l	210 mg/l	214 mg/l	233 mg/l	280 mg/l	315 mg/l	351 mg/l	336 mg/l	351 mg/l	397 mg/l	433 mg/l	389 mg/l	211 mg/l
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	12.1 mg/l	12.1 mg/l	9.8 mg/l	8.1 mg/l	6 mg/l	7.3 mg/l	9.4 mg/l	10.6 mg/l	11.4 mg/l	10.2 mg/l	11.6 mg/l	11.3 mg/l	11.2 mg/l	7.6 mg/l
Flow																
	NA	Field	0.09 mgd 2.8 MG	0.01 mgd 0.3 MG	0.34 mgd 10.6 MG	0.41 mgd 12.4 MG	0.26 mgd 8 MG	0.06 mgd 1.8 MG	0.15 mgd 4.4 MG	0.15 mgd 4.7 MG	0.08 mgd 2.4 MG	0.028 mgd 0.87 MG	0.015 mgd 0.47 MG	0.095 mgd 2.7 MG	0.38 mgd 12 MG	0.3 mgd 9 MG
Fluoride	NA	Lab	1.1 mg/l	--	--	0.58 mg/l	--	--	0.72 mg/l	--	--	0.66 mg/l	--	--	0.82 mg/l	--
Hardness, as CaCO3																
	NA	Lab	447 mg/l	344 mg/l	210 mg/l	214 mg/l	233 mg/l	280 mg/l	315 mg/l	351 mg/l	336 mg/l	351 mg/l	184 mg/l	433 mg/l	389 mg/l	211 mg/l
pH																
	NA	Lab	7.4 pH units	7.3 pH units	7.1 pH units	7.2 pH units	7.1 pH units	7.6 pH units	7.3 pH units	7.6 pH units	7.7 pH units	7.4 pH units	7.7 pH units	7.4 pH units 7.9 pH units	7.7 pH units	7.5 pH units
pH																
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	748 mg/l	594 mg/l	395 mg/l	419 mg/l	428 mg/l	485 mg/l	593 mg/l	595 mg/l	583 mg/l	633 mg/l	478 mg/l	706 mg/l	708 mg/l	426 mg/l
Solids, total suspended																
	NA	Lab	9 mg/l	4 mg/l	2 mg/l	4 mg/l	3 mg/l	2 mg/l	5 mg/l	3 mg/l	3 mg/l	4 mg/l	6 mg/l	3 mg/l	3 mg/l	4 mg/l
Specific Conductance @ 25 °C																
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																
	NA	Field	1110 umhos/cm	925 umhos/cm	621 umhos/cm	630 umhos/cm	660 umhos/cm	766 umhos/cm	822 umhos/cm	967 umhos/cm	890 umhos/cm	984 umhos/cm	1070 umhos/cm	1130 umhos/cm	1040 umhos/cm	664 umhos/cm
Sulfate, as SO4	NA	Lab	230 mg/l	173 mg/l	126 mg/l	126 mg/l	118 mg/l	129 mg/l	150 mg/l	193 mg/l	191 mg/l	199 mg/l	226 mg/l	239 mg/l	227 mg/l	115 mg/l
Temperature																
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																
Aluminum																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																
	Total	Lab	166 ug/l	--	--	121 ug/l	--	--	143 ug/l	--	--	117 ug/l	--	--	159 ug/l	--
Cadmium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																
	Total	Lab	--	--	--	--	--	--	72200 ug/l	--	--	--	--	--	--	--
Chromium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																
	Total	Lab	0.76 ug/l	--	--	0.19 ug/l	--	--	0.29 ug/l	--	--	0.39 ug/l	--	--	0.5 ug/l	--
Copper																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium																
	Total	Lab	--	--	--	--	--	--	67400 ug/l	--	--	--	--	--	--	--
Manganese																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																
	Total	Lab	1380 ug/l	--	--	495 ug/l	--	--	1010 ug/l	--	--	1180 ug/l	--	--	981 ug/l	--
Mercury																
	Total	Lab	--	0.00047 ug/l	--	0.00038 ug/l	--	0.00069 ug/l	--	< 0.00018 ug/l	--	--	--	--	--	0.00095 ug/l
Methyl Mercury																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum																
	Total	Lab	14 ug/l	--	--	5.1 ug/l	--	--	8.4 ug/l	--	--	7.7 ug/l	--	--	9.9 ug/l	--
Nickel																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																
	Total	Lab	--	--	--	--	--	--	4900 ug/l	--	--	--	--	--	--	--
Selenium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium																
	Total	Lab	--	--	--	--	--	--	19800 ug/l	--	--	--	--	--	--	--
Strontium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc																
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc																
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			SD026 7/26/2010 N	SD026 9/14/2010 N	SD026 10/26/2010 N	SD026 6/02/2011 N	SD026 5/15/2013 N	SD026 6/03/2013 N	SD026 6/18/2013 N	SD026 7/02/2013 N	SD026 7/22/2013 N	SD026 8/07/2013 N	SD026 8/20/2013 N	SD026 9/05/2013 N	SD026 9/18/2013 N	SD026 9/18/2013 N	SD026 10/02/2013 N	SD026 10/28/2013 N	SD026 11/06/2013 N	SD026 11/27/2013 N	SD026 12/09/2013 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	214 mg/l	--	233 mg/l	266 mg/l	280 mg/l	--	315 mg/l	--	--	--	326 mg/l	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	< 10 mg/l	479 mg/l	474 mg/l	429 mg/l	--	214 mg/l	--	233 mg/l	266 mg/l	280 mg/l	--	315 mg/l	--	--	--	326 mg/l	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	214 mg/l	--	233 mg/l	--	280 mg/l	--	315 mg/l	--	--	--	--	--	--	--
Chloride	NA	Lab	11.4 mg/l	11 mg/l	12.8 mg/l	9.43 mg/l	--	8.1 mg/l	7.2 mg/l	6.0 mg/l	6.7 mg/l	7.3 mg/l	9.0 mg/l	9.4 mg/l	9.8 mg/l	--	--	11.3 mg/l	--	10.8 mg/l	--
Flow																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoride	NA	Lab	--	--	--	--	--	0.58 mg/l	--	--	--	--	--	0.72 mg/l	--	--	--	--	--	--	--
Hardness, as CaCO3																					
	NA	Lab	652 mg/l	621 mg/l	617 mg/l	591 mg/l	--	369 mg/l	352 mg/l	365 mg/l	403 mg/l	420 mg/l	457 mg/l	458 mg/l	477 mg/l	--	--	508 mg/l	--	530 mg/l	--
pH																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pH																					
	NA	Field	8.04 pH units	7.95 pH units	7.91 pH units	8.04 pH units	7.14 pH units	7.17 pH units	7.32 pH units	7.09 pH units	7.37 pH units	7.58 pH units	7.86 pH units	7.34 pH units	--	7.52 pH units	7.55 pH units	7.6 pH units	7.68 pH units	7.44 pH units	7.35 pH units
Phosphorus, total, as P	NA	Lab	0.042 mg P/L	0.009 mg P/L	0.014 mg P/L	0.016 mg/l	--	--	--	--	0.038 mg/l	--	--	--	--	--	--	0.016 mg/l	--	--	--
Solids, total dissolved	NA	Lab	747 mg/l	685 mg/l	637 mg/l	646 mg/l	--	419 mg/l	454 mg/l	428 mg/l	476 mg/l	485 mg/l	620 mg/l	593 mg/l	611 mg/l	--	--	613 mg/l	--	647 mg/l	--
Solids, total suspended																					
	NA	Lab	26.5 mg/l	3.5 mg/l	2.4 mg/l	5.6 mg/l	--	3.6 mg/l	--	3.0 mg/l	--	2.0 mg/l	--	5.2 mg/l	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	1231 umhos/cm	1152 umhos/cm	1141 umhos/cm	1055 umhos/cm	621.2 umhos/cm	630 umhos/cm	666.2 umhos/cm	659.5 umhos/cm	717 umhos/cm	766.3 umhos/cm	879.1 umhos/cm	822.3 umhos/cm	--	920.5 umhos/cm	966.8 umhos/cm	783.3 umhos/cm	889.7 umhos/cm	950.7 umhos/cm	983.7 umhos/cm
Sulfate, as SO4	NA	Lab	170 mg/l	158 mg/l	155 mg/l	150 mg/l	--	126 mg/l	125 mg/l	118 mg/l	114 mg/l	129 mg/l	160 mg/l	150 mg/l	169 mg/l	--	--	191 mg/l	--	200 mg/l	--
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	20.43 deg C	11.08 deg C	9.33 deg C	10.29 deg C	--	--	11.68 deg C	--	15.82 deg C	--	17.18 deg C	--	--	13.56 deg C	--	2.67 deg C	--	0.66 deg C	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	3.1 NTU	--	0 NTU	0 NTU	--	--	328 NTU	--	11.2 NTU	--	15 NTU	--	--	3.3 NTU	--	7.4 NTU	--	11.6 NTU	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	< 20.0 ug/l	--	< 20.0 ug/l	--	< 20.0 ug/l	--	< 20.0 ug/l	--	--	--	< 20.0 ug/l	--	31.0 ug/l	--
Aluminum	Total	Lab	--	--	--	--	--	27.7 ug/l	--	27.4 ug/l	--	< 20.0 ug/l	--	< 20.0 ug/l	--	--	--	< 20.0 ug/l	--	< 20.0 ug/l	--
Antimony	Total	Lab	--	--	--	< 0.5 ug/l	--	--	--	< 0.50 ug/l	--	--	--	--	--	--	--	< 0.50 ug/l	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	< 0.50 ug/l	--	0.68 ug/l	--	0.69 ug/l	--	< 0.50 ug/l	--	--	--	0.57 ug/l	--	< 0.50 ug/l	--
Arsenic	Total	Lab	1.8 ug/l	1.09 ug/l	< 1 ug/l	< 0.5 ug/l	--	0.54 ug/l	--	0.66 ug/l	--	1.0 ug/l	--	0.56 ug/l	--	--	--	0.59 ug/l	--	< 0.50 ug/l	--
Barium	Total	Lab	38.9 ug/l	15.5 ug/l	17.6 ug/l	16.4 ug/l	--	--	--	34.0 ug/l	--	--	--	--	--	--	--	43.3 ug/l	--	--	--
Beryllium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	--	--	--	< 0.20 ug/l	--	--	--
Boron																					
	Total	Lab	262 ug/l	220 ug/l	239 ug/l	214 ug/l	--	121 ug/l	--	--	129 ug/l	--	--	143 ug/l	--	--	--	122 ug/l	--	--	--
Cadmium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	0.05 j ug/l	< 0.2 ug/l	--	--	--	< 0.20 ug/l	--	--	--	--	--	--	--	< 0.20 ug/l	--	--	--
Calcium																					
	Total	Lab	81500 ug/l	82100 ug/l	79000 ug/l	77600 ug/l	--	60400 ug/l	58800 ug/l	61000 ug/l	67200 ug/l	69100 ug/l	73000 ug/l	72200 ug/l	73100 ug/l	--	--	72900 ug/l	--	73400 ug/l	--
Chromium	Total	Lab	< 1 ug/l	< 1 ug/l	< 1 ug/l	< 1 ug/l	--	--	--	< 1.0 ug/l	--	--	--	--	--	--	--	< 1.0 ug/l	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	0.30 ug/l	--	0.22 ug/l	--	0.31 ug/l	--	< 0.20 ug/l	--	--	0.35 ug/l	--	0.42 ug/l	--
Cobalt	Total	Lab	0.89 ug/l	0.21 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	0.19 j ug/l	0.40 ug/l	--	0.24 ug/l	--	0.33 ug/l	0.29 ug/l	< 0.20 ug/l	--	--	0.45 ug/l	--	0.37 ug/l	--
Copper	Dissolved	Lab	--	--	--	--	--	--	1.2 ug/l	--	0.62 ug/l	--	0.82 ug/l	--	0.87 ug/l	--	--	1.8 ug/l	--	1.4 ug/l	--
Copper	Total	Lab	2.02 ug/l	0.75 ug/l	0.91 ug/l	< 0.7 ug/l	--	--	1.3 ug/l	--	0.66 ug/l	--	0.92 ug/l	--	0.88 ug/l	--	--	1.3 ug/l	--	1.5 ug/l	--
Iron	Dissolved	Lab	--	--	--	--	--	--	376 ug/l	--	511 ug/l	--	376 ug/l	--	87.8 ug/l	--	--	417 ug/l	--	628 ug/l	--
Iron	Total	Lab	1980 ug/l	279 ug/l	185 ug/l	325 ug/l	--	--	1320 ug/l	--	1240 ug/l	--	1810 ug/l	--	1250 ug/l	--	--	1520 ug/l	--	1580 ug/l	--
Lead	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.03 ug/l	< 0.5 ug/l	--	--	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	--	--	< 0.50 ug/l	--	< 0.50 ug/l	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	109000 ug/l	101000 ug/l	102000 ug/l	96400 ug/l	--	52900 ug/l	49800 ug/l	51600 ug/l	57100 ug/l	60200 ug/l	66700 ug/l	67400 ug/l	71600 ug/l	--	--	79100 ug/l	--	84200 ug/l	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	729 ug/l	--	641 ug/l	--	1010 ug/l	--	690 ug/l	--	--	1050 ug/l	--	1210 ug/l	--
Manganese	Total	Lab	1370 ug/l	193 ug/l	121 ug/l	173 ug/l	--	495 ug/l	820 ug/l	--	644 ug/l	--	1120 ug/l	1010 ug/l	678 ug/l	--	--	1170 ug/l	--	1200 ug/l	--
Mercury	Total	Lab	--	--	--	--	--	0.00038 j ug/l	--	--	0.00057 ug/l	0.00069 ug/l	--	--	--	--	--	< 0.00050 ug/l	--	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	36.2 ug/l	26.1 ug/l	24 ug/l	20.6 ug/l	--	5.1 ug/l	--	--	7.2 ug/l	--	--	8.4 ug/l	--	--	--	7.6 ug/l	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	--	< 1.0 ug/l	--	--	< 0.50 ug/l	--	< 0.50 ug/l	--
Nickel	Total	Lab	2.5 ug/l	2.08 ug/l	2.46 ug/l	1.58 ug/l	--	--	< 0.50 ug/l	--	< 0.50 ug/l	--	< 0.50 ug/l	--	< 1.0 ug/l	--	--	< 0.50 ug/l	--	< 0.50 ug/l	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	8860 ug/l	7270 ug/l	8640 ug/l	6570 ug/l	--	--	--	--	4300 ug/l	--	--	4900 ug/l	--	--	--	5000 ug/l	--	--	--
Selenium	Total	Lab	< 1 ug/l	< 1 ug/l	0.037 j ug/l	--	--	< 1.0 ug/l	--	< 1.0 ug/l	--	< 1.0 ug/l	--	< 1.0 ug/l	--	--	--	< 1.0 ug/l	--	< 1.0 ug/l	--
Silver	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	--	--	< 0.20 ug/l	--	--	--	--	--	--	< 0.20 ug/l	--	--	--
Sodium	Total	Lab	46900 ug/l	41100 ug/l	42100 ug/l	34900 ug/l	--	--	--	--	16500 ug/l	--	--	19800 ug/l	--	--	--	22400 ug/l	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	< 0.2 ug/l	--	--	< 0.005 ug/l	--	0.003 j ug/l	--	< 0.002 ug/l	--	0.002 jg ug/l	--	--	< 0.002 ug/l	--	< 0.0020 ug/l	--
Tin	Total	Lab	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	< 0.5 ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	< 3.0 ug/l	--	--	--	--	--	--	< 3.0 ug/l	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	13.2 ug/l	--	7.6 ug/l	--	8.4 ug/l	--	7.3 ug/l	--	--	9.1 ug/l	--	9.0 ug/l	--
Zinc	Total	Lab	9.76 ug/l	< 6 ug/l	< 6 ug/l	< 6 ug/l	--	--	13.8 ug/l	--	7.6 ug/l	--	9.8 ug/l	--	< 6.0 ug/l	--	--	< 6.0 ug/l	--	7.4 ug/l	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			PM-7 3/22/2007 N	PM-7 4/23/2007 N	PM-7 5/21/2007 N	PM-7 6/11/2007 N	PM-7 7/23/2007 N	PM-7 8/22/2007 N	PM-7 9/19/2007 N	PM-7 10/24/2007 N	PM-7 11/14/2007 N	PM-7 5/20/2008 N
Parameter	Total or Dissolved	Analysis Location										
General Parameters												
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	421 mg/l	353 mg/l	316 mg/l	333 mg/l	466 mg/l	477 mg/l	365 mg/l	362 mg/l	381 mg/l	346 mg/l
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	15.6 mg/l	13.6 mg/l	12.5 mg/l	12.1 mg/l	16 mg/l	18.7 mg/l	14.9 mg/l	13.7 mg/l	14.2 mg/l	12.7 mg/l
Flow												
	NA	Field	--	--	--	--	--	--	--	--	--	--
Fluoride	NA	Lab	2.49 mg/l	2.15 mg/l	2.04 mg/l	2.04 mg/l	2.76 mg/l	2.73 mg/l	2.15 mg/l	0.63 mg/l	1.08 mg/l	--
Hardness, as CaCO3	NA	Lab	556 mg/l	491 mg/l	411 mg/l	437 mg/l	578 mg/l	617 mg/l	529 mg/l	547 mg/l	561 mg/l	472 mg/l
pH	NA	Lab	--	--	--	--	--	--	--	--	--	--
pH												
	NA	Field	8.17 pH units	8.06 pH units	8 pH units	7.4 pH units	7.7 pH units	--	7.6 pH units	8.1 pH units	8.1 pH units	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	0.006 mg/l
Solids, total dissolved	NA	Lab	665 mg/l	583 mg/l	512 mg/l	554 mg/l	720 mg/l	723 mg/l	600 mg/l	633 mg/l	662 mg/l	587 mg/l
Solids, total suspended												
	NA	Lab	4.4 mg/l	5.2 mg/l	8 mg/l	< 1 mg/l	5 mg/l	1.2 mg/l	2 mg/l	4 mg/l	2 mg/l	< 1 mg/l
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C												
	NA	Field	1017 umhos/cm	899 umhos/cm	817 umhos/cm	885 umhos/cm	1126 umhos/cm	--	991 umhos/cm	1083 umhos/cm	1077 umhos/cm	--
Sulfate, as SO4	NA	Lab	169 mg/l	139 mg/l	132 mg/l	138 mg/l	176 mg/l	182 mg/l	186 mg/l	185 mg/l	201 mg/l	176 mg/l
Temperature												
	NA	Lab	--	--	--	--	--	--	--	--	--	--
Temperature	NA	Field	4.6 deg C	11.6 deg C	8.9 deg C	16.7 deg C	22.7 deg C	--	12.6 deg C	6.8 deg C	4 deg C	--
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--
Turbidity												
	NA	Field	--	--	--	--	--	--	--	--	--	--
Metals												
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	34.7 ug/l	30.1 ug/l	41.7 ug/l	< 10 ug/l	27.4 ug/l	30.5 ug/l	< 10 ug/l	< 0.4 ug/l	< 1 ug/l	< 25 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	27.2 ug/l	22.1 ug/l	20.4 ug/l	24 ug/l	34.3 ug/l	33.5 ug/l	25.8 ug/l	25.3 ug/l	23.5 ug/l	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	242 ug/l	214 ug/l	186 ug/l	195 ug/l	264 ug/l	244 ug/l	210 ug/l	216 ug/l	206 ug/l	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	0.097 j ug/l
Calcium												
	Total	Lab	77900 ug/l	71500 ug/l	59100 ug/l	63500 ug/l	79700 ug/l	81900 ug/l	74800 ug/l	80100 ug/l	76000 ug/l	67200 ug/l
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	< 1.0 ug/l
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	0.42 ug/l
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	1.3 ug/l	< 0.5 ug/l	0.71 ug/l	< 1 ug/l	0.9 ug/l	< 5 ug/l	< 10 ug/l	< 1 ug/l	0.96 ug/l	0.72 ug/l
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	0.47 ug/l	0.466 ug/l	0.691 ug/l	221 ug/l	454 ug/l	482 ug/l	336 ug/l	260 ug/l	241 ug/l	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	0.083 jb ug/l
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	87800 ug/l	75900 ug/l	64000 ug/l	67500 ug/l	92200 ug/l	100000 ug/l	83200 ug/l	84400 ug/l	90300 ug/l	74000 ug/l
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	582 ug/l	423 ug/l	493 ug/l	172 ug/l	377 ug/l	483 ug/l	389 ug/l	527 ug/l	455 ug/l	270 ug/l
Mercury	Total	Lab	< 0.0001 ug/l	< 0.0036 ug/l	< 0.002 ug/l	< 0.001 ug/l	< 0.001 ug/l	0.0010 ug/l	< 0.001 ug/l	0.0011 ug/l	< 0.025 ug/l	< 0.0005 ug/l
Methyl Mercury	Total	Lab	--	--	< 0.01 ug/l	--	0.00003 ug/l	--	< 0.005 ug/l	--	< 0.025 ug/l	< 0.0001 ug/l
Molybdenum	Total	Lab	23 ug/l	23 ug/l	18.7 ug/l	20.6 ug/l	33 ug/l	33.9 ug/l	25.5 ug/l	21.5 ug/l	20.6 ug/l	22 ug/l
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	1.2 ug/l	1.1 ug/l	1.4 ug/l	1.2 ug/l	< 0 ug/l	3.5 ug/l	4 ug/l	3.9 ug/l	4.9 ug/l	3.9 ug/l
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--
Potassium												
	Total	Lab	8430 ug/l	7110 ug/l	6270 ug/l	6380 ug/l	8180 ug/l	8800 ug/l	8140 ug/l	7280 ug/l	7700 ug/l	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	--	--	--	--	--	--
Sodium	Total	Lab	46800 ug/l	39900 ug/l	34200 ug/l	34400 ug/l	51100 ug/l	53200 ug/l	42000 ug/l	42500 ug/l	42700 ug/l	--
Strontium	Total	Lab	290 ug/l	270 ug/l	232 ug/l	266 ug/l	346 ug/l	326 ug/l	314 ug/l	308 ug/l	299 ug/l	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	< 2.5 ug/l	< 0.24 ug/l	< 10 ug/l	< 10 ug/l	< 1 ug/l	< 10 ug/l	< 0.4 ug/l	< 1 ug/l	< 10 ug/l	2.0 jb ug/l

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-033- MPCA 6/01/2001 N	HIST-SD-033- MPCA 8/01/2001 N	HIST-SD-033- MPCA 9/01/2001 N	HIST-SD-033- MPCA 10/01/2001 N	HIST-SD-033- MPCA 12/01/2001 N	HIST-SD-033- MPCA 2/01/2002 N	HIST-SD-033- MPCA 3/01/2002 N	HIST-SD-033- MPCA 4/01/2002 N	HIST-SD-033- MPCA 6/01/2002 N	HIST-SD-033- MPCA 8/01/2002 N	HIST-SD-033- MPCA 9/01/2002 N	HIST-SD-033- MPCA 10/01/2002 N	HIST-SD-033- MPCA 12/01/2002 N	HIST-SD-033- MPCA 2/01/2003 N	HIST-SD-033- MPCA 3/01/2003 N	HIST-SD-033- MPCA 4/01/2003 N	HIST-SD-033- MPCA 6/01/2003 N	HIST-SD-033- MPCA 8/01/2003 N	HIST-SD-033- MPCA 9/01/2003 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flow	NA	Field	2.66 mgd 79.8 MG	1.018 mgd 31.6 MG	--	1.119 mgd 34.689 MG	0.8 mgd 24.8 MG	0.311 mgd 8.71 MG	--	0.657 mgd 19.1 MG	1.268 mgd 38.04 MG	1.279 mgd 39.65 MG	--	0.8518 mgd 26.41 MG	1.103 mgd 34.2 MG	1.0091 mgd 28.26 MG	--	0.6322 mgd 18.97 MG	1.5225 mgd 45.67 MG	0.723 mgd 22.41 MG	--
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3	NA	Lab	1140 mg/l	1220 mg/l	--	1160 mg/l	1090 mg/l	570 mg/l	--	1120 mg/l	1160 mg/l	1110 mg/l	--	1100 mg/l	1240 mg/l	1250 mg/l	--	1050 mg/l	1110 mg/l	1170 mg/l	--
pH	NA	Lab	7.91 pH units	8.3 pH units	--	8.09 pH units	7.23 pH units	7.84 pH units	--	7.8 pH units	7.97 pH units	8 pH units	--	7.6 pH units	7.8 pH units	7.9 pH units	--	8.1 pH units	7.9 pH units	7.9 pH units	--
pH	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended	NA	Lab	4 mg/l	4 mg/l	--	3 mg/l	2.4 mg/l	< 1 mg/l	--	1.6 mg/l	1.8 mg/l 2 mg/l	< 1 mg/l	--	3 mg/l	< 1 mg/l	3.6 mg/l	--	4 mg/l	4 mg/l	3.6 mg/l	--
Specific Conductance @ 25 °C	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C	NA	Field	2300 umhos/cm	210 umhos/cm	--	1400 umhos/cm	1940 umhos/cm	1060 umhos/cm	--	2380 umhos/cm	1930 umhos/cm	1700 umhos/cm	--	340 umhos/cm	372 umhos/cm	2720 umhos/cm	--	1930 umhos/cm	2070 umhos/cm	1630 umhos/cm	--
Sulfate, as SO4	NA	Lab	1320 mg/l	1080 mg/l	--	1050 mg/l	1020 mg/l	170 mg/l	--	565 mg/l	1050 mg/l	966 mg/l	--	1110 mg/l	1550 mg/l	1200 mg/l	--	827 mg/l	1110 mg/l	1140 mg/l	--
Temperature	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NA	Field	0.28 NTU	0.52 NTU	--	0.32 NTU	0.78 NTU	3.27 NTU	--	0.3 NTU	0.59 NTU	0.05 NTU	--	0.65 NTU	0.6 NTU	1.6 NTU	--	2.1 NTU	0.7 NTU	0.5 NTU	--
Metals																					
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	< 30 ug/l	< 30 ug/l	--	< 30 ug/l	< 30 ug/l	< 30 ug/l	--	< 30 ug/l	30 ug/l	< 30 ug/l	--	< 30 ug/l	30 ug/l	90 ug/l	--	< 30 ug/l	< 30 ug/l	300 ug/l	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	--	--	--	--	--	--	--	0.0051 ug/l	0.0007 ug/l	0.0006 ug/l	--	< 0.0005 ug/l	--	--	--	0.001 ug/l	< 0.002 ug/l	0.0014 ug/l	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	< 1 ug/l	--	< 1 ug/l	--	< 1 ug/l	--	1.1 ug/l	--	< 1 ug/l	--	< 0.1 ug/l	--	< 0.1 ug/l	--	< 0.1 ug/l	--	< 0.002 ug/l	--	< 0.1 ug/l
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-033- MPCA 10/01/2003 N	HIST-SD-033- MPCA 12/01/2003 N	HIST-SD-033- MPCA 2/01/2004 N	HIST-SD-033- MPCA 3/01/2004 N	HIST-SD-033- MPCA 4/01/2004 N	HIST-SD-033- MPCA 6/01/2004 N	HIST-SD-033- MPCA 8/01/2004 N	HIST-SD-033- MPCA 9/01/2004 N	HIST-SD-033- MPCA 10/01/2004 N	HIST-SD-033- MPCA 12/01/2004 N	HIST-SD-033- MPCA 2/01/2005 N	HIST-SD-033- MPCA 3/01/2005 N	HIST-SD-033- MPCA 4/01/2005 N	HIST-SD-033- MPCA 6/01/2005 N	HIST-SD-033- MPCA 8/01/2005 N	HIST-SD-033- MPCA 9/01/2005 N	HIST-SD-033- MPCA 10/01/2005 N	HIST-SD-033- MPCA 12/01/2005 N	HIST-SD-033- MPCA 2/01/2006 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	384 mg/l	366 mg/l	352 mg/l	--	296 mg/l	360 mg/l	394 mg/l	--	415 mg/l	376 mg/l	346 mg/l	--	375 mg/l	346 mg/l	398 mg/l	--	368 mg/l	372 mg/l	347 mg/l
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flow																					
	NA	Field	0.7689 mgd 23.84 MG	0.22 mgd 6.83 MG	0.1774 mgd 5.14 MG	--	1.53 mgd 45.87 MG	1.24 mgd 37.2 MG	0.64 mgd 14.95 MG	--	0.594 mgd 18.4 MG	0.61 mgd 18.8 MG	1.17 mgd 36.4 MG	--	4.7 mgd 141 MG	2.17 mgd 65.2 MG	1.1 mgd 34 MG	--	0.73 mgd 22.6 MG	0.96 mgd 29.8 MG	0.82 mgd 23 MG
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3																					
	NA	Lab	1270 mg/l	1180 mg/l	1240 mg/l	--	760 mg/l	196 mg/l	235 mg/l	--	167 mg/l	232 mg/l	346 mg/l	--	375 mg/l	346 mg/l	398 mg/l	--	368 mg/l	372 mg/l	347 mg/l
pH																					
	NA	Lab	8.03 pH units	7.9 pH units	7.8 pH units	--	8.6 pH units	8.42 pH units	7.92 pH units	--	7.96 pH units	8.33 pH units 8.68 pH units	8.4 pH units	--	8.11 pH units	7.35 pH units	7.87 pH units	--	7.84 pH units	8.4 pH units	8.4 pH units
pH																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total suspended																					
	NA	Lab	< 1 mg/l	1.2 mg/l	< 1 mg/l	--	4 mg/l	4.6 mg/l	1 mg/l	--	2 mg/l	< 1 mg/l	4 mg/l	--	1.5 mg/l	< 1 mg/l	6 mg/l	--	4.4 mg/l	3.2 mg/l	2.8 mg/l
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	2100 umhos/cm	1740 umhos/cm	1630 umhos/cm	--	1500 umhos/cm	2258 umhos/cm	2381 umhos/cm	--	2491 umhos/cm	2360 umhos/cm	2430 umhos/cm	--	1919 umhos/cm	2028 umhos/cm	2450 umhos/cm	--	2481 umhos/cm	2335 umhos/cm	2312 umhos/cm
Sulfate, as SO4	NA	Lab	1090 mg/l	1130 mg/l	1240 mg/l	--	754 mg/l	1080 mg/l	1130 mg/l	--	1140 mg/l	1140 mg/l	1160 mg/l	--	724 mg/l	940 mg/l	1360 mg/l	--	994 mg/l	1100 mg/l	1120 mg/l
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	0.4 NTU	0.45 NTU	0.7 NTU	--	2.3 NTU	0.74 NTU	0.65 NTU	--	< 0.05 NTU	0.78 NTU	0.18 NTU	--	2.2 NTU	< 0.05 NTU	0.55 NTU	--	1 NTU	0.6 NTU	0.57 NTU
Metals																					
Aluminum																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron																					
	Dissolved	Lab	< 30 ug/l	< 30 ug/l	130 ug/l	--	< 30 ug/l	30 ug/l	< 30 ug/l	--	30 ug/l	< 30 ug/l	30 ug/l	--	50 ug/l	50 ug/l	< 50 ug/l	--	70 ug/l	< 50 ug/l	110 ug/l
Iron																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury																					
	Total	Lab	0.001 ug/l	--	--	--	0.0021 ug/l	< 0.01 ug/l	0.0017 ug/l	--	< 0.004 ug/l	--	--	--	0.0056 ug/l	0.0021 ug/l	0.0016 ug/l	--	0.001 ug/l	--	--
Methyl Mercury																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver																					
	Total	Lab	--	< 0.1 ug/l	--	<															

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-033- MPCA 12/01/2009 N	HIST-SD-033- MPCA 1/01/2010 N	HIST-SD-033- MPCA 2/01/2010 N	HIST-SD-033- MPCA 3/01/2010 N	HIST-SD-033- MPCA 4/01/2010 N	HIST-SD-033- MPCA 5/01/2010 N	HIST-SD-033- MPCA 6/01/2010 N	HIST-SD-033- MPCA 7/01/2010 N	HIST-SD-033- MPCA 8/01/2010 N	HIST-SD-033- MPCA 9/01/2010 N	HIST-SD-033- MPCA 10/01/2010 N	HIST-SD-033- MPCA 11/01/2010 N	HIST-SD-033- MPCA 12/01/2010 N	HIST-SD-033- MPCA 1/01/2011 N	HIST-SD-033- MPCA 2/01/2011 N	HIST-SD-033- MPCA 3/01/2011 N	HIST-SD-033- MPCA 4/01/2011 N	HIST-SD-033- MPCA 5/01/2011 N	HIST-SD-033- MPCA 6/01/2011 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	4.62 mg/l	4.7 mg/l	4.17 mg/l	4.51 mg/l	3.58 mg/l	4.04 mg/l	4.2 mg/l	4.1 mg/l	4 mg/l	4.1 mg/l	4.3 mg/l	4.4 mg/l	4.6 mg/l	5.2 mg/l	5 mg/l	4.6 mg/l	2.7 mg/l	3.8 mg/l	4 mg/l
Flow																					
	NA	Field	0.4 mgd 12 MG	--	0.28 mgd 7.74 MG	--	0.8 mgd 24 MG	--	0.7 mgd 4.2 MG	--	0.38 mgd 12 MG	--	0.45 mgd 14 MG	--	0.28 mgd 8.7 MG	--	0.81 mgd 23 MG	--	4.6 mgd 137 MG	--	0.45 mgd 13.6 MG
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3																					
	NA	Lab	341 mg/l	318 mg/l	318 mg/l	317 mg/l	294 mg/l	327 mg/l	333 mg/l	340 mg/l	337 mg/l	347 mg/l	367 mg/l	359 mg/l	346 mg/l	344 mg/l	338 mg/l	338 mg/l	330 mg/l	316 mg/l	351 mg/l
pH																					
	NA	Lab	7.9 pH units	--	7.9 pH units	--	8.1 pH units	--	8 pH units	--	8 pH units	--	7.9 pH units	--	8 pH units 8.3 pH units	--	7.8 pH units 7.9 pH units	--	8 pH units 8.1 pH units	--	8 pH units 8.2 pH units
pH																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	1750 mg/l	1850 mg/l	2140 mg/l	1850 mg/l	1540 mg/l	1680 mg/l	1810 mg/l	1720 mg/l	1840 mg/l	1810 mg/l	1770 mg/l	1710 mg/l	1955 mg/l	1925 mg/l	1962 mg/l	1980 mg/l	1390 mg/l	1575 mg/l	1824 mg/l
Solids, total suspended																					
	NA	Lab	3 mg/l	--	3.2 mg/l	--	5.2 mg/l	--	5.6 mg/l	--	4 mg/l	--	5 mg/l	--	3 mg/l	--	3 mg/l	--	4 mg/l	--	3 mg/l
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	2282 umhos/cm	2271 umhos/cm	2333 umhos/cm	2534 umhos/cm	1926 umhos/cm	2204 umhos/cm	2242 umhos/cm	2175 umhos/cm	2265 umhos/cm	2381 umhos/cm	2191 umhos/cm	1865 umhos/cm	1900 umhos/cm	2639 umhos/cm	2429 umhos/cm	2459 umhos/cm	1897 umhos/cm	1968 umhos/cm	2340 umhos/cm
Sulfate, as SO4	NA	Lab	1090 mg/l	1220 mg/l	1260 mg/l	1160 mg/l	922 mg/l	1060 mg/l	1030 mg/l	1050 mg/l	1080 mg/l	1100 mg/l	1090 mg/l	1060 mg/l	1090 mg/l	1120 mg/l	1118 mg/l	1115 mg/l	760 mg/l	930 mg/l	1030 mg/l
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	0.47 NTU	--	0.4 NTU	--	1 NTU	--	0.53 NTU	--	1 NTU	--	1 NTU	--	1 NTU	--	1 NTU	--	2 NTU	--	< 1 NTU
Metals																					
Aluminum																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron																					
	Dissolved	Lab	< 50 ug/l	--	< 50 ug/l	--	< 100 ug/l	--	100 ug/l	--	100 ug/l	--	< 50 ug/l	--	< 50 ug/l	--	< 50 ug/l	--	< 50 ug/l	--	< 100 ug/l
Iron																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury																					
	Total	Lab	0.0009 ug/l	0.0011 ug/l	0.0007 ug/l	0.0006 ug/l	0.001 ug/l	0.0008 ug/l	0.0008 ug/l	0.0011 ug/l	0.0009 ug/l	0.0011 ug/l	0.0011 ug/l	0.0009 ug/l	0.00035 ug/l	0.0006 ug/l	0.0007 ug/l	0.0005 ug/l	0.0027 ug/l	0.0008 ug/l	0.001 ug/l
Methyl Mercury																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver																					
	Total	Lab	< 0.2 ug/l	--	--	< 0.2 ug/l	--	--	< 0.4 ug/l												

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-033- MPCA 7/01/2011 N	HIST-SD-033- MPCA 8/01/2011 N	HIST-SD-033- MPCA 9/01/2011 N	HIST-SD-033- MPCA 10/01/2011 N	HIST-SD-033- MPCA 11/01/2011 N	HIST-SD-033- MPCA 12/01/2011 N	HIST-SD-033- MPCA 1/01/2012 N	HIST-SD-033- MPCA 2/01/2012 N	HIST-SD-033- MPCA 3/01/2012 N	HIST-SD-033- MPCA 4/01/2012 N	HIST-SD-033- MPCA 5/01/2012 N	HIST-SD-033- MPCA 6/01/2012 N	HIST-SD-033- MPCA 7/01/2012 N	HIST-SD-033- MPCA 8/01/2012 N	HIST-SD-033- MPCA 9/01/2012 N	HIST-SD-033- MPCA 10/01/2012 N	HIST-SD-033- MPCA 11/01/2012 N	HIST-SD-033- MPCA 12/01/2012 N	HIST-SD-033- MPCA 1/01/2013 N
Parameter	Total or Dissolved	Analysis Location																			
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	360 mg/l	349 mg/l	339 mg/l	332 mg/l	331 mg/l	336 mg/l	330 mg/l	333 mg/l	268 mg/l	338 mg/l	327 mg/l	337 mg/l	362 mg/l	367 mg/l	382 mg/l	369 mg/l	328 mg/l	357 mg/l	346 mg/l
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	4.1 mg/l	4 mg/l	4.3 mg/l	4.3 mg/l	4.3 mg/l	4.7 mg/l	4.92 mg/l	4.62 mg/l	4.52 mg/l	3.8 mg/l	3.7 mg/l	3.7 mg/l	4.2 mg/l	4.3 mg/l	4.3 mg/l	4.4 mg/l	4.6 mg/l	4.8 mg/l	4.8 mg/l
Flow																					
	NA	Field	--	0.93 mgd 23.7 MG	--	1.96 mgd 59.1 MG	--	0.43 mgd 13.3 MG	--	0.32 mgd 9.2 MG	--	0.54 mgd 16.3 MG	--	1.28 mgd 38.4 MG	--	0.72 mgd 22.5 MG	--	1.23 mgd 38.1 MG	--	0.35 mgd 11 MG	--
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3																					
	NA	Lab	360 mg/l	349 mg/l	339 mg/l	332 mg/l	331 mg/l	336 mg/l	1330 mg/l	333 mg/l	268 mg/l	338 mg/l	327 mg/l	337 mg/l	362 mg/l	367 mg/l	382 mg/l	369 mg/l	328 mg/l	357 mg/l	346 mg/l
pH	NA	Lab	--	7.9 pH units 8 pH units	--	7.8 pH units	--	8 pH units	--	7.9 pH units	--	7.9 pH units	--	8.1 pH units	--	7.8 pH units	--	7.6 pH units	--	7.4 pH units	--
pH																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	1810 mg/l	1957 mg/l	2057 mg/l	2044 mg/l	2066 mg/l	2001 mg/l	2070 mg/l	2000 mg/l	2060 mg/l	1760 mg/l	1750 mg/l	1640 mg/l	1880 mg/l	1870 mg/l	1990 mg/l	1940 mg/l	1840 mg/l	2170 mg/l	1890 mg/l
Solids, total suspended																					
	NA	Lab	--	5.2 mg/l	--	4 mg/l	--	4.8 mg/l	--	4 mg/l	--	3 mg/l	--	2 mg/l	--	3 mg/l	--	2 mg/l	--	4 mg/l	--
Specific Conductance @ 25 °C																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																					
	NA	Field	2158 umhos/cm	2299 umhos/cm	2252 umhos/cm	1811 umhos/cm	2452 umhos/cm	2334 umhos/cm	2440 umhos/cm	2450 umhos/cm	1605 umhos/cm	2129 umhos/cm	2193 umhos/cm	1532 umhos/cm	2384 umhos/cm	2518 umhos/cm	2547 umhos/cm	2204 umhos/cm	2340 umhos/cm	2540 umhos/cm	2672 umhos/cm
Sulfate, as SO4	NA	Lab	1060 mg/l	1125 mg/l	1150 mg/l	1090 mg/l	1130 mg/l	1140 mg/l	1120 mg/l	1170 mg/l	1120 mg/l	992 mg/l	909 mg/l	985 mg/l	1100 mg/l	1180 mg/l	1180 mg/l	1180 mg/l	1180 mg/l	1240 mg/l	1200 mg/l
Temperature																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																					
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																					
	NA	Field	--	0.4 NTU	--	< 1 NTU	--	1.2 NTU	--	0.7 NTU	--	1 NTU	--	0.3 NTU	--	1 NTU	--	0.26 NTU	--	1.4 NTU	--
Metals																					
Aluminum																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron																					
	Total	Lab	--	< 50 ug/l	--	< 50 ug/l	--	57 ug/l	--	< 60 ug/l	--	60 ug/l	--	< 100 ug/l	--	< 100 ug/l	--	< 100 ug/l	--	< 50 ug/l	--
Lead																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury																					
	Total	Lab	0.001 ug/l	0.0008 ug/l	0.0011 ug/l	0.0006 ug/l	< 0.0005 ug/l	0.0006 ug/l	0.0005 ug/l	0.0008 ug/l	0.0006 ug/l	0.00088 ug/l	0.00071 ug/l	0.0013 ug/l	0.00093 ug/l	0.00077 ug/l	0.0023 ug/l	0.00084 ug/l	0.00062 ug/l	0.00065 ug/l	0.00063 ug/l
Methyl Mercury																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P																					
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium																					
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver																					
	Total	Lab	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	--	< 0.2 ug							

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			HIST-SD-033- MPCA 2/01/2013 N	HIST-SD-033- MPCA 3/01/2013 N	HIST-SD-033- MPCA 4/01/2013 N	HIST-SD-033- MPCA 5/01/2013 N	HIST-SD-033- MPCA 6/01/2013 N	HIST-SD-033- MPCA 7/01/2013 N	HIST-SD-033- MPCA 8/01/2013 N	HIST-SD-033- MPCA 9/01/2013 N	HIST-SD-033- MPCA 10/01/2013 N	HIST-SD-033- MPCA 11/01/2013 N	HIST-SD-033- MPCA 12/01/2013 N	HIST-SD-033- MPCA 1/01/2014 N	HIST-SD-033- MPCA 2/01/2014 N	HIST-SD-033- MPCA 3/01/2014 N	HIST-SD-033- MPCA 4/01/2014 N
Parameter	Total or Dissolved	Analysis Location															
General Parameters																	
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	328 mg/l	336 mg/l	323 mg/l	247 mg/l	312 mg/l	332 mg/l	354 mg/l	335 mg/l	342 mg/l	355 mg/l	322 mg/l	372 mg/l	315 mg/l	294 mg/l	248 mg/l
Alkalinity, total, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	4.5 mg/l	4.3 mg/l	4.5 mg/l	2.4 mg/l	3.4 mg/l	3.2 mg/l	3.7 mg/l	4.1 mg/l	3.6 mg/l	3.5 mg/l	3.7 mg/l	4.8 mg/l	4.1 mg/l	3.9 mg/l	3.6 mg/l
Flow																	
	NA	Field	0.25 mgd 7.1 MG	--	1.6 mgd 44.8 MG	--	0.74 mgd 22.1 MG	--	0.38 mgd 11.8 MG	--	0.84 mgd 26 MG	--	0.53 mgd 16 MG	--	0.44 mgd 12 MG	--	0.79 mgd 24 MG
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3																	
	NA	Lab	328 mg/l	336 mg/l	323 mg/l	247 mg/l	315 mg/l	332 mg/l	354 mg/l	335 mg/l	342 mg/l	366 mg/l	322 mg/l	327 mg/l	315 mg/l	294 mg/l	248 mg/l
pH																	
	NA	Lab	7.6 pH units	--	7 pH units	--	7.6 pH units	--	7.9 pH units	--	7.9 pH units	--	7.7 pH units	--	8.1 pH units	--	7.5 pH units
pH																	
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	1960 mg/l	1980 mg/l	1790 mg/l	1210 mg/l	1680 mg/l	1630 mg/l	1810 mg/l	1920 mg/l	1850 mg/l	1870 mg/l	3770 mg/l	1750 mg/l	1810 mg/l	1990 mg/l	1750 mg/l
Solids, total suspended																	
	NA	Lab	8 mg/l	--	3 mg/l	--	3 mg/l	--	< 1 mg/l	--	4 mg/l	--	7 mg/l	--	2 mg/l	--	1 mg/l
Specific Conductance @ 25 °C																	
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																	
	NA	Field	2359 umhos/cm	2357 umhos/cm	2270 umhos/cm	1581 umhos/cm	2120 umhos/cm	2190 umhos/cm	2340 umhos/cm	2310 umhos/cm	2160 umhos/cm	2300 umhos/cm	2300 umhos/cm	2360 umhos/cm	2320 umhos/cm	2320 umhos/cm	2150 umhos/cm
Sulfate, as SO4	NA	Lab	1230 mg/l	1180 mg/l	1150 mg/l	717 mg/l	993 mg/l	957 mg/l	1130 mg/l	1140 mg/l	1140 mg/l	1130 mg/l	1140 mg/l	1190 mg/l	1190 mg/l	1160 mg/l	1050 mg/l
Temperature																	
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																	
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																	
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																	
	NA	Field	0.75 NTU	--	0.75 NTU	--	< 1 NTU	--	0.5 NTU	--	0.32 NTU	--	3 NTU	--	1 NTU	--	1.6 NTU
Metals																	
Aluminum																	
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aluminum																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																	
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																	
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																	
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron																	
	Dissolved	Lab	< 100 ug/l	--	0 ug/l	--	0 ug/l	--	< 100 ug/l	--	< 100 ug/l	--	400 ug/l	--	< 100 ug/l	--	100 ug/l
Iron																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																	
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury																	
	Total	Lab	< 0.0005 ug/l	0.00062 ug/l	< 0.00055 ug/l	0.0012 ug/l	0.00097 ug/l	0.0013 ug/l	0.0012 ug/l	0.00098 ug/l	0.00096 ug/l	0.0017 ug/l	0.00083 ug/l	0.00046 ug/l	0.00065 ug/l	0.00053 ug/l	0.00076 ug/l
Methyl Mercury																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																	
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palladium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P																	
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver																	
	Total	Lab	--	< 0.1 ug/l	--	--	< 0.1 ug/l	--	--	< 0.1 ug/l	--	--	< 0.1 ug/l	--	--	< 0.1 ug/l	--
Sodium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc																	
	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc																	
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			SD033 7/26/2010	SD033 8/04/2010	SD033 8/25/2010	SD033 9/09/2010	SD033 9/14/2010	SD033 9/23/2010		SD033 10/06/2010	SD033 10/25/2010		SD033 10/26/2010	SD033 4/19/2011		SD033 6/02/2011	SD033 6/14/2011		SD033 7/25/2011	SD033 8/23/2011
			N	N	N	N	N	N	FD	N	N	FD	N	N	FD	N	N	FD	N	N
Parameter	Total or Dissolved	Analysis Location																		
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	336 mg/l	348 mg/l	--	--	365 mg/l	--	--	--	362 mg/l	361 mg/l	363 mg/l	230 mg/l	229 mg/l	341 mg/l	357 mg/l	348 mg/l	--	--
Alkalinity, total, as CaCO3	NA	Field	--	275 mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	NA	Lab	4.33 mg/l	4.46 mg/l	4.32 mg/l	3.9 mg/l	3.9 mg/l	4.22 mg/l	4.22 mg/l	4.37 mg/l	4.54 mg/l	4.36 mg/l	4.9 mg/l	2.6 mg/l	2.57 mg/l	3.88 mg/l	4.24 * mg/l	9.83 * mg/l	4.17 mg/l	4.14 mg/l
Flow																				
	NA	Field	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3																				
	NA	Lab	1300 mg/l	1220 mg/l	--	--	1200 mg/l	--	--	--	1280 mg/l	1290 mg/l	1350 mg/l	770 mg/l	744 mg/l	1260 mg/l	1350 mg/l	1320 mg/l	--	--
pH																				
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	8.1 pH units	8.1 pH units	--	8.2 pH units	8.1 pH units	--	--
pH																				
	NA	Field	7.82 pH units	7.12 pH units	7.92 pH units	8.03 pH units	7.88 pH units	7.7 pH units	--	7.61 pH units	5.35 pH units	--	7.83 pH units	8.61 pH units	--	8.23 pH units	7.95 pH units	--	7.97 pH units	7.85 pH units
Phosphorus, total, as P	NA	Lab	0.025 mg P/L	< 0.1 mg P/L	--	--	0.008 mg P/L	--	--	--	< 0.1 mg P/L	< 0.1 mg P/L	0.013 mg P/L	< 0.1 mg P/L	< 0.1 mg P/L	0.02 mg/l	0.008 mg/l	0.008 mg/l	--	--
Solids, total dissolved	NA	Lab	1880 mg/l	1790 mg/l	--	--	1770 mg/l	--	--	--	1830 mg/l	1900 mg/l	1880 mg/l	1110 mg/l	1120 mg/l	1780 mg/l	1819 mg/l	1842 mg/l	--	--
Solids, total suspended																				
	NA	Lab	3.6 mg/l	--	--	--	2.4 mg/l	--	--	--	--	--	3.6 mg/l	--	--	4.8 mg/l	--	--	--	--
Specific Conductance @ 25 °C																				
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C																				
	NA	Field	2350 umhos/cm	1722 umhos/cm	2434 umhos/cm	2174 umhos/cm	2306 umhos/cm	2364 umhos/cm	--	2450 umhos/cm	2275 umhos/cm	--	2450 umhos/cm	1473 umhos/cm	--	2241 umhos/cm	2408 umhos/cm	--	2414.0 umhos/cm	2427 umhos/cm
Sulfate, as SO4	NA	Lab	1110 mg/l	1060 mg/l	1050 mg/l	949 mg/l	1040 mg/l	1110 mg/l	--	1140 mg/l	1110 mg/l	--	1140 mg/l	629 mg/l	631 mg/l	961 mg/l	1040 mg/l	1060 mg/l	1110 mg/l	1130 mg/l
Temperature																				
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature																				
	NA	Field	13.00 deg C	14.07 deg C	14.56 deg C	10.82 deg C	11.98 deg C	12.4 deg C	--	13.41 deg C	9.86 deg C	--	10.17 deg C	4.14 deg C	--	6.47 deg C	10.21 deg C	--	11.55 deg C	12.73 deg C
Turbidity																				
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turbidity																				
	NA	Field	0 NTU	--	0 NTU	0 NTU	--	0 NTU	--	0 NTU	--	--	0 NTU	--	--	0 NTU	--	--	0 NTU	0 NTU
Metals																				
Aluminum	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 25 ug/l	< 25 ug/l
Aluminum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 25 ug/l	< 25 ug/l
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.5 ug/l	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	< 1 ug/l	--	--	--	1.58 ug/l	--	--	--	--	--	1.47 ug/l	--	--	0.93 ug/l	--	--	--	--
Barium	Total	Lab	3.2 ug/l	--	--	--	3.39 ug/l	--	--	--	--	--	4.61 ug/l	--	--	3.09 ug/l	--	--	--	--
Beryllium	Total	Lab	< 0.2 ug/l	--	--	--	< 0.2 ug/l	--	--	--	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	--	--	--
Boron																				
	Total	Lab	169 ug/l	--	--	--	158 ug/l	--	--	--	--	--	155 ug/l	--	--	158 ug/l	--	--	--	--
Cadmium	Total	Lab	< 0.2 ug/l	--	--	--	< 0.02 ug/l	--	--	--	--	--	< 0.02 ug/l	--	--	< 0.2 ug/l	--	--	--	--
Calcium																				
	Total	Lab	99300 ug/l	87200 ug/l	--	--	81800 ug/l	--	--	--	87500 ug/l	87100 ug/l	98200 ug/l	52700 ug/l	52200 ug/l	85800 ug/l	96000 ug/l	90400 ug/l	--	--
Chromium	Total	Lab	< 1 ug/l	--	--	--	< 1 ug/l	--	--	--	--	--	< 1 ug/l	--	--	< 1 ug/l	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	0.37 ug/l	--	--	--	0.35 ug/l	--	--	--	--	--	0.58 ug/l	--	--	0.31 ug/l	--	--	--	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	1.61 ug/l	--	--	--	1.86 ug/l	--	--	--	--	--	2.14 ug/l	--	--	1.62 ug/l	--	--	--	--
Iron	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	Total	Lab	< 50 ug/l	60.4 ug/l	--	--	< 50 ug/l	--	--	--	159 ug/l	169 ug/l	150 ug/l	54.1 ug/l	51.6 ug/l	148 ug/l	122 ug/l	117 ug/l	--	--
Lead	Total	Lab	< 0.5 ug/l	--	--	--	0.05 j ug/l	--	--	--	--	--	< 0.03 ug/l	--	--	< 0.5 ug/l	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	255000 ug/l	244000 ug/l	--	--	243000 ug/l	--	--	--	259000 ug/l	260000 ug/l	269000 ug/l	155000 ug/l	149000 ug/l	253000 ug/l	270000 ug/l	267000 ug/l	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	326 ug/l	--	--	--	846 ug/l	--	--	--	--	--	1700 ug/l	--	--	344 ug/l	--	--	--	--
Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	3.32 ug/l	--	--	--	4.68 ug/l	--	--	--	--	--	3.72 ug/l	--	--	3.63 ug/l	--	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	3.63 ug/l	--	--	--	3.35 ug/l	--	--	--	--	--	5.06 ug/l	--	--	2.46 ug/l	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium																				
	Total	Lab	57400 ug/l	57300 ug/l	--	--	58200 ug/l	--	--	--	56800 ug/l	57200 ug/l	53400 ug/l	32800 ug/l	31300 ug/l	49500 ug/l	50800 ug/l	49600 ug/l	--	--
Selenium	Total	Lab	< 1 ug/l	--	--	--	1.12 ug/l	--	--	--	--	--	0.452 ug/l	--	--	--	--	--	--	--
Silver	Total	Lab	< 0.2 ug/l	--	--	--	< 0.2 ug/l	--	--	--	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	--	--	--
Sodium	Total	Lab	95300 ug/l	100000 ug/l	--	--	91300 ug/l	--	--	--	96300 ug/l	96200 ug/l	95000 ug/l	57300 ug/l	54900 ug/l	89200 ug/l	91700 ug/l	89900 ug/l	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	< 0.2 ug/l	--	--	--	< 0.2 ug/l	--	--	--	--	--	< 0.2 ug/l	--	--	< 0.2 ug/l	--	--	--	--
Tin	Total	Lab	< 0.5 ug/l	--	--	--	< 0.5 ug/l	--	--	--	--	--	< 0.5 ug/l	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	< 6 ug/l	--	--	--	< 6 ug/l	--	--	--	--	--	< 6 ug/l	--	--	< 6 ug/l	--	--	--	--

Large Table 15
Available Plant Site Surface Discharge (SD) Data
Poly Met Mining Inc.

Location Date Sample Type			SD033 9/19/2011 N	SD033 10/19/2011 N	SD033 4/02/2013 N	SD033 5/15/2013 N	SD033 6/03/2013 N	SD033 7/02/2013 N	SD033 8/07/2013		SD033 9/05/2013 N	SD033 11/06/2013 N	SD033 3/05/2014 N
			N	N	N	N	N	N	N	N	FD	N	N
Parameter	Total or Dissolved	Analysis Location											
General Parameters													
Alkalinity, bicarbonate, as CaCO3	NA	Lab	--	--	323 mg/l	--	312 mg/l	332 mg/l	354 mg/l	--	335 mg/l	--	--
Alkalinity, bicarbonate, as HCO3	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Alkalinity, total, as CaCO3	NA	Lab	--	--	323 mg/l	--	315 mg/l	332 mg/l	354 mg/l	--	335 mg/l	--	--
Alkalinity, total, as CaCO3	NA	Field	--	--	--	--	--	--	--	--	--	--	--
Calcium Hardness, as CaCO3	NA	Lab	--	--	323 mg/l	--	315 mg/l	332 mg/l	354 mg/l	--	335 mg/l	--	--
Chloride	NA	Lab	4.56 mg/l	4.09 mg/l	4.5 b mg/l	--	3.4 mg/l	3.2 mg/l	3.7 mg/l	--	4.1 b mg/l	--	--
Flow													
	NA	Field	--	--	--	--	--	--	--	--	--	--	--
Fluoride	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Hardness, as CaCO3													
	NA	Lab	--	--	1280 mg/l	--	1190 mg/l	1170 mg/l	1300 mg/l	--	1250 mg/l	--	--
pH													
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
pH													
	NA	Field	--	8.04 pH units	6.98 pH units	--	7.56 pH units	--	7.89 pH units	--	--	8.23 pH units	--
Phosphorus, total, as P	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Solids, total dissolved	NA	Lab	--	--	1790 mg/l	--	1680 mg/l	1630 mg/l	1810 mg/l	--	1920 mg/l	--	--
Solids, total suspended													
	NA	Lab	--	--	3.2 mg/l	--	2.8 mg/l	--	< 1.0 mg/l	--	--	--	--
Specific Conductance @ 25 °C													
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance @ 25 °C													
	NA	Field	--	2328 umhos/cm	2270 umhos/cm	1581 umhos/cm	2120 umhos/cm	2190 umhos/cm	2343 umhos/cm	--	2310 umhos/cm	2298 umhos/cm	2324 umhos/cm
Sulfate, as SO4	NA	Lab	1170 mg/l	1120 mg/l	1150 mg/l	--	993 mg/l	957 mg/l	1130 mg/l	--	1140 mg/l	--	--
Temperature													
	NA	Lab	--	--	--	--	--	--	--	--	--	--	--
Temperature													
	NA	Field	--	8.68 deg C	--	--	--	--	--	--	--	--	--
Turbidity													
	NA	Lab	--	--	0.75 NTU	--	0.25 NTU	--	0.50 NTU	--	--	--	--
Turbidity													
	NA	Field	--	0 NTU	--	--	--	--	--	--	--	--	--
Metals													
Aluminum	Dissolved	Lab	< 25 ug/l	< 25 ug/l	--	--	--	--	--	--	--	--	--
Aluminum	Total	Lab	< 25 ug/l	< 25 ug/l	--	--	--	--	--	--	--	--	--
Antimony	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Arsenic	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Barium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Beryllium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Boron													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Cadmium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Calcium													
	Total	Lab	--	--	95700 ug/l	--	81700 ug/l	79100 ug/l	90000 ug/l	--	89800 ug/l	--	--
Chromium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Cobalt	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Copper	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Copper	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Iron	Dissolved	Lab	--	--	36.0 j ug/l	--	41.3 jb ug/l	--	57.1 ug/l	--	--	--	--
Iron	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Lead	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Lithium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Magnesium	Total	Lab	--	--	253000 ug/l	--	240000 ug/l	237000 ug/l	261000 ug/l	--	248000 ug/l	--	--
Manganese	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Manganese	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Mercury	Total	Lab	--	--	0.00055 ug/l	--	0.00097 ug/l	0.0013 b ug/l	0.0012 ug/l	0.00098 ug/l	0.00098 ug/l	--	--
Methyl Mercury	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Nickel	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Nickel	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Palladium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Phosphorus, total, as P	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Platinum	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Potassium													
	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Selenium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Silver	Total	Lab	--	--	--	--	< 0.10 ug/l	--	--	--	< 0.10 ug/l	--	--
Sodium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Strontium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Thallium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Tin	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Titanium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Vanadium	Total	Lab	--	--	--	--	--	--	--	--	--	--	--
Zinc	Dissolved	Lab	--	--	--	--	--	--	--	--	--	--	--
Zinc	Total	Lab	--	--	--	--	--	--	--	--	--	--	--

Data Footnotes and Qualifiers

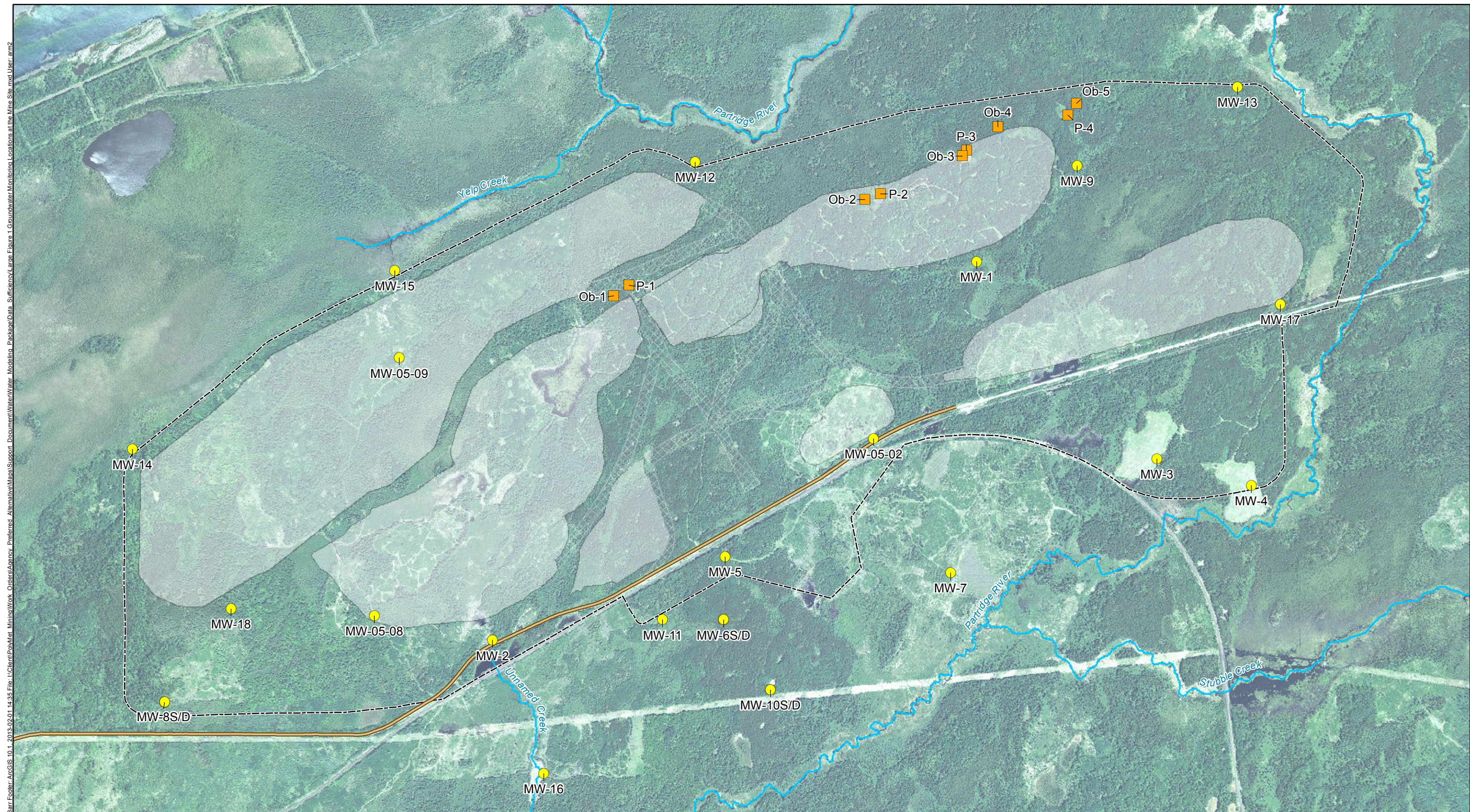
Footnote	
	Not used in water quality modeling as of June 13, 2014
--	Not analyzed/not available.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
NA	NA (not applicable) indicates that a fractional portion of the sample is not part of the analytical testing or field collection procedures.
ND	Not detected.
TIC	Tentatively identified compound
Validated	Laboratory data has been evaluated following Barr QA/QC procedures and/or project-specific data review requirements. Field data has been verified for transcription errors, consistency and completeness. Data transferred from the previous database (9/2009) were categorized as validated, but may be comprised of any one of the following data status categories: Validated, SSource, No QC or Legacy.
No QC	Laboratory data has been excluded from Barr QA/QC procedures.
SSource	Laboratory and/or field data obtained from a secondary source external to Barr. Second source QA/QC evaluation procedures may or may not have been performed beyond the original data generator.
Legacy	Historical laboratory data (internal at Barr). QA/QC evaluation procedures may or may not have been performed beyond the original data generator

Qualifier	
a	Estimated value, calculated using some or all values that are estimates.
b	Potential false positive value based on blank data validation procedures.
c	Coeluting compound.
e	Estimated value, exceeded the instrument calibration range.
f	Sample was collected at a flowrate exceeding the recommended rate of 200 mL/minute.
h	EPA recommended sample preservation, extraction or analysis holding time was exceeded.
i	Indeterminate value based on failure of blind duplicate data to meet quality assurance criteria.
j	Reported value is less than the stated laboratory quantitation limit and is considered an estimated value.
p	Relative percent difference is >40% (25% CLP pesticides) between primary and confirmation GC columns.
pp	Small peak in chromatogram below method detection limit.
r	The presence of the compound is suspect based on the ID criteria of the retention time and relative retention time obtained from the examination of the chromatograms.
s	Potential false positive value based on statistical analysis of blank sample data.
t	Sample positive for total coliforms but negative for <i>E. coli</i> .
v	Sample was collected under a vacuum of greater than XX inches of mercury.
*	Estimated value, QA/QC criteria not met.
**	Unusable value, QA/QC criteria not met.
AT	Sample chromatogram is noted to be atypical of a petroleum product.
EMPC	Estimated maximum possible concentration.
BQA	Barr-applied project specific qualifier: extraction and/or analyses conducted using an alternative method and/or procedure.
BQC	Barr-applied project specific qualifier: plant shut down.
BQD	Barr-applied project specific qualifier: equipment malfunction.
BQE	Barr-applied project specific qualifier: equipment adjustment.
BQM	Barr-applied project specific qualifier: manual measurement.
BQN	Barr-applied project specific qualifier: unable to be sampled or measured due to various reasons.
BQP	Barr-applied project specific qualifier: atypical chromatographic pattern.
BQQ	Barr-applied project specific qualifier: some aspect of QA/QC was not met.
BQR	Barr-applied project specific qualifier: location was re-sampled.
BQS	Barr-applied project specific qualifier: data is considered suspect.
BQT	Barr-applied project specific qualifier: summed value not displayed due to insufficient field length.
BQU	Barr-applied project specific qualifier: historical qualifier - definition unknown.
BQV	Barr-applied project specific qualifier: estimated value.
BQX	Barr-applied project specific qualifier: see notes for qualifier definition.
BQZ	Barr-applied project specific qualifier: data is considered unusable.

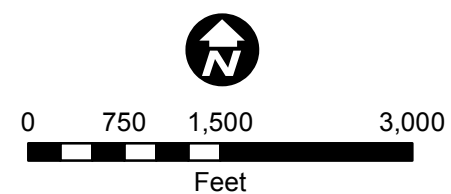
Large Table 16
Summary of Recommendations for Model Updates
Poly Met Mining Inc.

Data Source	Recommend model update?	Reason for recommendation
<u>Groundwater quality data</u>		
Mine Site - surficial aquifer	Yes	Impacts calibration of surface runoff; 95% UCL increases for several constituents
Mine Site - bedrock	Yes	95% UCL increases for several constituents
Plant Site - surficial aquifer	Yes - surface runoff calibration	Impacts calibration of surface runoff (background wells)
	Maybe - Existing Conditions targets	Update calibration targets if Existing Conditions model calibration updated
<u>Groundwater elevation data</u>		
Mine Site - surficial aquifer	No	Calibration residuals are larger than difference in updated data
Mine Site - bedrock	No	Calibration residuals are larger than difference in updated data
Plant Site - surficial aquifer	No	Model calibrated to specific time period; calibration residuals are larger than difference in updated data
<u>Surface Water Quality Data</u>		
Mine Site - Partridge River watershed	Yes - surface runoff calibration	Sig. number of new observations; RMSE increases for many constituents
	No - initial conditions	Little impact on model results
Mine Site - tributaries to the Partridge River	No	Tributaries not included in model
Mine Site - discharge to Partridge River (Northshore Mining Co discharge to headwaters)	Yes	Change in average concentrations for chloride and sulfate
Plant Site - Embarrass River watershed and Second Creek	Yes - surface runoff calibration	Sig. number of new observations; RMSE increases for many constituents
	No - initial conditions	Little impact on model results
Plant Site - discharge to Embarrass River Watershed and Second Creek (SD033)	No	Small changes or decreases in the mean concentration
SD026 (south toe) and SD004 (west toe)	Maybe - Existing Conditions calibration	Update calibration targets if Existing Conditions model calibration updated
Plant Site - tributaries to the Embarrass River	Maybe - Existing Conditions corroboration	Update corroboration targets if Existing Conditions model calibration updated
<u>Surface Water Flow Data</u>		
Mine Site - Partridge River watershed	No	Model is not based on point measurements; new data is confounded by Peter Mitchell Pit discharges
Plant Site - Embarrass River watershed	No	Model is not based on point measurements
SD026	No	Model calibrated to specific time period; additional data within calibration period do not change results
SD033	Yes	Modest reduction in monthly average flows

Large Figures



-  Surficial Well
 Bedrock Well
 Mine Site Boundary
 Dunka Road
 Streams/Rivers

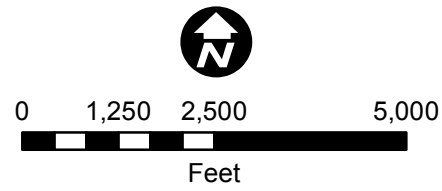


Large Figure 1
GROUNDWATER MONITORING LOCATIONS
AT THE MINE SITE
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, MN



Bar/Footer-ArcGIS 10.1, 2013-02-01 14:44 File: I:\Client\PolyMet_Mining\Work_Order\Agency_Prefixed_Alternative\MapSupport_Document\Water\Water_Modeling_Package\Data_Support\Figure 2 Groundwater Monitoring Locations at the Plant Site.mxd User: am2

- Data Used for Background Concentrations
- Data Used for Model Calibration
- Level Data Used Only
- Streams/Rivers
- Project Areas

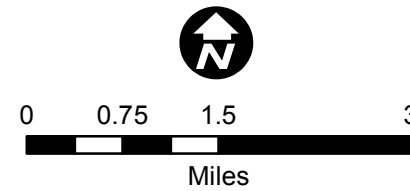


Large Figure 2
GROUNDWATER MONITORING LOCATIONS
AT THE PLANT SITE
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, MN



Surface Water Monitoring Stations

- Data Used for Modeling
- Data Not Used for Modeling
- ▲ Available NPDES Data
- Partridge River Watershed
- Streams/Rivers



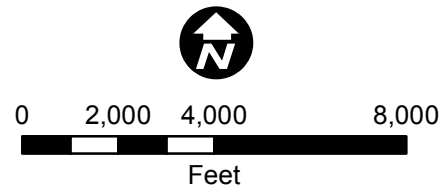
Large Figure 3
 SURFACE WATER MONITORING LOCATIONS
 IN THE PARTRIDGE RIVER WATERSHED
 NorthMet Project
 Poly Met Mining Inc.
 Hoyt Lakes, MN



- Surface Water Monitoring Stations
- NorthMet Data Used for Modeling
 - Data Not Used for Modeling
 - ▲ NPDES Data Used for Modeling
 - ▲ NorthMet and NPDES Data Used for Modeling

Embarrass River Watershed

— Streams and Rivers



Large Figure 4
 SURFACE WATER MONITORING LOCATIONS
 IN THE EMBARRASS RIVER WATERSHED
 NorthMet Project
 Poly Met Mining, Inc.
 Hoyt Lakes, MN

Attachments

Attachment A

SD026 Flow Data Summary

Technical Memorandum

To: Project File
From: Barr Engineering Co.
Subject: SD026 Flow Data Summary
Date: June 13, 2014
Project: 23690862
c: Jennifer Saran, Poly Met Mining Inc.

This memorandum provides a summary of the available flow data for NPDES Permit monitoring station SD026, describes the data used to calibrate the Tailings Basin MODFLOW model, presents a comparison between the data that were used for model calibration and the additional available data, and provides a rationale for why it is appropriate to exclude the unused data.

1.1.1 Available SD026 Flow Data

Flow data for SD026 are available from the following sources:

- NPDES Permit monitoring data
- flow measurements collected in 2010 in support of the Cliffs Erie Consent Decree at the Tailings Basin

The available SD026 flow data are shown in Table 1 and are differentiated based on the data source. Note that the NPDES Permit monitoring data are reported in units of millions of gallons per day (MGD), but flows presented in Table 1 have been converted to gallons per minute (gpm). The flow data from both sources are discussed in further detail in the following sections.

1.1.2 NPDES Permit Monitoring Data

Flow measurements collected at SD026 as part of NPDES Permit monitoring are available via the Minnesota Pollution Control Agency Environmental Data Access System website (http://www.pca.state.mn.us/index.php?option=com_k2&view=item&id=2229). SD026 is identified in the online database as monitoring station "WQDELTA_MN0042536-SD-26" or "2ND CREEK HEADWATERS CULVERT OUTFALL 251." As of the date of this memorandum, flow data were available on the MPCA website from July 1999 through April 2014. For 2002 through April 2014, the available data includes calendar month total flows and calendar month maximum flows. The 1999 and 2000 data include calendar month average flows, calendar month total flows, and daily maximum flows. The 2001 data includes the same flow parameters as 1999 and 2000, with the addition of calendar month maximum flows for months when daily maximum flows were not reported. For the evaluation presented in this memorandum, calendar month maximum flows are used when available. If calendar month maximum flow data are not

available, daily maximum flows are used instead. A total of 175 NPDES permit monitoring flow data points from July 1999 through April 2014 are shown on Table 1.

The May 2008 calendar month maximum flow reported on the MPCA website (29.97 MGD or 20,799 gpm) is a clear outlier relative to the other available calendar month maximum flow data. Based on information provided by Northeast Technical Services (the consultant that collects the NPDES permit monitoring data), it is believed that the calendar month total and calendar month maximum flows were inadvertently switched when they were reported for May 2008. Therefore, 29.97 MGD actually represents the calendar month total for May 2008 and 0.97 MGD (which is reported as the calendar month total on the MPCA website) actually represents the calendar month maximum value. A value of 0.97 MGD (674 gpm) is shown on Table 1 for May 2008 and was used to calculate the average flow used for MODFLOW model calibration.

1.1.3 Consent Decree Data

As part of work related to the Cliffs Erie Consent Decree at the Tailings Basin, a total of 11 concurrent measurements of stream flow and water elevation were collected at SD026 between August 2010 and October 2010 in an effort to establish a relationship between stream stage and discharge (rating curve). These data points are also shown on Table 1. Although developing a rating curve was not specifically proposed in the Consent Decree for site SD026, data were being collected to develop rating curves at other monitoring locations (SD033, Bear Creek, PM-11, and PM-19) and the same data collection procedures were followed at SD026. Based on the 11 data points, there was no clear relationship between stream stage and flow and data collection at SD026 for the purpose of establishing a rating curve did not continue beyond October 2010.

1.1.4 MODFLOW Model Calibration Target

Flow data from SD026 were used to establish a calibration target for the Tailings Basin MODFLOW model. The calibration target of 462 gpm represents the average flow based on the 59 available NPDES permit monitoring data points from February 2005 through December 2009 (including a flow of 674 gpm for May 2008, as discussed above). The flow measurements used to calculate the calibration target value are identified on Table 1. The MODFLOW model calibration simulation represents the time period from February 2002 through December 2010.

1.1.5 Data Summary and Conclusions

Figure 1 presents a graphical summary of the available flow data included in Table 1 and shows the model simulation period and the data set used to develop the MODFLOW model calibration target. The discharge at SD026 estimated by the MODFLOW model throughout the model simulation period is also shown on Figure 1.

Available flow data that were not used to establish the MODFLOW model calibration target fall into one of three categories. Each category of unused data and the rationale for not using it to calculate the MODFLOW calibration target is discussed below.

- **Measurements collected prior to February 2002 (the start of the MODFLOW model calibration simulation period).** Of the 186 total available flow measurements, 30 measurements are from dates prior to February 2002. The average flow measured prior to February 2002 (the start of the MODFLOW model simulation period) is 648 gpm, compared with 462 gpm used as the MODFLOW calibration target. As shown on Figure 1, some flows during this time period are clearly higher than those measured during the model simulation period. Mining operations were ongoing during this time period and water was being actively pumped to Tailings Basin Cell 1E, resulting in a higher pond elevation and generally more flow at SD026 than during post-closure. The MODFLOW model is intended to simulate conditions after mining operations ceased and these earlier measurements were not used because they do not appear to be representative of those conditions.
- **Measurements collected after December 2010 (the end of the MODFLOW model calibration simulation period).** A total of 40 flow measurements were collected on dates after December 2010. The average flow measured after December 2010 is 185 gpm, compared with 462 gpm used as the calibration target, and flows during this time period (especially those after approximately September 2011) are clearly significantly lower than those measured during the MODFLOW model simulation period (Figure 1). The lower flows measured recently at SD026 reflect the implementation of a pump-back system that returns seepage that emerges from the southern embankment of the Tailings Basin. The water collection for the pump-back system is located approximately 0.5-mile upstream of monitoring station SD026, which results in decreased flows measured at SD026. Flows from this time period are also not reflective of conditions after mining operations ceased and therefore are not appropriate for use in the calibration of the MODFLOW model.
- **Measurements collected between February 2002 and December 2010 (during the MODFLOW model calibration simulation period), but not used to establish the MODFLOW calibration target.** Of the 116 flow measurements (105 NPDES Permit monitoring measurements and 11 Consent Decree measurements) that fall within the MODFLOW model calibration simulation period, 59 were used to calculate the average flow value used as a calibration target (462 gpm). If all 116 measurements within the model simulation period are used to calculate an average, the flow is 463 gpm. A difference of 1 gpm in the MODFLOW calibration target value is insignificant in terms of the effect it would have on the model calibration and the subsequent model results used for the water quality model.

As described above, there are available flow data from SD026 that were not used to establish the MODFLOW model calibration target. However, modification of the flow data set used to calibrate the MODFLOW model is not warranted because the unused data either: (1) were collected at times outside of the model calibration period and are not representative of the conditions simulated by the model or (2) were collected during the model simulation time period, but the addition of the data do not appreciably change the average flow value that was used as a calibration target.

Table 1 SD026 Flow Data Summary (flows in gpm)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1999	NA	NA	NA	NA	NA	NA	1819.4	1138.9	284.7	340.3	333.3	222.2
2000	83.3	NA	97.2	104.2	159.7	604.2	138.9	222.2	340.3	118.1	62.5	506.9
2001	76.4	111.1	125.0	666.7	555.6	854.2	852.8	1252.1	694.4	792.4	2273.6	2105.6
2002	2490.3	766.7	NA	688.2	700.7	740.3	680.6	648.6	844.4	613.3	468.8	331.9
2003	461.3	343.0	592.2	498.5	342.5	226.8	479.5	530.0	471.7	564.0	201.4	42.4
2004	55.6	55.6	444.4	708.3	805.6	520.8	402.8	506.9	402.8	458.7	159.7	513.9
2005	187.5	381.9	125.0	756.9	694.4	763.9	451.4	451.4	395.8	451.4	409.7	354.2
2006	305.6	270.8	284.7	868.1	486.1	409.7	444.4	381.9	291.7	361.1	423.6	340.3
2007	298.6	222.2	265.3	416.7	541.7	1034.7	444.4	395.8	333.3	1263.9	493.1	423.6
2008	270.8	291.7	354.2	388.9	673.6 ⁺	506.9	18.8	486.1	458.3	541.7	663.9	465.3
2009	450.0	407.6	409.7	513.9	659.7	555.6	472.2	458.3	451.4	486.1	513.9	506.9
2010	427.1	513.9	652.8	527.8	444.4	NA	361.1	763.9 269.3 282.7	444.4 574.5 484.7 439.8 341.1 381.5	444.4 152.6 444.3 435.3 700.1	444.4	423.6
2011	402.8	381.9	319.4	1111.1	694.4	208.3	541.7	215.3	97.2	97.2	125.0	104.2
2012	76.4	90.3	138.9	90.3	55.6	277.8	208.3	55.6	83.3	55.6	118.1	104.2
2013	62.5	41.7	62.5	6.9	236.1	284.7	180.6	41.7	104.2	104.2	55.6	19.4
2014	10.4	66.0	263.9	208.3	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

NPDES flow data prior to May 2001 are daily maximum values, remaining data are calendar month maximum values
 NA Data not available
 + Value reported as calendar month total in MPCA database, but actually represents calendar month maximum
 269.3 Flow measurement collected for Consent Decree
 MODFLOW model simulation period
 Data used to calculate the calibration target value

Figure 1: SD026 Flow Data Summary

