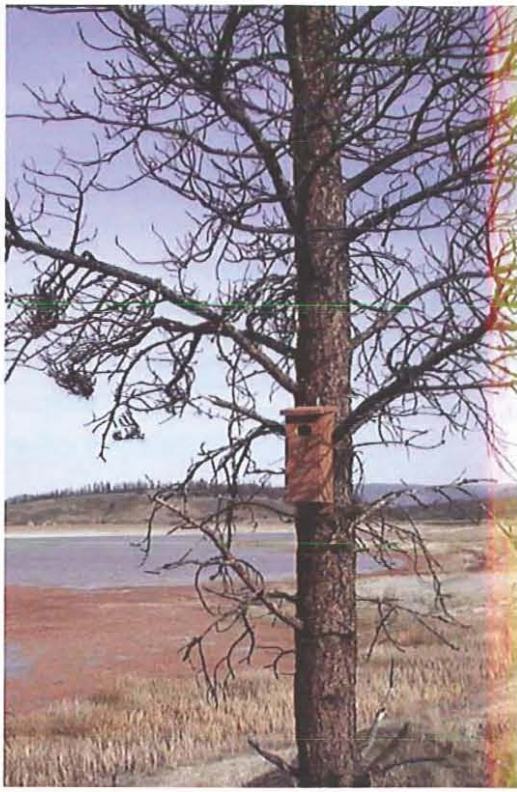
New Gold Inc.

NEW AFTON MINE
Annual Reclamation Report 2010

newgold





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March 2011

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NEW AFTON MINE
ANNUAL RECLAMATION REPORT 2010

March 2011
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New Gold Inc.

Prepared by:

Rescan™
Engineers and Scientists

Rescan™ Environmental Services Ltd.
Vancouver, British Columbia

Executive Summary

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Executive Summary

New Gold Inc. (New Gold) is developing the underground New Afton Copper-Gold Mine (the Project) on the site of the former Afton open pit mine. The Project is located 10 km west of Kamloops, BC in the traditional territory of the Secwepemc Nation. Developing the New Afton Mine involves construction of a new mill and tailings management facility separate from the former mining infrastructure. Because the amount of land to be disturbed fell below the Reviewable Project Regulation threshold for new disturbance, the Project was reviewed and permitted as a major mine under the *Mines Act* (1996a). New Gold completed an N.I. 43-101 compliant Feasibility Study in mid-2007. On October 30, 2007, the Chief Inspector of Mines issued *Mines Act* Permit M-229 authorizing construction of the New Afton Mine. The Annual Reclamation Report is a requirement under Permit M-229.

New Gold has developed a series of Construction Environmental Standards and Guidelines specific to the Project, which include the related legislation and permits as well as techniques and best management plans. These include work in and around ponds and wetlands, invasive plant management, erosion and sediment control, ARD management, work adjacent to Kamloops Lake, wildlife and wildlife habitat protection, guidelines on clearing and brushing, construction access management, and human-wildlife interaction guidelines.

Among the main projects undertaken during 2010 were:

- Five separate preliminary field reconnaissance surveys by First Nations over grounds that were relatively undisturbed to look for any signs of archaeology that may have been missed during previous studies.
- A survey by First Nations of the area behind the portal for coyote or fox dens prior to land disturbance.
- Thinning of dead trees for fuel removal around the portal and infrastructure by First Nations.
- Introduction of office recycling to New Afton with two tonnes of office waste diverted from landfill. Batteries, fluorescent lights and aerosol can recycling also introduced to site.
- A *Spill Prevention and Response Plan*, *Stockpile Management Plan*, and *Waste Management Plan* written and rolled out to site.
- Environmental training delivered to the site as well as a review of the Environmental Orientation.
- Compilation of the Waste Rock Inventory to keep track of waste rock placement and reduce the likelihood of ARD issues in the future.
- Continuation of environmental monitoring surveys for groundwater, surface water, dustfall, ML-ARD, and wildlife use.

During 2010, the Conditional Water Licence was received in April, followed closely by the Air Emission Permit and the Effluent Permit. A *Wildlife Act* permit is also maintained as a precautionary measure for encounters with the two listed species: Western Toad and Great Basin spadefoot.

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NEW AFTON MINE
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Glossary and Abbreviations

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Glossary and Abbreviations

Terminology used in this document is defined where it is first used. The following list will assist readers who may choose to review only portions of the document.

ABA	Acid-base Accounting
ARD	Acid Rock Drainage
ASTM	American Society for Testing and Materials
BCFAL	British Columbia Water Quality Guidelines for Freshwater Aquatic Life
BCDW	British Columbia Drinking Water Guidelines
COC	Chain of Custody
CCME	Canadian Council of Ministers of the Environment
CMR	Carbonate Molar Ratio
EC	Electrical Conductivity
K	Hydraulic Conductivity
MDL	Method Detection Limits
MEMPR	Ministry of Energy, Mines and Petroleum Resources
MOE	Ministry of the Environment
ML	Metal Leaching
NP	Neutralization Potential
PAG	Potentially Acid Generating
PM	Particulate Matter
QA/QC	Quality Assurance / Quality Control
RISC	Resource Information Standards Committee
RPD	Relative Percent Difference
SAP	Sulphide Acid Potential
SNPR	Sulphide Potential Ratio
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TSF	Tailings Storage Facility
TSS	Total Suspended Solids
UPAG	Uncertain Acid Generating Potential
USGS	United States Geological Survey
XRD	X-ray Diffraction

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1. Introduction

1. Introduction

1.1 NEW AFTON MINE OVERVIEW

New Gold Inc. (New Gold) is currently developing the underground New Afton Copper-Gold Mine on the site of the former Afton open pit mine. Currently, the mineral reserve is estimated to 47.4 million tonnes of probable reserves grading 0.95% Cu, 0.69 g/t Au, and 2.03 g/t Ag over the life of mine. The mine will process 11,000 tonnes per day of ore when in full production, over its estimated 12 years of mine life. At the peak of construction, the workforce will peak at approximately 550 employees, including contractors. At the completion of the construction phase, the number of full-time employees will be approximately 250 people.

The New Afton site is situated approximately 10 km west of Kamloops, British Columbia, in the traditional territory of the Secwepemc Nation. Development of the mine involves construction of a new mill and tailings storage facility separate from the former mining infrastructure. The property is located in the Agricultural Land Reserve (ALR), and returning the grassland habitat will be a focus for reclamation activities as areas become available.

The Project received approval as a major mine under the *Mines Act* in October, 2007, following consultation with First Nations and the public as well as extensive environmental studies.

As the mine is still in construction phase, the Tailing Storage Facility and the Sewerage Treatment Plant were not operational during 2010 and consequently did not exceed any licence limits set in the BC Ministry of Environment (MOE) Effluent Permit 100224. Likewise, much of the infrastructure underground and in the mill has not been constructed or commissioned. No exceedance of any parameter listed in the BC MOE Air Emissions Permit 100223 has been recorded. During 2011, air quality monitoring from underground air raises is due to be conducted.

The Project is currently on track to commence production mid-2012.

1.2 NEW GOLD INC. CORPORATE SUSTAINABILITY POLICIES AND PRINCIPLES

New Gold maintains a Health, Safety, Environment & Sustainability Policy which guides the activities at each of the sites within the group toward excellence in health, safety, environmental and sustainability management. A copy of the Policy is provided in the Appendix of this report (Appendix 1.2-1).

New Gold has adopted ISO 14001 as the framework for its Environmental Management System for each site in the group. As New Gold is likely to join the Mining Association of Canada (MAC), the MAC *Towards Sustainable Mining* standards are being adopted internally. A gap analysis against these standards is expected to be undertaken during 2011.

1.3 *MINES ACT* PERMIT M-229

This Annual Reclamation Report describes all of the environmental management activities carried out during the 2010 calendar year. This report is written in accordance with item 2 of the Reclamation Program of the M-229 Permit.

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1.4 STATUS OF WORK SYSTEM AND RECLAMATION OBLIGATIONS

During 2010 the following major project advances were realised as part of the construction schedule:

- natural gas utility connection;
- buried yard services piping;
- heavy foundation cast-in-place piling completed;
- reclaim storage chamber backfill and concrete construction initiated;
- ventilation fans concrete work initiated;
- Materials Handling System (MHS) major general contract awarded and construction initiated;
- development crushing plant delivered to site;
- permanent electrical substation transformer installed;
- tailings delivery system grading initiated;
- concentrator interior base preparation, temporary heating and high bay lighting work initiated;
- process and potable water tanks constructed;
- temporary electrical services installed underground and on surface;
- yard grading brought to 60% completion; and
- installed high-bay lighting inside mill building.

Additionally, New Afton utilized a four-crew, owner-operator process for the year, and added a contractor workforce for the last two months of the year to develop 3,783 meters of advance in 2010, without any lost-time accidents. The advance rate significantly improved over the course of the year. Included in the advance for 2010 were the following milestones:

- excavation of transfer stations 1/2 and 2/3;
- decline to the mining area;
- significant advance on the conveyor decline;
- began access to the undercut level;
- began access to the extraction level;
- began access to the haulage level; and
- successfully mining through the North Fault into the ore body proper.

New Afton maintains a policy of progressive reclamation. As well as internal drivers, the M-229 permit specifies reclamation objectives and monitoring under the *Mines Act*.

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2. Environmental Performance Program

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2. Environmental Performance Program

2.1 FUEL HANDLING AND SPILL CONTAINMENT

2.1.1 Introduction

The fuel storage program at New Afton has several key mechanisms to ensure safe and effective fuel delivery into vehicles and mobile equipment.

Ultra Low Sulphur Diesel and 87 octane Gasoline fuels are delivered onto site via a fuel truck and then dispensed into fixed site tanks. These site tanks range from 10,000 to 35,000 litres depending on location. Each site tank is double wall vacuum monitored, which effectively ensures containment and notification should a tank wall fail. Furthermore, the larger of the tanks are positioned in a polymer lined berm that provides storage of 150% of the tank volume, which is above industry standard and provides spill containment in the event that both vacuum monitored walls were to fail.

Each site tank is also surrounded by 1,705 kg concrete blocks and is positioned away from everyday traffic to keep the tanks at the safest spot possible. Spill kits are also at every location allowing for the effective clean up of any small scale spills during the fuelling process. Each fuel station is fitted with either a 15 or 30 gpm nozzle with an automatic shut off valve activated through a pressure switch in the nozzle. This ensures that vehicles and mobile equipment are not over-filled and mitigates the risk of small spills during fuelling. The fuel pumps are also equipped with a break-away fitting to prevent any damage to the tank in the event of the nozzle being accidentally detached from the pump. The fuel tank and all fittings are also regularly checked and maintained for wear and tear and for recent spills during environmental inspections. Lastly, MSDS information is readily available around the mine site ensure safe clean up as well as awareness for the workers.

2.1.2 Scope of Activities

New Afton complies with New Gold's corporate standard for reporting of spills. This standard requires internal reporting of all spills greater than or equal to 10 L. Of the seventeen incidents in 2010, there were ten internally reportable hydrocarbon spills. Each of these spills were cleaned up using absorbent material which was then separated from the general waste stream, and the soil taken to the bioremediation facility. None of the spills required reporting to the Ministry of Environment under Spill Reporting Regulations.

New Afton has a policy of secondary containment for all hydrocarbons. During 2010, a great deal of emphasis was placed on containment within temporary storage facilities and improvement of housekeeping which included mandatory separation of oil soaked materials from the waste stream.

Additionally, a Spill Prevention and Response Plan and a Spill Response Flow-chart were introduced and rolled out to the site.

Figure 2.1-1 illustrates the number of incidents per category that occurred in 2010.

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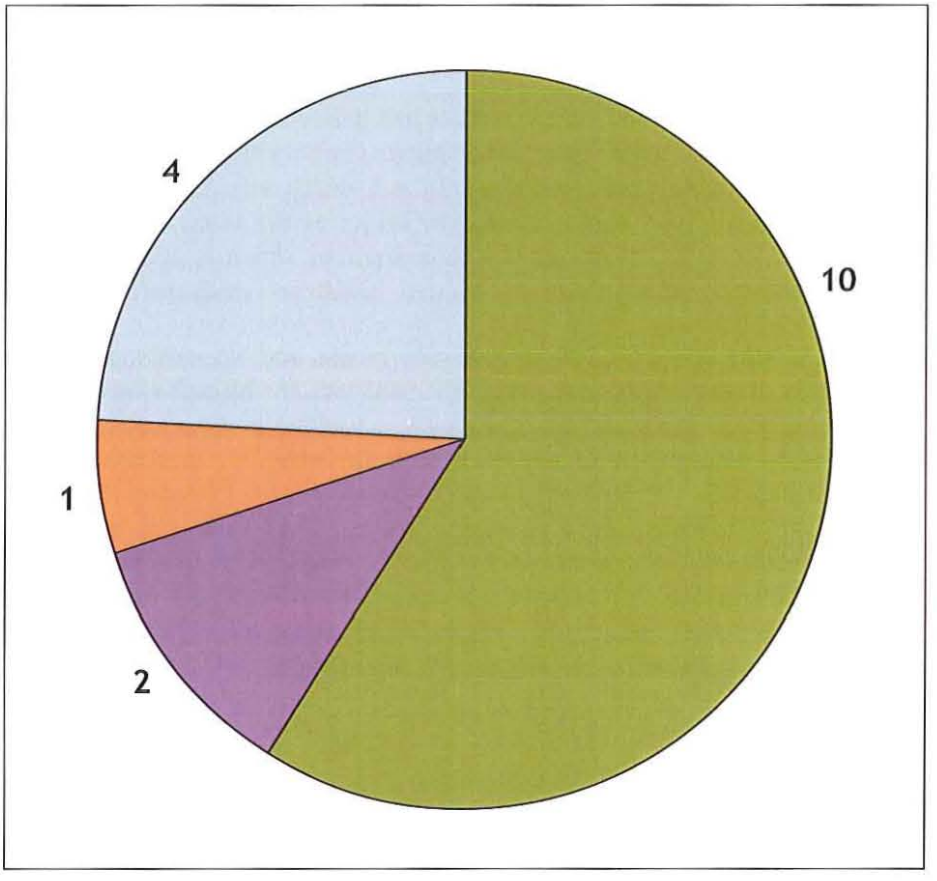


Figure 2.1-1

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New Afton Incidents by Category, 2010

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2.2 RECLAMATION ACTIVITIES

2.2.1 Introduction

During 2010, reclamation activities included seeding of areas impacted by construction, stockpiling of topsoil material, re-shaping of batters and berms close to the pit road, removal of dead timber close to the portal entrance and workshops, and weed management.

2.2.2 Scope of Activities

New Afton is still in the construction phase and therefore expanding the footprint of the site, and emphasis is placed on the retention of materials that will be used during the closure phase of the mine, or as areas are able to be reclaimed during the life of mine.

To that end, areas undergoing construction have had the topsoil removed and stock-piled.

Areas that have allowed the soil to be replaced have been seeded immediately to ensure that weed species are out-competed by native species or species that provide cover or some benefit such as nitrogen fixing.

During 2010, dead trees were removed from the hill south of the portal. These works were performed following an order from the Ministry of Energy, Mines, and Petroleum Resources (MEMPR) as the trees were seen as a threat in the event of a forest fire. All dead timber was removed from within a 50 m buffer from any infrastructure. Further tree removal will take place during 2011.

During 2011, the construction activities at the Tailings Storage Facility (TSF) will include the removal of remaining topsoil and subsoil from the footprint to allow reclamation at the end of mine life. These will be stored according to the Code and the M-229 permit in quantities that are established in the *Mines Act* Permit Application.

2.3 METAL LEACHING AND ACID ROCK DRAINAGE

2.3.1 Introduction

Section 2.1.7 of the *Application for a Permit Approving the Mine Plan and Reclamation Program Pursuant to the Mines Act R.S.B.C. 1996, C. 293* (the "Application") for New Gold's New Afton Project (submitted in January 2007), discussed Metal Leaching and Acid Rock Drainage (ML/ARD). Section 3 of the "Approved Work System and Reclamation Program" permit (Permit M-229) issued by the Chief Inspector of Mines of the British Columbia Ministry of Energy, Mines and Petroleum Resources to New Gold on October 30 2007, under Protection of the Land and Watercourses of Permit M-229, provides permit conditions for ML/ARD. These requirements include:

- material handling that minimizes the production and release of metals and contaminants to levels that ensure long-term protection of environmental quality;
- ML/ARD prediction and prevention plans that are prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia*;
- the ML/ARD Material Characterization and Materials Handling Plan including details of operational sampling and analytical procedures to be used;
- definition of Potentially Acid Generating (PAG) and Metal Leaching (ML) Materials;
- Waste Rock Handling;

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- on-going ML/ARD prediction and geochemical characterization during construction, operation and closure, as required; and
- reporting.

The key aspect to the New Afton ML/ARD Prevention and Mitigation Plan is the recognition that no surface or subsurface water originating in the new mine site components will leave the mine site, based on the hydrologic and hydrogeologic studies and the mine plan. This leads to two important observations. First, there will be no off-site geochemical impacts, so prevention and mitigation are not critical. Second, all elements leaching from the mine site components, either at relatively fast rates due to ARD or slower rates at higher pH, will eventually report to and accumulate in the Afton Pit. Therefore, any prevention or control of the onset of ML/ARD conditions would generally lengthen the time that concentrations would rise in the closed-system New Afton Pit, not the eventual long-term hyper-saline levels of the Afton Pit lake.

Monitoring of ML/ARD is covered through the provisions of the Surface Water Quality Management Plan (see Section 2.5). Included in this are monitoring requirements for the reformed Afton Pit Lake, which is planned to cover any waste rock with ARD potential in the bottom of the old pit. The waste rock is being covered even though, as emphasized above, this is a completely contained environment with no outward contaminant transport mechanisms identified.

At the site, two rock types with some potential for ARD generation include high sulphide hypogene ore and high sulphide pyrite-bearing waste rock. Some portion of hypogene ore may briefly be stored on the surface during the development phase or pre-startup construction time period. The storage location is southeast and adjacent to the plant site within the projected future zone of subsidence. The residence time on the surface will be brief and all material will report to the mill circuit. In the interim, if there is any surface drainage, it will be directed to the Plant Site Pond and transferred to the TSF. Pyrite-bearing waste rock with ARD potential, will report from the underground and will be deposited in the bottom of the east end of the Afton Pit. The volume of pyrite-bearing rock is anticipated to be minor and would occur during the development and early production phases. Any similar material brought to surface via the decline construction was or will also be trucked and deposited in the bottom of the east end of the Afton Pit.

2.3.2 Scope of Work

In accordance with the regulatory requirements for ML/ARD at the New Afton Project under Permit M-229, a total of 113 rock samples were collected on surface by New Afton personnel for static testing in 2010. These samples were taken from a waste rock pile, access road pile, mill south road, various crushed waste piles, oxide waste, and sulphide waste.

The thirteen laboratory-based rock humidity cells were started in August 2006 and were in operation during 2010 with leachate sampled and analyzed at a biweekly frequency.

In addition, six on-site leach pads were constructed in 2008 and leachate samples collected in April and November 2009, and April and September 2010.

Humidity cell tests were initiated on two tailings samples: rougher and final tailings, both generated from pilot plant metallurgical testing of 2092 P6 mesogene ore material in May 2008 and were in operation during 2010 with leachate sampled and analyzed at a weekly frequency. It was observed in February 2010 that the tailings humidity cells were generating dissolved arsenic concentrations in leachate of approximately 0.3 mg/L. Additional studies are currently being undertaken to identify the source/cause of these arsenic concentrations, their relevance to the designed TSF operation and the potential fate and impacts on the receiving environment.

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2.3.3 Objectives

The objective of the static testing is to determine the ARD potential and solid-phase elemental content of materials excavated from underground development and surface material handling at the New Afton Project.

The objective of the laboratory-based kinetic testing is to determine the long term acid generation potential (i.e., depletion rates and lag times to the onset of ARD) and leachate chemistry of rock types representing supergene ore, mesogene ore, hypogene ore, pyrite zone with less than 1% sulphide sulphur (S), pyrite zone with more than 1% S, unmineralized andesite, monzodiorite, and rougher and final tailings.

The objective of the field-based leach barrel kinetic testing is to determine dissolved aqueous concentrations under site-specific climatic conditions in order to quantify larger scale mine component drainage chemistry at the New Afton Project.

2.3.4 Methods

2.3.4.1 Static Testing

Table 2.3-1 summarises the 2010 samples collected for static testing. Figure 2.3-1 shows the locations of the samples with the bedrock geology. The samples were submitted to EcoTech of Kamloops BC by New Afton personnel and analyzed for a limited suite of Acid-base Accounting parameters that included: paste pH, total-sulphur, sulphide- sulphur, sulphate-sulphur, and neutralization potential (NP). The acid production, net neutralization potential and net neutralization ratio were also calculated.

Table 2.3-1. Summary of 2010 Surface Rock Samples for Static Testing

Sample ID	Location	Comment
2000301-2000306	Waste Rock Pile	Taken from north face of waste rock pile. Split the north face into 9 zones (1 furthest west, 9 furthest east) 10 is composite at toe of west half, 11 is composite at toe of east half.
2000307-2000311	Waste Rock Pile	Taken from north face of waste rock pile. Split the north face into 9 zones (1 furthest west, 9 furthest east) 10 is composite at toe of west half, 11 is composite at toe of east half.
2000312	Access Road Pile	Road base pile, furthest west near security, north side of access road.
2000313	Access Road Pile	Road base pile, 2nd pile from west near security, north side of access road.
2000314	Access Road Pile	Road base pile, 4th pile from west near security, north side of access road.
2000315	Access Road Pile	Road base pile, piles further east near security, norh side of access road.
2000316	Access Road Pile	Road base pile, 3rd pile from west near security, north side of access road.
2000317-2000327	Mill South Road	Road just south of mill building.
2000328-2000343	Crushed Waste Pile 1	Crushed waste
2000344-2000364	Crushed Waste Pile East	Crushed waste - east pile
2000365-2000394	Crushed Waste Pile 2	Crushed waste

(continued)

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Table 2.3-1. Summary of 2010 Surface Rock Samples for Static Testing (completed)

Sample ID	Location	Comment
2000395-2000398, 2000404, 2000406-2000412, 2000414-2000415	Oxide Waste	Oxide waste
2000401-2000403, 2000405, 2000413	Sulphide Waste	Sulphide waste from Stockpile pad

2.3.4.2 Laboratory Kinetic Testing

Humidity cell testing of thirteen rock and two tailings samples of rougher and final tailings continued in 2010. Eleven of the humidity cells were started in August 2006 and have 234 cycles of data available to the beginning of February 2011. The remaining two humidity cells containing hypogene ore rock were started in October 2006 and have 223 cycles of data available to the beginning of February 2011. For the rock humidity cells, leachate was initially collected and analyzed weekly. In July 2007, dissolved elemental analyses of the humidity cell leachate were reduced and are currently operating on a biweekly cycle. The parameters pH, conductivity, acidity, alkalinity, sulphate, and water balance remain as weekly measurements.

The two humidity cells for rougher and final tailings were started in May 2008, and have 140 cycles of data available to the beginning of February 2011. The tailings humidity cells are operating on a weekly cycle.

The following section discusses the on-going humidity cell testing results. All the humidity cells are still currently operating.

2.3.4.3 Field Kinetic Testing

The field leach barrels (FLBs) were constructed in 2008 and reconfigured in mid-2010 (Plates 2.3-1 and 2.3-2). The reconfiguration of the FLBs in 2010 consisted in placing the field leach barrels on top of a new solid structure (wooden bench), placing a filter fabric over the drain and adding a sealed collection container to the bottoms of the barrels to minimize leachate evaporation losses. The FLBs were sampled in 2009 (April and November) and in 2010 (April and September); however, only five of the FLBs were sampled for a limited suite of parameters due to low volumes of leachate available. A summary is provided in Table 2.3-2.

Table 2.3-2. Field Leach Barrel Summary

Field Leach Barrel	Material
ARD 1	Hypogene Ore Muck
ARD 2	Transition Ore Muck
ARD 2A	Transition Ore Muck (Mesogene)
ARD 3	Monzonite DMZ Muck
ARD 4	Low Sulphide Waste Muck
ARD 5	High Sulphide Waste Muck

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674500 675000 675500 676000 676500 677000

5615500 5615000 5614500

N216815 N216819 N216801 N216802 N216818 N216816 N216817 N216827 N216826 N216825 N216809 N216820 N216805 N216810 N216821 N216806 N216804 N216814 N216824 N216823 N216803 N216807 N216828 N216822 N216829 N216813 N216808 N216830 N216811 N216831 N216832 N216812 N216833 N216834 N216836 N216835 N216837 N216838 N216845 N216844 N216841 N216843 N216840 N216842 N216839

N

Surface Sampling
Underground Sampling
Lineament
Underground Shaft
OpenPit
Transportation
Water

Lithology

Tertiary Diabase Sills
Eocene Kamloops Group
Jurassic Ashcroft Formation
Iron Mask Pluton; monzonite
Iron Mask Pluton; pyroxene diorite
Picrite / Serpentinite
Coarse Fragmentals
Triassic Nicola Group

1:7,500
0 125 250
Meters

Projection: UTM 10, Nad83

FIGURE 2.3-1

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Location of 2010 Static ML/ARD Samples with Geology

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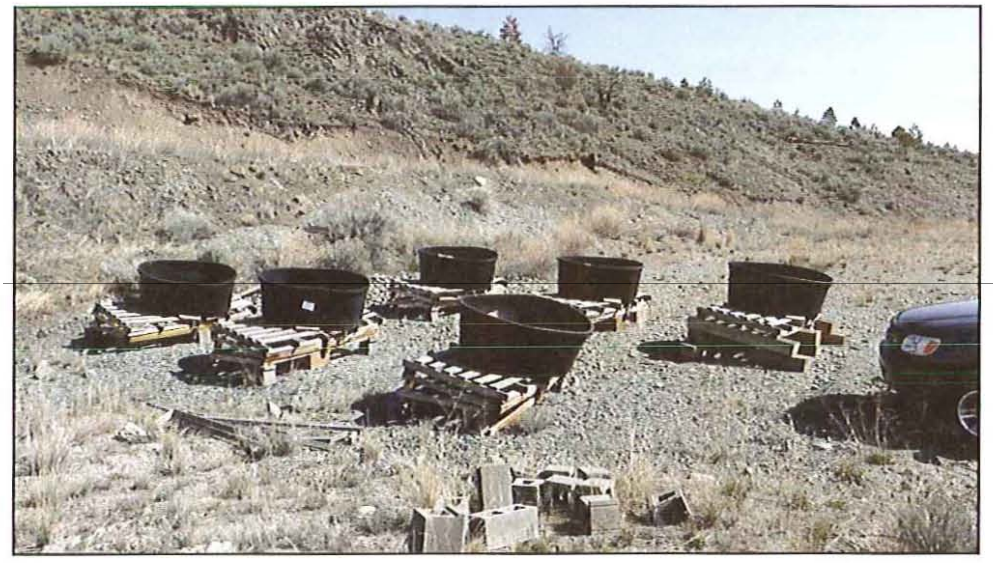


Plate 2.3-1. Original field leach barrel configuration.



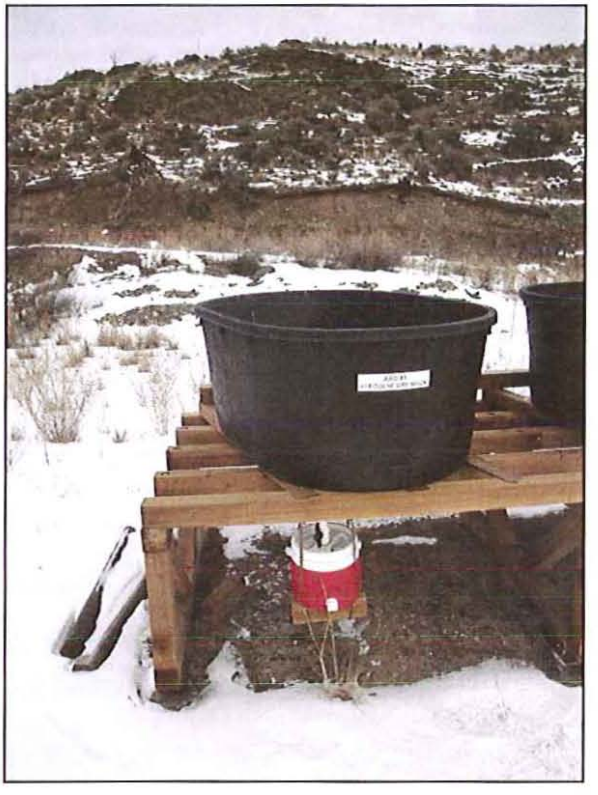


Plate 2.3-2. Reconfigured and close-up of reconfigured field leach barrels.

2.3.5 Results

2.3.5.1 Rock Static Testing

The limited static tests results of the 113 rock samples collected for static ML/ARD testing in 2010 are discussed below.

Acid Potential

Figure 2.3-2 provides a summary of the variability in paste pH and sulphide-sulphur values of the material tested in 2010. None of the material tested had an acidic paste pH values (i.e., < 6.0); the range of values was between 8.92 and 11.35, with three samples having a paste pH greater than 10.3. The sulphide-sulphur (Figure 2.3-2) values range between 0.01 and 5.12% with the majority of the values having less than 0.1% sulphide-sulphur. The Sulphide Waste material showed the highest sulphide-sulphur values; greater than 2.0%. All other rock materials were predominantly less than 0.3%. The relationship between sulphide- and total-sulphur is shown in Figure 2.3-2. The total-sulphur values are similar to sulphide-sulphur values, ranging between 0.01 and 5.11%. The strong positive correlation between sulphide- and total-sulphur indicates that almost all the sulphur is sulphide-sulphur and there is no significant contribution to the sulphur content from acid-soluble sulphate or other sulphur species. Figure 2.3-3 displays the range in sulphate-sulphur values (0.01 to 0.03%). There is no correlation between paste pH and the sulphate-sulphur content. There were very few samples with a detected sulphate-sulphur content; the maximum detected was 0.03%. These high paste pH and low sulphate-sulphur concentrations reflect low sulphide-sulphur reactivity and oxidation rates and/or secondary oxidation products are flushed and not stored in-situ.

Acid Neutralization Potential

The ability of the samples to neutralize acid production is expressed as Neutralization Potential (NP) with units of kg $CaCO_3$ equivalents/t and was evaluated using the Sobek Neutralization Potential method. The NP values for the samples collected in 2010 ranged from 30.4 to 262.5 kg $CaCO_3$ /t. The data plot in a tight cluster (Figure 2.3-4) indicating that it is likely a mineral phase and/or rock type that is responsible for these NP values. Previously there has been no indication of the presence of iron-manganese carbonates so the NP values are most likely to be dominated by calcium carbonate and some partial dissolution of aluminosilicates. The relationship between paste pH and NP also indicate that no samples were acid generating at the time of testing and all NP is potentially available. Based on this limited distribution of NP values, the main control on the Sulphide Net Acid Potential is therefore the sulphide-sulphur content (Figure 2.3-4).

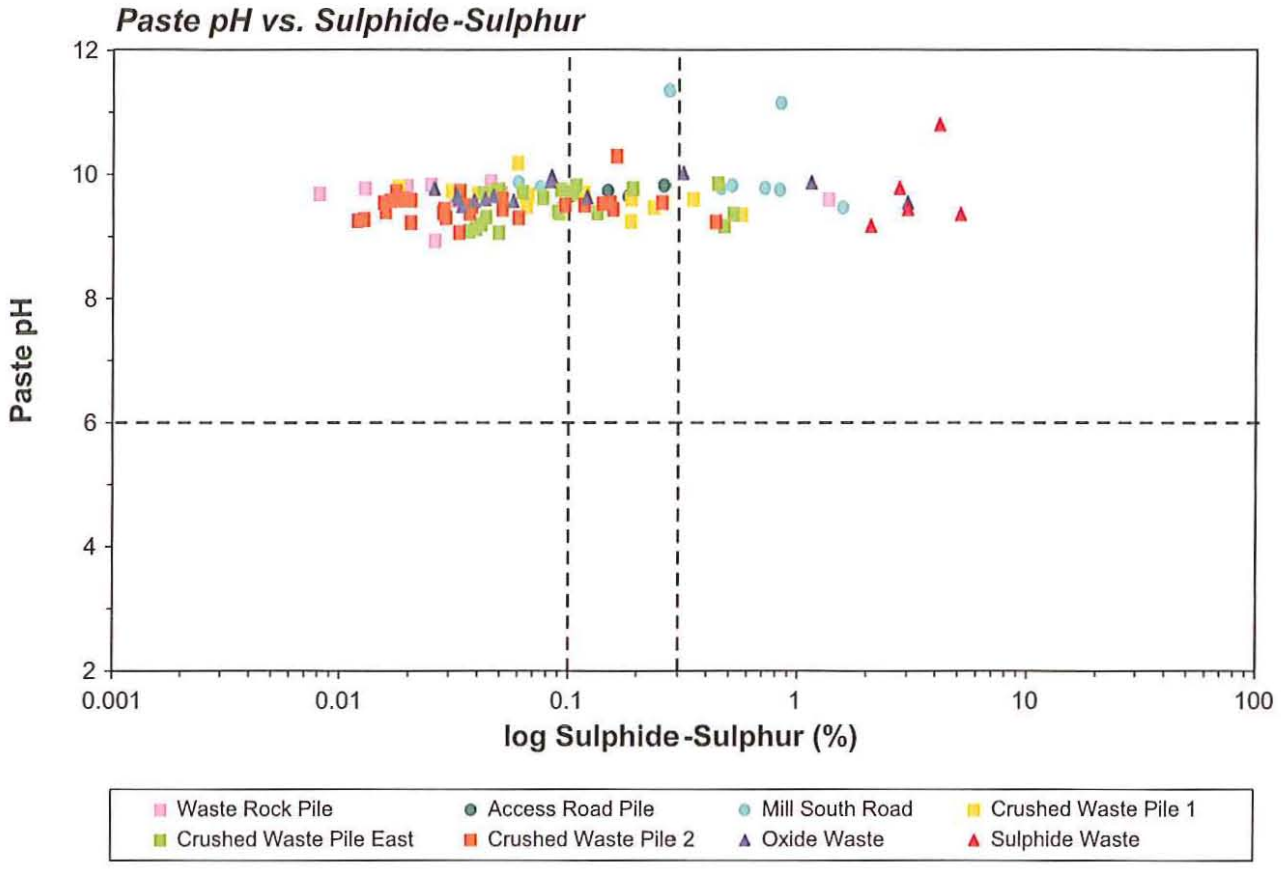
Net Acid Potential

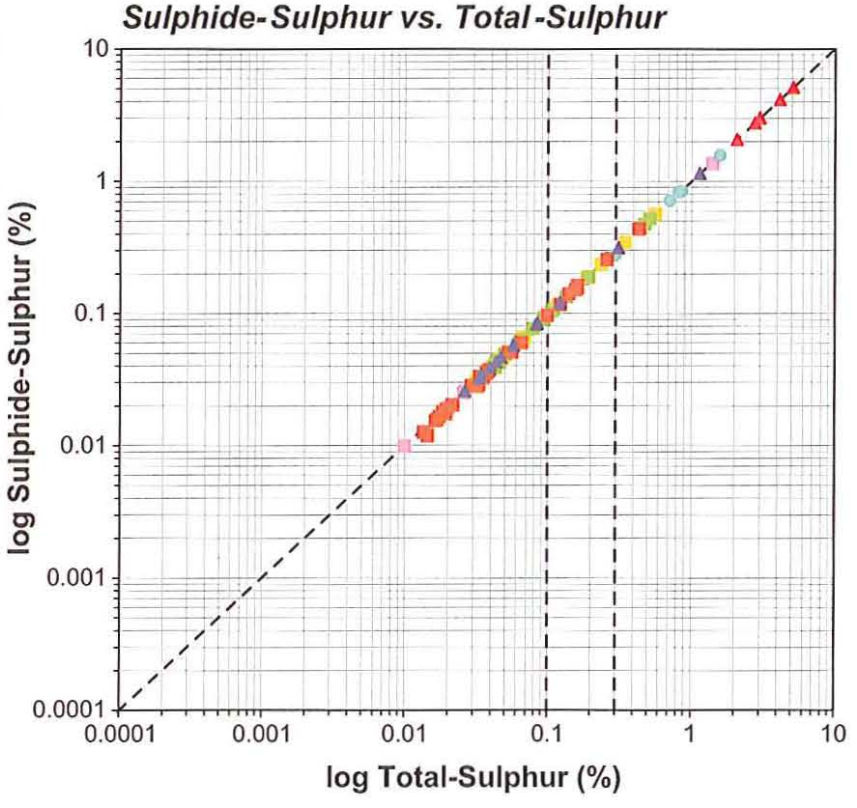
The Sulphide Potential Ratio (SNPR) of the 2010 samples was assessed by comparing the ratio of the Sobek NP to the Sulphide-sulphur Acid Potential (SAP) (SNPR = NP / SAP). General non-site- specific criteria that are applied to the SNPR values are:

- SNPR <=1: Potentially Acid Generating (PAG);
- SNPR >1 and <= 2: Uncertain Acid Generating Potential (UPAG); and
- SNPR >2: not Potentially Acid Generating (not-PAG).

The relationship between the NP and SNPR values is illustrated in Figure 2.3-5. The results show that there are several samples with SNPR values <=2 (i.e., sulphide waste), but the majority of samples are clustered between SNPR values of 20 and 120. This suggests that the majority of rock material is not-Potentially Acid Generating, as the calcium-carbonate content is high and sufficient to provide NP to neutralize the acid produced by sulphide oxidation. This inference is confirmed in Figure 2.3-5 where high SNPR values correspond to low total-sulphur values and the NP values are relatively high and constant over a wide range of SNPR values.

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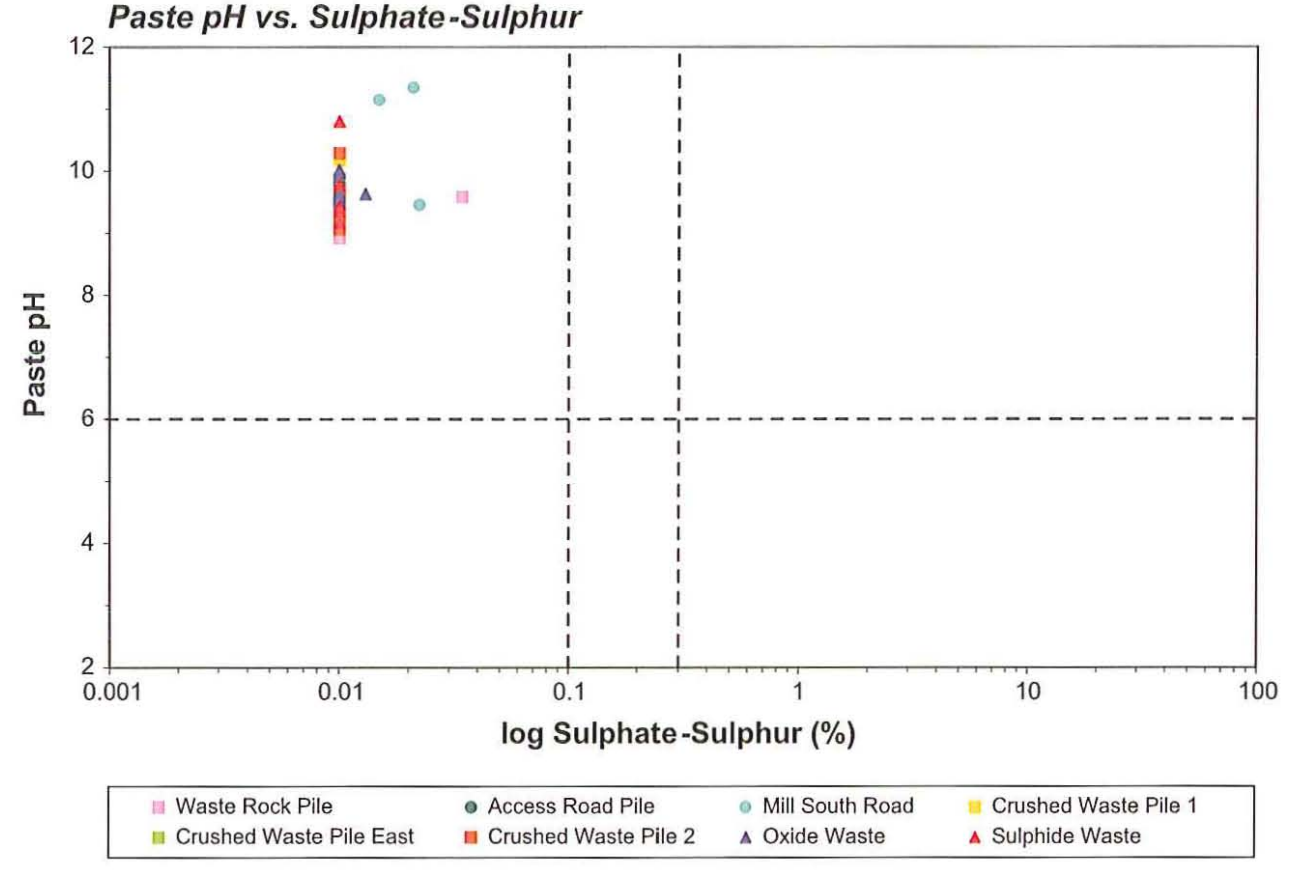


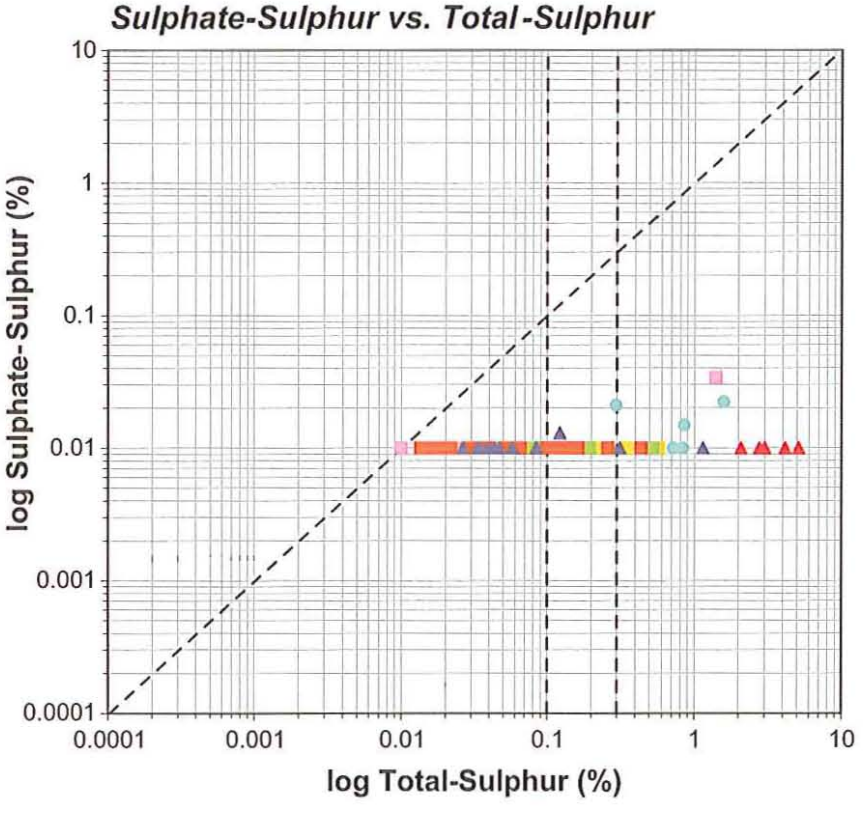
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Paste pH versus Sulphide-Sulphur and Sulphide-Sulphur versus Total-Sulphur

Figure 2.3-2

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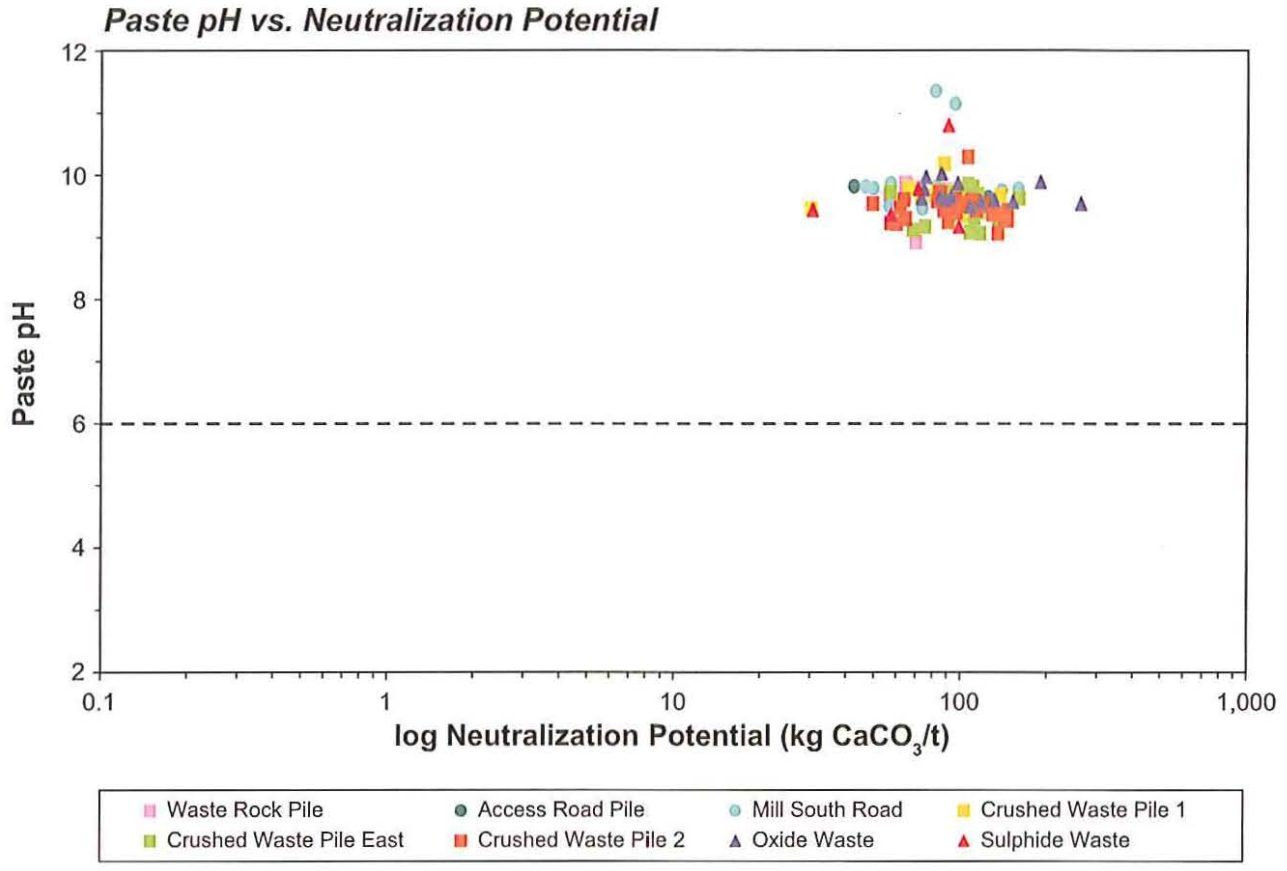


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Paste pH versus Sulphate-Sulphur and Sulphate-Sulphur versus Total-Sulphur

Figure 2.3-3

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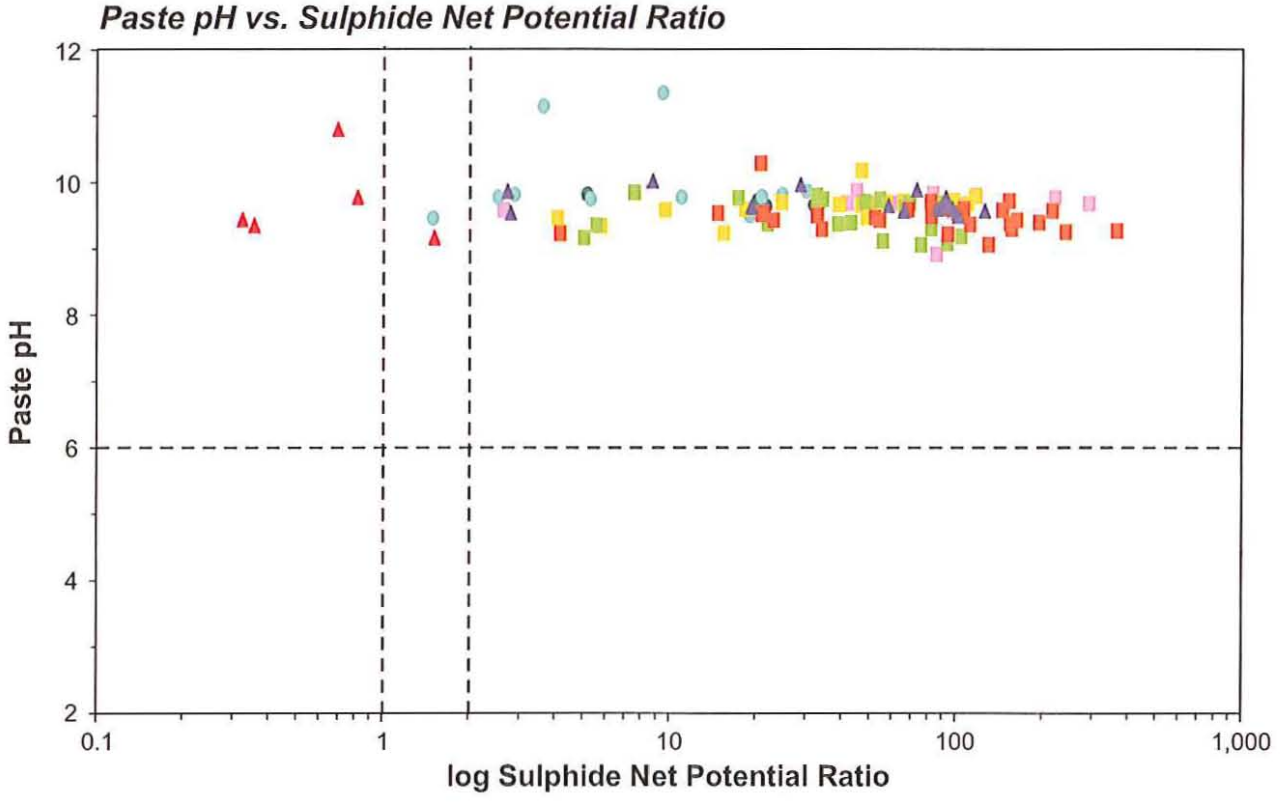
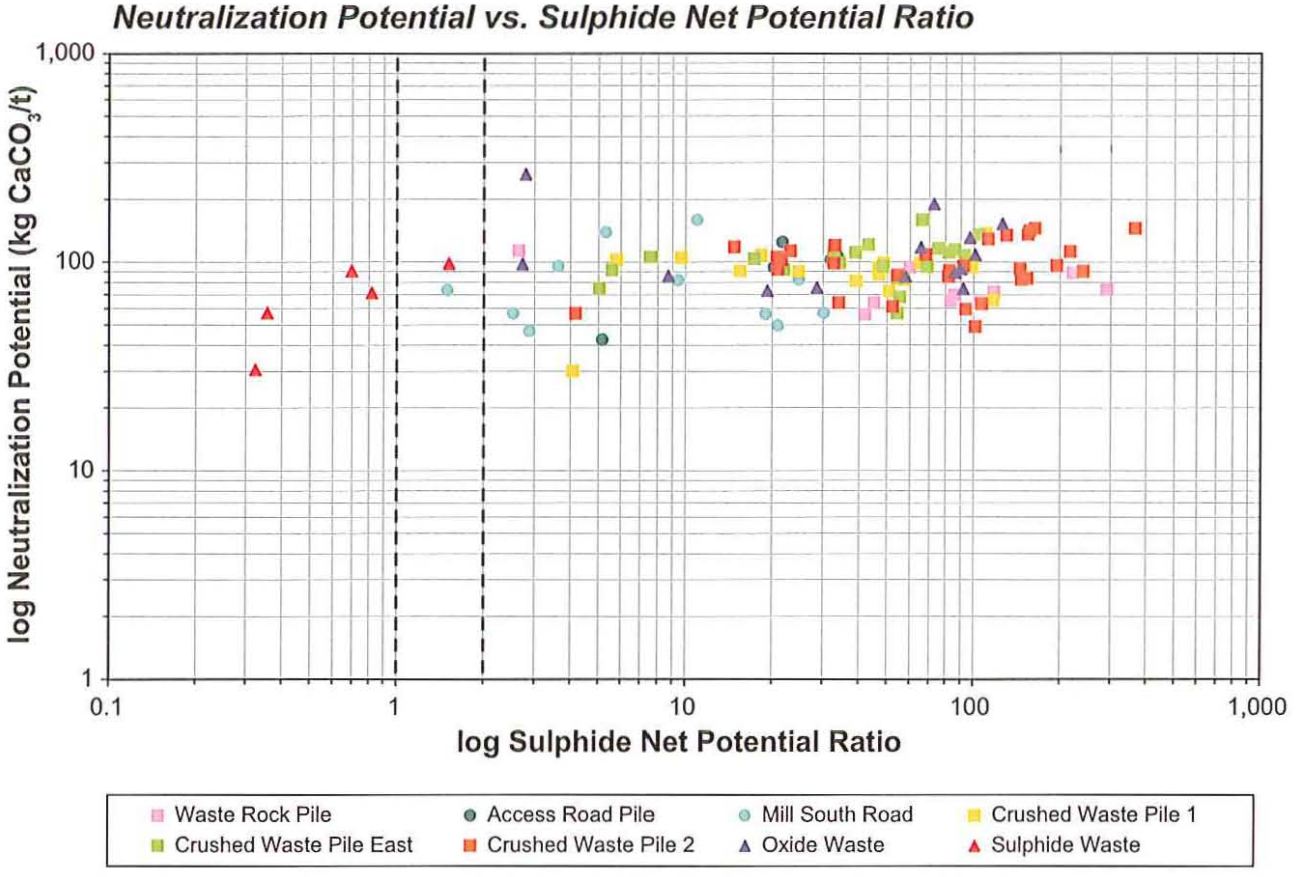


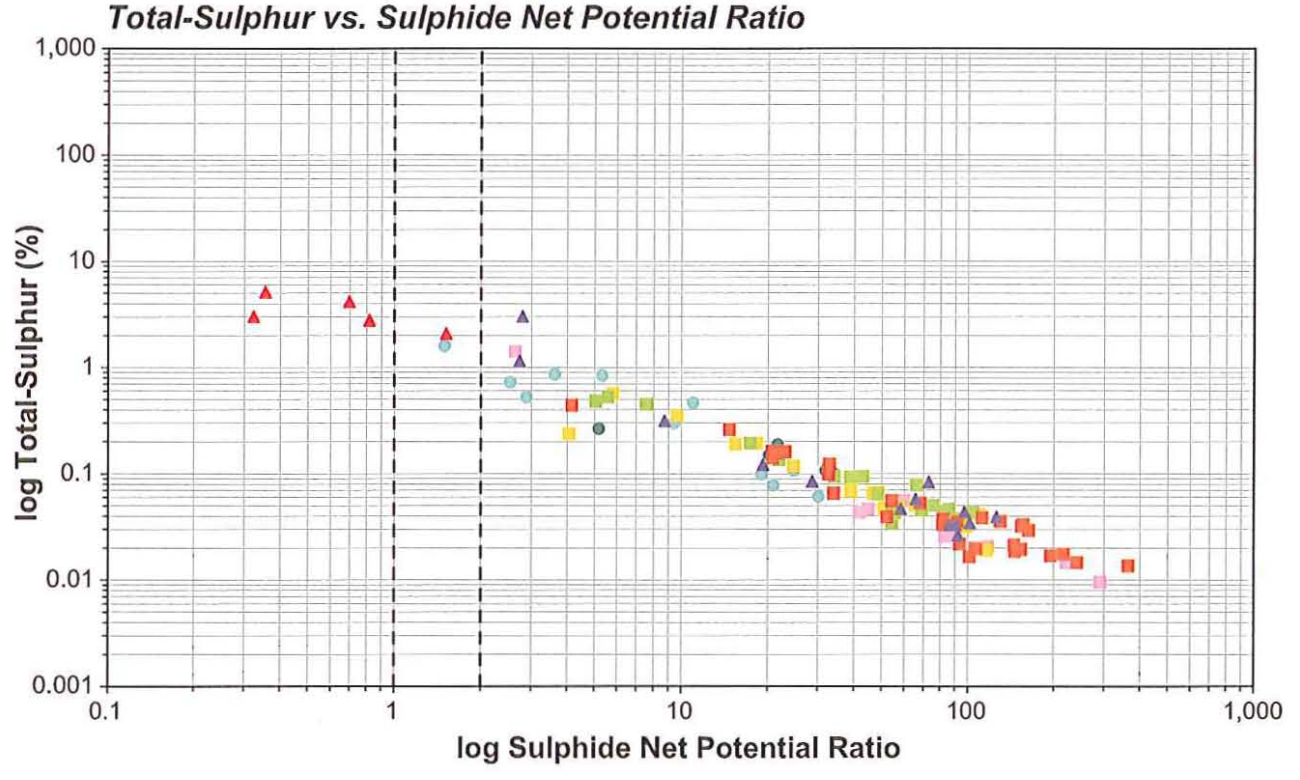
Figure 2.3-4

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Paste pH versus Neutralization Potential and Paste pH versus Sulphide Net Potential Ratio

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Neutralization Potential versus Sulphide Net Potential Ratio and Total-Sulphur versus Sulphide Net Potential Ratio

Figure 2.3-5

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Summary and Waste Management

In summary, the static test results indicate that these rock samples collected from the waste piles are not-Potentially Acid Generating. However based on the dissolved concentrations in leachate from the rock humidity cells currently operating, elements may be leachable under pH neutral conditions. Therefore this rock should be managed in a manner that minimizes surface water infiltration and/or surface water runoff and subsurface seepage to groundwater.

2.3.5.2 Rock Humidity Cell Testing

The thirteen rock humidity cells represent a range of rock types found at the New Afton Project (Table 2.3-3). They included: supergene ore, mesogene ore, hypogene ore, pyrite zone with less than 1% of sulphide-sulphur (based on Acid-base Accounting (ABA) rather than visual pyrite), pyrite zone with more than 1% of sulphide-sulphur, and unmineralized andesite and monzodiorite.

An ABA screening SNPR criteria of 2.0 was used to classify these rock materials as PAG where the SNPR values were less than 2.0 and not-PAG where the SNPR values were 2.0 or greater. The SNPR values were calculated from the Sulphide-sulphur Acid Potential (SAP) and Sobek NP. Based on these criteria, four of the thirteen rock samples had SNPR values less than 2.0, and were potentially acid generating and expected to become acid generating at some point in the future. The remaining rock samples had SNPR values equal or greater than 2.0 and were expected to be not potentially acid generating.

The potentially acid generating samples were Mesogene Ore 7038 (SNPR = 0.63), Hypogene Ore 97747 (SNPR = 0.55), Pyrite Zone >1% S at Cross-Cut 100 (SNPR = 1.36), and Pyrite Zone >1% S at Safety Bay #30 (SNPR = 0.17). However, due to NP levels on these samples, the lag time before the sample become acidic could be in the order of 10s of years or longer. In general, pre-humidity cell static testing of these rock types showed of sulphide-sulphur concentration the range of 0.005 to 5.72%, and NP values in the range of 30 to 272 kg $CaCO_3$/t.

The ore type rock samples contained up to 4.5% copper. The two potentially acid generating ore type rock samples [Mesogene Ore 7038 (SNPR = 0.63) and Hypogene Ore 97747 (SNPR = 0.55)] had the highest copper concentrations and the highest sulphide-sulphur levels of all ore type rock samples. Copper-bearing sulphides may not generate as much acidity as iron-bearing sulphide; therefore, the acid generating potential of these two ore type waste samples may be overestimated. Thus, it is possible that these two ore type rock samples are actually net neutralizing like the others.

Temporal trends of pH versus time in waste rock humidity cells are presented in Figure 2.3-6. The thirteen rock humidity cells had an alkaline pH at the beginning of operation. During the period from January 2009 to February 2011, leachates from twelve rock humidity cells showed steady near neutral to alkaline pH values (7.0 to 8.9). The remaining rock humidity cell Safety Bay #30 (Pyrite Zone >1%S) became acidic at cycle 174, as predicted by the acid generation potential based on the SNPR values less than 2 in the pre-humidity cell static testing. To cycle 234 (end the humidity test period discussed in this report) the pH decreased to 3.26.

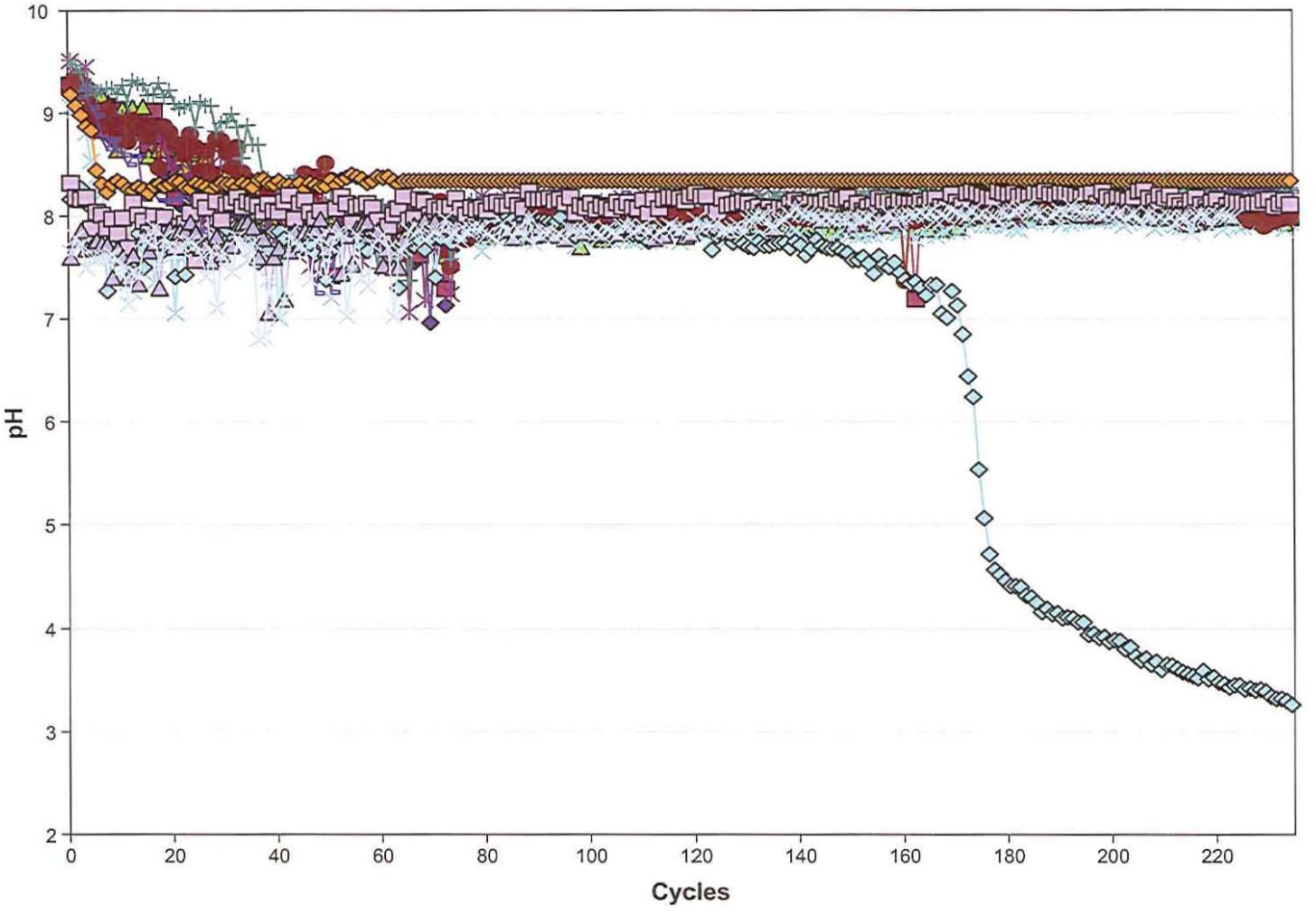
Acid Production

The sulphate production rates for the waste rocks humidity cells are presented in Figure 2.3-7. The sulphate production rate, expressed in mg/kg/wk, typically represents the rates of sulphide oxidation and total acidity generation. Sulphate production rates in the humidity cell leachates were exhibiting a steady-state trend in the last twenty cycles. Sulphate production rates ranged from 5.4 to 24.4 mg/kg/wk in the supergene ores, 36.6 to 78.2 mg/kg/wk in the mesogene ores, and 16.0 to 61.1 mg/kg/wk in the hypogene ores.

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Table 2.3-3 Geochemical Summary of the Thirteen New Afton Humidity-cell Rock Samples

	Supergene Ore		Mesogene Ore		Hypogene Ore		Pyrite Zone <1%S		Pyrite Zone >1%S		Unmineralized Andesite & Monzodiorite		
Cell	6983	107163	69754	7038	90534	97747	Safety Bay #18	Stn. 20	X-Cut 100	Safety Bay #30	71212 Monzo-diorite	Andesites Kamloops Group	Andesitic Fragmental Nicola
Source (Drillhole)	UA-11-05 194-196 m	UA-64-05 316-318 m	UA-21-05 186-188 m	UA-11-05 290-292 m	UA-30A-05 254-256 m	UA-55-05 172-174 m	Pyrite Grade 1 to 5%	Pyrite Grade 0.1 to 1%	Pyrite Grade 1 to 5%	Pyrite Grade 5 to 10%	UA-29-05 210-212 m	UA-94-06 380.92-381.85 m	UA-101-06 50.9-52.05 m
Selected ABA Parameters													
Paste pH	9.6	9.6	9.6	9.3	9.3	8.9	9.2	9.2	9	9.1	9.9	9.9	9.8
% S (Total)	0.33	0.65	1.15	3.04	0.97	3.16	0.09	0.95	2.48	5.77	0.01	0.01	0.01
% S (Sulphide) Calc	0.31	0.63	1.14	3.03	0.96	3.13	0.05	0.93	2.45	5.72	0	0.005	0
% S (Sulphate) Carbonate Leach	0.02	0.01	0.005	0.02	0.03	0.02	0.01	0.02	0.02	0.04	0.005	0.005	0.005
% S (Sulphate) HCl Leachable	0.02	0.02	0.01	0.01	0.01	0.03	0.04	0.02	0.03	0.05	0.01	0.005	0.01
Measured NP (kg CaCO3/t)	48	108	130	60	62	54	272	136	104	30	58	84	29
Total CaNP (kg CaCO3/t)	41.7	114.2	105	64.2	51.7	44.2	275	172.5	113.3	21.7	53.3	136.7	23.3
Inorganic CaNP (kg CaCO3/t)	31.8	70.5	10.7	43.2	50	43.2	266.1	166	109.2	15.9	43.2	125.1	15.9
SNNP (kg $CaCO_3$/t)	38.3	88.3	94.4	-34.7	32	-43.8	270.1	107	27.4	-148.7	58	83.8	29
SNPR (unadjusted)	5.0	5.5	3.6	0.6	2.1	0.6	174.1	4.7	1.4	0.2	200	200	200
Selected Aqua-Regia-Digestion Metal Concentrations													
Arsenic (ppm)	806	57.8	34.5	8.9	4.2	4.3	3.4	19	8.9	27.1	7	1.7	9
Copper (ppm)	23100	25900	25400	45400	9180	29000	366	86.9	66.9	59.6	54.4	43.5	178
Selenium (ppm)	3.1	9.5	6.7	28.5	4.7	6.8	0.3	0.3	4.6	5.7	0.4	0.6	0.4



Supergene Ore -107163
Supergene Ore - 6983
Unmineralized Monzodiorite - 71212
Unmineralized Andesite - Nicola Grp.
Pyrite Zone >1% - Safety Bay #30
Pyrite Zone >1% - X-Cut 100
Hypogene Ore - 97747
Mesogene Ore - 69754
Mesogene Ore - 7038
Unmineralized Andesite Fragmental - Nicola Grp.
Pyrite Zone <1% - Safety Bay #18
Pyrite Zone <1% - Stn. 20
Hypogene Ore - 90534

Figure 2.3-6

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pH versus Time (Rock)

Figure 2.3-6

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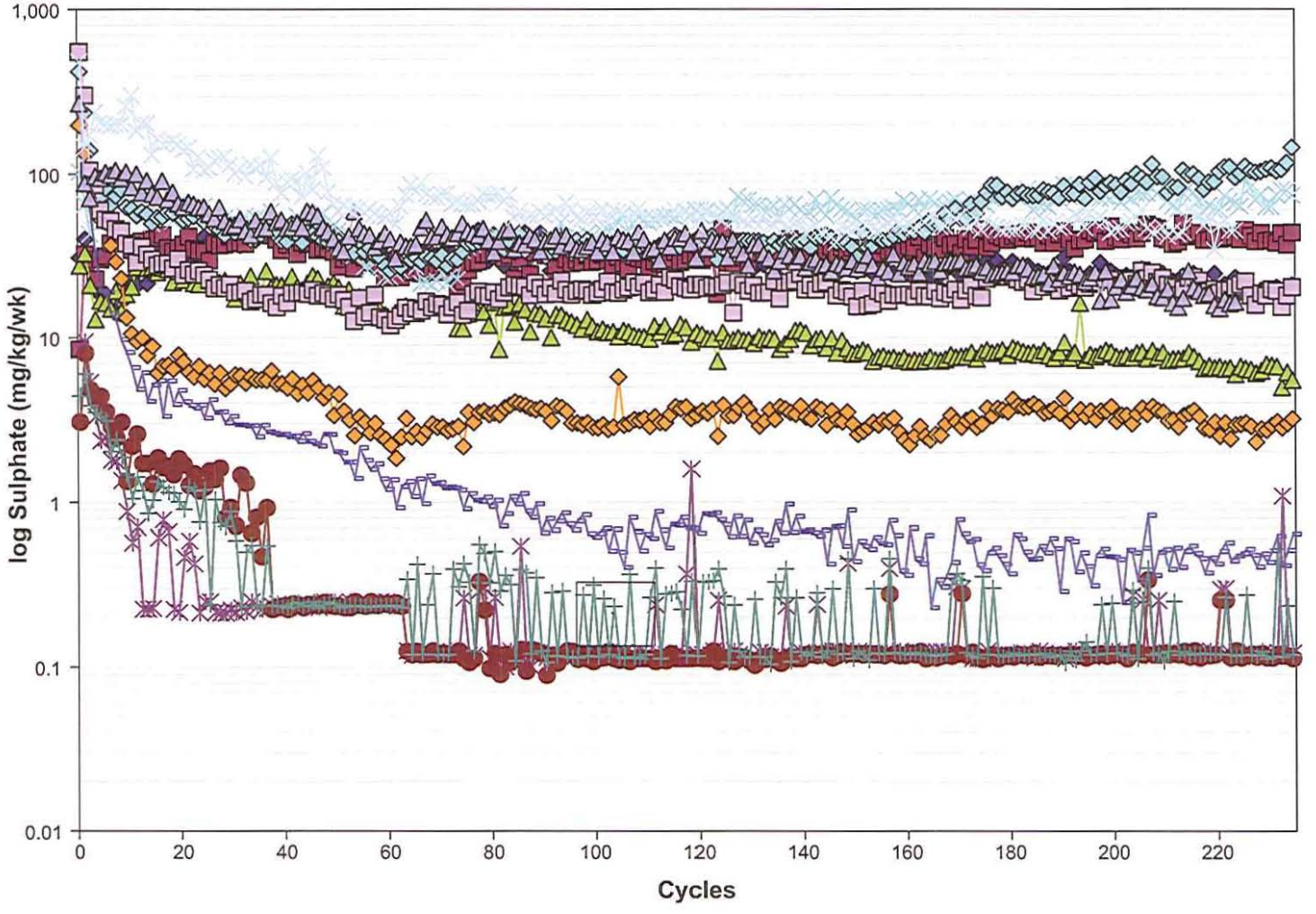


Figure 2.3-7

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Sulphate versus Time (Rock)

Figure 2.3-7

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In general, ore rock samples from the New Afton Project contain carbonate minerals that provide a source of readily available neutralization potential. Sample Safety Bay #30 (Pyrite Zone >1%S) exhibited an increase in sulphate production at cycle 174, coincident with the onset of acidic pH conditions. The sulphate production at Safety Bay #30 (Pyrite Zone >1%S) is still increasing and ranged from 79.6 to 143.5 mg/kg/wk in the last twenty cycles. Mesogene ore 7038 exhibited a slight increase in sulphate production from 57.6 to 70.8 mg/kg/wk in the last twenty cycles. It is expected that the remaining samples with SNPR lower than 2 will also become acid at some point in the future (one to three decades based in laboratory calculated rates). There was a general pattern exhibited of unmineralized humidity cells and pyrite zone humidity cells with less than 1% pyrite generating low sulphate production rates, ranging from 0.09 to 3.6 mg/kg/wk. In comparison, Cross-Cut 100 (Pyrite Zone >1% S) humidity cell generated higher sulphate production rates, ranging from 15.19 to 23.23 mg/kg/wk.

The acidity production rates are shown in Figure 2.3-8. Overall, acidity production rates were steady and low, ranging from 0.18 to 3.62 mg/kg/wk in 12 of the rock humidity cells in the last twenty cycles. However, humidity cell Safety Bay #30 (Pyrite Zone >1%S) is still exhibiting an increasing trend in acidity production in the last twenty cycles (97.4 to 104.4 mg/kg/wk). In general, there is a correlation between the rate of sulphate and acidity production that is dependent on the initial sulphide sulphur content and the initial NP content of the humidity cell rock sample. The highest initial sulphide concentrations were found in Safety Bay #30 (Pyrite Zone >1%S) with sulphide-sulphur = 5.72%, Mesogene ore 7038 with sulphide-sulphur = 3.03%, and Hypogene ore 97747 with sulphide-sulphur = 3.13%. Those samples exhibited the highest sulphate production, however only Safety Bay #30 (Pyrite Zone >1%S) sample with the lowest NP of all, showed an increase in acidity production.

In addition to the key indicator parameters pH, sulphate, alkalinity, and acidity; the elements with detected concentrations in leachate from one or more rock humidity cells in the last twenty cycles were aluminum, antimony, arsenic (Supergene Ore 6963, 71212 Monzodiorite, and Safety Bay #18); barium, calcium, cobalt (Safety Bay #30); copper, iron (Safety Bay #30, 71212 Monzodiorite, and

Andesitic Fragmental Nicola); lead (Safety Bay #30); lithium (Safety Bay #30); magnesium, manganese, molybdenum, potassium, silicon, sodium, strontium, titanium (Andesitic Fragmental Nicola); uranium (Safety Bay #18 and Safety Bay #30); and zinc (Safety Bay #18 and Safety Bay #30).

Steady arsenic loadings (Figure 2.3-9) representing detected concentrations of arsenic were reported in the samples Supergene Ore 6963, 71212 Monzodiorite, and Safety Bay #18 in the last twenty cycles. Arsenic loadings ranged from 0.0005 to 0.0015 mg/kg/wk.

Copper loadings have been relatively stable for ore type rock humidity cells, ranging from 0.01 to 0.035 mg/kg/wk, although other humidity cells (Pyrite Zone and Unmineralized Monzodiorite and Andesite) were at 0.00025 mg/kg/wk due to leachate copper concentrations at or below the detection limit. The leachate copper loadings (Figure 2.3-10) showed some correlation with solid-phase copper (Table 2.3-3). Once humidity cell Safety Bay #30 (Pyrite Zone >1%S) became acid generating, the copper loadings rapidly increased to levels similar to ore-type rock humidity cells. Cobalt, iron, manganese, and zinc loading rates also showed a similar rapid increase once humidity cell Safety Bay #30 (Pyrite Zone >1%S) became acid generating (Figures 2.3-11 to 2.3-14). In the last twenty cycles only iron loadings are still showing an increasing trend while copper, cobalt, manganese and zinc loadings have decreased. Interestingly, humidity cell Safety Bay #30 (Pyrite Zone >1%S) generated the highest molybdenum loading rates, reaching a peak of 0.012 mg/kg/wk at cycle 143 under near-neutral pH conditions (Figure 2.3-15). However, once acid generation commenced, the molybdenum loadings decreased to low levels at or below the detection limit.

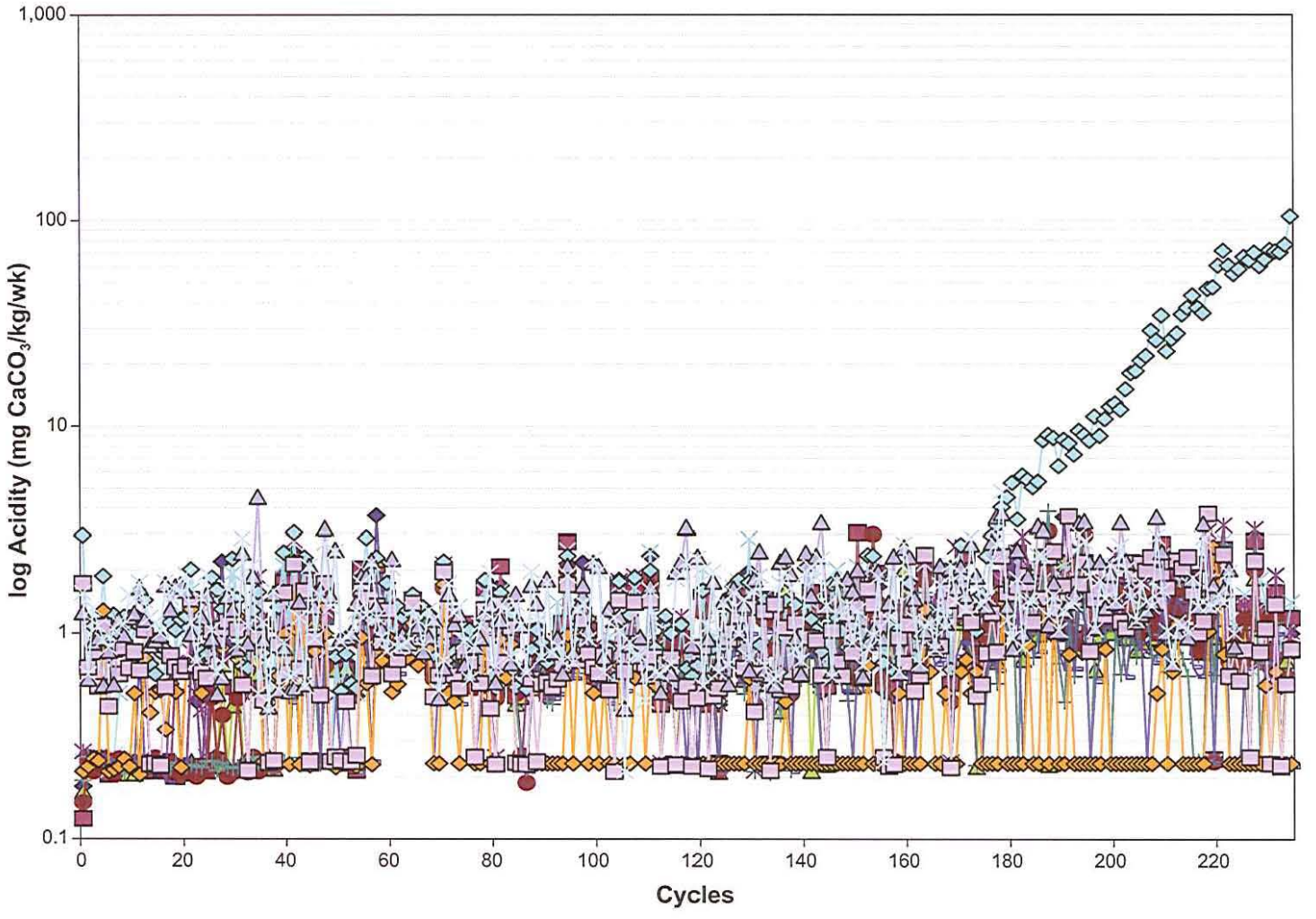


Figure 2.3-8

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Acidity versus Time (Rock)

Figure 2.3-8

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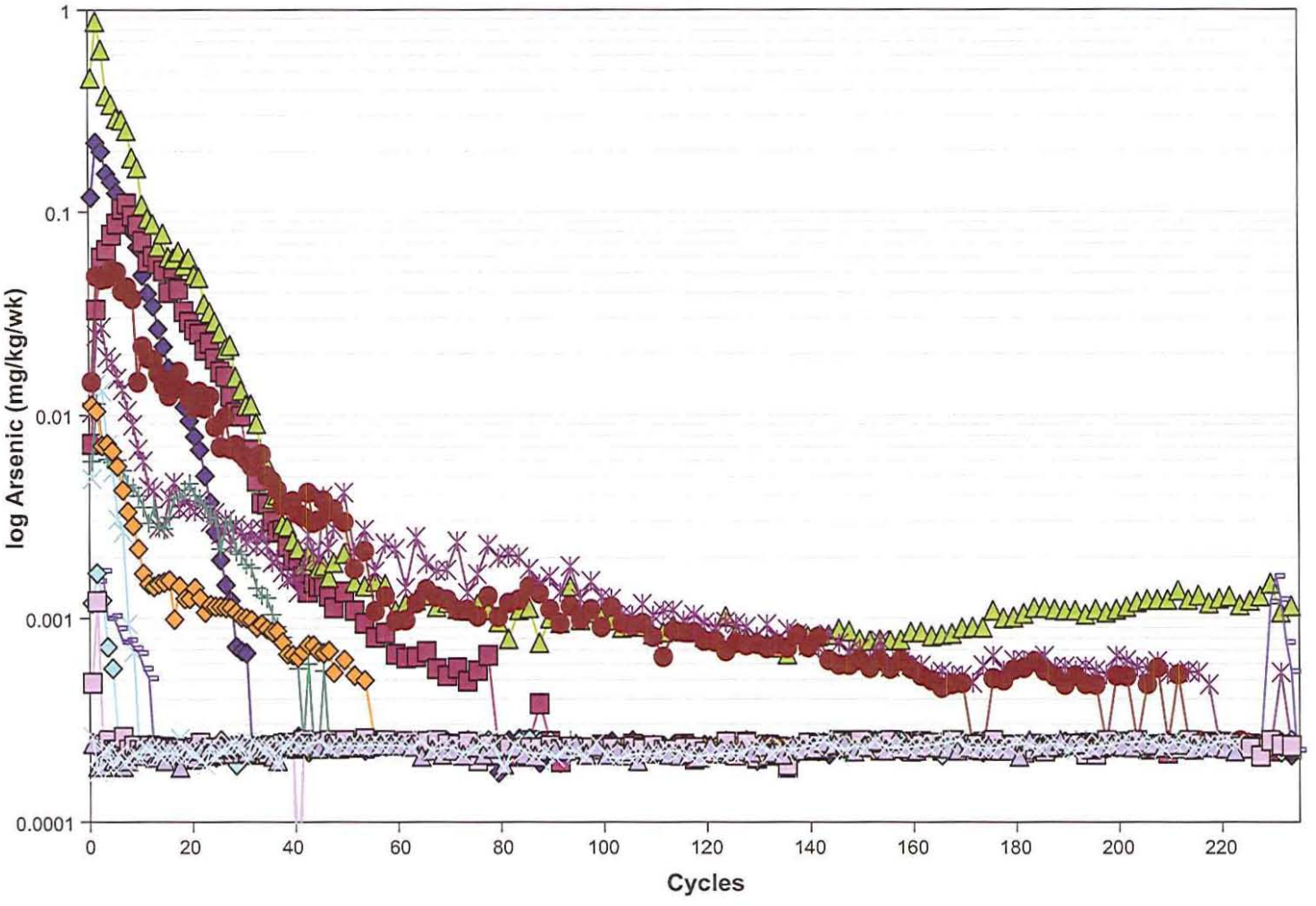


Figure 2.3-9

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Arsenic versus Time (Rock)

Figure 2.3-9

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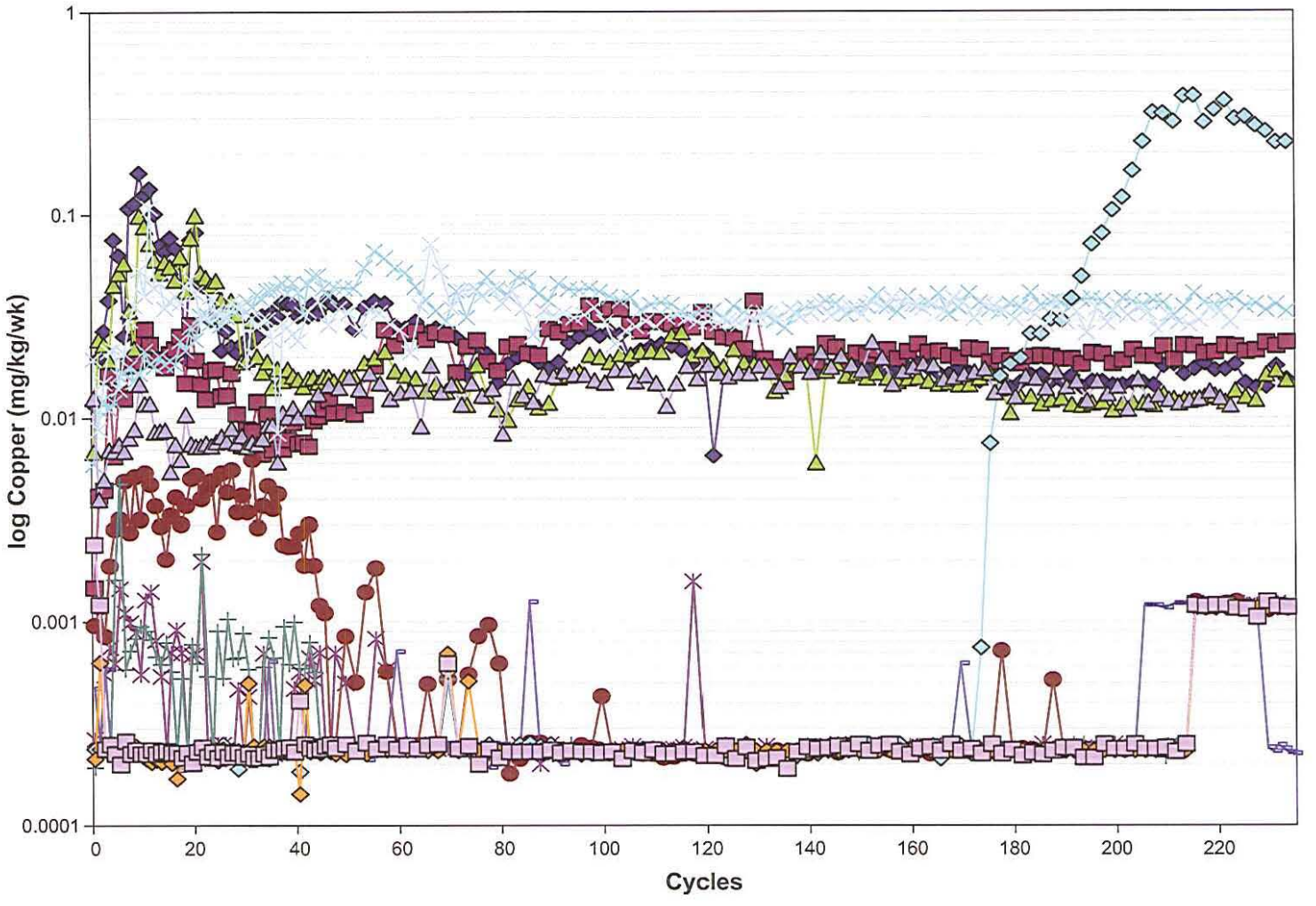


Figure 2.3-10

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Copper versus Time (Rock)

Figure 2.3-10

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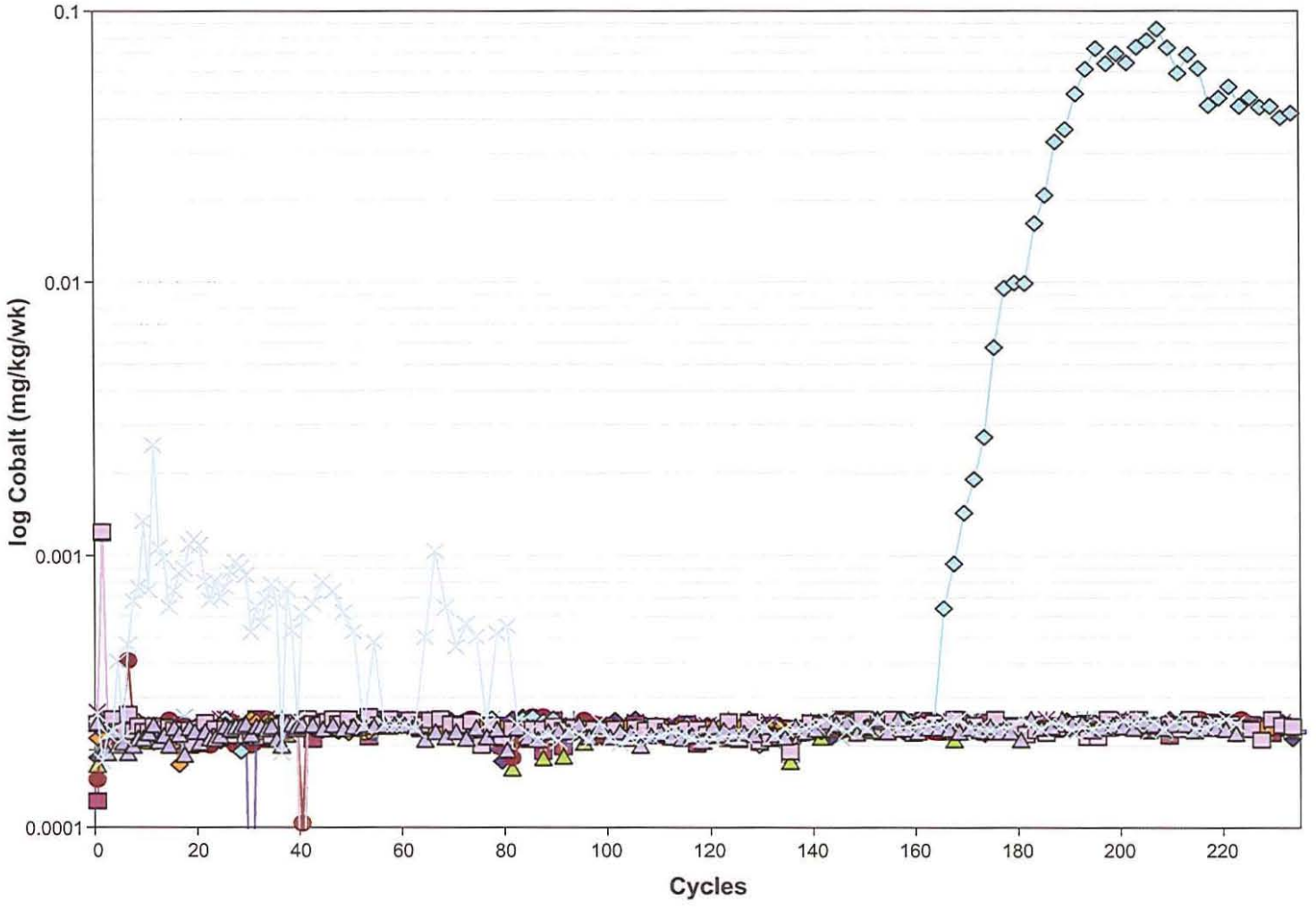


Figure 2.3-11

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Cobalt versus Time (Rock)

Figure 2.3-11

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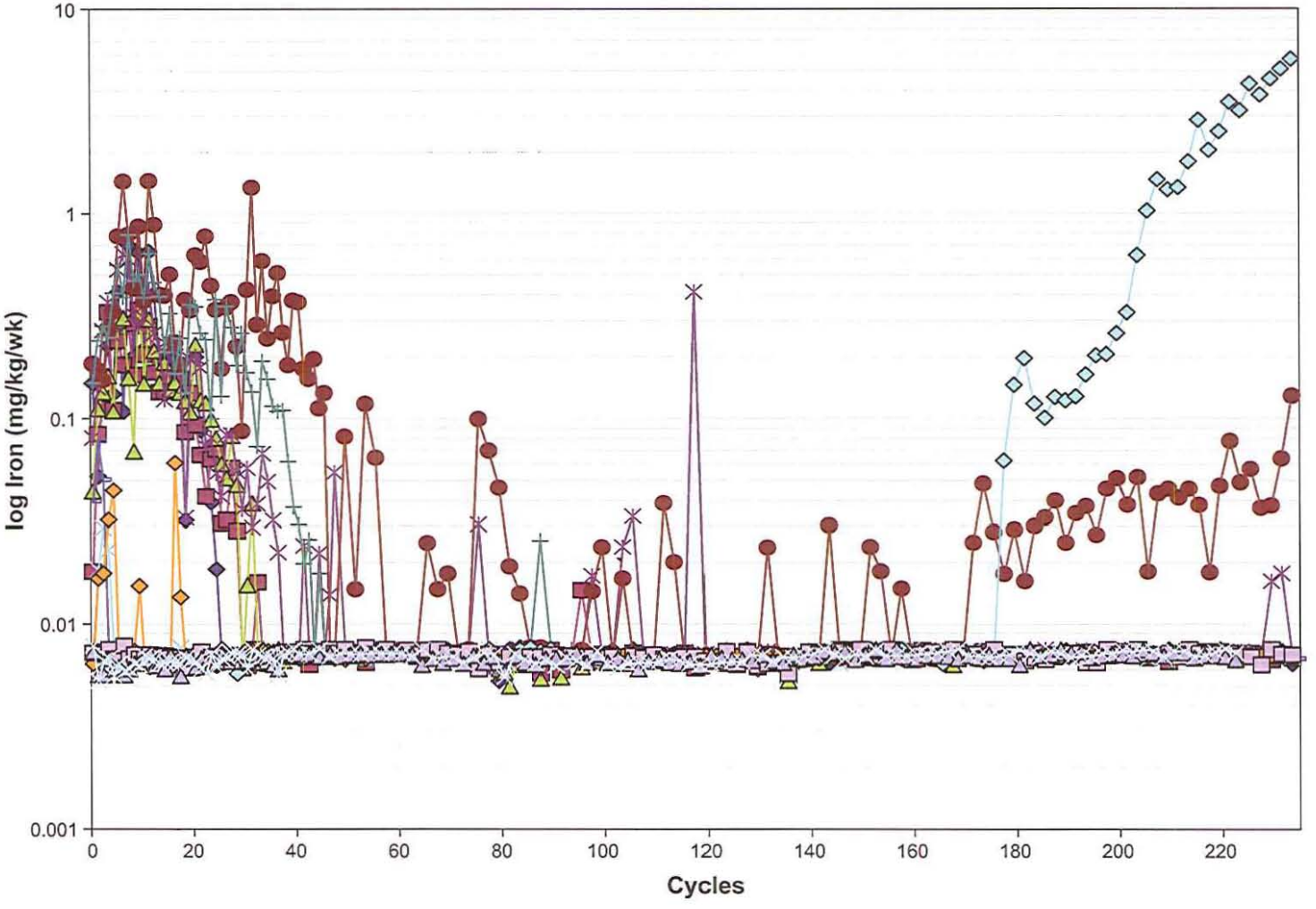


Figure 2.3-12

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Iron versus Time (Rock)

Figure 2.3-12

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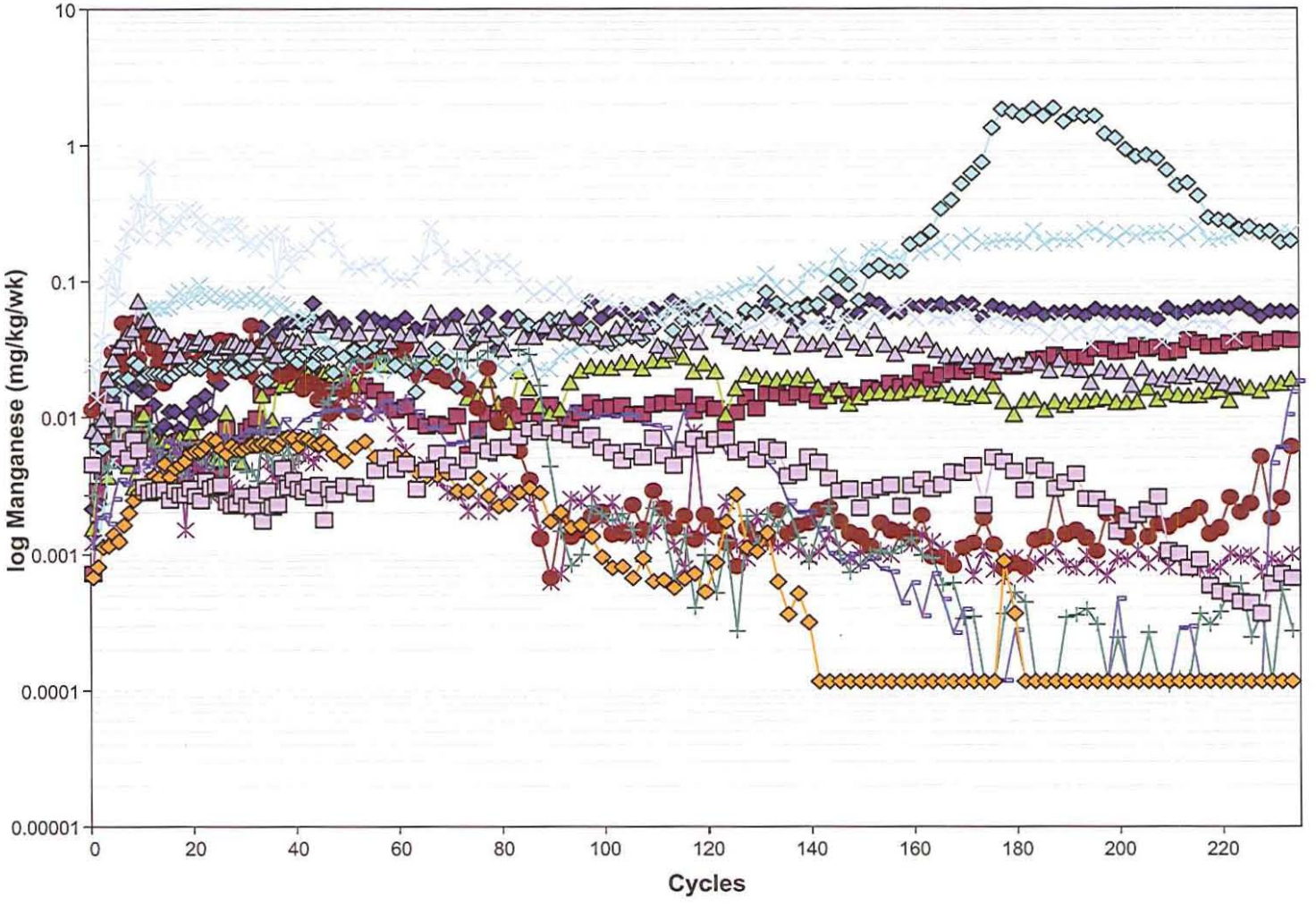


Figure 2.3-13

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Manganese versus Time (Rock)

Figure 2.3-13

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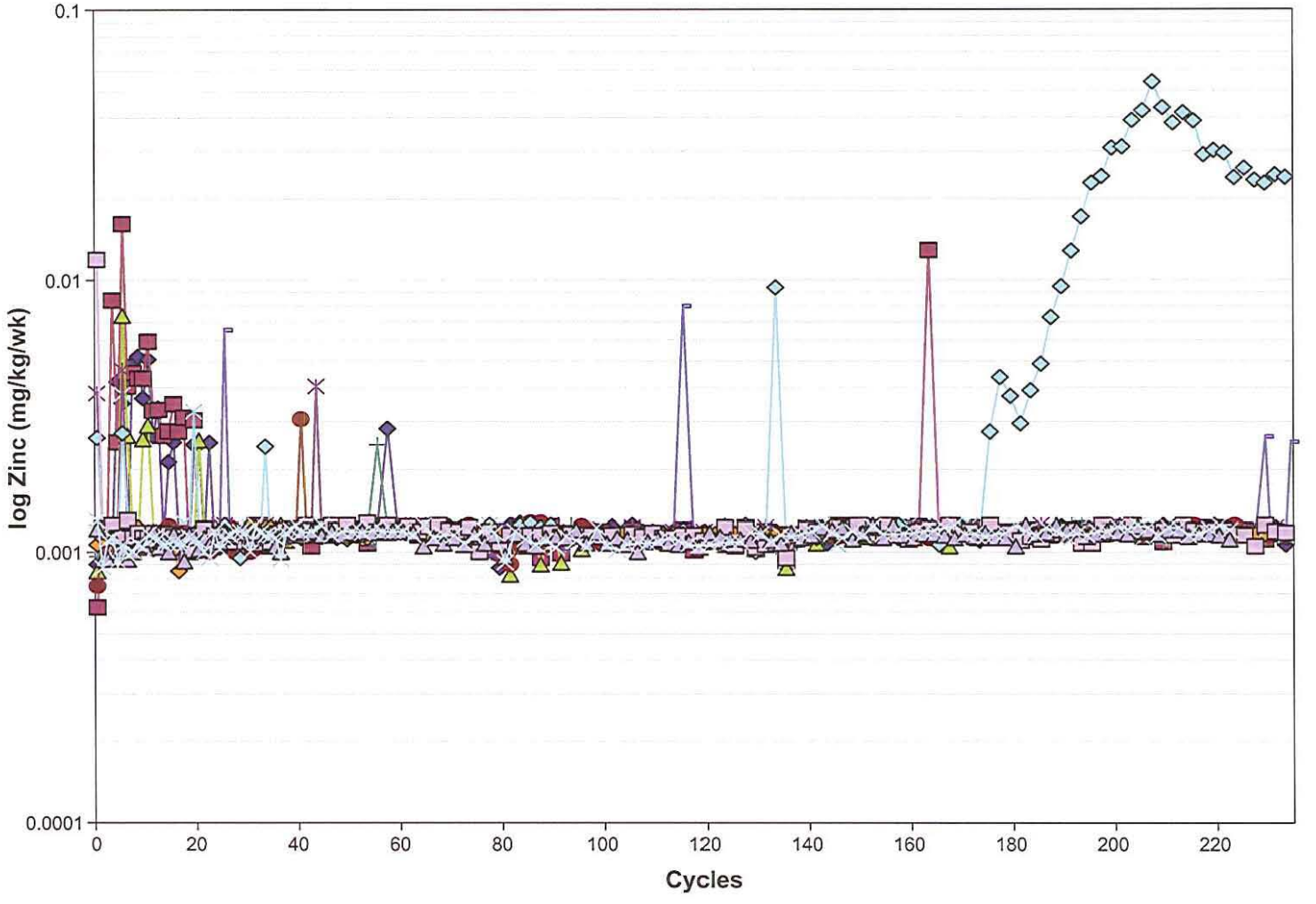


Figure 2.3-14

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Zinc versus Time (Rock)

Figure 2.3-14

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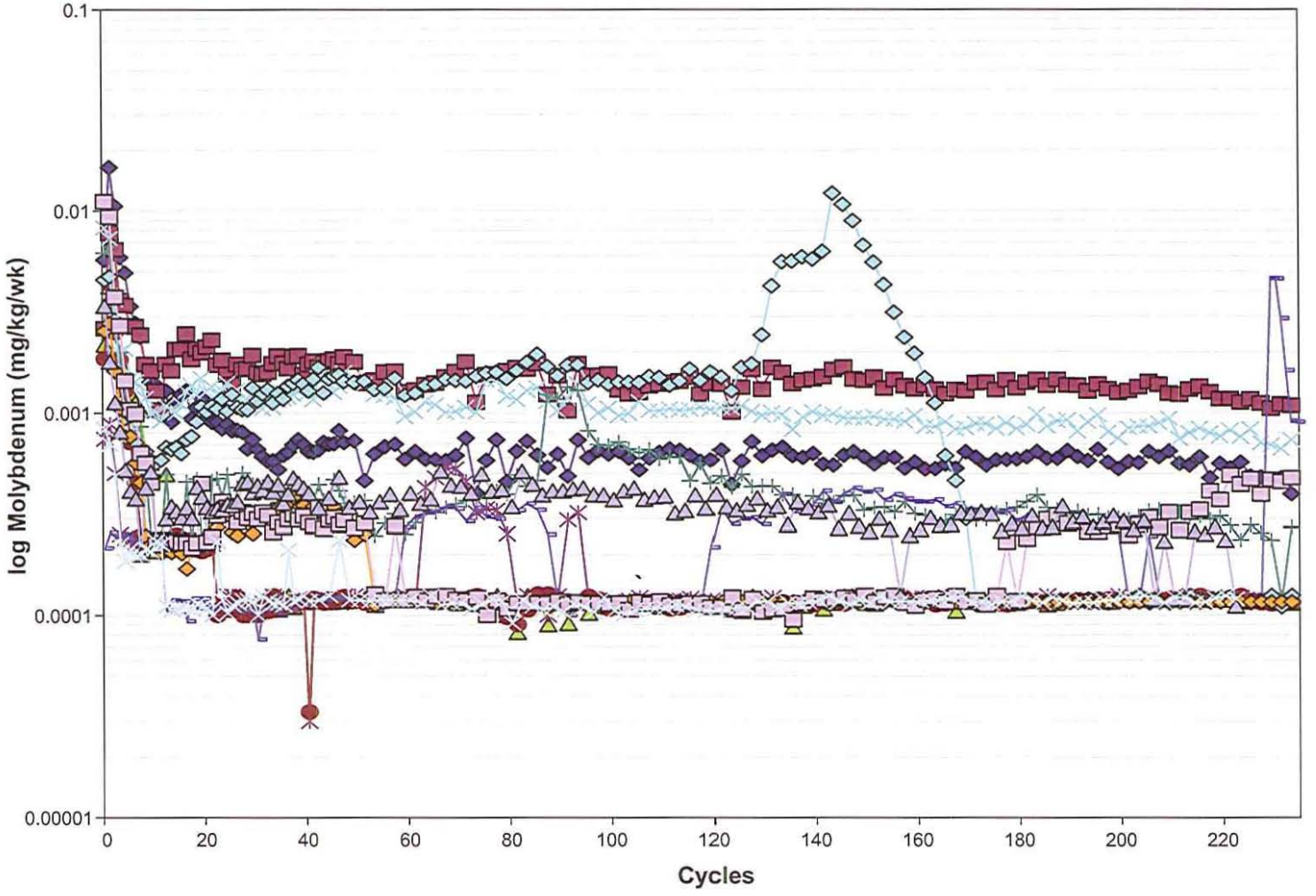


Figure 2.3-15

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Molybdenum versus Time (Rock)

Figure 2.3-15

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Manganese was another element frequently above detection in the New Afton rock humidity cell leachate (Figure 2.3-13). While many ore type rock samples were producing higher manganese loading rates, they spanned a broader range and were more variable than copper loading rates.

Acid Neutralization

The alkalinity production rates are shown in Figure 2.3-16. The alkalinity production rate typically represents the dissolution of calcium-carbonate minerals, such as calcite, in response to the acidity generated by sulphide oxidation. However, in the absence of carbonates, other minerals such as aluminosilicates can also dissolve and provide a slower reacting source of Neutralization Potential. Due to the high flushing volumes used in humidity cells, carbonate dissolution can sometimes also occur that is not attributed to sulphide oxidation, thus excess alkalinity can be generated. With the exception of humidity cell Safety Bay #30 (Pyrite Zone >1%S), the alkalinity production rates for the rock humidity cells were steady and ranged from 17.18 to 50.59 mg/kg/wk in the last twenty cycles. As expected, the alkalinity values in the humidity cell Safety Bay #30 (Pyrite Zone >1%S) were below the method detection limit during the last twenty cycles.

Where the waste rock mineralogy confirms the presence of calcium and/or calcium-magnesium bearing carbonates, the calcium and magnesium loading rates provide an estimate of the rates of dissolution of these carbonates in response to acid generating sulphide oxidation. The weekly calcium loading rates are shown in Figure 2.3-17. The trends in the last twenty cycles are steady with little variability. Calcium loadings rates can be classified into 2 groups. The first group has lower calcium loading rates, ranging from approximately 5 to 10 mg/kg/wk. This group includes unmineralized monzodiorite and andesite and pyrite zone humidity cells with less than and greater than 1% pyrite. The calcium loading rates for the second group ranged from 15 to 30 mg/kg/wk and include ore type waste rock humidity cells as well as pyrite zone humidity cell Safety Bay #30 (Pyrite Zone >1%S) (to cycle 217). Thus there is a general correlation with the oxidation of higher sulphide-sulphur contents and available

Neutralization Potential from carbonate dissolution. The calcium loadings in the humidity cell Safety Bay #30 (Pyrite Zone >1%S) decreased below 10 mg/kg/wk after cycle 217, indicating that the calcium-carbonate is being consumed and becoming depleted.

The magnesium loading rates are shown in Figure 2.3-18. The magnesium loading rates did not exhibit the same grouping characteristics as calcium loading rates, mostly likely due to magnesium loadings occurring from a combination of carbonate and aluminosilicate sources. The magnesium rates varied from 0.16 to 6.7 mg/kg/wk.

Net Acid Production

Estimates of the portion of acidity generated from sulphide oxidation that is neutralized by faster reacting carbonates was assessed using the Carbonate Molar Ratio (CMR), defined as the molar ratio of calcium and magnesium to sulphate (CMR = Ca + Mg / SO_4). Based on stoichiometric ratios for sulphide oxidation and carbonate neutralization under pH neutral conditions, the CMR is between 1.0 and 2.0. Under acid generating conditions, the rate of NP produced can be either lower than the rate of sulphide oxidation or depleted. In this case, the CMR is less than 1.0. However, CMRs less than 1.0 can also occur when neutralization occurs from non-carbonate alumnosilicates. CMRs greater than 2.0 can occur as a result of low sulphide oxidation rates in the presence of abundant faster reacting carbonates. In this instance, there is a portion of carbonate dissolution occurring that is not in response to sulphide oxidation.

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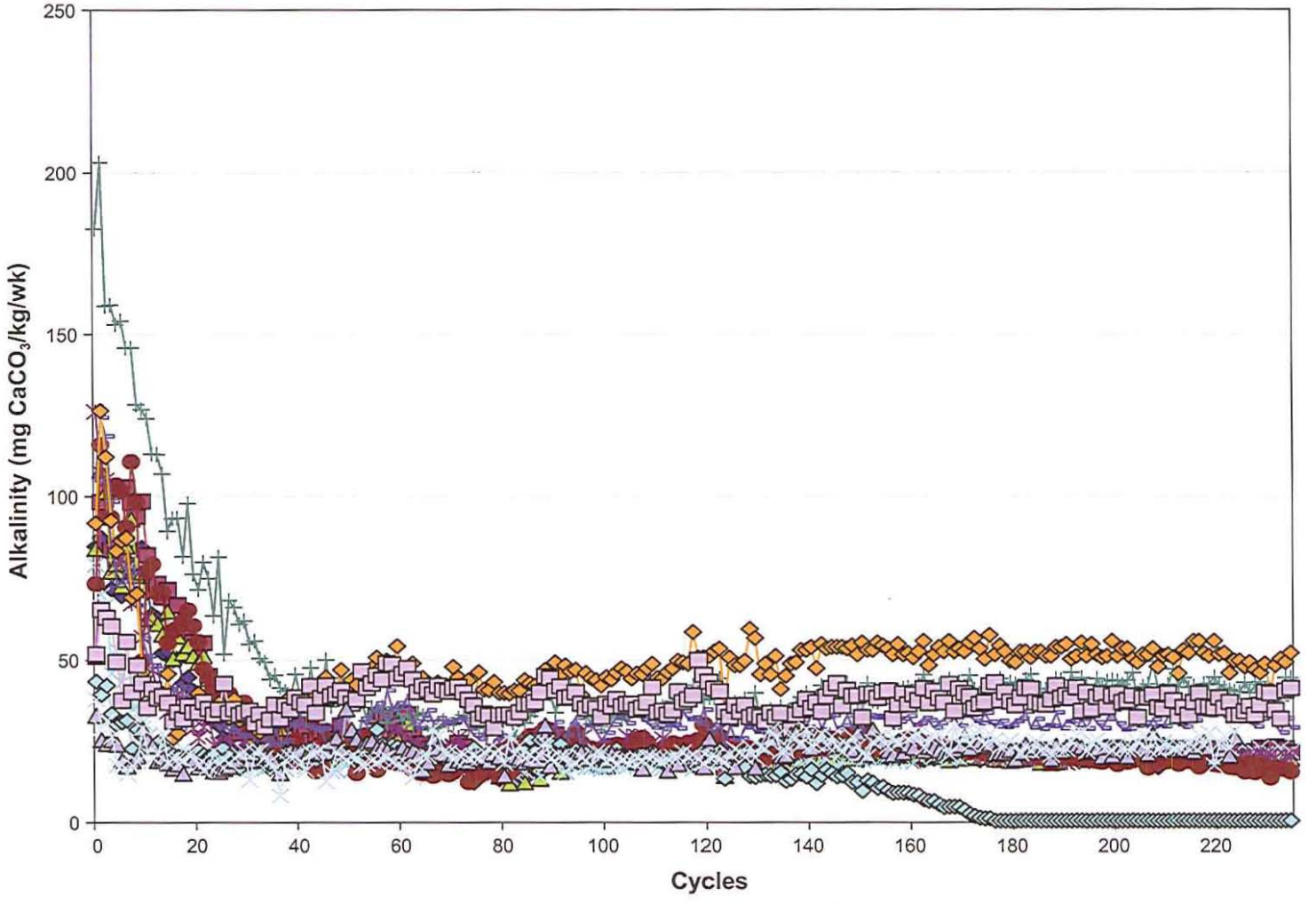


Figure 2.3-16

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Alkalinity versus Time (Rock)

Figure 2.3-16

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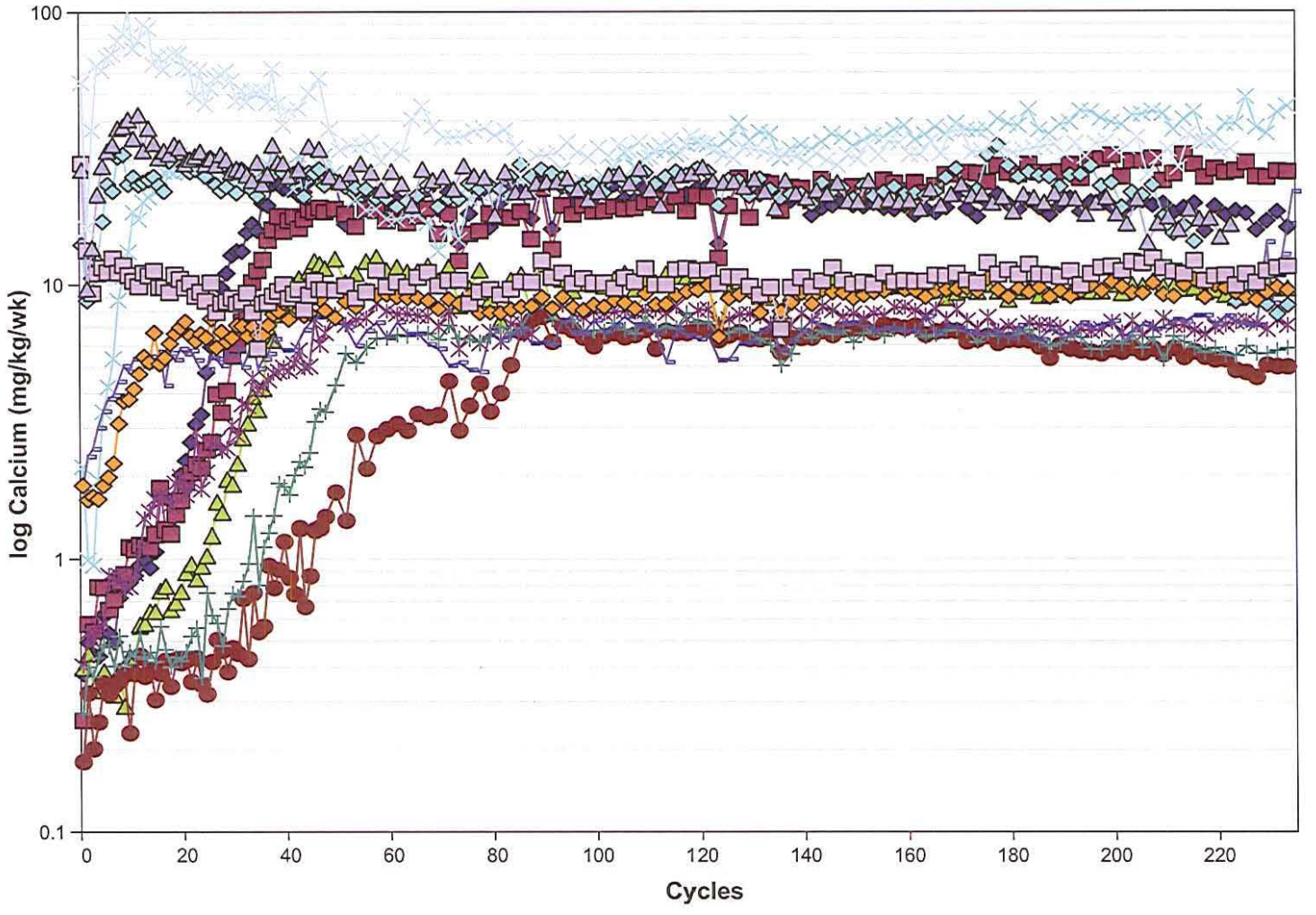


Figure 2.3-17

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Calcium versus Time (Rock)

Figure 2.3-17

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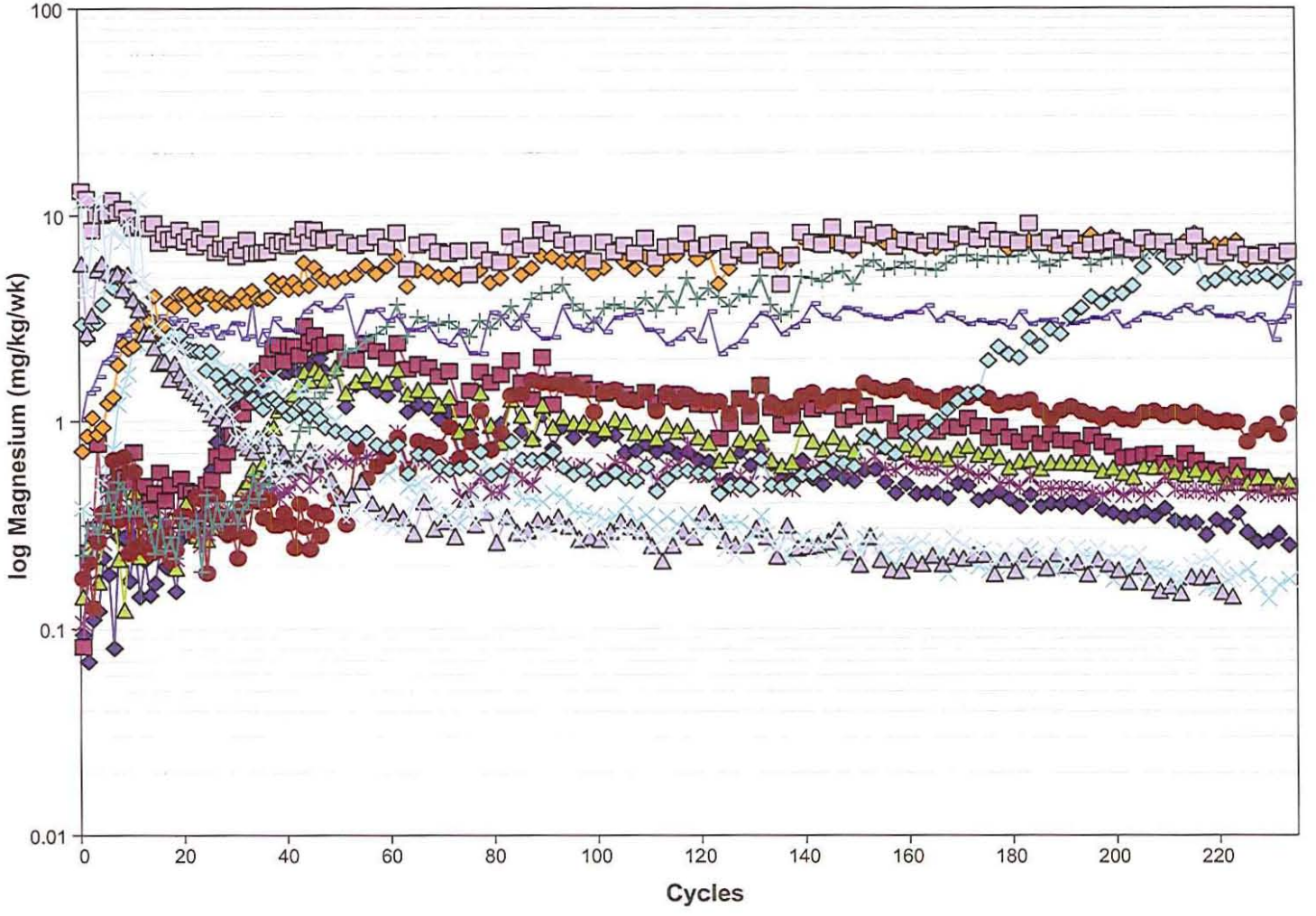


Figure 2.3-18

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Magnesium versus Time (Rock)

Figure 2.3-18

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The CMRs from January 2009 to February 2011 exhibited steady trends for all humidity cells except Safety Bay #30 (Pyrite Zone >1%S), which as expected showed a decreasing CMR as carbonates were depleted (Figure 2.3-19). Humidity cells 6983 of Supergene Ore and X-Cut 100 of Pyrite Zone with greater than 1% pyrite, showed CMRs greater than 2.0, ranging from 2.3 to 3.7 indicating excess carbonate dissolution was occurring. The remaining ore humidity cells had CMR's that were close to 2.0, ranging from 1.2 to 2.1. These results indicate that the Neutralization Potential generated in these humidity cells is predominantly carbonate dissolution in response to sulphide oxidation, as expected. CMT's of unmineralized andesite and monzonite, and Pyrite Zone with lower than 1% pyrite exhibited the greatest values, indicating that an excess of carbonate dissolution was occurring.

2.3.5.3 Tailings Static Testing

Two cycloned-tailings sands samples generated from two stages of a pilot plant (rougher and final) are currently being tested in laboratory-based humidity cells. The tailings were generated from mesogene ore material. The humidity cells were started in May 29, 2008 and operating to the present. Pre-test samples were subjected to geochemical static testing, and also analyzed by Rietveld X-ray Diffraction (XRD) to identify the detectable minerals.

Table 2.3-4 summarises the pre-test static testing of tailings materials. The SNPRs calculated from sulphide-sulphur and NP, with no adjustments to NP for unavailable NP, were 17.6 and 22.3, respectively. Thus, neither sample is predicted to become acid generating. Both samples contained approximately 0.1% arsenic and 0.7% copper, with much lower selenium at 4 ppm.

Table 2.3-4. Geochemical Summary of the Two New Afton Humidity-cell Samples for Cycloned Tailings

Cell Source	Tails - Rougher (Ro) 2092P6 Ro Tls Sands	Tails - Final 2092P6 Final Tls Sands
Selected ABA Parameters		
Paste pH	8.6	8.5
% S (Total)	0.52	0.42
% S (Sulphide)	0.33	0.27
% S (Sulphate) Carbonate Leach	0.02	0.05
% S (Sulphate) HCl Leachable	0.02	0.01
Measured NP (kg $CaCO_3$/t)	267	276
Total CaNP (kg $CaCO_3$/t)	309	309
Inorganic CaNP (kg $CaCO_3$/t)	302	305
SNNP (kg $CaCO_3$/t)	252	264
SNPR (unadjusted)	17.6	22.3
Selected Four-Acid-Digestion Metal Levels		
Arsenic (ppm)	1090	772
Copper (ppm)	7890	6380
Selenium (ppm)	4	4

Table 2.3-5 presents results for the mineralogical analyses of tailings materials. This showed that acid-neutralizing dolomite was the dominant mineral on a weight-percent basis, with both samples containing 32.6% dolomite and 1% calcite. This accounted for the elevated NP detected in these samples. The other dominant minerals were muscovite, plagioclase, and quartz, with lesser K-feldspar, kaolinite, calcite, and anatase.

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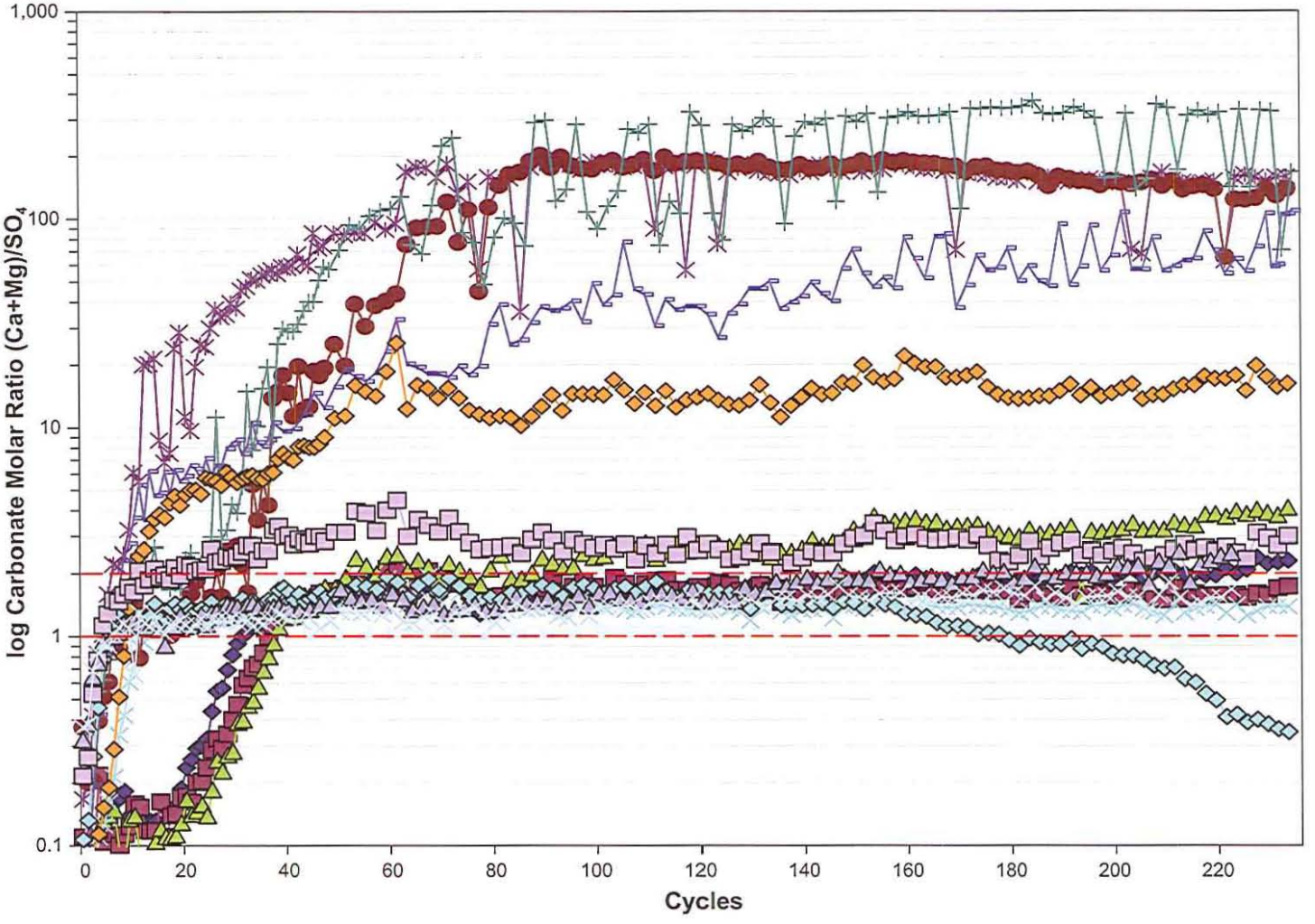


Figure 2.3-19

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Carbonate Molar Ratio versus Time (Rock)

Figure 2.3-19

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Table 2.3-5. Rietveld X-Ray-Diffraction Mineralogy of Two Cycloned Tailings

Mineral	Ideal Formula	2092P6 Final Tls Sands	2092P6 Ro Tls Sands
Dolomite	$CaMg(CO_3)_2$	32.6	32.6
Muscovite, total	$KAl_2AlSi_3O_{10}(OH)_2$	21.4	22.3
Plagioclase	$NaAlSi_3O_8$ - $CaAl_2Si_2O_8$	18.3	17.2
Quartz	SiO_2	16.9	16.3
K-feldpsar	$KAlSi_3O_8$	6.1	6.5
Kaolinite	$Al_2Si_2O_5(OH)_4$	3.4	3.6
Calcite	$CaCO_3$	1	1
Anatase	TiO_2	0.5	0.5

2.3.5.4 Tailings Humidity Cell Testing

The temporal trends of pH in tailings humidity cell leachate are shown in Figure 2.3-20 with steady pH values around 8.0. The neutral to alkaline values of pH in humidity cells, indicates readily available NP from calcium-carbonate minerals.

Acid Production

The sulphate production rates for the tailings humidity cells are presented in Figure 2.3-21. Sulphate production rates in the tailings leachates were in general low (14.5 to 15.3 mg/kg/wk.) continuing a slightly decreasing trend in the last twenty cycles. These low sulphate production rates reflect a lower sulphide-sulphur content and calcium-carbonate neutralization, as a portion of these minerals report to the tailings following processing.

The acidity rates production are shown in Figure 2.3-22. Overall, acidity production rates were steady and low, ranging from 0.82 to 1.07 mg/kg/wk in tailings humidity cells.

In addition to the key indicator parameters pH, sulphate, alkalinity, and acidity; the elements with detected concentrations in the tailings humidity cells during the last twenty cycles were antimony, arsenic, barium, calcium, cobalt, copper, magnesium, manganese, and molybdenum, potassium, silicon, and strontium.

Arsenic loadings (Figure 2.32-23) have been steady and high during the period January 2009 to February 2011, ranging from 0.15 to 0.21 mg/kg/wk. Those loadings reflect dissolved arsenic concentrations exceeding the Canadian Council of Ministers of Environment (CCME) and BC Maximum water quality guidelines for the aquatic life of 0.005 mg/L.

Copper loadings from tailings humidity cells have been steady and low, ranging from 0.019 to 0.02 mg/kg/wk (Figure 2.3-24). Antimony, cobalt, manganese and molybdenum loading rates were low and steady during the last twenty cycles (Figures 2.3-25 to 2.3-28).

Acid Neutralization

The alkalinity production rates are shown in Figure 2.3-29. The alkalinity production rates for the tailings humidity cells were steady and ranged from 29.1 to 31.1 mg/kg/wk. These alkalinity production rates are consistent with calcium-carbonate dissolution in response to lower rates sulphide oxidation.

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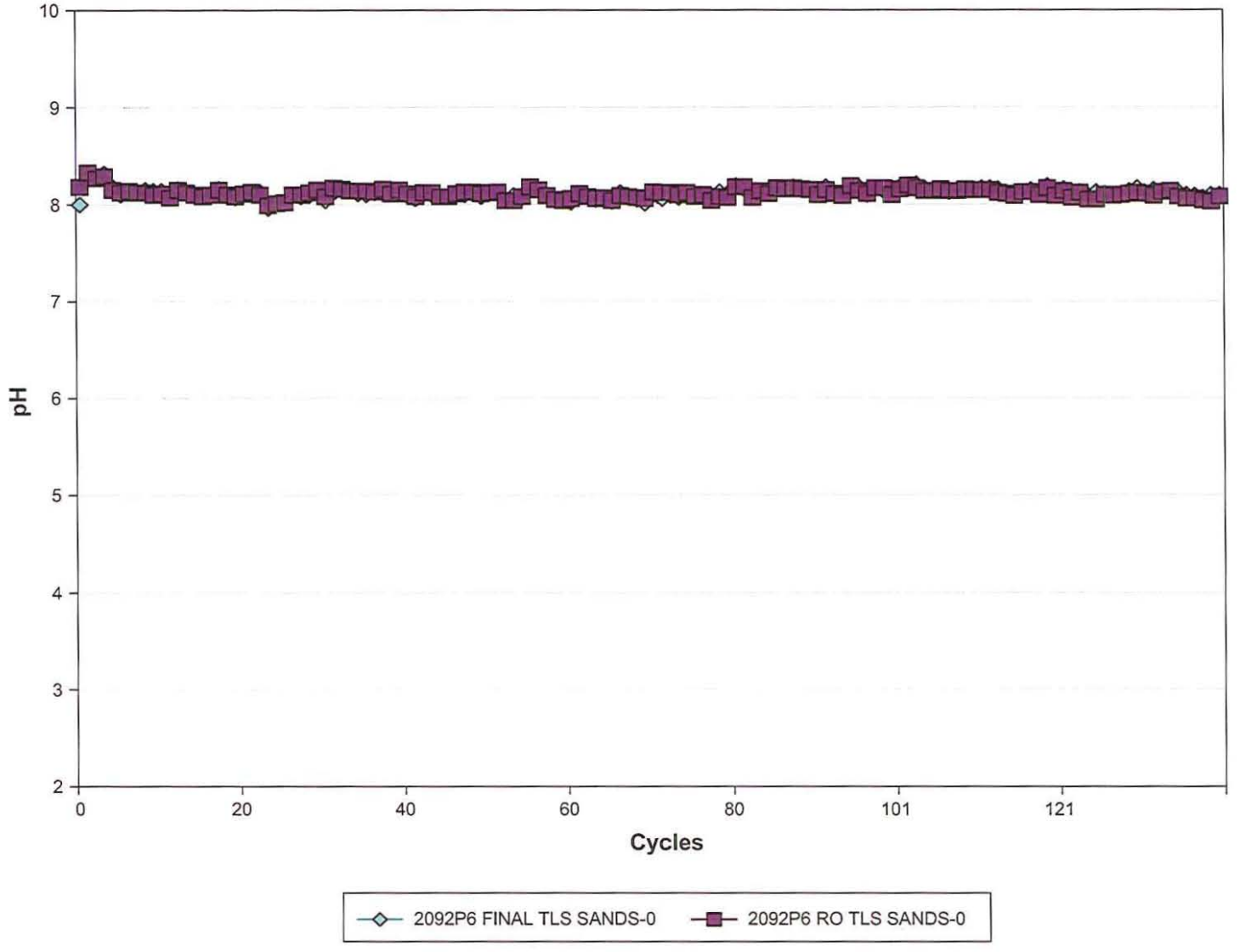


Figure 2.3-20

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pH versus Time (Tailings)

Figure 2.3-20

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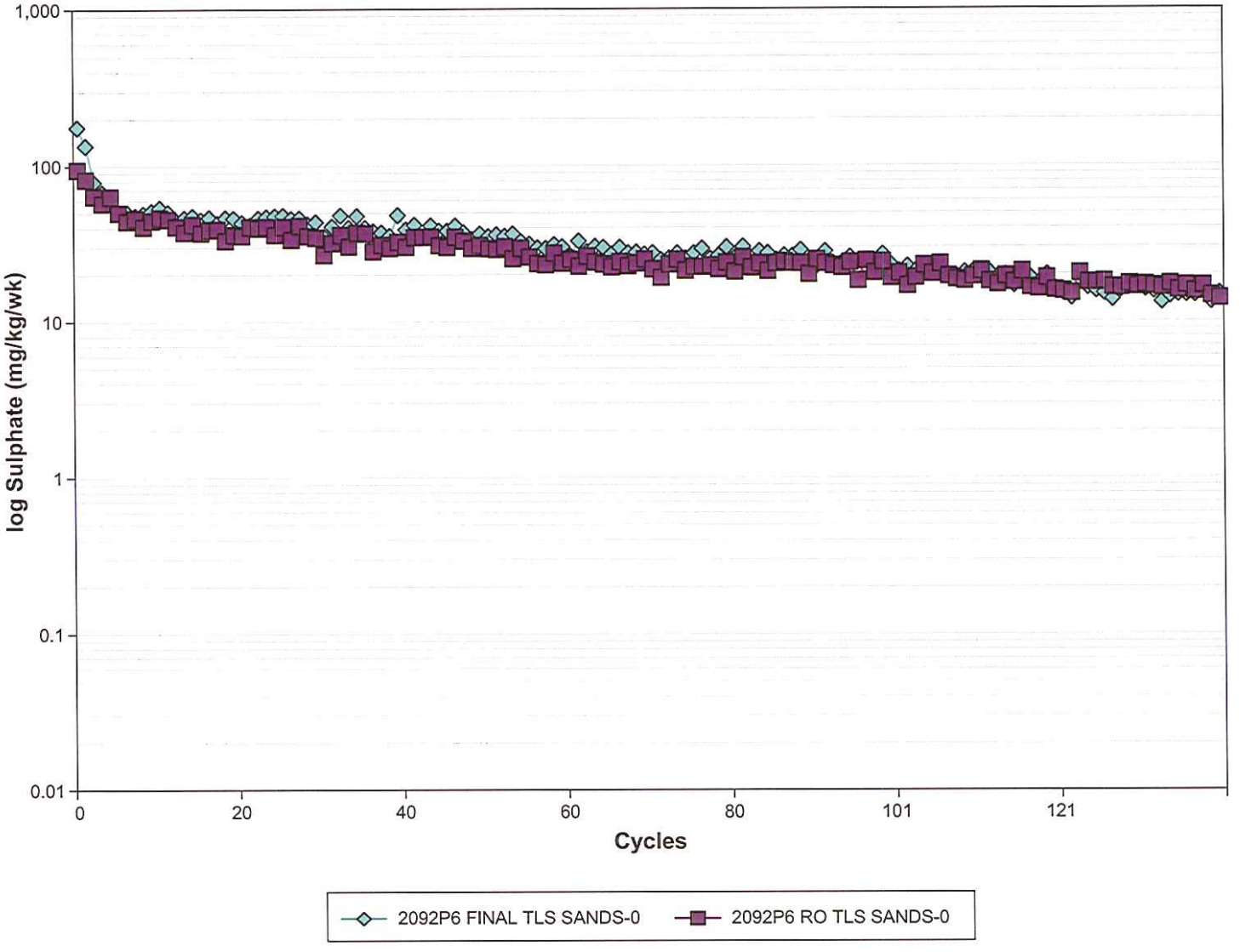


Figure 2.3-21

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Sulphate versus Time (Tailings)

Figure 2.3-21

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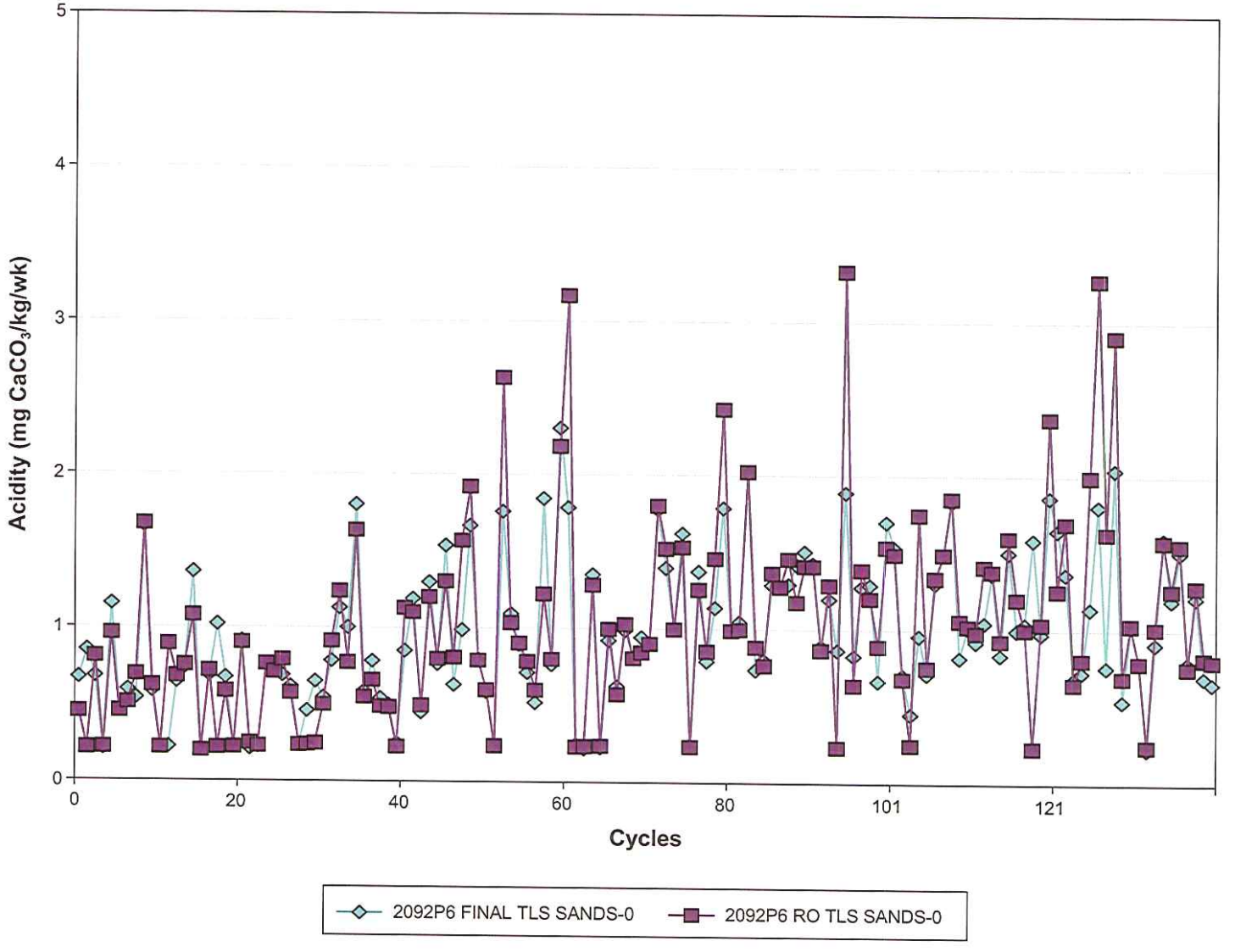


Figure 2.3-22

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Acidity versus Time (Tailings)

Figure 2.3-22

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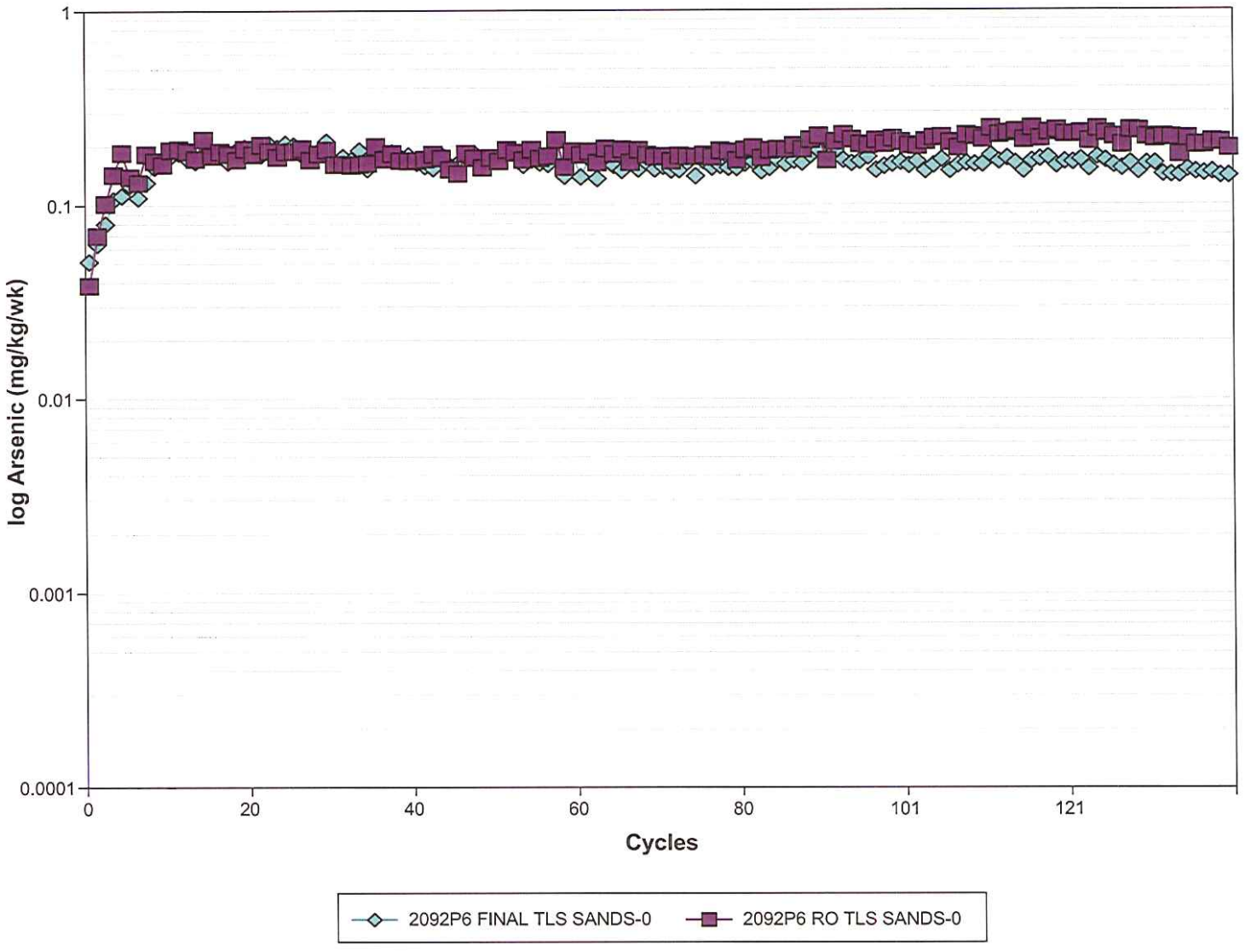


Figure 2.3-23

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Arsenic versus Time (Tailings)

Figure 2.3-23

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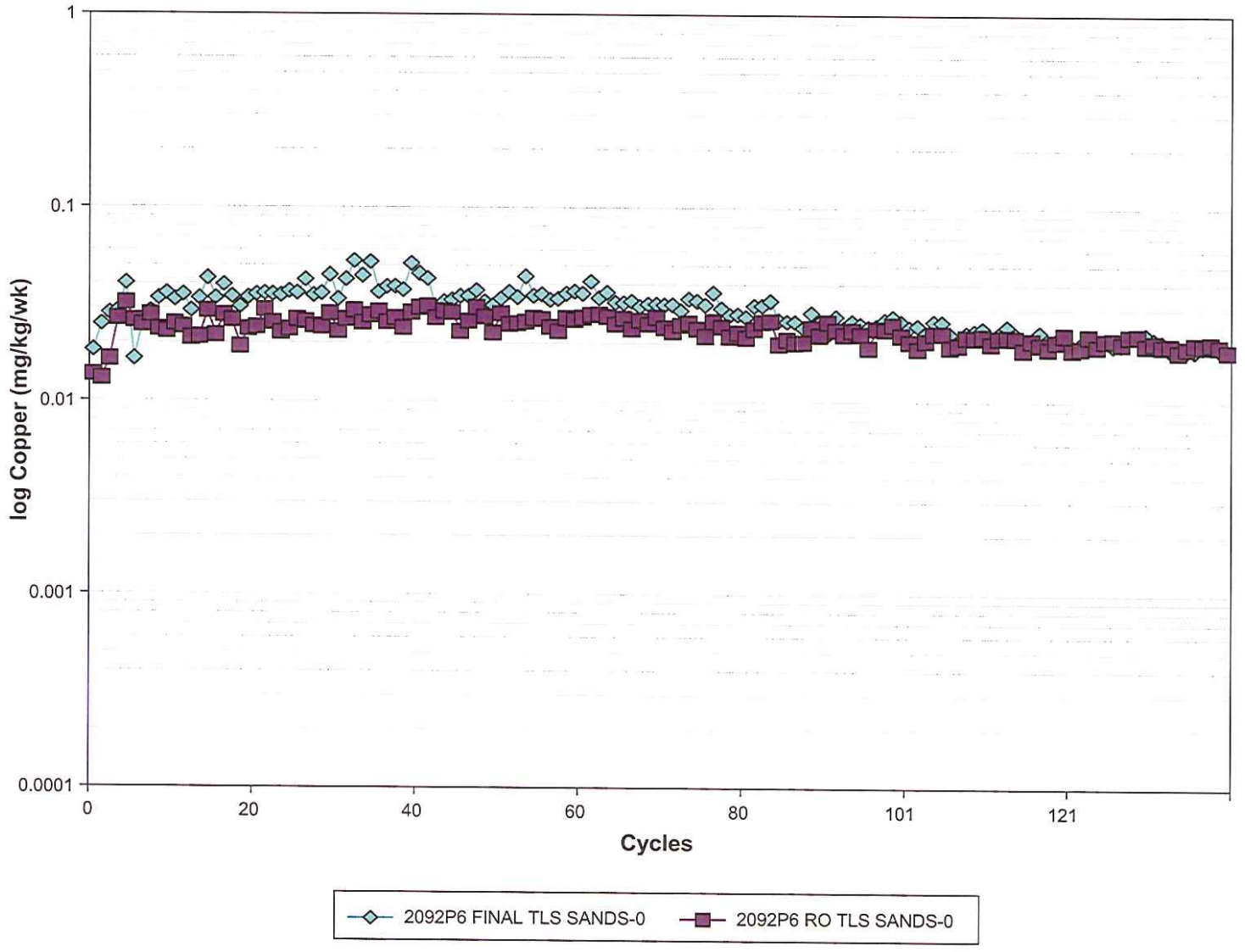


Figure 2.3-24

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Copper versus Time (Tailings)

Figure 2.3-24

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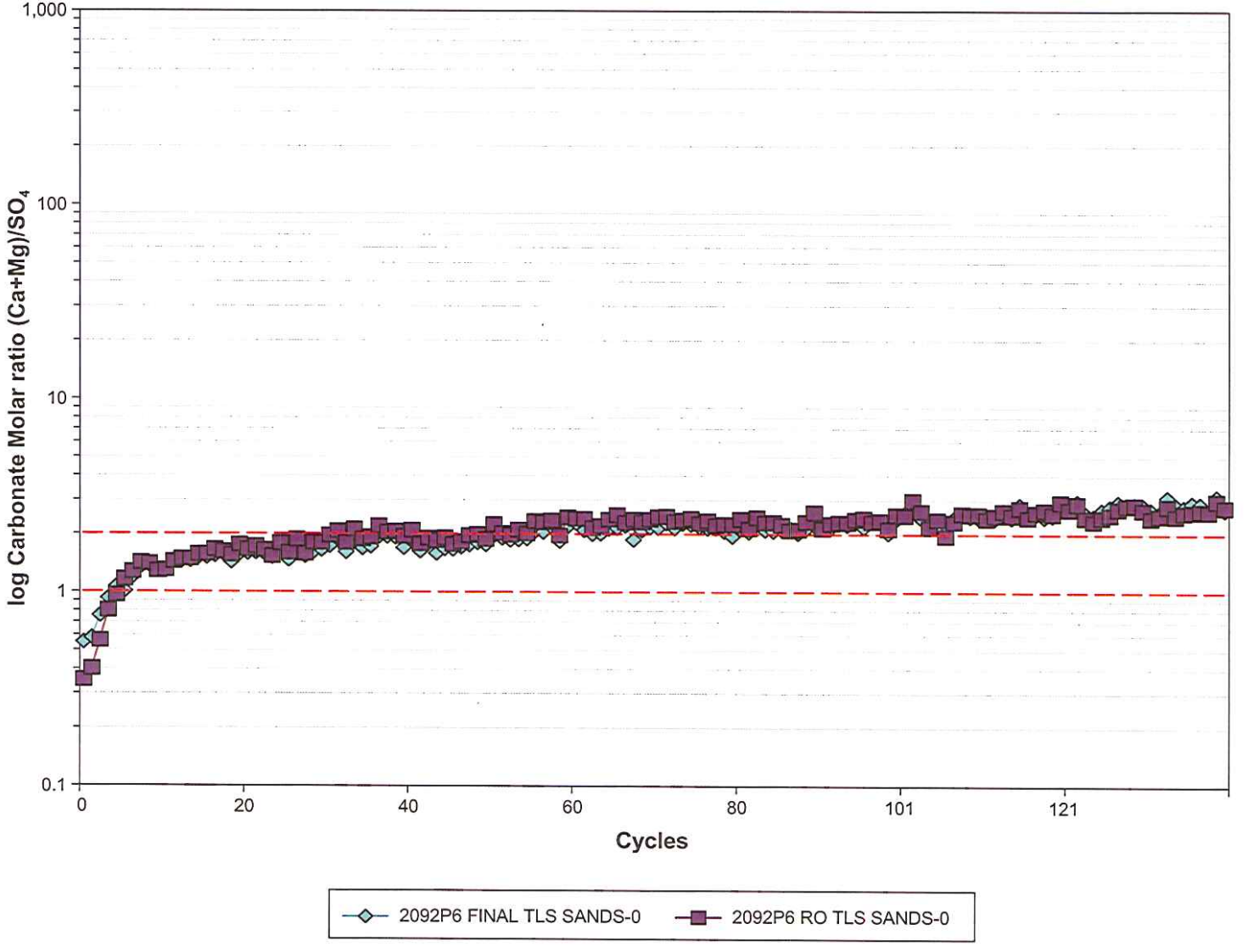


Figure 2.3-32

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Carbonate Molar Ratio versus Time (Tailings)

Figure 2.3-32

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Table 2.3-6. Estimated Sulphide-Sulphur and Neutralization Potential Depletion Rates and Times

Humidity cell	Initial Sulphide Sulphur + S del (%)	Total Sulphate Released (mmol S/kg/wk)	Average Sulphide Depletion Rate[1] (mmol S/kg/wk)	Time to Sulphide Depletion[1] (years)	Initial NP ($kgCaCO_3/t$)	Total Carbonate Released (mmol/kg/wk)	Average Carbonate Depletion Rate[1] (mmol /kg/wk)	Time to Carbonate Depletion [1,2] (years)
Supergene 6983	0.31	31	0.07	19	48	57.61	0.26	31.6
Supergene 107163	0.63	73	0.21	11	108	110.76	0.45	41.4
Mesogene 69754	1.14	85	0.42	12	130	121.37	0.67	34.0
Mesogene 7038	3.03	138	0.73	21	60	179.1	0.99	8.1
Hypogene 90534	0.96	93	0.19	21	32	136.3	0.43	8.3
Hypogene 97747	3.13	173.04	0.5	31	54	218.32	0.78	7.9
Pyrite Zone (< 1% S) Safety Bay #18	0.05	8.43	0.005	27	272	67.43	0.37	137.5
Pyrite Zone (< 1% S) Stn. 20	0.93	15.82	0.03	175	136	105.87	0.51	47.2
Pyrite Zone (> 1% S) X-Cu t 100	2.45	60.27	0.23	59	104	132.14	0.54	32.3
Pyrite Zone (> 1% S) Safety Bay #30	5.72	138.95	1.08	29	30	147.66	0.44	6.6
71212 Monzodiorite	0	0.816	0.0019	0	58	42.79	0.19	53.3
Andesites Kamloops Group	0.005	0.99	0.0017	7	84	68.69	0.4	37.1
Andesitic Fragmental Nicola	0	1.06	0.0014	0	29	36.1	0.17	29.4
2092P6 Final Tls Sands	0.42	47.56	0.16	10	276	85.69	0.45	115.6
2092P6 Rougher Tls Sands	0.52	40.55	0.17	14	267	78.16	0.45	109.9

Notes:
[1] *Based on last 20 cycles*
[2] *Carbonate depletion rates include neutralization from non-carbonate minerals where carbonate are absent.*

- Monzodiorite: 53.3 years
- Andesites Kamloops Group: 37.1 years
- Andesitic Fragmental Nicola Group: 29.4 years
- Rougher final tailings: 115.6 years
- Rougher tailings: 109.9 years

Thus, several years to decades would pass before the fine-grained material in these humidity cells became acidic, under well-flushed and well-aerated endpoint conditions. The lag times can be different due to other site specific conditions, like coarser rock or poor aeration.

The onset of ARD is not expected from the New Afton tailings.

2.3.5.6 Loading Rate Summary for the Last Twenty Cycles

As a summary of loading rates from the thirteen New Afton rock humidity cells and two tailings humidity cells, the average loadings rates over the last twenty cycles of data are compiled in Table 2.3-7. Any concentration below detection was set at one-half the detection limit to calculate that loading rate.

2.3.5.7 Field Leach Barrels

Leachate water quality from 2009 and 2010 sampling is shown in Figures 2.3-33 to Figure 2.3-41 and complete results are found in Appendix 2.3-1. Note that limited sample volumes resulted in partial analyses of parameters for ARD 2 (transition ore muck), ARD 2A, and ARD 5 (high sulphide waste muck). The field leach barrels were reconfigured in mid-2010 for improved performance.

The conductivity values measured in four sampling events are showed in Figure 2.3-33. Samples can be separated into two groups based on their conductivity values:

- Group 1: Samples from hypogene and transition (mesogene) ore muck with high conductivity values (initial conductivity values of 2,580 to 4,350 µS/cm).
- Group 2: Samples from monzonite muck, low sulphide waste muck, and high sulphide waste muck with moderate conductivity values (initial conductivity values of 1,350 to 2,420 µS/cm)

From April 2009 to April 2010 conductivity values increased reaching values of 6,030 µS/cm in the first group, and values of 3,320 µS/cm in the samples of the second group. This increase in conductivity values is mainly attributed to the increased in sulphate concentrations. A sharp decrease in conductivity values was measured in September 2010 (466 to 1,068 µS/cm in the first group and 1,097 to 1,620 µS/cm in the second group). Note that the field leach barrel set-up was re-configured close to the September 2010 sampling event and may reflect those changes.

The initial leachate pH was neutral to slightly alkaline (8.14 to 8.80) with no substantial changes through to September 2010 (Figure 2.3-34). Alkalinity values exhibited a similar trend as the pH values, ranging from 241 to 564 kg $CaCO_3$ /t (Figure 2.3-35).

Initial sulphate concentrations ranged from 162 mg/L in the monzonite DMZ muck to 1,930 mg/L in the transition ore ARD A (Figure 2.3-36). Sulphate concentrations correlate with conductivity values indicating that the increases in conductivity are related to the increases in sulphate ions in the field leach barrel leachate. However, if sulphide oxidation is occurring, it is well buffered by the release of excess alkalinity.

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Table 2.3-7. Average Loading Rates for the Last Twenty Cycles, New Afton Humidity Cells

		Supergene Ore		Mesogene Ore		Hypogene Ore		Pyrite Zone <1%S		Pyrite Zone >1%S		Unmineralized Andesite and Monzodiorite			2092P6 Final TLS Sands	2092P6 RO TLS Sands
Cell		6983	107163	69754	7038	90534	97747	Safety Bay #18	Stn. 20	X-Cut 100	Safety Bay #30	71212 Monzo-diorite	Andesites Kamloops Group	Andesitic Fragmental Nicola		
Source		Drillholee UA-11-05 194-196 m	Drillhole UA-64-05 316-318 m	Drillhole UA-21-05 186-188 m	Drillhole UA-11-05 290-292 m	Drillhole UA-30A-05 254-256 m	Drillhole UA-55-05 172-174 m	Pyrite Grade 1 to 5%	Pyrite Grade 0.1 to 1%	Pyrite Grade 1 to 5%	Pyrite Grade 5 to 10%	Drillhole UA-29-05 210-212 m	Drillhole UA-94-06 380.92-381.85 m	Drillhole UA-101-06 50.9-52.05 m		
Leachate Recovered (mL)		474	472	474	473	469	482	471	465	471	478	481	474	476	470	480
pH	pH units	8.0	8.0	8.0	7.9	8.0	8.0	8.2	8.3	8.1	3.4	8.2	8.3	8.0	8.1	8.0
Conductivity (µS/cm)		110	184	266	376	181	299	124	209	222	491	79	155	70	188	186
Acidity	mg/kg/week	1.21	1.22	1.44	1.57	1.53	1.49	0.53	0.60	1.35	59.84	1.56	0.92	1.15	1.07	0.82
Alkalinity	mg/kg/week	20.12	20.75	22.09	21.30	22.30	24.14	31.58	50.69	35.76	0.48	19.99	41.88	17.18	29.95	31.10
Sulphate	mg/kg/week	6.49	20.59	40.10	70.80	18.83	49.23	0.49	2.94	19.38	100.92	0.14	0.20	0.13	15.33	14.50
Aluminum	mg/kg/week	0.0085	0.0079	0.0071	0.0071	0.0065	0.0067	0.0215	0.0070	0.0071	5.9230	0.0483	0.0071	0.0752	0.0068	0.0072
Antimony	mg/kg/week	0.0008	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0202	0.0248
Arsenic	mg/kg/week	0.0012	0.0002	0.0002	0.0002	0.0002	0.0002	0.0006	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.1534	0.2078
Barium	mg/kg/week	0.0711	0.0269	0.0200	0.0113	0.0089	0.0138	0.0222	0.0338	0.0027	0.0072	0.0061	0.0077	0.0043	0.0143	0.0133
Beryllium	mg/kg/week	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Bismuth	mg/kg/week	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Boron	mg/kg/week	0.0237	0.0236	0.0237	0.0237	0.0235	0.0241	0.1076	0.0233	0.0235	0.0239	0.0241	0.0237	0.0238	0.0235	0.0240
Cadmium	mg/kg/week	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	mg/kg/week	9.45	17.65	25.91	39.62	16.98	31.04	10.43	9.43	10.87	9.68	7.02	5.68	5.08	11.70	11.95
Chromium	mg/kg/week	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
Cobalt	mg/kg/week	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0469	0.0002	0.0002	0.0002	0.0005	0.0005
Copper	mg/kg/week	0.0137	0.0165	0.0221	0.0362	0.0127	0.0311	0.0007	0.0012	0.0012	0.2929	0.0012	0.0012	0.0012	0.0200	0.0194
Iron	mg/kg/week	0.0071	0.0071	0.0071	0.0071	0.0070	0.0072	0.0071	0.0070	0.0071	3.7642	0.0091	0.0071	0.0555	0.0070	0.0072
Lead	mg/kg/week	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0008	0.0001	0.0001	0.0001	0.0001	0.0001
Lithium	mg/kg/week	0.0024	0.0024	0.0024	0.0024	0.0023	0.0024	0.0024	0.0023	0.0024	0.0149	0.0024	0.0024	0.0024	0.0023	0.0024
Magnesium	mg/kg/week	0.53	0.29	0.54	0.17	0.16	0.20	3.27	6.77	6.59	5.07	0.45	6.29	0.96	3.73	3.69
Manganese	mg/kg/week	0.0161	0.0613	0.0350	0.2239	0.0197	0.0443	0.0047	0.0001	0.0006	0.2604	0.0009	0.0004	0.0027	0.0314	0.0342
Mercury	mg/kg/week	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Molybdenum	mg/kg/week	0.0001	0.0005	0.0012	0.0008	0.0002	0.0001	0.0013	0.0001	0.0004	0.0001	0.0001	0.0003	0.0001	0.0010	0.0011
Nickel	mg/kg/week	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0153	0.0012	0.0012	0.0012	0.0012	0.0012
Phosphorus	mg/kg/week	0.0711	0.0707	0.0711	0.0710	0.0704	0.0723	0.0707	0.0698	0.0706	0.0716	0.0722	0.0710	0.0714	0.0705	0.0720
Potassium	mg/kg/week	0.2683	0.3816	0.4783	0.5093	1.4685	1.0426	1.8825	0.5105	0.2081	0.5614	0.3661	0.2890	0.3570	0.8354	0.8448
Selenium	mg/kg/week	0.0024	0.0024	0.0024	0.0024	0.0023	0.0024	0.0027	0.0023	0.0024	0.0024	0.0024	0.0024	0.0024	0.0023	0.0024
Silicon	mg/kg/week	0.6587	0.6316	0.5736	0.4452	0.4979	0.4073	0.7597	0.3603	0.4700	5.7090	0.5950	0.5042	1.2019	0.5144	0.5184
Silver	mg/kg/week	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
Sodium	mg/kg/week	0.32	0.12	0.37	0.12	0.12	0.12	40.67	0.14	0.12	0.80	0.12	0.24	0.19	0.12	0.12
Strontium	mg/kg/week	0.1565	0.1077	0.1884	0.0517	0.0141	0.0341	0.2093	0.0337	0.0123	0.0163	0.0605	0.2498	0.1048	0.0458	0.0475
Thallium	mg/kg/week	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Tin	mg/kg/week	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Titanium	mg/kg/week	0.0024	0.0024	0.0024	0.0026	0.0023	0.0024	0.0024	0.0023	0.0024	0.0024	0.0024	0.0024	0.0084	0.0023	0.0024
Uranium	mg/kg/week	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00004	0.00002	0.00002	0.00026	0.00002	0.00002	0.00002	0.00002	0.00002
Vanadium	mg/kg/week	0.0024	0.0024	0.0024	0.0024	0.0023	0.0024	0.0027	0.0023	0.0024	0.0024	0.0024	0.0024	0.0024	0.0023	0.0024
Zinc	mg/kg/week	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0014	0.0012	0.0012	0.0272	0.0012	0.0012	0.0012	0.0012	0.0012

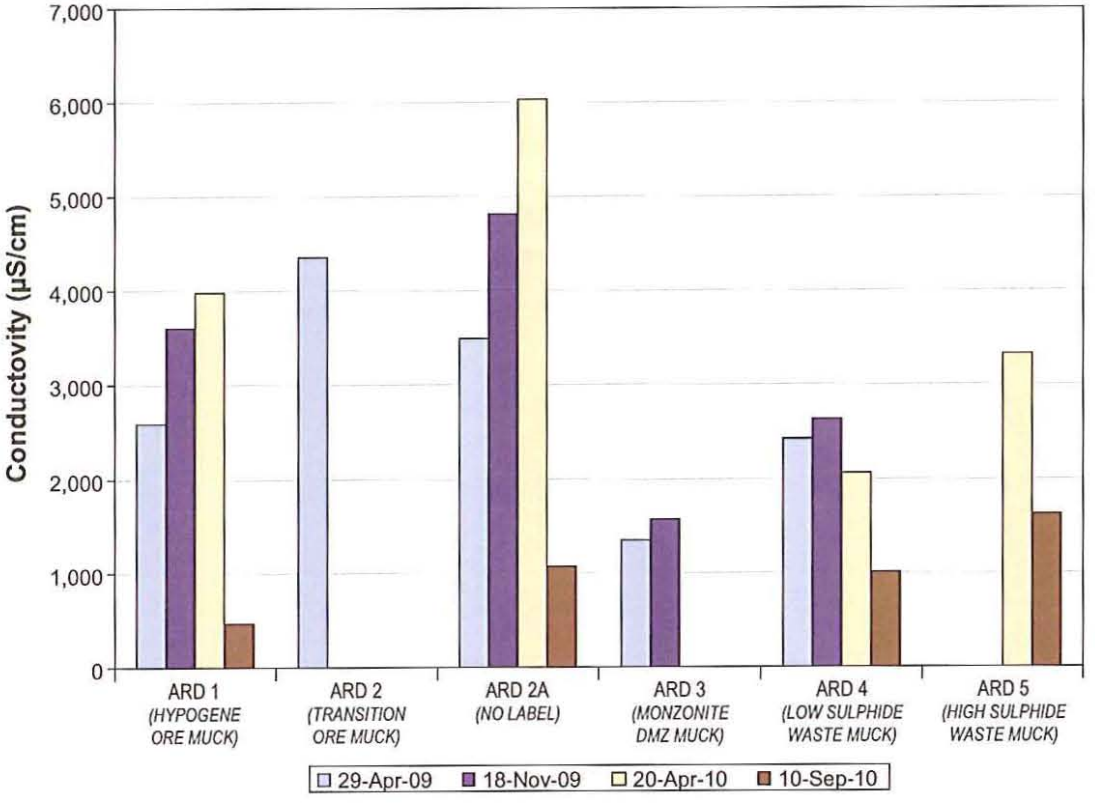


Figure 2.3-33

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Field Leach Barrels Leachate Conductivity

Rescan™ Environmental Consultants

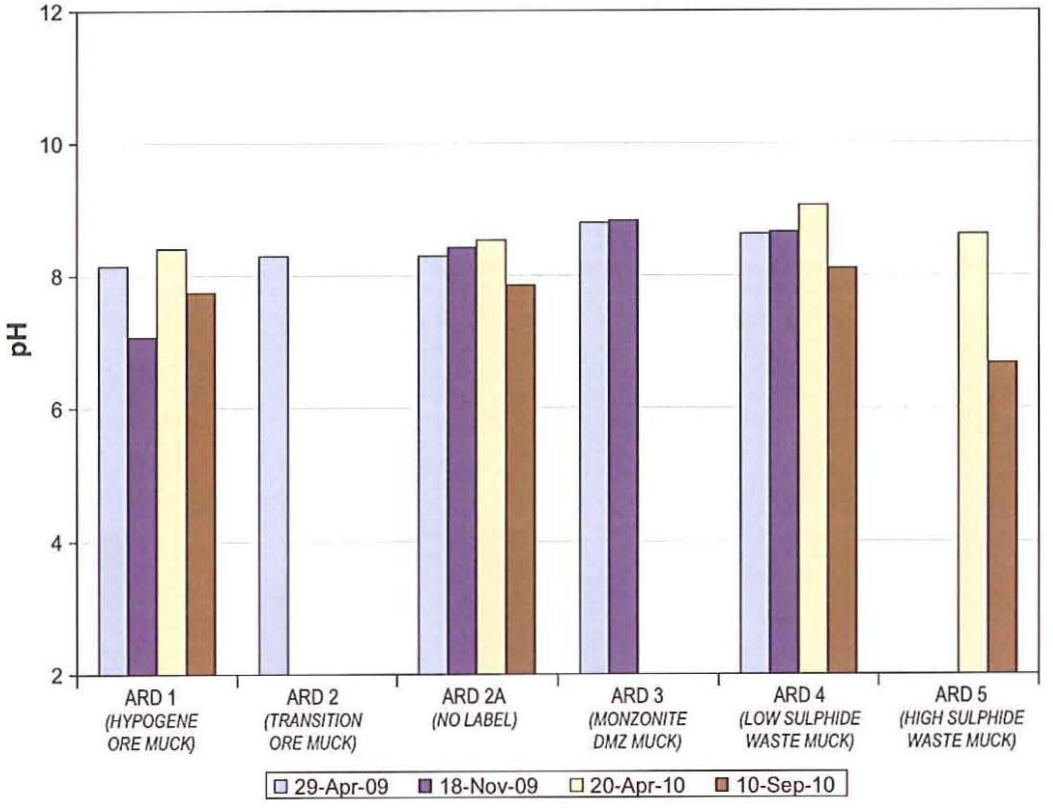


Figure 2.3-34

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Field Leach Barrels Leachate pH

Rescan™ Environmental Scientists

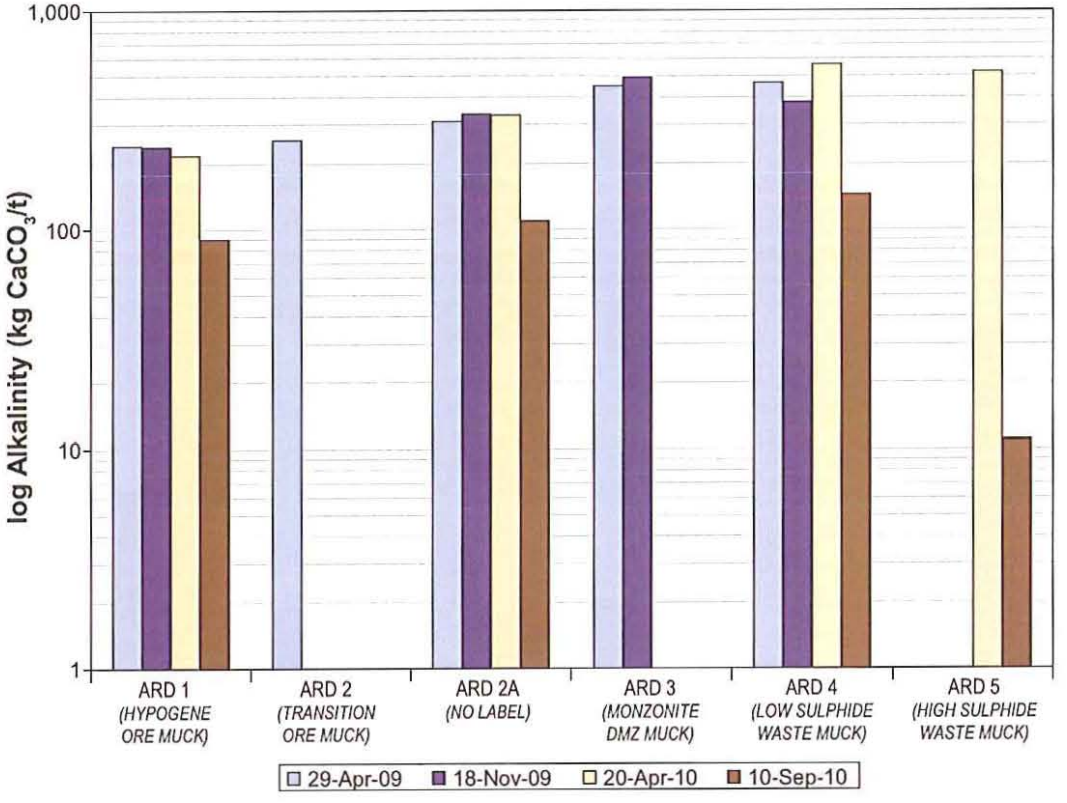


Figure 2.3-35

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Field Leach Barrels Leachate Alkalinity

Rescan™ Environmental Consultants

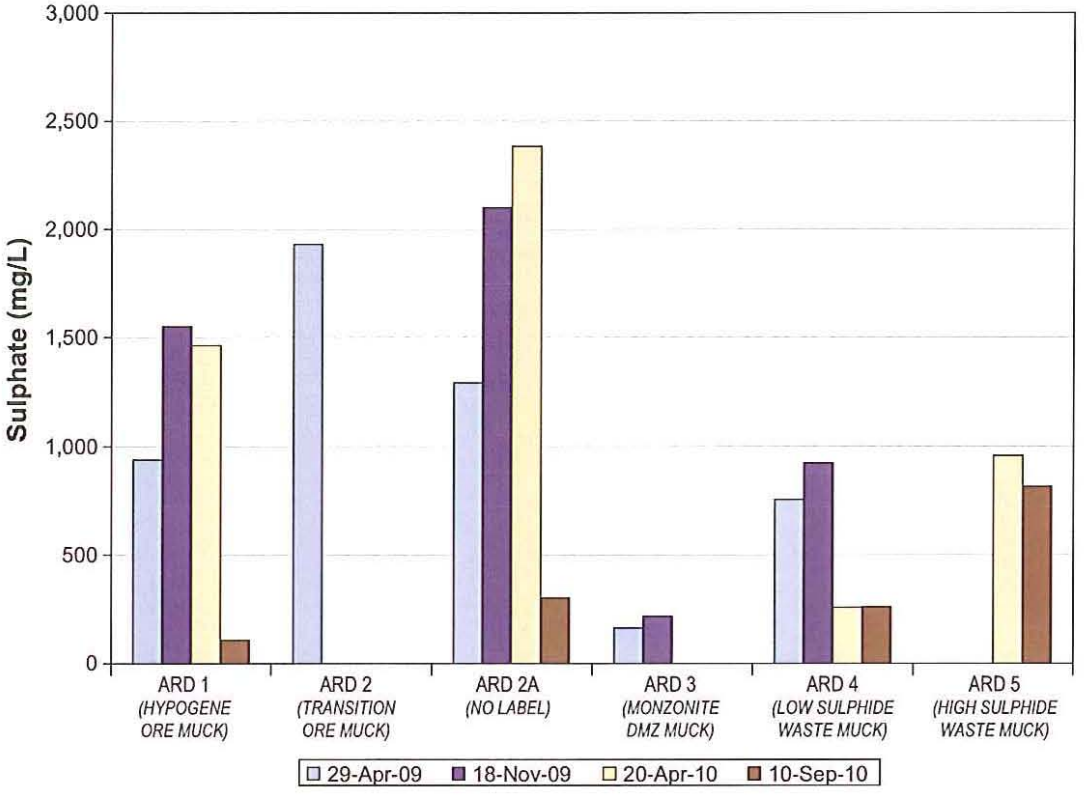
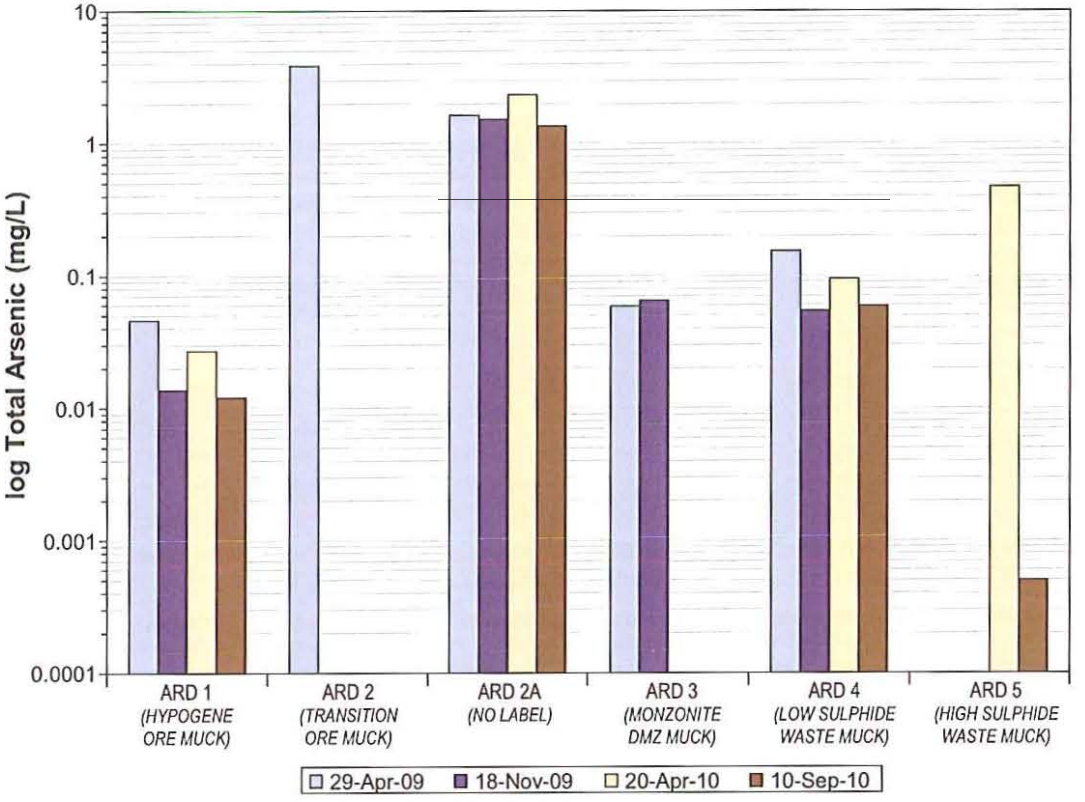


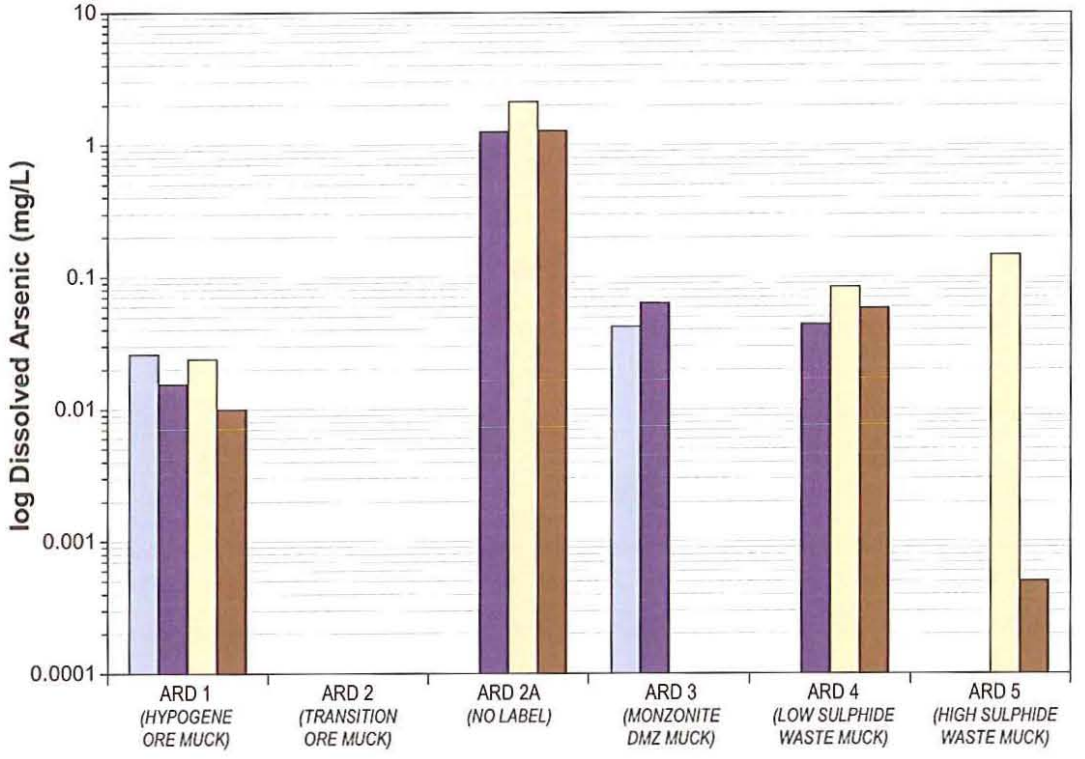
Figure 2.3-36

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Field Leach Barrels Leachate Sulphate

Rescan™ Environmental Scientists



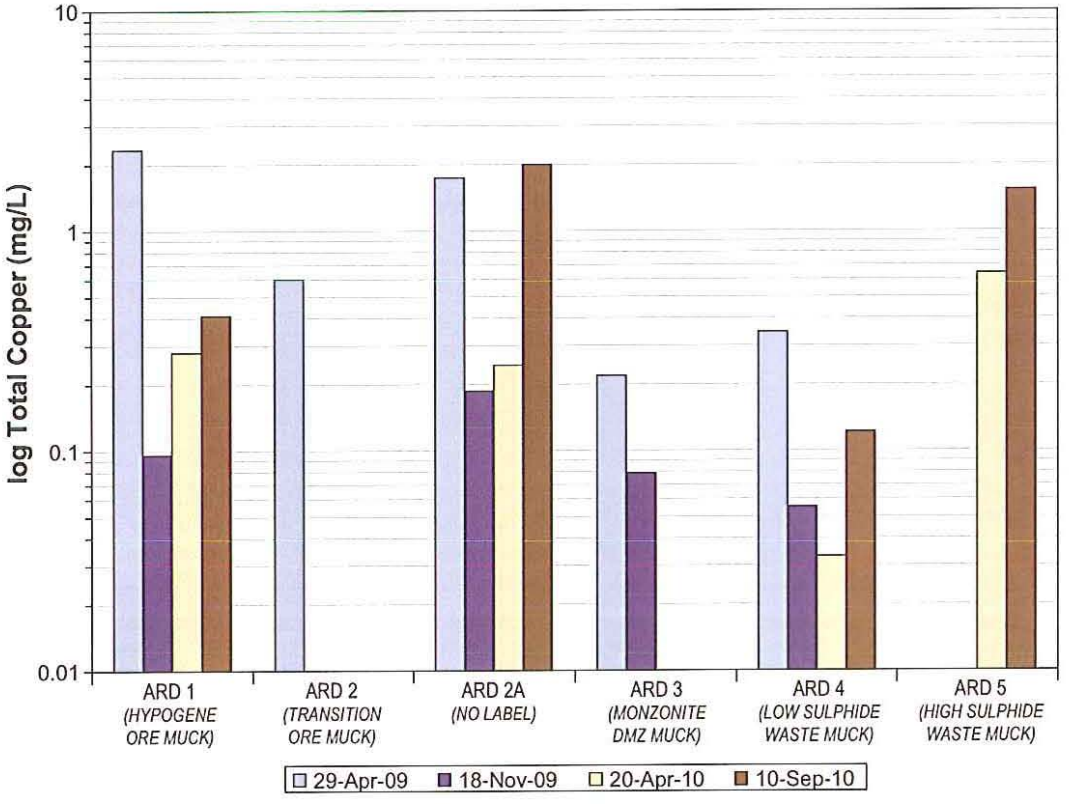


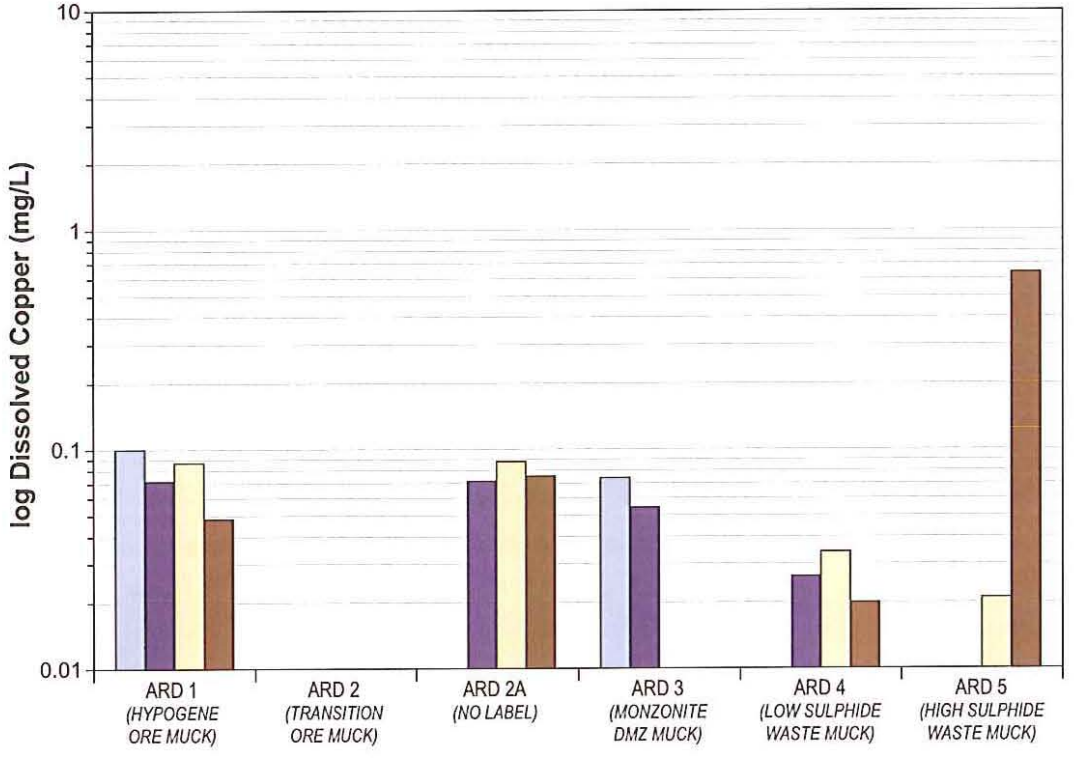
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Field Leach Barrels Leachate Total and Dissolved Arsenic

Figure 2.3-37

Rescan™ Environmental Consultants



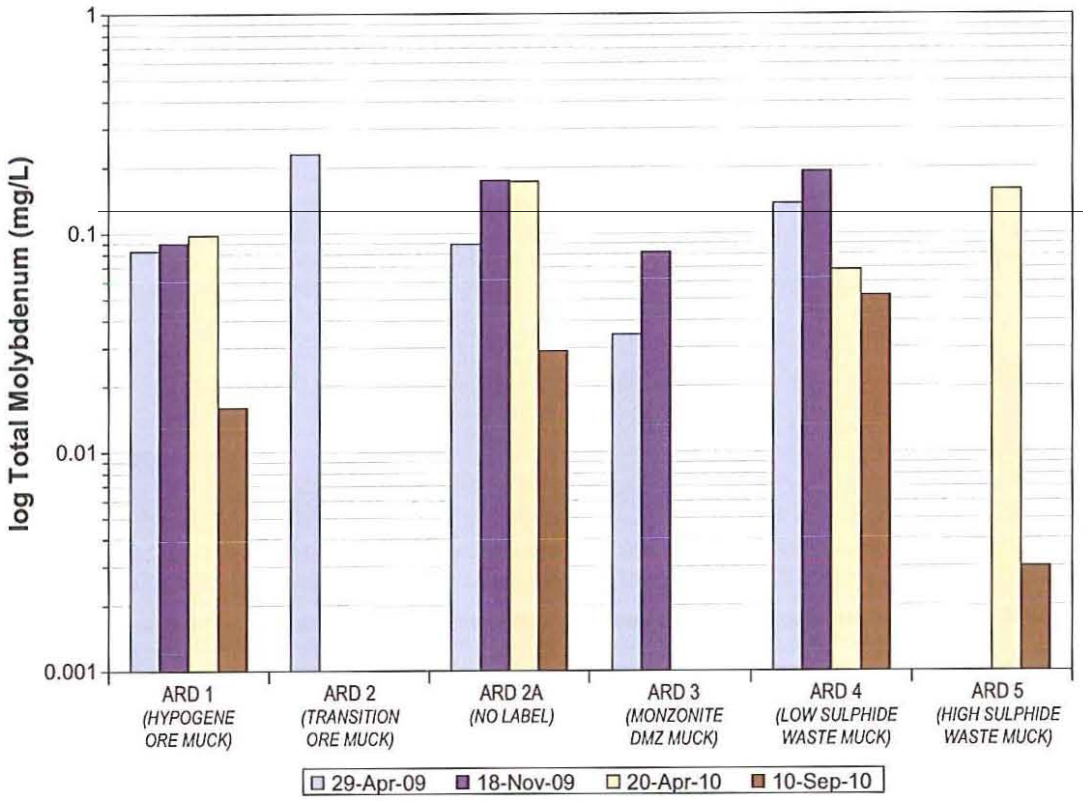


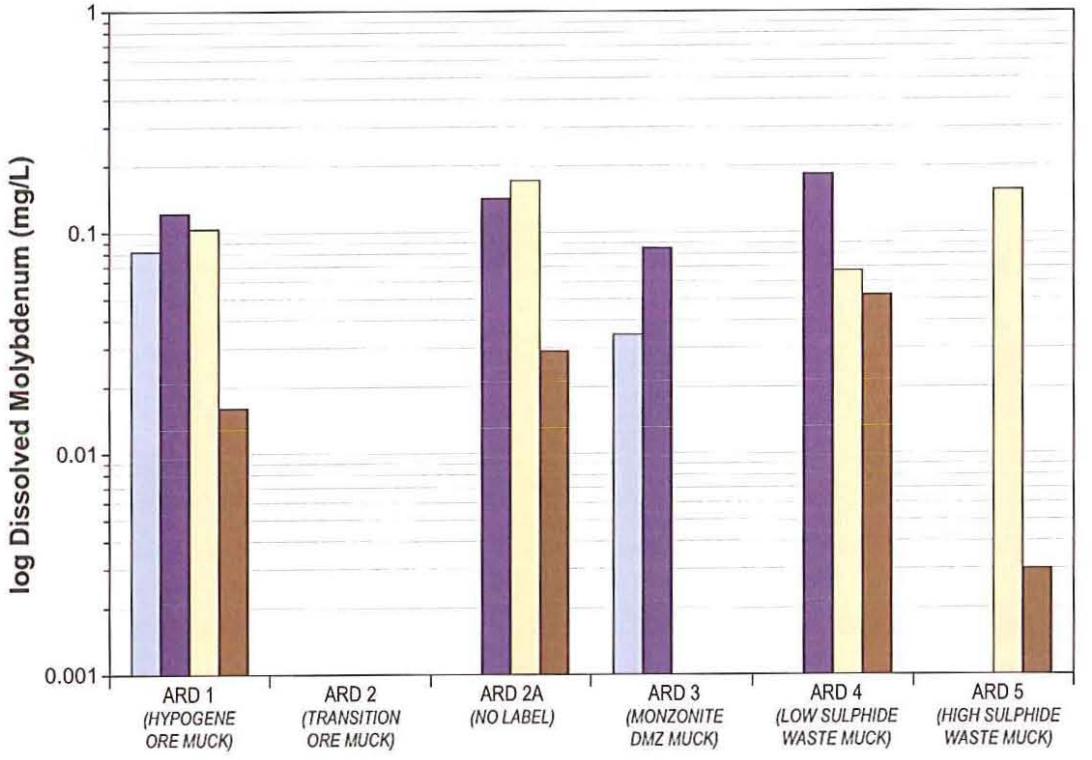
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Field Leach Barrels Leachate Total and Dissolved Copper

Figure 2.3-38

Rescan™ Environmental Consultants



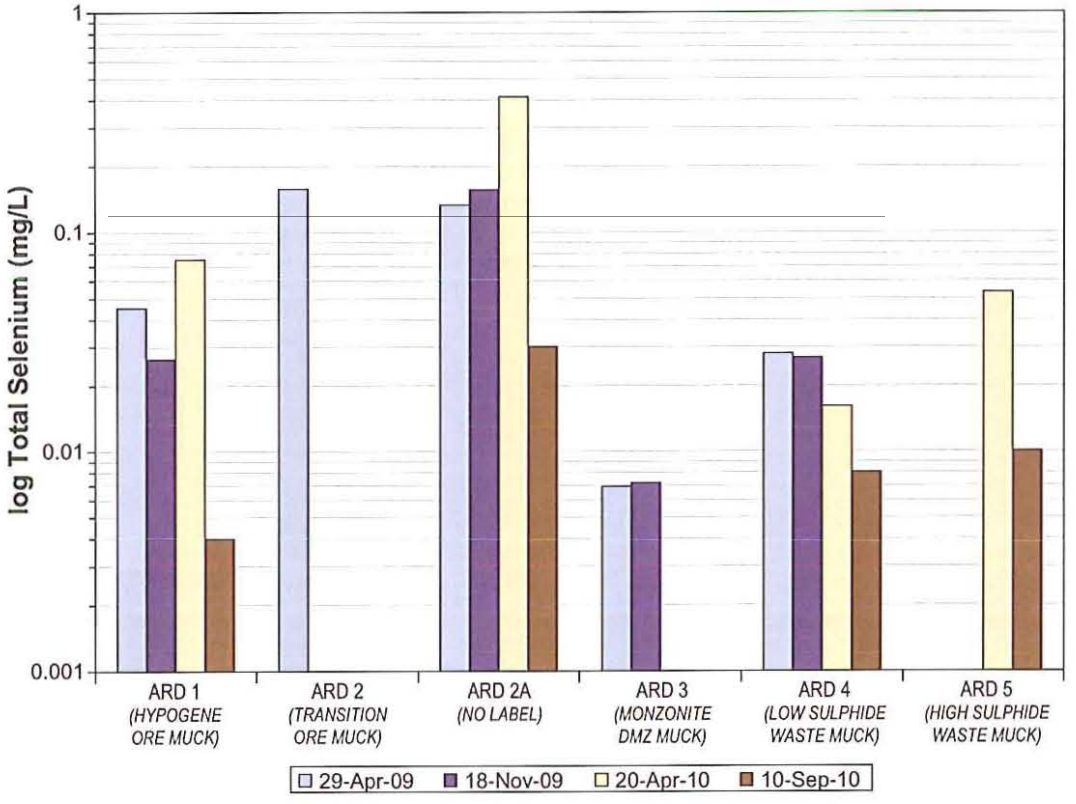


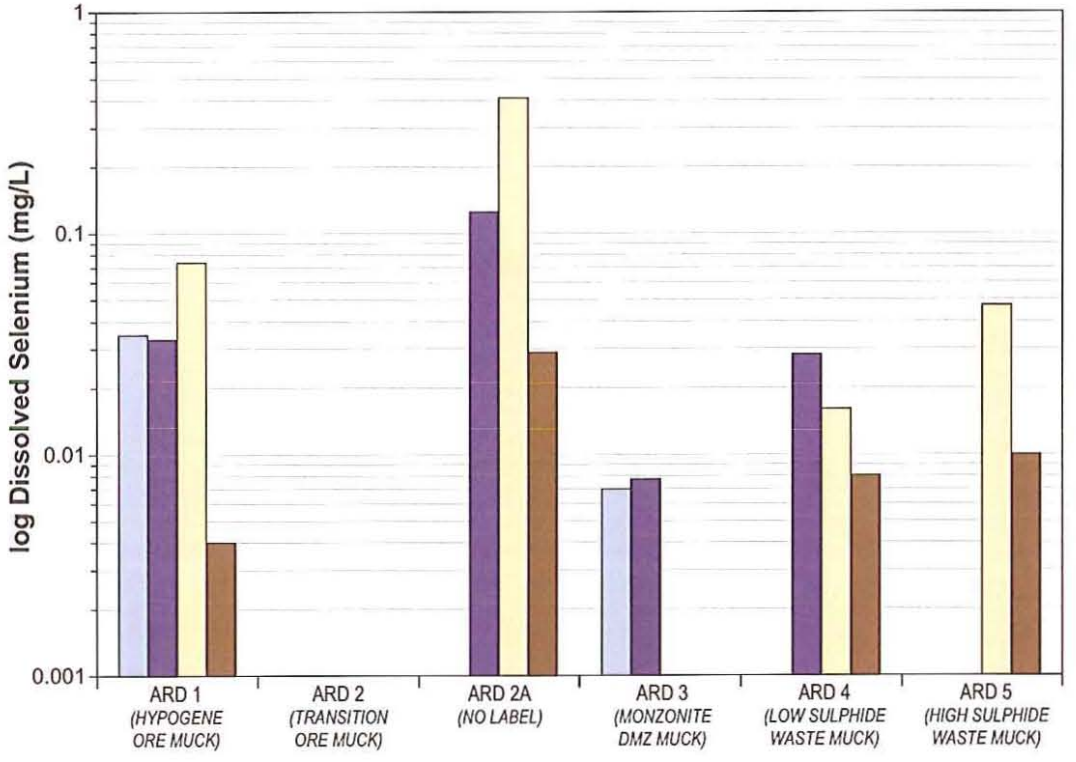
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Field Leach Barrels Leachate
Total and Dissolved Molybdenum

Figure 2.3-39

Rescan™ Environmental Consultants



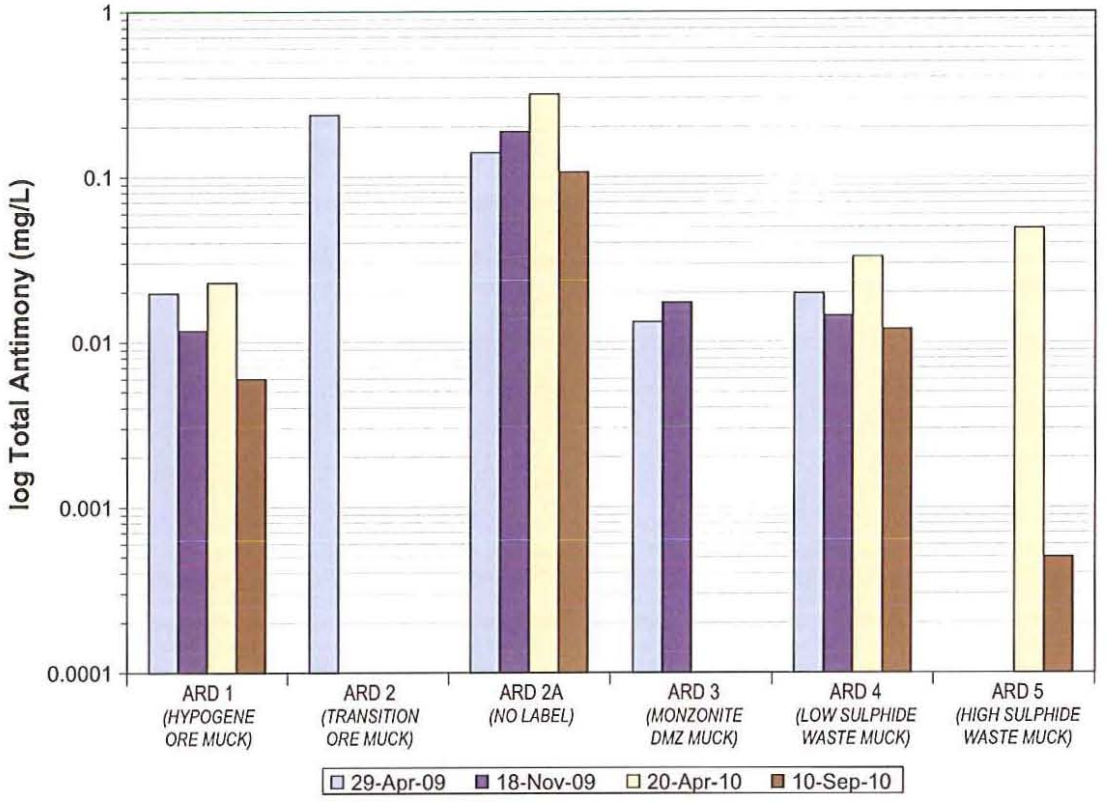


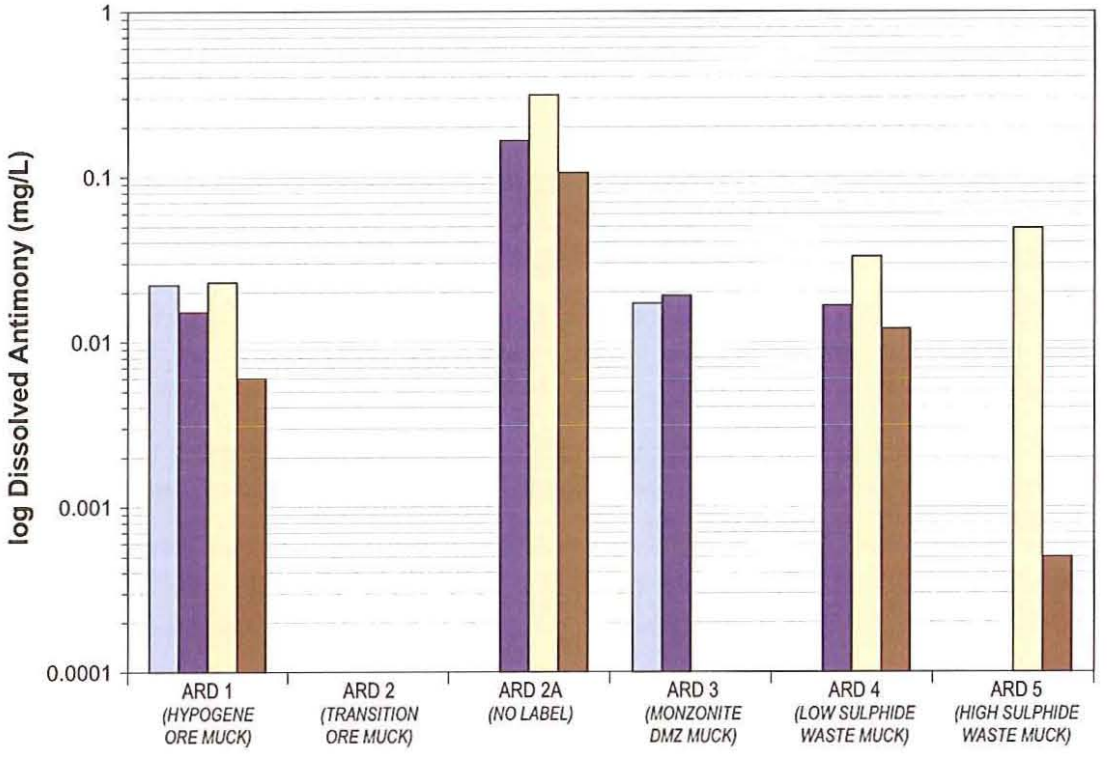
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Field Leach Barrels Leachate Total and Dissolved Selenium

Figure 2.3-40

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Leach Test Barrels Leachate Total and Dissolved Antimony

Figure 2.3-41

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Constituents of concern include arsenic, copper, molybdenum, selenium, and antimony (Figures 2.3-37 to 2.3-41). Total and dissolved arsenic concentrations are high, ranging from 0.046 mg/L in hypogene ore to 3.8 mg/L in the transition ore (Figure 2.3-37).

Copper concentrations appear to be higher during the first sampling event indicating possible first time (spring) flushing loads (Figure 2.3-38). Conversely, molybdenum concentrations increase in the second sampling event (Figure 2.3-39). Selenium concentrations ranged from 0.0069 mg/L in monzonite to 0.04 mg/L in the transition ore (Figure 2.3-40).

Total and dissolved antimony concentrations are high, ranging from 0.012 mg/L in hypogene ore to 0.31 mg/L in the transition ore (Figure 2.3-41).

2.3.6 Summary

2.3.6.1 Waste Rock and Ore Leachates

Leachates from twelve waste rock humidity cells showed steady near neutral to alkaline pH values (7.0 to 8.9).

Waste rock humidity cell Safety Bay #30 (Pyrite Zone >1%S) became acidic at cycle 174. To cycle 234 (end the humidity test period discussed in this report) the pH decreased to 3.26.

Sulphate production rates in the humidity cell leachates were steady exhibiting a steady trend in the last twenty cycles.

Sulphate production rates ranged from 5.4 to 24.4 mg/kg/wk in the supergene ores, 36.6 to 78.2 mg/kg/wk in the mesogene ores, and 16.0 to 61.1 mg/kg/wk in the hypogene ores.

The sulphate production at Safety Bay # 30 (Pyrite Zone >1%S) is still increasing and ranged from 79.6 to 143.5 mg/kg/wk in the last twenty cycles. Mesogene ore 7038 exhibited a slightly increase in sulphate production from 57.6 to 70.8 mg/kg/wk in the last twenty cycles

Overall, acidity production rates were steady and low, ranging from 0.18 to 3.62 mg/kg/wk in 12 of the waste rock humidity cells in the last twenty cycles. However, humidity cell Safety Bay #30 is still exhibiting an increasing trend in acidity production in the last twenty cycles (97.4 to 104.4 mg/kg/wk).

The elements with detected concentrations in one or more rock humidity cells in the last twenty cycles were aluminum, antimony, arsenic Bay # 18), barium, calcium, cobalt, copper, iron, lead), lithium, magnesium, manganese, molybdenum, potassium, silicon, sodium, strontium, titanium, uranium, and zinc.

Steady arsenic loadings representing detected concentrations of arsenic were reported in the samples Supergene Ore 6963, 71212 Monzodiorite, and Safety Bay #18 in the last twenty cycles. Arsenic loadings ranged from 0.0005 to 0.0015 mg/kg/wk.

Copper loadings have been relatively stable from ore type waste humidity cells, ranging from 0.01 to 0.035 mg/kg/wk.

Once humidity cell Safety Bay #30 became acid generating, the copper loadings and concentrations rapidly increased to levels similar to ore-type waste humidity cells.

Cobalt, iron, manganese, and zinc loading rates also showed a similar rapid increase once humidity cell Safety Bay #30 became acid generating.

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In the last twenty cycles only iron loadings are showing still an increasing trend while copper, cobalt, manganese and zinc loadings are steady.

Interestingly, humidity cell Safety Bay #30 generated the highest molybdenum loadings rates, reaching a peak of 0.012 mg/kg/wk at cycle 143 under near-neutral pH conditions. However, once acid generation commenced, the molybdenum loadings and concentrations decreased to low levels at or below the detection limit.

Manganese was another element frequently above detection in the New Afton waste rock humidity cell leachate.

2.3.6.2 Tailings Leachate

Sulphate production rates in the tailings leachates were in general, low (14.5 to 15.3 mg/kg/wk) maintaining a steady trend in the last twenty cycles.

Overall, acidity production rates were steady and low, ranging from 0.82 to 1.07 mg/kg/wk in tailings humidity cells.

The elements with detected concentrations in the tailings humidity cells during the last twenty cycles were antimony, arsenic, barium, calcium, cobalt, copper, magnesium, manganese, and molybdenum, potassium, silicon, and strontium.

Arsenic loadings have been steady and high during the period January 2009 to February 2011, ranging from 0.15 to 0.21 mg/kg/wk. Those loadings represent arsenic dissolved concentrations exceeding the 0.005 mg/L threshold value set in the CCME and BC Max water quality guidelines for the aquatic life.

Copper loadings from tailings humidity cells have been steady and low, ranging from 0.019 to 0.02 mg/kg/wk.

Antimony, cobalt, manganese and molybdenum loading rates were low and steady during the last twenty cycles

The alkalinity production rates for the tailings humidity cells were steady and ranged from 29.1 to 31.1 mg/kg/wk.

The calcium loading rates for the tailings were steady ranging from 11.6 to 11.9 mg/kg/wk in the last 20 cycles.

The magnesium loading rates were 3.6 to 3.72 mg/kg/wk exhibiting a similar behaviour as calcium loading rates.

Humidity cells showed CMRs greater than 2.0, ranging from 2.33 to 3.11 indicating that some excess carbonate dissolution was occurring.

2.3.6.3 Depletion Times

The prediction of the lag times for New Afton rocks and tailings from commencement of mining (Cycle 0 kinetic humidity cell testing) and oxidation is the following:

- Mesogene ore: 8.1 to 34 years
- Hypogene ore: 7.9 to 8.3 years

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- Supergene ore: 31.6 to 41.4 years
- Pyrite Zone <1%S: 47.2 to 137.5 years
- Pyrite Zone >1%S: 6.6 to 32.3 years
- Monzodiorite: 53.3 years
- Andesites Kamloops Group: 37.1 years
- Andesitic Fragmental Nicola Group: 29.4 years
- Rougher final tailings: 115.6 years

ARD onset is not expected in the New Afton tailings.

2.3.6.4 Field Leach Barrel Leachate

Samples from hypogene and transition (mesogene) ore muck with high conductivity values (initial conductivity values of 2,580 to 4,350 µS/cm).

Samples from monzonite muck, low sulphide waste muck, and high sulphide waste muck with moderate conductivity values (initial conductivity values of 1,350 to 2,420 µS/cm)

From April 2009 to April 2010 conductivity values increased reaching values of 6,030 µS/cm in the first group, and values of 3,320 µS/cm in the samples of the second group. This increase in conductivity values is mainly attributed to the increased in sulphate concentrations. A sharp decrease in conductivity values was measured in September 2010 (466 to 1,068 µS/cm in the first group and 1,097 to 1,620 µS/cm in the second group). Note that the leach pads set up was re-arranged around that time and the measurements performed during September 2010 may be reflecting those changes.

Initial leachate pH was neutral to slightly alkaline (8.14 to 8.80) with no substantial changes to September 2010.

Alkalinity values exhibited a similar trend as the pH values ranging from 241 to 564 kg $CaCO_3$/t.

Initial sulphate concentrations ranged from 162 mg/L in the monzonite DMZ muck to 1,930 mg/L in the transition ore ARD A. Sulphate concentrations correlate with conductivity values indicating that the increases in conductivity are related to the increases in sulphate ions in the leach pads leachates.

Total and dissolved arsenic concentrations are high, ranging from 0.046 mg/L in hypogene ore to 3.8 mg/L in the transition ore.

Copper concentrations appear to be higher during the first sampling event indicating possible first time (spring) flushing loads.

Molybdenum concentrations increase in the second sampling event.

Selenium concentrations ranged from 0.0069 mg/L in monzonite to 0.04 mg/L in the transition ore.

Total and dissolved antimony concentrations are high, ranging from 0.012 mg/L in hypogene ore to 0.31 mg/L in the transition ore.

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2.4 WASTE ROCK MANAGEMENT PLAN

2.4.1 Introduction

Waste rock management is an important part of the environmental program at New Afton. While New Afton waste rock is largely non-acid forming, there are some areas of waste that contain moderate amounts of pyrite. Waste from these areas will be managed carefully to ensure that any environmental effects are controlled.

A Management Plan written in accordance with the *Mines Act* Permit M-229, the Application for a Permit Approving a Mine Plan and Reclamation Program documentation, the Policy for Metal Leaching and Acid Rock Drainage at Mine sites in British Columbia - July, 1998 and the Guidelines for Metal Leaching and Acid Rock Drainage at Mine sites in British Columbia - August, 1998 was completed during 2010 to incorporate both waste and ore stockpiles.

2.4.2 Scope of Work

During the period, approximately 265 kT of waste rock was mined. All of this rock was placed in the pit or has been used along roads that are bound by the pit rim.

The conveyer system will be capable of moving waste rock and ore from the underground. Waste will be stockpiled on surface within the subsidence zone for a short period prior to being hauled to the pit and dumped as with the current waste practices.

2.4.3 Objectives

The principle objective of this Management Plan is to prevent or control ARD due to inappropriate stockpiling and management practices or by allowing PAG material to be used inappropriately for construction fill on site.

2.4.4 Methods

Waste rock currently handled during operations is to be tipped into the New Afton pit. This has the following advantages over other areas on the site:

- water (ground and surface) flows toward the pit with no off-site drainage;
- the waste is easily transported to the pit from the underground workings;
- there is little chance of re-handling the waste for any other purpose; and
- at the end of mine life, water will cover the waste and prevent further oxidation of the material.

If any waste rock is required for use in construction on the surface, it must undergo sampling, testing and characterisation prior to use. Only material that has been sampled, tested and characterised as non-acid generating (NAG) by a geologist or the Environmental Specialist using the Sobek NP determination can be used for construction activity.

Following the commissioning of the conveyor system a separate management strategy shall be enacted. This strategy will likely require waste rock to be handled continuation of the current strategy by tipping material into the pit. Any deviation from this strategy will require an amendment to the current approved Management Plan which will in turn require approval by the Chief Inspector.

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2.4.5 Results

Waste is placed in the pit and treated as potentially hazardous. This is despite data that shows that the waste rock is likely to be benign from monitoring results to date. Before any waste rock material can be used on surface it must undergo sampling, testing and characterisation to indicate suitability.

If the material is made available for construction use following sampling and analysis, the Environmental Specialist also notes the location that it is to be used so that an inventory of waste rock locations is built.

The inventory includes waste rock from previous mining activity (i.e., prior to the current mining operations) that is required for construction activity. This material is sampled, tested and characterised to prior to use as with waste rock produced in current activities.

2.4.6 Monitoring

During 2010, waste found on surface was sampled and analysed to produce a Waste Rock Inventory. If the final destination for the waste was the Afton Pit, the material was not sampled as this was deemed unnecessary.

Waters from the pit and from the Plant Site Pond are tested quarterly and analysed for signs of metal leaching and acid mine drainage. Monitoring of other surface waters and groundwater wells takes place and is used to confirm that no ARD-ML contamination is produced or leaves the site.

The Waste Rock Inventory Results are found in Appendix 2.4-1 of this report. Further testing and monitoring details are presented in the Metal Leaching and Acid Rock Drainage section of this report (Section 2.3).

2.5 SURFACE WATER QUALITY

2.5.1 Introduction

Surface water quality sampling has been conducted in the New Afton Project area since 2006, and previously during the operation and reclamation of the previous Afton Mine. New Gold Inc has carried out and reported on surface water quality as part of the New Afton Mine *Mines Act* (Permit M-229) requirements. The Project area is a brownfield site as past mining activities have altered the natural environmental conditions.

Baseline water quality sampling began in 2006 and the findings were used to establish a new program for the New Afton mine development for present and future monitoring purposes.

The 2010 sampling program was expanded to include surrounding watersheds that may have been affected by historical mining activity, as well as several sites within the New Afton mine site. Seventeen sites were monitored in 2010, including ten sites from the 2009 sampling program.

The results reported here are part of the permit requirements for the New Afton Project.

2.5.2 Scope of Work

The scope of work in 2010 was to continue the bi-annual water sampling program for the Project.

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2.5.3 Objectives

This report presents the results of the 2010 surface water quality sampling program for the New Afton mine. The program was designed to fulfill the environmental reporting requirements of Permit M-299).

2.5.4 Methods

2.5.4.1 Study Design

The sampling site locations are presented in Figure 2.5-1 and the collection dates are listed in Table 2.5-1. The frequency of sample collection between the sites was variable due to dry conditions and/or logistical constraints. Most sites were sampled twice in 2010, except four sites (SW6, SW8, SW10, and SW11) which were sampled once and one site (SW13) which was sampled three times. SW3 was included in the 2009 and 2010 sample programs; however, it was not successfully sampled in either year due to dry conditions.

Sampling locations within the Project area included three streams, four lakes, seven ponds, two pits, and two sloughs. Three reference sites outside of the mining lease area were sampled as part of the 2010 program. The first reference site, Russell Slough (SW2), is immediately south of the lease area. It is a small depression that receives inflow from local surface runoff and groundwater with no outlet to the surrounding stream network. A second reference site, SW12 (historically called Alkali Creek), is upstream of the Teck tailings storage facility (TSF). The third reference site is Cherry Creek (SW14), which is located at Greenstone Road, south of the Trans-Canada Highway.

Several sites that were sampled in 2009 were sampled again in 2010. SW13 at Pothook Lake is southeast of the Pothook Pit. The pump house (SW4) was sampled at Lake Kamloops. Two sites were sampled near seepage ponds: SW8 near the base of Teck TSF, and SW17 near the New Afton TSF site (SW17). Two abandoned mine shaft entrance sites (Mine Adit 1 and 2; renamed SW15 and 16) were again sampled in 2010. Both sites are above Pineview Valley, approximately 7 to 10 km southeast of the mine site. The three reference sites were also part of the 2009 program.

Eight new sampling sites were added to the 2010 water quality program. They included SW1, 5, 6, 7, 9, 10, 11 and 18 (Figure 2.5-1). These new sample locations are within the mining lease boundary except for SW10 (Moose Lake) which is located south of the access road from Coquihalla Highway.

2.5.4.2 Water Quality

All water was collected as grab samples using standardized methods (RISC 1997). Water samples were analyzed for general physico-chemical variables, anions, nutrients, total cyanide, total organic carbon, and total and dissolved metals at the lowest feasible detection limit by ALS Environmental Services (Vancouver, BC).

At all stream sites, samples were collected by facing upstream and submersing sample bottles until filled. Preservatives were added for total metals (ultra-pure nitric acid), TOC (hydrochloric acid), TKN (sulphuric acid), and total cyanides (sodium hydroxide). No air bubbles were left in any of the bottles. For lake/pond and slough sites, a surface water sample was collected from the shoreline. Preservation and analyses of water samples were identical to that done for stream water samples. A list of all analyzed water quality variables is presented (Table 2.5-2) along with the lowest method detection limits (MDL).

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Table 2.5-1. Site Locations and Sampling Dates for the 2010 Water Sampling Program

Sampling Location			2010 Sampling Dates				
2010 Site ID	2009 Site ID	Site Description	June 1 or 2	July 15	June 22 or 23	November 29 or 30	December 9 or 16
SW1	-	Storm water storage pond near mill	-	-	X	X	-
SW2	Russel Slough	Russell Slough south of site on entrance road to Strand property	-	X	-	X	-
SW3	Northwest Creek	Northeast Creek - north of highway along gully	-	-	-	-	-
SW4	Lake Pump House	Lake Kamloops near intake	X	-	-	X	-
SW5	-	Muskrat Slough near highway north of pit	-	X	-	-	-
SW6	-	Alga Pond - north of highway	-	-	X	-	-
SW7	-	Lake on top of Teck TSF	-	X	-	X	-
SW8	Seepage Pond	Seepage pond at base of Teck TSF North	-	X	-	-	-
SW9	-	Seepage pond at base of Teck TSF (pump at pond)	-	-	X	X	-
SW10	-	Moose Lake	-	-	X	-	-
SW11	-	Afton Pit	-	-	-	-	X
SW12	Alkali Creek	Upstream from Teck TSF	-	-	X	X	-
SW13	Pothook Lake	Pothook Lake	X	-	X	X	-
SW14	Lower Cherry Creek	Cherry Creek - Greenstone Road at bridge off Trans Canada Highway	-	-	X	X	-
SW15	Mine Audit 1	Pond at Phython mine site	X	-	-	X	-
SW16	Mine Audit 2	Pine Valley at storm water pond	X	-	-	-	X
SW17	Waste Dump Pond	Pond at New Afton TSF site	X	-	-	X	-
SW18	-	Pothook Pit	-	-	X	X	-



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FIGURE 2.5-1

Surface Water Quality Sampling Locations, New Afton Project, 2010

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Table 2.5-2. Surface Water Quality Variables and Lowest Method Detection Limits, New Afton Project, 2010

Variable	Units	Detection Limit
Physical Tests		
Conductivity	uS/cm	2.0
Hardness (as $CaCO_3$)	mg/L	0.5
pH	pH	0.1
Total Suspended Solids	mg/L	3.0
Anions and Nutrients		
Alkalinity, Total (as $CaCO_3$)	mg/L	2
Ammonia as N	mg/L	0.005
Bromide (Br)	mg/L	0.05
Chloride (Cl)	mg/L	0.5
Fluoride (F)	mg/L	0.02
Nitrate (as N)	mg/L	0.005
Nitrite (as N)	mg/L	0.001
Total Kjeldahl Nitrogen	mg/L	0.05
Total Nitrogen	mg/L	0.06
Total Phosphate as P	mg/L	0.002
Sulfate (SO_4)	mg/L	0.5
Leachable Anions & Nutrients		
Anion Sum	meq/L	-
Cation Sum	meq/L	-
Cation - Anion Balance	%	-
Cyanides		
Cyanide, Total	mg/L	0.005
Organic / Inorganic Carbon		
Dissolved Organic Carbon	mg/L	0.2
Total Organic Carbon	mg/L	0.2
Total and Dissolved Metals		
Aluminum (Al)	mg/L	0.001
Antimony (Sb)	mg/L	0.00005
Arsenic (As)	mg/L	0.00003
Barium (Ba)	mg/L	0.00005
Beryllium (Be)	mg/L	0.0002
Bismuth (Bi)	mg/L	0.0005
Boron (B)	mg/L	0.001

Variable	Units	Detection Limit
Total and Dissolved Metals *(continued)*		
Cadmium (Cd)	mg/L	0.000017
Calcium (Ca)	mg/L	0.02
Chromium (Cr)	mg/L	0.0001
Cobalt (Co)	mg/L	0.0001
Copper (Cu)	mg/L	0.0001
Iron (Fe)	mg/L	0.01
Lead (Pb)	mg/L	0.00005
Lithium (Li)	mg/L	0.005
Magnesium (Mg)	mg/L	0.005
Manganese (Mn)	mg/L	0.00005
Mercury (Hg)	mg/L	0.00001
Molybdenum (Mo)	mg/L	0.00005
Nickel (Ni)	mg/L	0.0001
Phosphorus (P)	mg/L	0.3
Potassium (K)	mg/L	0.05
Selenium (Se)	mg/L	0.0001
Silicon (Si)-Total	mg/L	0.05
Silver (Ag)-Total	mg/L	0.00001
Sodium (Na)-Total	mg/L	0.01
Strontium (Sr)-Total	mg/L	0.0001
Thallium (Tl)-Total	mg/L	0.00005
Tin (Sn)-Total	mg/L	0.0001
Titanium (Ti)-Total	mg/L	0.01
Uranium (U)-Total	mg/L	0.00001
Vanadium (V)-Total	mg/L	0.00005
Zinc (Zn)-Total	mg/L	0.001
Aggregate Organics		
Oil and Grease	mg/L	5.0
Hydrocarbons		
EPH10-19	mg/L	0.25
EPH19-32	mg/L	0.25

The analyzed data were summarized for each variable by site. Some variables could not be measured reliably below a specified detection limit and are reported by the analytical laboratory (ALS Environmental Services) as below that detection limit. When required for the purpose of statistical analyses and graphical presentation, these values (called non-detects) were replaced with half of the detection limit. Water quality results were screened against the most recent CCME and BC maximum guideline values for the protection of freshwater aquatic life (CCME 2011, BC MOE 2010).

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A water quality assurance and quality control (QA/QC) program was included in the design of this study. The program consisted of field blanks, travel blanks, duplicate samples and chain of custody (COC) forms.

The travel blank bottles were filled with distilled de-ionized water in the laboratory and remained closed throughout the field trip. This assessed any contamination associated with the laboratory procedures. The field blank bottles were also filled with distilled de-ionized water, but were opened in the field at a random site for one minute and preserved as required for certain analyses. This allowed assessment of contamination associated with field sampling (airborne contamination, contamination of the lid/bottle, etc.) and preservation procedures.

Duplicate samples were collected randomly with a corresponding sample to assess the magnitude and potential causes of variability between samples. For each duplicate pair, samples were analyzed and statistically compared using relative percent difference (RPD),

$$\textit{where:} \qquad RPD = 100^{*}|rep1-rep2|/[(rep1+rep2)/2]$$

The calculated RPD between duplicates is a measure of the variability inherent in field sampling (environmental heterogeneity, sampler handling leading to contamination, laboratory error). Water quality variables where one or both values were less than five times the MDL were not included in the RPD calculations because variability this close to the MDL is considered too high according to the BC Field Sampling Manual (BC MOE 2004). RPD values less than 20% were not considered notable. The BC provincial government suggests that any field duplicates with RPD values exceeding 20% should be noted and data should be interpreted accordingly. The results of RPD calculations were examined to detect patterns of high variation for multiple parameters within sample pairs, indicating possible contamination during field sampling.

Chemical analyses were conducted using the lowest possible detection limit. For some samples, detection limits were very high due to the interference from high conductivity, sediment (TSS), or solutes at the sample location. These samples were therefore diluted in the laboratory to facilitate analysis and the result is a higher detection limit for those particular samples.

2.5.5 Results

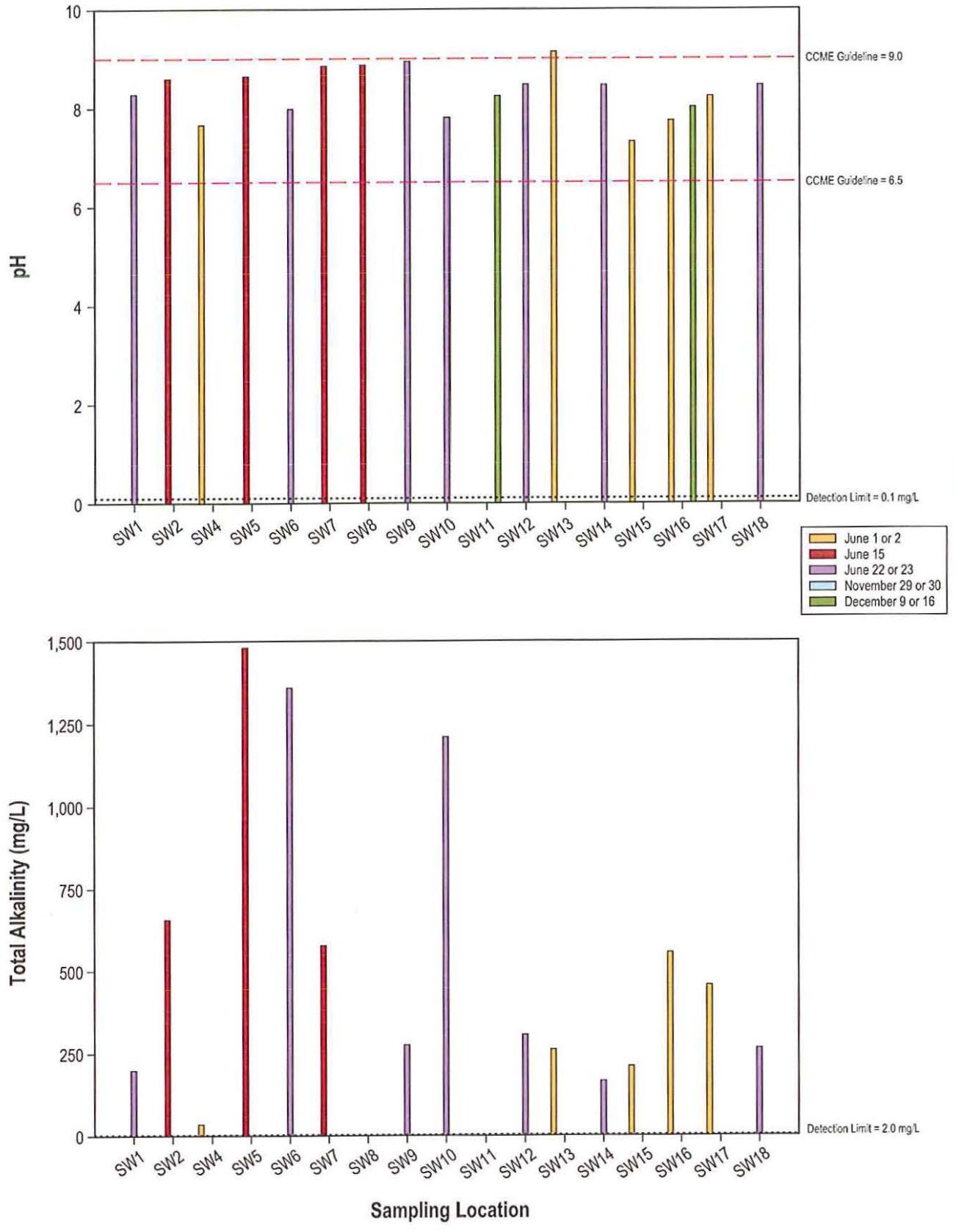
All surface water quality data are presented in Appendix 2.5-1 and the analytical detection limits in Appendix 2.5-2.

2.5.5.1 General Variables and Nutrients

Key physical variables for the sampled sites are presented graphically and discussed below. Total organic carbon (TOC), and several anions and nutrients (bromide, nitrite, and total Kjeldahl nitrogen) were below or close to the detection limits for most samples (>75%), or were not analyzed for all sample collection periods. Therefore, they were not graphed or discussed in detail. Within each graph, sites are presented in numerical order (SW1 to SW18). All available CCME and BC maximum guidelines are indicated and discussed.

All samples were within the CCME upper and lower pH guidelines except at SW13 on June 2 (pH: 9.13; Figure 2.5-2). In previous years (2007 and 2008), this site (Pothook Lake) had no samples with a pH greater than 9 (Rescan 2009). Overall, the sampled sites were highly buffered, slightly alkaline systems. Total alkalinity was greatest in June at sites SW5, SW6, and SW10, and the 2010 samples ranged from 34.1 mg/L (SW4; June 2) to 1,480 mg/L (SW5; June 15). Because of the high buffering capacity, most sites were slightly alkaline (~8 pH; Figure 2.5-2).

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Note: Red dashed line indicates guideline values; black dotted line indicates analytical detection limit.

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pH and Total Alkalinity Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-2

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Fifteen of the 2010 sample sites consistently had hardness levels above 180 mg/L and were therefore considered to have very hard water (United States Geological Survey [USGS] 2009; Figure 2.5-3). SW14 had hardness concentrations ranging from hard (June 22; 164 mg/L) to very hard (November 29; 332 mg/L). The only site that did not have hard water was SW4 (November 29; 38.2 mg/L). This site was located north of the mine at Kamloops Lake. Total suspended solid (TSS) concentrations in the region were high, exceeding 2,000 mg/L at SW10 (June 22; 2,960 mg/L) and SW6 (June 22; 2,210 mg/L) (Figure 2.5-3). Three other sites (SW5, SW7, and SW8) had concentrations above 100 mg/L. These high results at these five sites may be a result of re-suspending sediment while obtaining a sample along the basin edge. Methods are being considered to improve sample collection at these five sites to reduce sediment disturbance during sample collection. Both CCME and BC maximum guidelines are based on background TSS values. However, historical sampling events corresponding to the 2010 sample locations have not been conducted during the same seasonal time frame making comparison of historical values difficult.

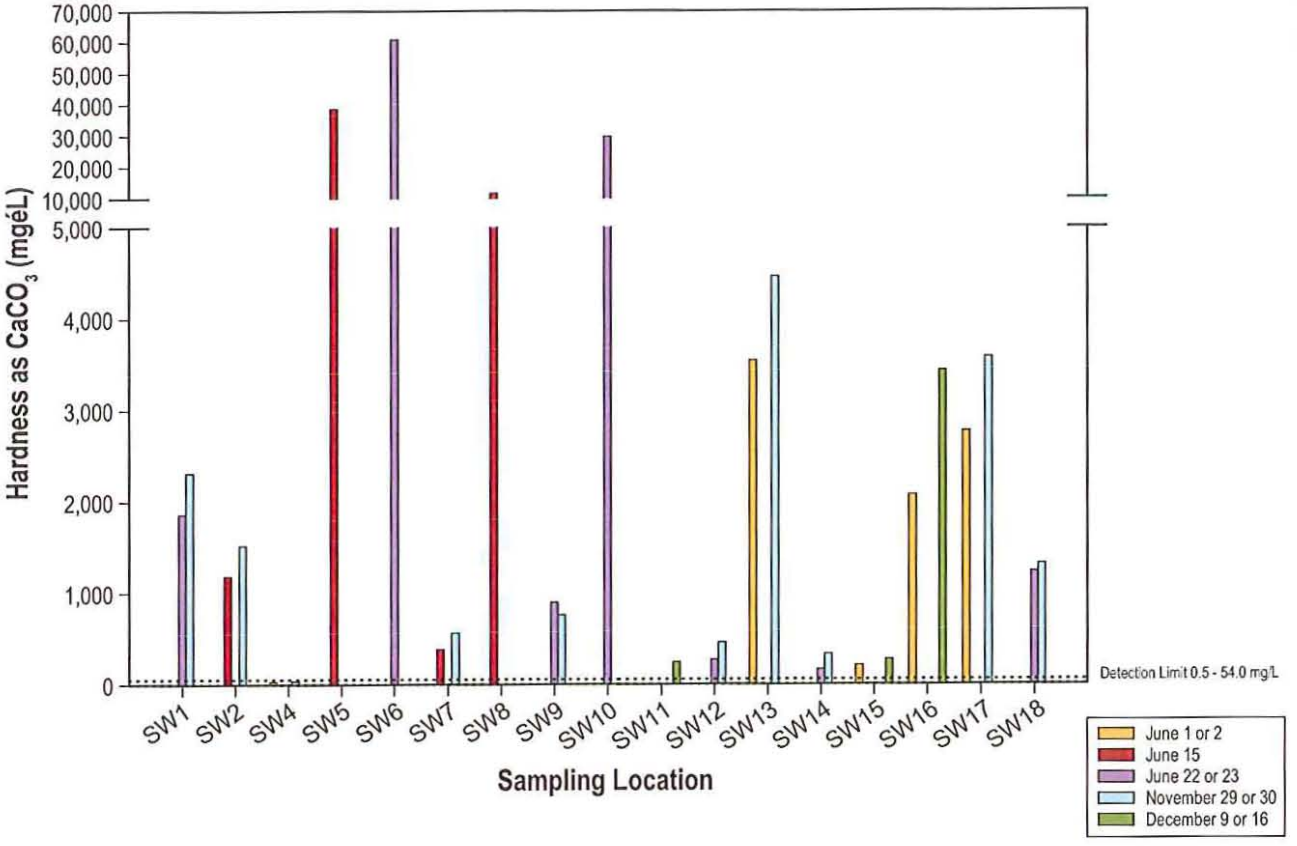
TOC was collected at five sites on either June 1 or 2 (Appendix 2.5-1). Concentrations were lowest near Adit 1 (1.91 mg/L; SW15) and highest at Pothook Lake (33.0 mg/L; SW13), which can be easily accessed by livestock. This was almost eight times lower than the historical average TOC concentration at Pothook Lake (255 mg/L; Rescan 2009).

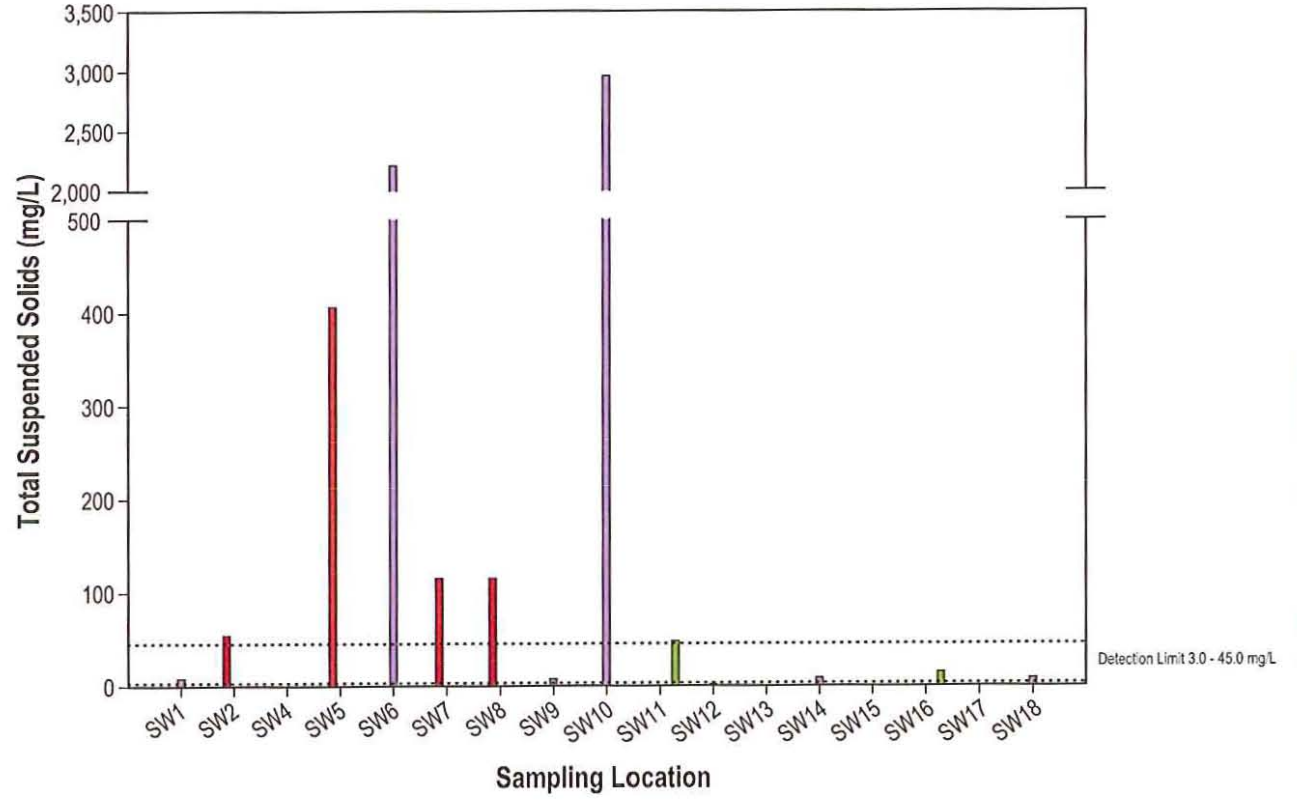
Ammonia concentrations (Figure 2.5-4) varied widely during the 2010 surveys, ranging from 0.15 mg/L at SW6 to 21.4 mg/L at SW10. Guideline exceedance values were based on pH and temperature. No temperature data were available and therefore guideline values were determined using 20°C since samples analyzed for ammonia only occurred in June. Seven sites (SW5, SW8, SW9, SW10, SW13, SW16, and SW18) had ammonia concentrations greater than the CCME and BC guidance values. All of the sites exceeding the guidelines were within the mining lease boundary except for SW10 and SW16. The high ammonia in the area may be explained through various means including the shallowness of some ponds, presence of waterfowl and livestock in ponds on the mine lease periphery, and drainage from the Teck TSF. This coupled with the alkaline soils may lead to higher concentrations than the CCME and BC guidelines. The high concentrations at SW16 may be due to runoff from the reclaimed adit or the proximity to the Kamloops industrial lands.

Most nitrate samples were below analytical detection limits (Tables 2.5-3 and 2.5-4). Those samples that were above detection limits usually had concentrations below the BC maximum (31.3 mg/L) and CCME guidelines (2.9 mg/L). One site (SW1) exceeded the BC maximum guideline on June 23 and November 30 with concentrations of 116 and 104 mg/L respectively. This site is the main storm water collection pond adjacent to the west side of the Afton Pit. Pothook Pit (SW18) only exceeded the CCME guideline for nitrate on June 23 (17.3 mg/L) and November 30 (2.95 mg/L). SW9 had nitrate concentration 18 times greater on November 30 (2.95 mg/L) than the sample taken on June 22 (0.16 mg/L). Nitrite levels were often below detection, except at eight sites of which three (SW1, SW13, and SW18) were above the 0.06 mg/L BC maximum and CCME guidelines (Appendix 2.5-1). SW1 and SW18 had high nitrite levels on June 23 corresponding to high nitrate levels observed during this period. The CCME guideline for nitrite was also exceeded on June 2 at SW13 (0.108 mg/L) when nitrate was below detection.

Total phosphate (as P) concentrations were highest at SW10 (June 22; 9.5 mg/L) and lowest at SW1 (June 23; 0.011 mg/L) (Figure 2.5-5). CCME trigger ranges for total phosphate indicate that the sampled locations are generally hyper-eutrophic, except for three sites which had mesotrophic concentrations (SW1, SW15, and SW18), one meso-eutrophic site (SW14), and two eutrophic sites (SW9 and SW17; Tables 2.5-3 and 2.5-4) (CCME 2011). The three reference sites were either hyper-eutrophic (SW12) or meso-eutrophic (SW14). Sulphate concentrations at most surface water sites are known to have been above the BC maximum guideline (100 mg/L) on several occasions (Rescan 2009). This was also the case in 2010 for fourteen of the seventeen sites including the reference sites (Table 2.5-4). Nine sites (SW1, 5, 6, 8, 10, 13, 16, 17 and 18) had sulphate concentrations 40 to 1,000 times the BC maximum guideline.

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Notes: Black dotted line indicates upper and lower analytical detection limit.
CCME and BC guidelines for total suspended solids depend on historical levels.

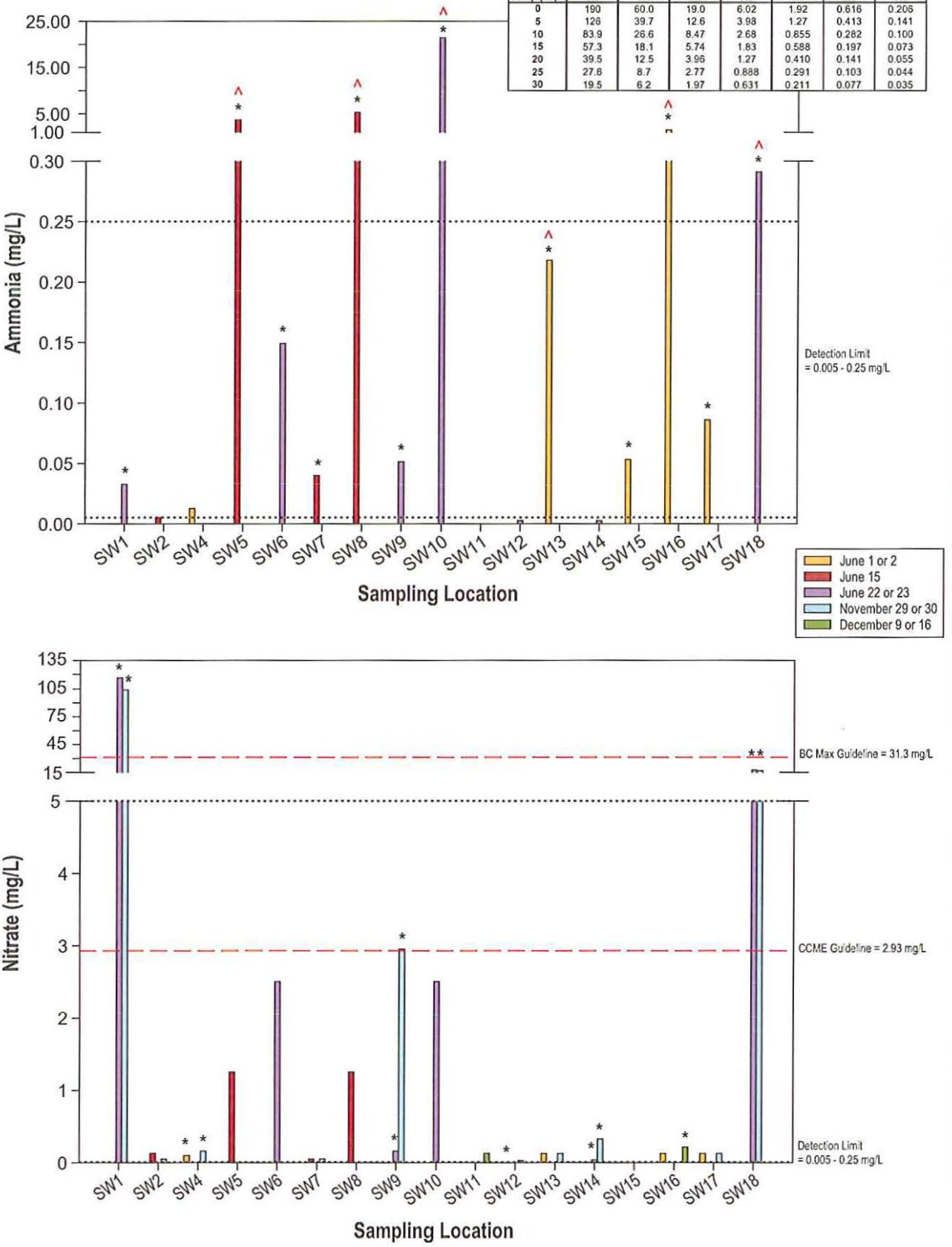
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Hardness and Total Suspended Solids Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-3

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Temp (°C)	pH 6.0	6.5	7.0	7.5	8.0	8.5	9.0
0	190	60.0	19.0	6.02	1.92	0.616	0.206
5	126	39.7	12.6	3.98	1.27	0.413	0.141
10	83.9	26.6	8.47	2.68	0.855	0.282	0.100
15	57.3	18.1	5.74	1.83	0.588	0.197	0.073
20	39.5	12.5	3.96	1.27	0.410	0.141	0.055
25	27.6	8.7	2.77	0.888	0.291	0.103	0.044
30	19.5	6.2	1.97	0.631	0.211	0.077	0.035



Notes: Red dashed line indicates guideline values; black dotted line indicates upper and lower analytical detection limits.
CCME and BC Guidelines for ammonia depend on pH and temperature.
** Indicates concentration is above analytical detection limit; ^ indicates concentration exceeds guideline based on temperature of 20° C.*

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Ammonia and Nitrate Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-4

Rescan™ Environmental Scientists

Table 2.5-3. Surface Water Quality, Percent of Samples in which Concentrations are Higher than CCME Guidelines, New Afton Project, 2010

Sample Site	Total Number of Samples Collected	CCME Guideline Values[a]	pH	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Total Phosphate (as P)	Aluminum (Al)-Total	Arsenic (As)-Total	Boron (B)	Cadmium (Cd)-Total	Chromium (Cr)-Total
			6.5-9.0	Temperature- and pH-dependent[b]	2.9 mg/L	0.06 mg/L	Trophic Status[c]	0.005-0.1[d] mg/L	0.005 mg/L	1.5 or 29 mg/L[e]	0.000017[f] mg/L	0.001[g] mg/L
SW1	2		0	0	100	50	Mesotrophic	50	0	0	0	50
SW2	2		0	0	0	0	Hyper-eutrophic	50	100	0	0	0
SW4	2		0	0	0	0	Hyper-eutrophic	50	0	0	50	50
SW5	1		0	100	0	0	Hyper-eutrophic	0	100	100	0	100
SW6	2		0	0	0	0	Hyper-eutrophic	50	0	50	0	0
SW7	3		33	0	0	0	Hyper-eutrophic	100	100	0	0	100
SW8	1		0	100	0	0	Hyper-eutrophic	0	100	100	0	0
SW9	2		0	0	50	0	Eutrophic	100	50	0	0	50
SW10	1		0	100	0	0	Hyper-eutrophic	100	50	100	0	0
SW11	1		0	0	0	0	-	100	50	100	0	100
SW12	2		0	0	0	0	Hyper-eutrophic	0	0	0	0	0
SW13	3		33	100 (1)	0	33	Hyper-eutrophic	33	66	66	0	0
SW14	2		0	0	0	0	Meso-eutrophic	50	0	0	0	0
SW15	2		0	0	0	0	Mesotrophic	50	50	0	0	50
SW16	2		0	100 (1)	0	0	Hyper-eutrophic	0	0	100	0	0
SW17	2		0	0	0	0	Eutrophic	100	100	50	0	0
SW18	2		0	100 (1)	100	50	Mesotrophic	50	100	0	0	50
Total Samples	**32**		**2**	**6**	**5**	**3**	**-**	**17**	**17**	**10**	**1**	**10**

All values represent percentages of 2010 samples higher than the CCME guidelines *(continued)*

** Elevated values were due to non-detect values being greater then the guideline when halved for calculations. No detectable concentrations were above guidelines at these sites.*

a) Canadian water quality guidelines for the protection of aquatic life (CCME 2011)

b) Values in brackets indicates the total number of analyzed samples

c) <0.004 mg/L = ultra-oligotrophic; 0.004 - 0.010 mg/L = oligotrophic; 0.01 - 0.02 mg/L = mesotrophic; 0.02 - 0.035 mg/L = meso-eutrophic; 0.035 - 0.1 mg/L = eutrophic; >0.1 mg/L = hyper-eutrophic

d) 0.005 mg/L at pH <6.5; 0.1 mg/L a pH ≥6.5

e) Short term guideline = 29 mg/L; Long term guideline = 1.5 mg/L

f) The equation for correcting this guideline for hardness is: $10^{(0.86*[\log(\text{hardness})]-3.2)} / 1000$

g) Guideline concentration for hexavalent chromium.

h) The equation for correcting this guideline for hardness is: $2.718^{(0.8545*\ln(\text{hardness})-1.465)} * 0.2 / 1000$

i) minimum 0.001 mg/L regardless of water hardness; equation for correcting this guideline is: $2.718^{(1.273*\ln(\text{hardness})-4.705)} / 1000$

j) Guideline concentration for inorganic mercury

k) minimum 0.025 mg/L regardless of water hardness (as $CaCO_3$*); equation for correcting this guideline is:* $2.718^{(0.76*\ln(\text{hardness})+1.06)} / 1000$

Table 2.5-3. Surface Water Quality, Percent of Samples in which Concentrations are Higher than CCME Guidelines, New Afton Project, 2010 (completed)

Sample Site	Total Number of Samples Collected	CCME Guideline Values[a]	Copper (Cu)-Total 0.002-0.004[h] mg/L	Iron (Fe)-Total 0.3 mg/L	Lead (Pb)-Total 0.001-0.007[i] mg/L	Mercury (Hg)-Total 0.000026[j] mg/L	Molybdenum (Mo)-Total 0.073 mg/L	Nickel (Ni)-Total 0.025-0.150[k] mg/L	Selenium (Se)-Total* 0.001 mg/L	Silver (Ag)-Total 0.0001 mg/L	Thallium (Ag)-Total 0.0008 mg/L	Zinc (Zn)-Total 0.03 mg/L
SW1	2		0	50	0	0	0	0	100	0	0	0
SW2	2		0	0	0	0	0	0	0	0	0	0
SW4	2		50	50	0	0	0	0	0	0	0	0
SW5	1		0	0	0	0	100	0	0	0	0	0
SW6	2		0	50	0	0	0	0	0	0	0	0
SW7	3		100	100	0	33	100	0	33	0	0	0
SW8	1		0	0	0	0	100	0	0	0	0	0
SW9	2		50	100	0	0	100	0	100	50	0	0
SW10	1		0	100	0	0	100	0	0	0	0	0
SW11	1		0	100	0	0	0	0	0	0	0	0
SW12	2		0	0	0	0	0	0	0	0	0	0
SW13	3		33	33	0	0	0	0	33	0	0	0
SW14	2		100	50	0	0	0	0	0	0	0	0
SW15	2		100	50	0	0	100	0	100	50	50	100
SW16	2		0	0	0	0	0	0	0	50	0	50
SW17	2		0	50	0	0	0	0	100	0	0	0
SW18	2		50	50	0	0	0	0	100	0	0	0
Total Samples	**32**		**11**	**15**	**0**	**1**	**17**	**0**	**12**	**3**	**1**	**3**

All values represent percentages of 2010 samples higher than the CCME guidelines

** Elevated values were due to non-detect values being greater then the guideline when halved for calculations. No detectable concentrations were above guidelines at these sites.*

a) Canadian water quality guidelines for the protection of aquatic life (CCME 2011)

b) Values in brackets indicates the total number of analyzed samples

c) <0.004 mg/L = ultra-oligotrophic; 0.004 - 0.010 mg/L = oligotrophic; 0.01 - 0.02 mg/L = mesotrophic; 0.02 - 0.035 mg/L = meso-eutrophic; 0.035 - 0.1 mg/L = eutrophic; >0.1 mg/L = hyper-eutrophic

d) 0.005 mg/L at pH <6.5; 0.1 mg/L a pH ≥6.5

e) Short term guideline = 29 mg/L; Long term guideline = 1.5 mg/L

f) The equation for correcting this guideline for hardness is: $10^{(0.86*\{\log(\text{hardness})\}-3.2)} / 1000$

g) Guideline concentration for hexavalent chromium.

h) The equation for correcting this guideline for hardness is: $2.718^{(0.8545*\ln(\text{hardness})-1.465)} * 0.2 / 1000$

i) minimum 0.001 mg/L regardless of water hardness; equation for correcting this guideline is: $2.718^{(1.273*\ln(\text{hardness})-4.705)} / 1000$

j) Guideline concentration for inorganic mercury

k) minimum 0.025 mg/L regardless of water hardness (as $CaCO_3$*); equation for correcting this guideline is:* $2.718^{(0.76*\ln(\text{hardness})+1.06)} / 1000$

Table 2.5-4. Surface Water Quality, Percent of Samples in which Concentrations are Higher than BC Maximum Guidelines, New Afton Project, 2010

Sample Site	Total Number of Samples Collected	BC Max Guideline Values[a]	Ammonia (as N) Temperature- and pH-dependent	Nitrate (as N) 31.3 mg/L	Nitrite (as N) 0.06 to 0.6 mg/L	Total Phosphate (as P) Trophic Status[b]	Sulphate 100 mg/L	Aluminum (Al)-Dissolved 0.1 mg/L[c]	Arsenic (As)-Total 0.005 mg/L	Boron (B)-Total 1.2 mg/L	Cobalt (Co)-Total 0.11 mg/L
SW1	2		0	100	0	Hyper-eutrophic	100	0	0	0	0
SW2	2		0	0	0	Hyper-eutrophic	100	0	100	0	0
SW4	2		0	0	0	Hyper-eutrophic	0	0	0	0	0
SW5	1		100	0	0	Hyper-eutrophic	100	0	100	100	0
SW6	2		0	0	0	Hyper-eutrophic	50	0	0	50	0
SW7	3		0	0	0	Hyper-eutrophic	100	100	100	0	0
SW8	1		100	0	0	Hyper-eutrophic	100	0	100	100	0
SW9	2		0	0	0	Eutrophic	100	0	50	0	0
SW10	1		100	0	0	Hyper-eutrophic	100	0	50	100	0
SW11	1		0	0	0	-	100	100	50	100	0
SW12	2		0	0	0	Hyper-eutrophic	100	0	0	0	0
SW13	3		0	0	0	Hyper-eutrophic	66	0	66	66	0
SW14	2		0	0	0	Eutrophic	50	0	0	0	0
SW15	2		0	0	0	Mesotrophic	0	0	50	0	0
SW16	2		0	0	0	Ultra-oligotrophic	100	0	0	100	0
SW17	2		0	0	0	Eutrophic	100	0	100	100	0
SW18	2		0	50	0	-	100	0	100	0	0
Total Samples	**32**		**3**	**3**	**0**	-	**25**	**4**	**17**	**11**	**0**

All values represent percentages of 2010 samples higher than the BC maximum guidelines

(continued)

** Elevated values were due to non-detect values being greater then the guideline when halved for calculations. No detectable concentrations were above guidelines at these sites.*

a) BC Maximum water quality guidelines for the protection of freshwater aquatic life (MOE 2010)

b) <0.004 mg/L = ultra-oligotrophic; 0.004 - 0.010 mg/L = oligotrophic; 0.01 - 0.02 mg/L = mesotrophic; 0.02 - 0.035 mg/L = meso-eutrophic; 0.035 - 0.1 mg/L = eutrophic; ¤>0.1 mg/L = hyper-eutrophic

c) guideline pH dependant; 0.1 mg/L when pH ≥ 6.5

d) corrected for hardness by (0.094(hardness)+2)*1000*

e) 0.003 mg/L when water hardness (as CaCO3) ≤ 8.0 mg/L corrected for hardness > 8 mg/L by 2.718 $^{(1.273*\ln(\text{hardness})-1.46)}$

f) acute guidline ranges between 0.8 to 3.8 mg/L for water hardness maximum concentrations between 25 to 300 mg/L

g) 0.0001 mg/L at water hardness < 100 mg/L (as $CaCO_3$); 0.003 mg/L at water hardness of > 100 mg/L (as $CaCO_3$)

*h) corrected for hardness by 33 + 0.75 * (hardness - 90)*1000*

Table 2.5-4. Surface Water Quality, Percent of Samples in which Concentrations are Higher than BC Maximum Guidelines, New Afton Project, 2010 (completed)

Sample Site	Total Number of Samples Collected	BC Max Guideline Values[a]	Copper (Cu)-Total Hardness-dependent[d]	Iron (Fe)-Total 1.0 mg/L	Lead (Pb)-Total Hardness-dependent[e]	Manganese (Mn)-Total Hardness-dependent[f]	Molybdenum (Mo)-Total 2.0 mg/L	Selenium (Se) -Total* 0.002 mg/L	Silver (Ag)-Total 0.0001 or 0.003 mg/L[g]	Zinc (Zn)-Total Hardness-dependent[h]
SW1	2		0	50	0	0	0	100	0	0
SW2	2		0	0	0	0	0	0	0	0
SW4	2		50	50	0	0	0	0	0	0
SW5	1		0	0	0	0	0	0	0	0
SW6	2		0	50	0	0	0	0	0	0
SW7	3		100	100	0	0	0	0	0	0
SW8	1		0	0	0	0	0	0	0	0
SW9	2		0	0	0	0	0	100	50	0
SW10	1		0	50	0	0	0	0	0	0
SW11	1		0	50	0	0	0	0	0	0
SW12	2		0	0	0	0	0	0	0	0
SW13	3		0	0	0	0	0	33	0	0
SW14	2		0	0	0	0	0	0	0	0
SW15	2		50	50	0	0	0	50	50	50
SW16	2		0	0	0	0	0	0	50	0
SW17	2		0	0	0	0	0	50	0	0
SW18	2		0	0	0	0	0	100	0	0
Total Samples	32		5	9	0	0	0	9	3	1

All values represent percentages of 2010 samples higher than the BC maximum guidelines

** Elevated values were due to non-detect values being greater then the guideline when halved for calculations. No detectable concentrations were above guidelines at these sites.*

a) BC Maximum water quality guidelines for the protection of freshwater aquatic life (MOE 2010)

b) <0.004 mg/L = ultra-oligotrophic; 0.004 - 0.010 mg/L = oligotrophic; 0.01 - 0.02 mg/L = mesotrophic; 0.02 - 0.035 mg/L = meso-eutrophic; 0.035 - 0.1 mg/L = eutrophic; □>0.1 mg/L = hyper-eutrophic

c) guideline pH dependant; 0.1 mg/L when pH ≥ 6.5

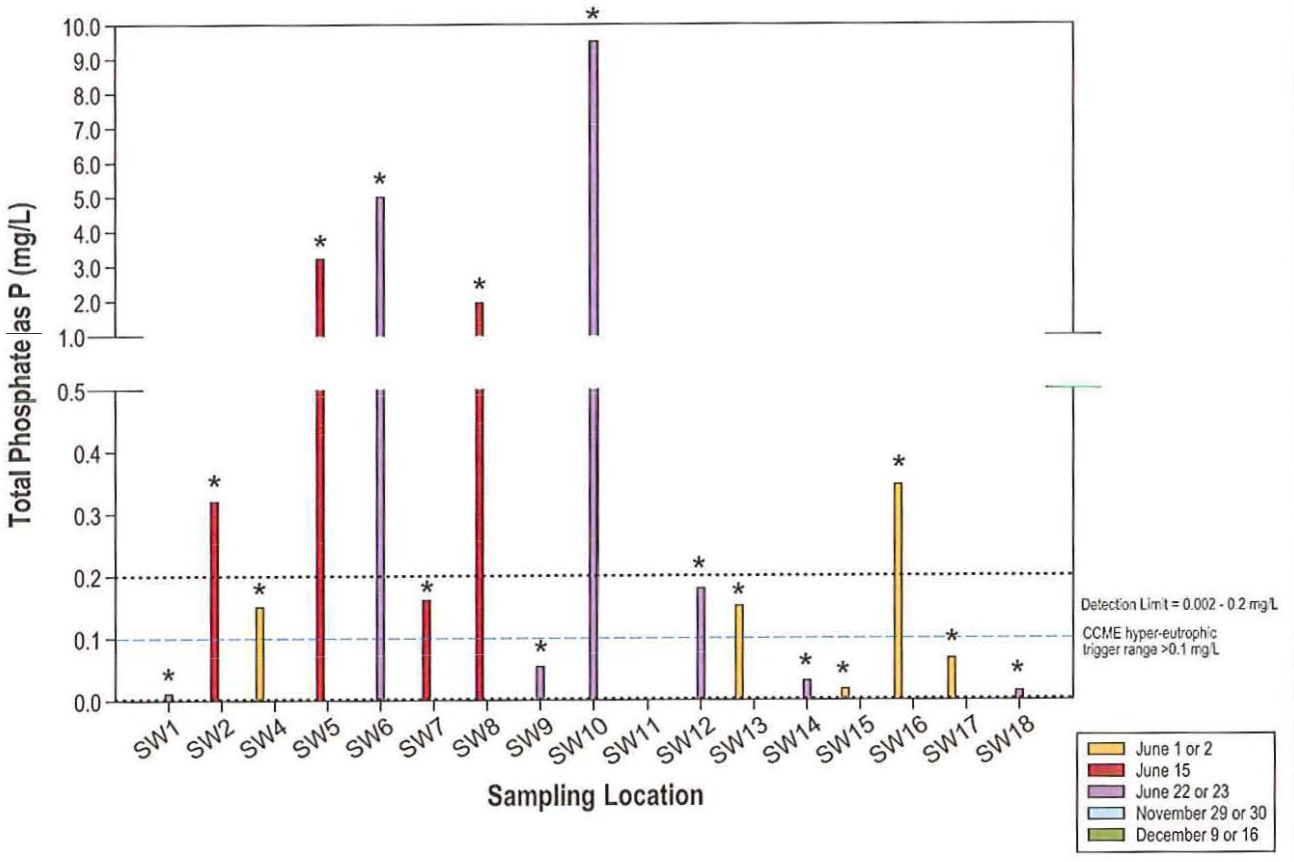
d) corrected for hardness by (0.094(hardness)+2)*1000*

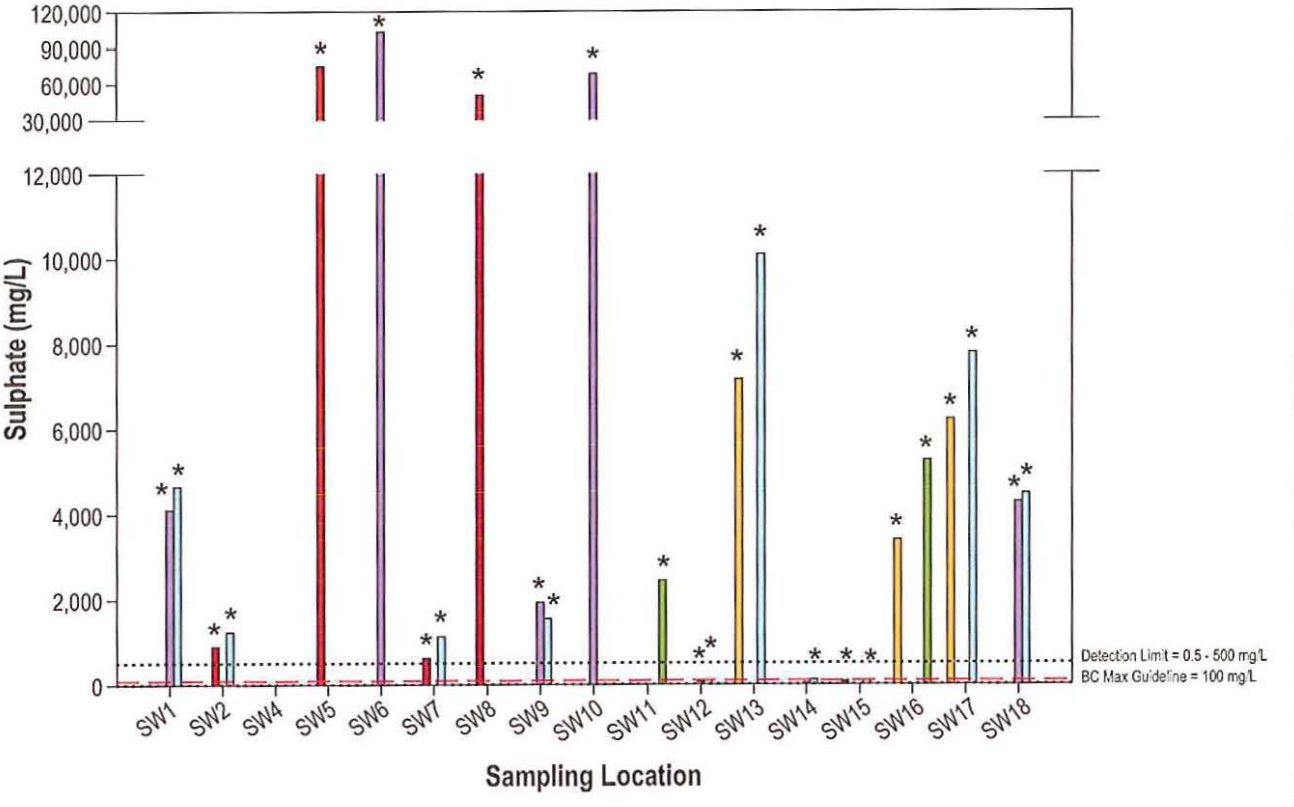
e) 0.003 mg/L when water hardness (as CaCO3) ≤ 8.0 mg/L corrected for hardness > 8 mg/L by $2.718^{(1.273*\ln(\text{hardness})-1.46)}$

f) acute guidline ranges between 0.8 to 3.8 mg/L for water hardness maximum concentrations between 25 to 300 mg/L

g) 0.0001 mg/L at water hardness < 100 mg/L (as $CaCO_3$*); 0.003 mg/L at water hardness of > 100 mg/L (as* $CaCO_3$*)*

*h) corrected for hardness by 33 + 0.75 * (hardness - 90)*1000*





Notes: Red dashed line indicates guideline values; black dotted line indicates upper and lower analytical detection limits.
Blue dashed line indicates the CCME trigger range for hyper-eutrophic level.
** Indicates concentration is above analytical detection.*

newgold

Total Phosphate and Sulphate Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-5

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Total cyanide concentrations were below detection (0.005 mg/L) at most sites, and were as high as 0.056 mg/L at SW5 in mid-June (Appendix 2.5-1). This site is a slough adjacent to Afton Pit on the northern perimeter. Eight measurable concentrations at separate sites were observed during the early and mid-June sampling dates, and no samples were analyzed for cyanide thereafter because there is no requirement from MOE in the licence. There is no CCME guideline for total cyanide. Four (SW 2, SW5, SW7, and SW7 duplicate) of the six measureable concentrations exceeded the BC guideline of 0.01 mg/L. As cyanide is not, nor will it be part of the New Afton processing, sampling and reporting of cyanide is not a reportable requirement of the MOE Effluent Discharge Permit surface water quality sampling requirement. Given the high ammonia concentrations in the area, the detectable levels of cyanide are likely naturally produced.

2.5.5.2 Total and Dissolved Metals

Some metals, including some for which guidelines exist (thallium and silver), had most of their concentrations (greater than 60%) close to or below detection limits. These are not graphed or discussed, but their data is available in Appendix 2.5-1. Figures are presented for the metals that either have available CCME or BC maximum guidelines or are relevant to associated mining processes. CCME and BC maximum guidelines for total metals were used to screen the surface water quality, except for dissolved aluminum, which has a specific BC guideline.

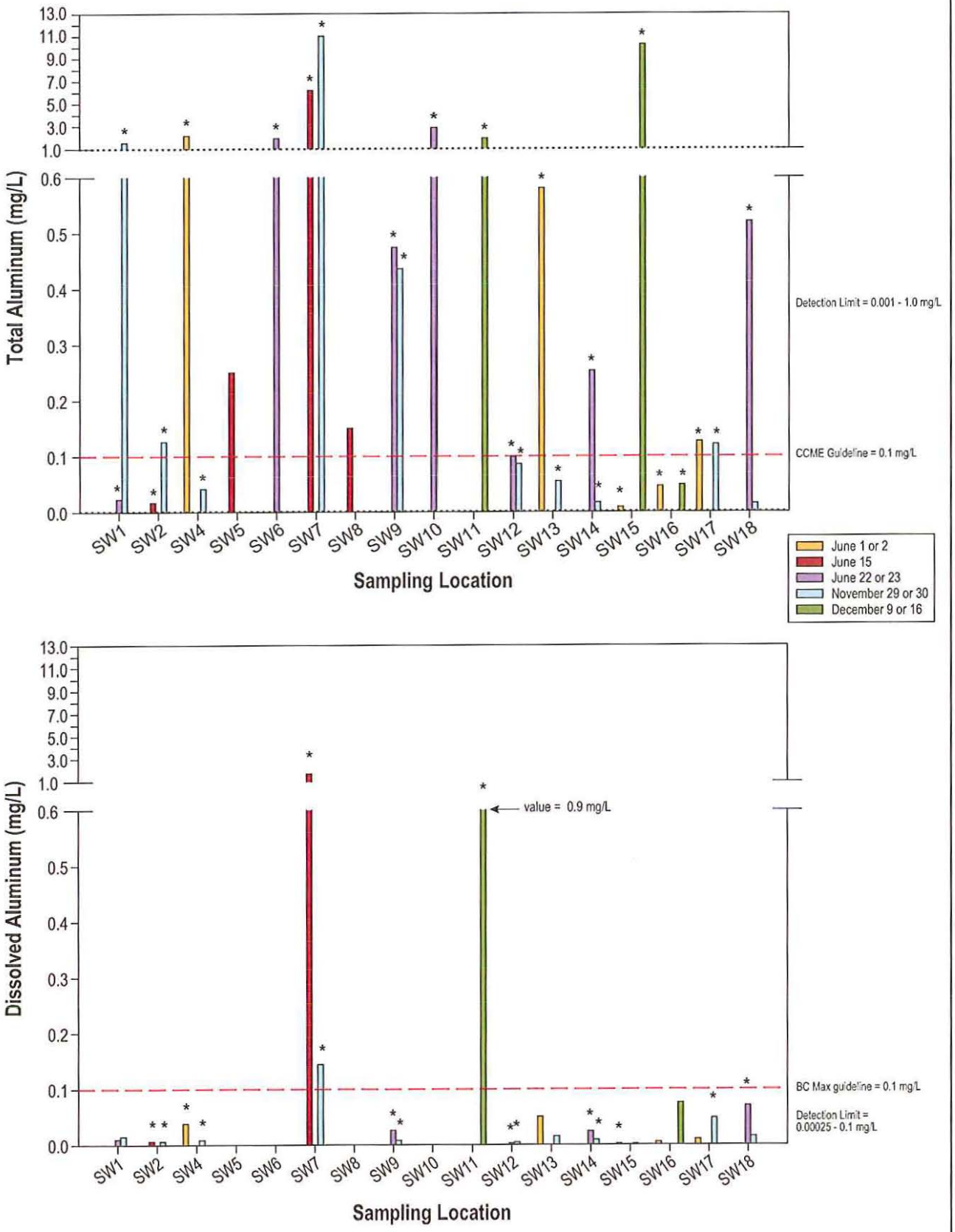
Analytical detection limits for several metals varied widely across the sampling period (Appendix 2.5-2), which likely resulted from the high levels of suspended solids and dissolved substances in the Project area. The high suspended and dissolved solid concentrations are potentially derived from sediments that are easily erodible within and surrounding the sites. SW15 (Mine Adit 1) was frequently among the sites with the highest metal concentrations, including aluminum, arsenic, chromium, cobalt, copper, iron, manganese, nickel, and zinc. In contrast, reference sites SW2, SW12, and SW14 had relatively low metal concentrations in 2010.

Water quality within the New Afton site is strongly influenced by the combined effects of geology, climate and past mining activities on this brownfield site. Concentrations of various metals contain levels above guideline values in streams both downstream and upstream of the site, indicating potential effects from the local environment (i.e., agriculture) or naturally high concentrations from local geological conditions.

Overall, total aluminum concentrations were greatest at SW7 and SW15 (11.0 mg/L in late November and 10.2 mg/L in December, respectively) (Figure 2.5-6). Dissolved aluminum concentrations ranged from 1.67 mg/L at SW7 in mid-June to below detection at SW15 in late November. All sites except five had at least one sample exceed the CCME guideline for total aluminum (0.1 mg/L), and all samples but SW7 and SW11 were below the BC maximum guideline for dissolved aluminum (Appendix 2.5-3 and 2.5-4).

Total arsenic concentrations ranged from 0.00015 mg/L at SW4 to 0.109 at SW15 (Figure 2.5-7). Most sites except SW1, SW4, SW16, and two reference sites (SW12, and SW14) exceeded the CCME and BC maximum guideline limit (0.005 mg/L) in at least one sample (Tables 2.5-3 and 2.5-4). The majority (94%) of total cadmium concentrations were below their detection limit (Figure 2.5-7). Only four sites (SW4, SW9, SW15, and SW16) had samples above detection limits. The highest total cadmium concentration occurred at SW6 (0.0085 mg/L). SW4 was only site that exceeded the hardness-dependent CCME guideline. This site had the lowest hardness concentration among the sites and is located downstream of various municipal discharges and is farthest from mining activity at the Lake Kamloops pump house.

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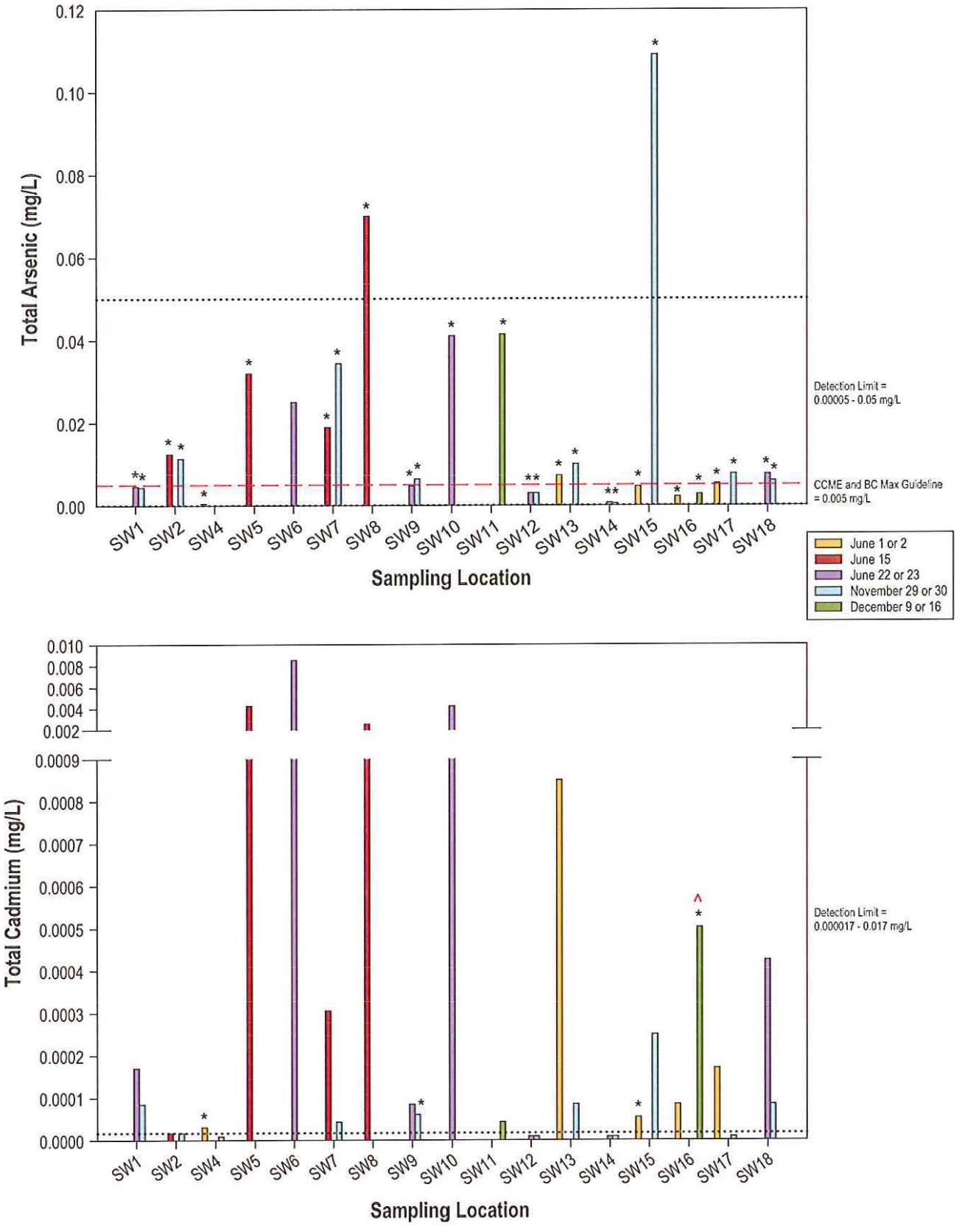
Notes: Red dashed line indicates guideline values; black dotted line indicates upper and lower analytical detection limits.
CCME guideline for total aluminum and BC guideline for dissolved aluminum for pH > 6.5.
** Indicates concentration is above analytical detection.*

newgold

Total and Dissolved Aluminum Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-6

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Notes: Red dashed line indicates guideline values; black dotted line indicates upper and lower analytical detection limits.
CCME and BC guidelines for total cadmium depend on hardness.
** Indicates concentration is above analytical detection limit; ^ indicates concentration exceeds calculated guideline.*

newgold

Total Arsenic and Total Cadmium Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-7

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Total boron concentrations within 10 samples exceeded the CCME (1.5 mg/L long term) and 11 sites exceeded the BC maximum (1.2 mg/L) guidelines (Tables 2.5-3 and 2.5-4). The guideline exceedances occurred within the two sample periods except at SW17 (June 2; 1.41 mg/L) which only exceeded the BC maximum guideline for long term exposure. No site had a total boron concentration exceeding the 29 mg/L short-term CCME guideline. Concentrations ranged from below detection limits to 22.1 mg/L (June 15; SW8). All of the sites that exceeded the guidelines are within the foot print of mine operations. Concentration on boron within the reference sites ranged from 0.021 (June 22; SW14) to 0.554 mg/L (June 15; SW2) and therefore were below the CCME and BC maximum guidelines.

Total chromium concentrations ranged from below detection limits to 0.12 mg/L at SW5 (Figure 2.5-8). Eight sites exceeded the CCME guideline for hexavalent chromium (CrVI; 0.001 mg/L), although this chemical species was not specifically analyzed. Total cobalt concentrations ranged from below detection limit to 0.014 (December 2; SW15) (Figure 2.5-8). All sites were below the BC maximum guideline of 0.11 mg/L.

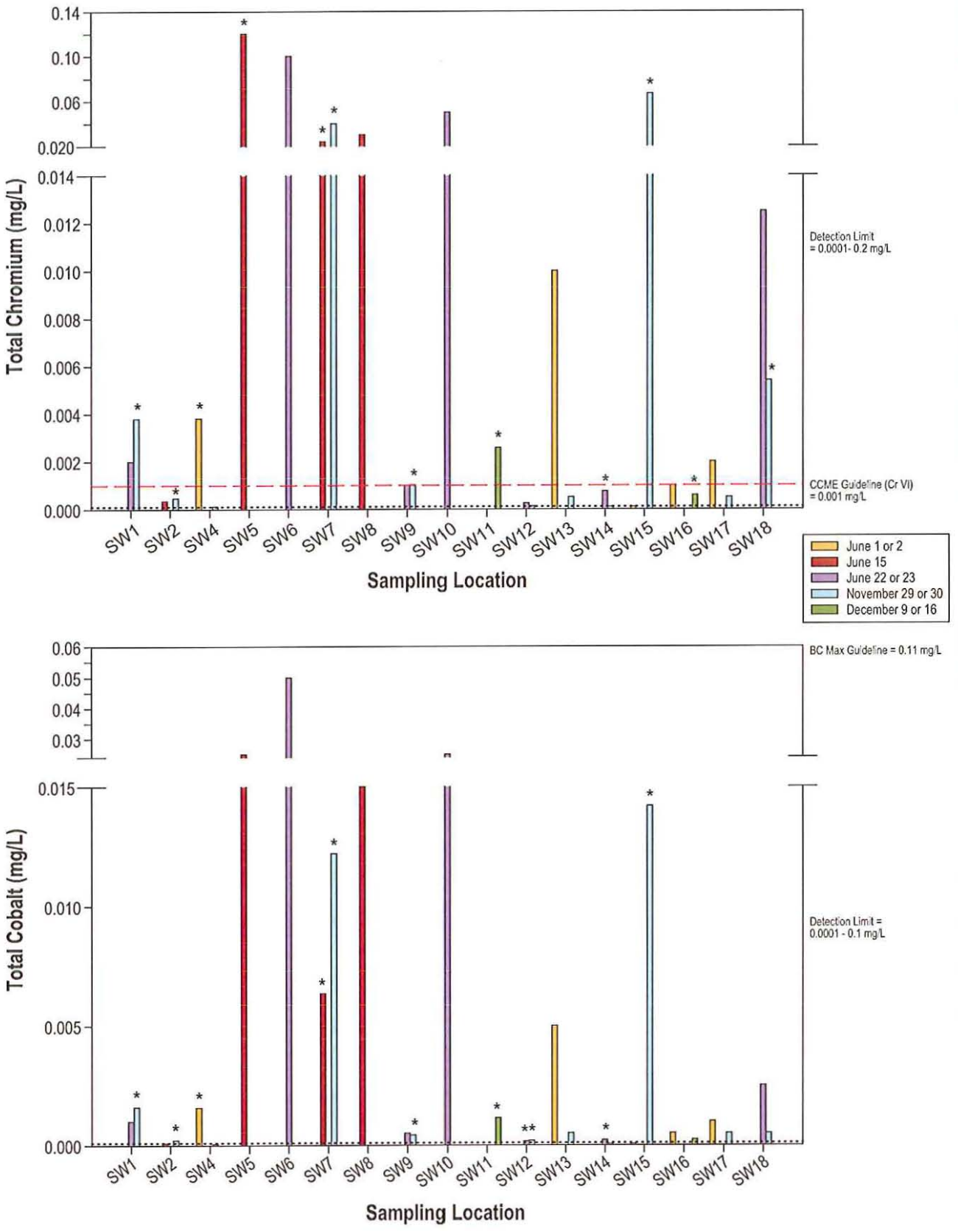
Total copper concentrations were generally below 0.15 mg/L (Figure 2.5-9). However, SW15 sampled in late November had a concentration at least 25 times higher than other sites with detectable concentrations. In total, seven sites had sample concentrations that exceeded their hardness-dependent CCME guideline including a site downstream from the Teck TSF and near the mine site (SW14; Table 2.5-3). Total iron concentrations ranged from below detection to 28.3 mg/L (SW7; Figure 2.5-9). SW7 and SW15 were the only sites with total iron concentrations above 10 mg/L. Twelve sites had total iron concentration above the CCME guideline 0.3 mg/L (Table 2.5-3). Eight of the twelve sites that surpassed the CCME guideline, also surpassed the BC maximum guideline of 1.0 mg/L (Table 2.5-4). The three reference sites were all below the BC maximum guideline, while SW14 exceeded the CCME guideline on June 22.

Total lead had a large range of detection limits from 0.00005 mg/L to 0.05 mg/L (Appendix 2.5-2; Figure 2.5-10). Most of the samples taken in 2010 were below the detection limit for lead, although this was often because of the very high detection limits associated with the high levels of suspended and dissolved substances. No samples exceeded the hardness-dependent CCME and BC maximum guidelines for lead (Tables 2.5-3 and 2.5-4). One of the two mine adits (SW15) had the highest detectable lead concentration (0.011 mg/L on December 2) amongst the sample locations. Total manganese concentrations ranged from 0.004 mg/L at SW1 on June 23 to 2.56 mg/L at SW6 on June 22 (Figure 2.5-10). No sample exceeded the hardness-dependent BC maximum guideline for total manganese.

Six of the sampled locations had total molybdenum concentration above the 0.073 mg/L CCME guideline (Figure 2.5-11; Table 2.5-3). No sites exceeded the BC maximum guideline at 2.0 mg/L (Table 2.5-4). The three reference sites were all below the CCME and BC maximum guidelines. SW15 had the highest total nickel concentration at 0.114 mg/L, which was more than two times higher than the next highest concentration, 0.049 mg/L at SW7 (Figure 2.5-11). The lowest total nickel concentration of 0.0002 mg/L was at SW14 on June 22. The hardness-dependent CCME guideline was not exceeded by any sample.

Like many parameters in the Project area, total selenium concentrations varied widely, ranging from 0.00021 mg/L at SW4 to 0.088 mg/L at SW1 (Figure 2.5-12). Eleven sites had total selenium concentrations exceeding the CCME guideline of 0.001 mg/L, while ten of these sites also exceeded the BC maximum guideline of 0.002 mg/L (Table 2.5-3 and Table 2.5-4). The three sites with the highest selenium concentration (SW1, SW9, and SW18) exceeded the CCME guideline by more than 30 times. Concentration of selenium in the reference sites were below both of the guidelines. Total zinc concentrations ranged from below detection to 0.89 mg/L (Figure 2.5-12). The highest zinc concentration occurred in late November at SW15. Two sites (SW15 and SW16) exceeded the CCME guideline 0.03 mg/L. SW15 also exceeded the hardness-dependent BC maximum guideline (Table 2.5-4).

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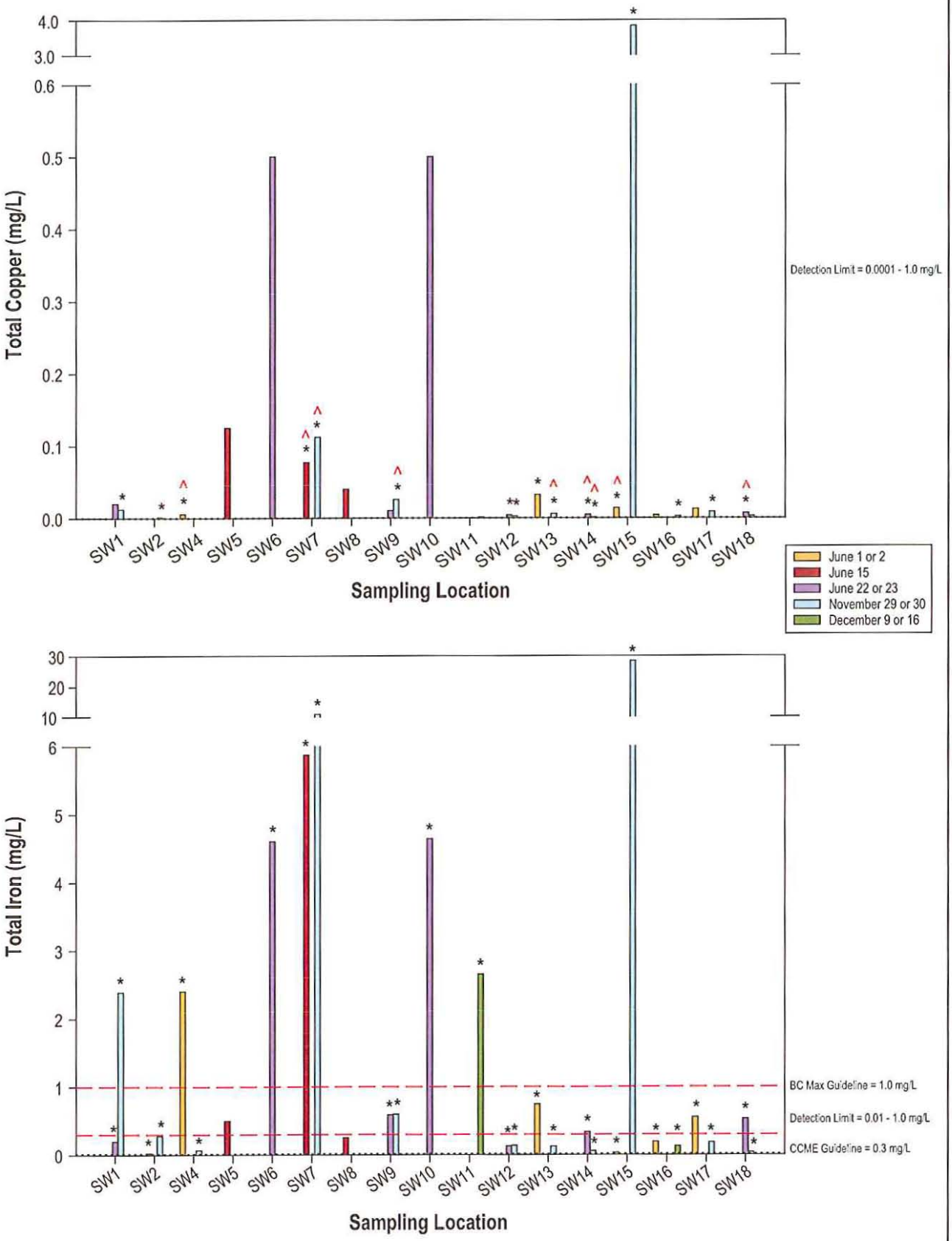
Notes: Red dashed line indicates guideline values; black dotted line indicates upper and lower analytical detection limits.
** Indicates concentration is above analytical detection limit.*

newgold

Total Chromium and Total Cobalt Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-8

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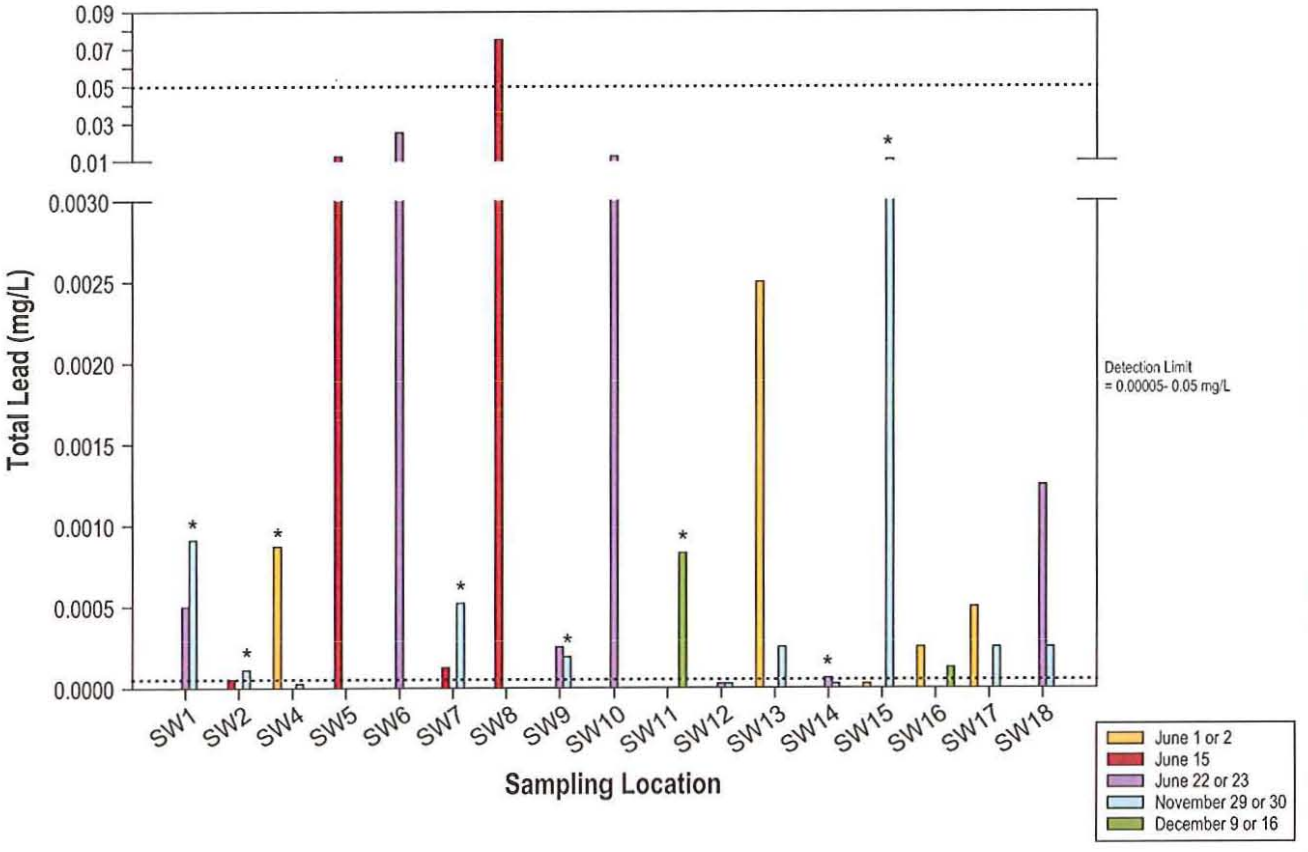
Notes: Red dashed line indicates guideline values; black dotted line indicates upper and lower analytical detection limits.
CCME and BC guidelines for total copper depend on hardness.
** Indicates concentration is above analytical detection limit; ^ indicates concentration exceeds guideline based on temperature of 20° C.*

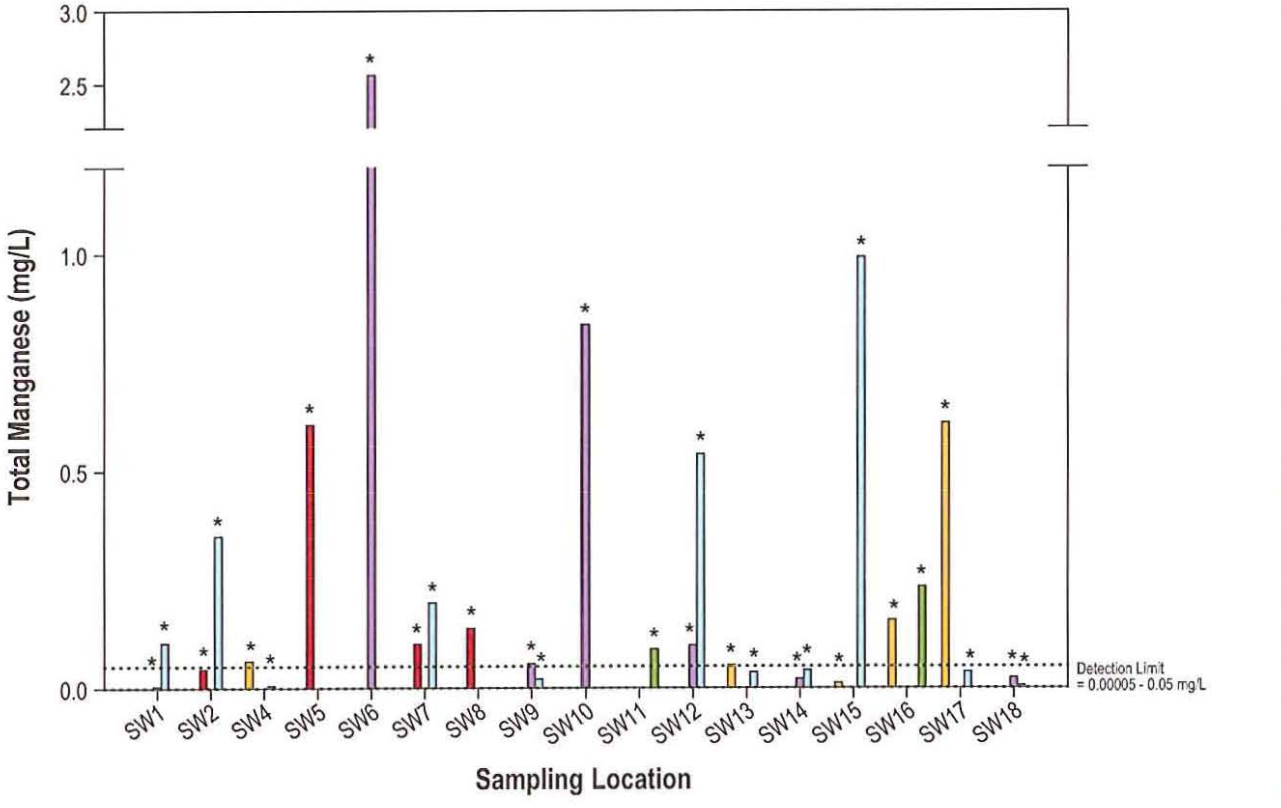
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Total Copper and Total Iron Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-9

Rescan™ Environmental Consultants





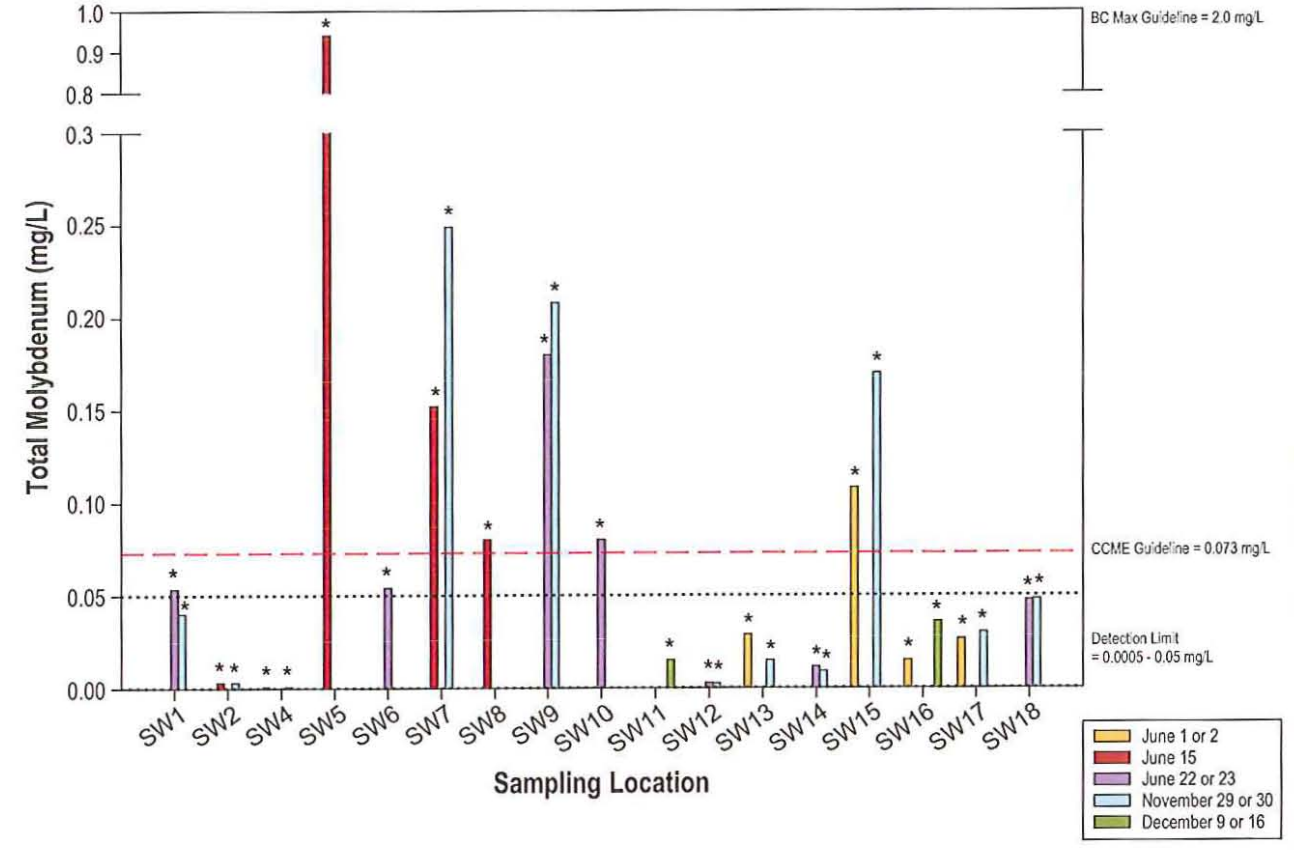
Notes: Black dotted line indicates upper and lower analytical detection limits.
CCME and BC Guidelines for total lead and BC Guideline for total manganese depend on hardness; no sites exceeded guidelines.
** indicates concentration is above analytical detection limit.*

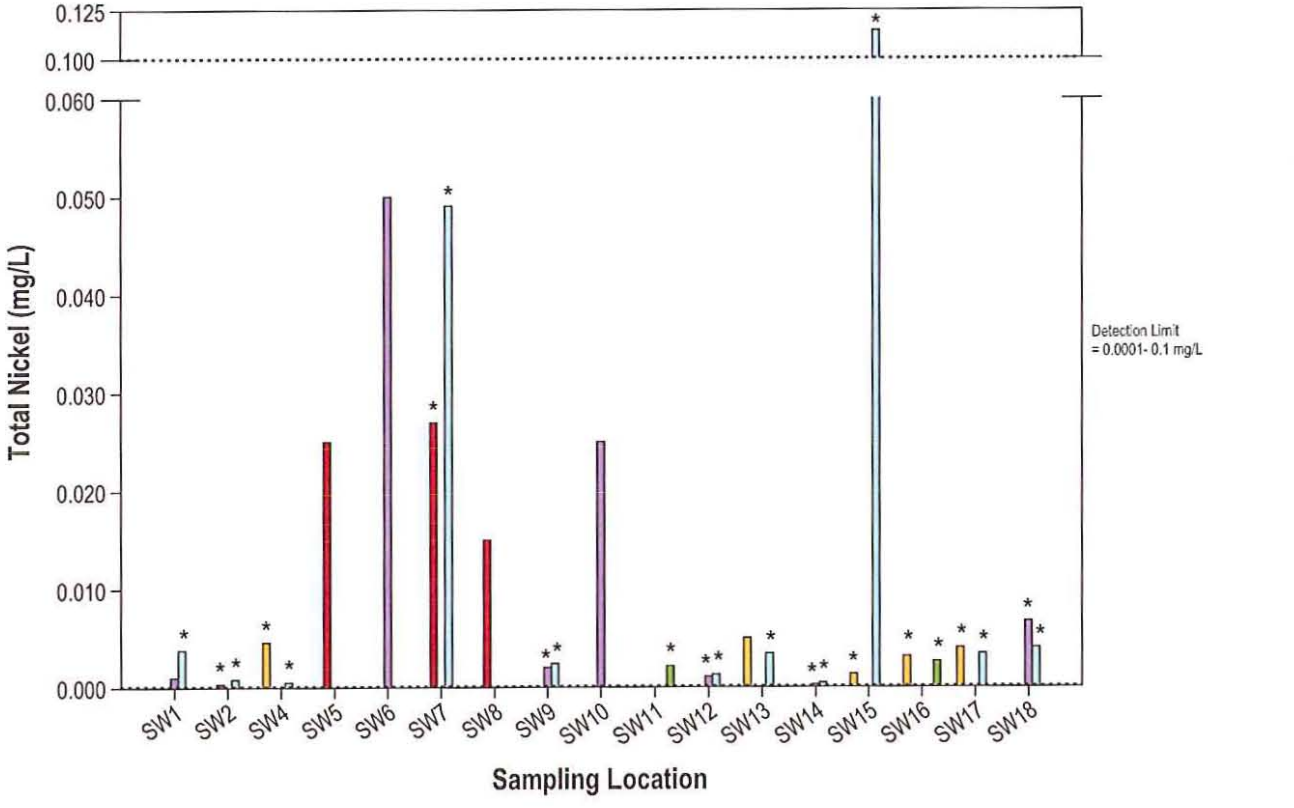
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Total Lead and Total Manganese Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-10

Rescan™ Environmental Scientists





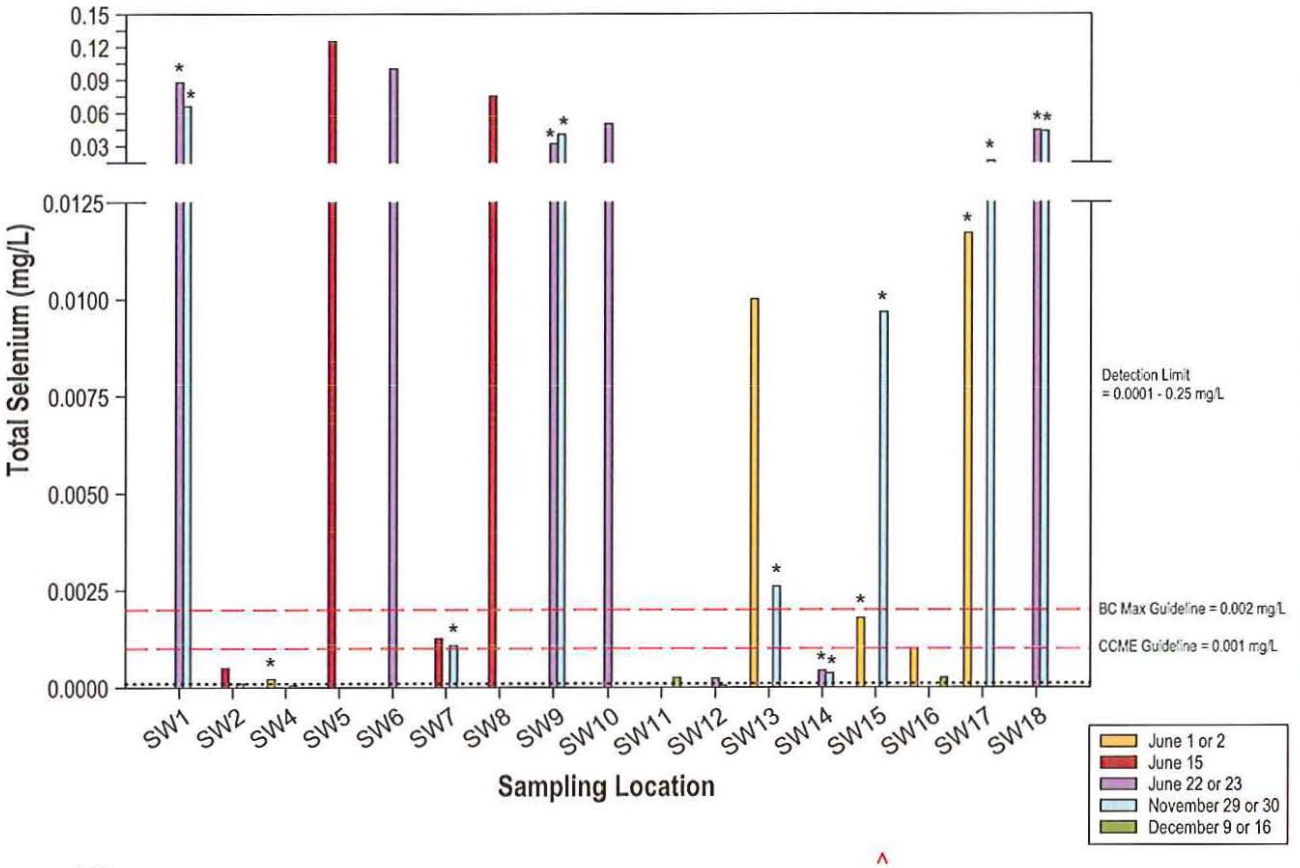
Notes: Red dashed line indicates guideline values; black dotted line indicates upper and lower analytical detection limits.
CCME guideline for total nickel depends on hardness; no sites exceeded guidelines.
** indicates concentration is above analytical detection limit.*

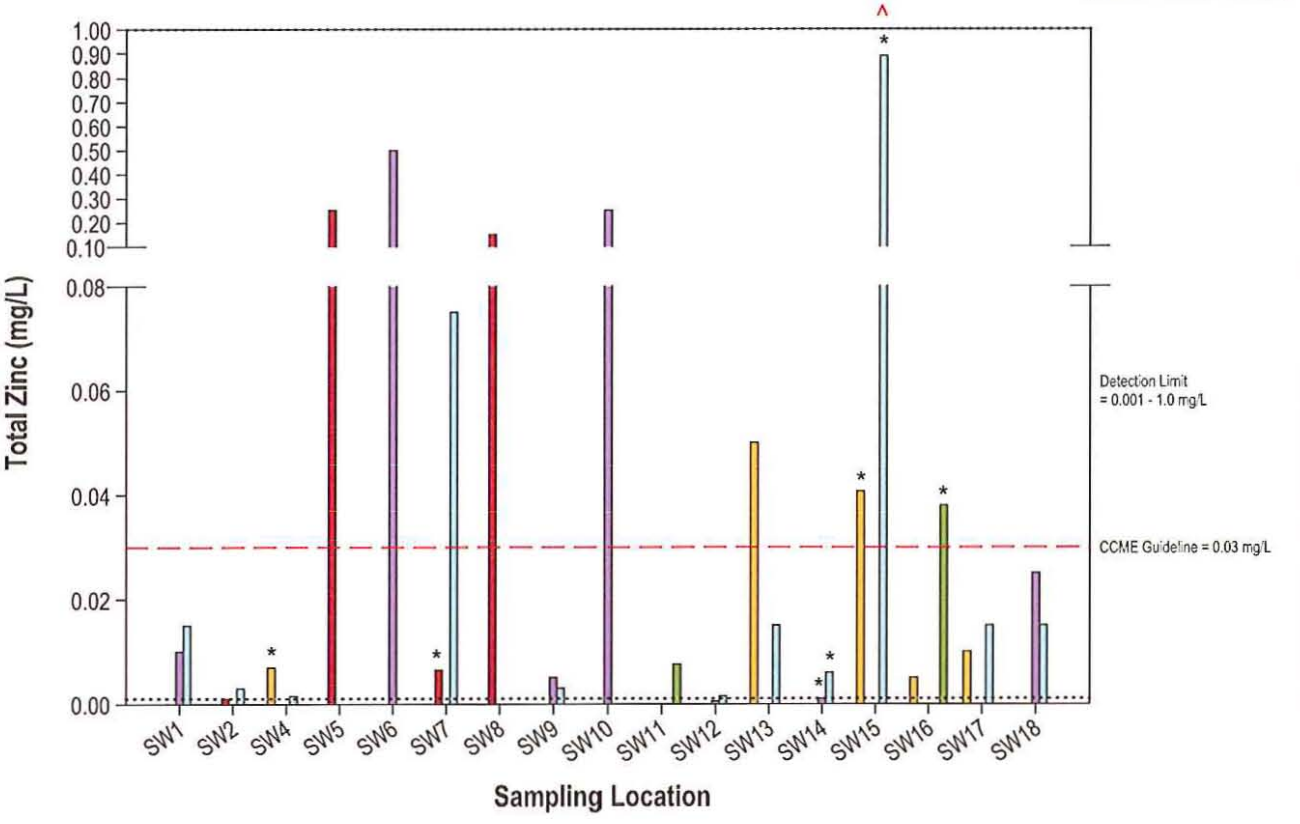
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Total Molybdenum and Total Nickel Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-11

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Notes: Red dashed line indicates guideline values; black dotted line indicates upper and lower analytical detection limits.
BCGuideline for total zinc depends on hardness.
** Indicates concentration is above analytical detection limit; ^ indicates concentration exceeds calculated guideline.*

newgold

Total Selenium and Total Zinc Concentrations from Surface Water Quality Sampling Sites, New Afton Mines Project, 2010

Figure 2.5-12

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Four sample sites (SW5 and SW8 in mid-June; SW6, SW10 in late June) had total uranium concentrations that exceeded the long-term (0.015 mg/L) and short-term (0.033 mg/L) CCME guideline concentrations (Table 2.5-3). Site SW5 had the highest concentration of 0.475 mg/L (mid-June). All sites had concentrations above the associated measurable detection level.

2.5.6 Quality Assurance and Quality Control (QA/QC)

Detailed analytical results for field and travel blanks are presented in Appendix 2.5-3. All travel and field blank samples collected for this report were below analytical detection limits for total metals, with the exception of boron in the December blank. The observed concentration in this sample is within 0.0004 mg/L of the detection limit (0.0001 mg/L) and is not considered to be of concern with respect to contamination of actual samples taken from the sites. The travel blanks did not have any total metal concentrations above detection limits.

The RPD analyses of QA/QC field duplicate data are reported in Appendix 2.5-4. In 2010, two duplicate pairs of samples were compared for each variable above detection limit using the calculated RPD between the replicates as a measure of the variability inherent in field sampling (environmental heterogeneity). Approximately 28% and 34% of analytical results within duplicate pairs were less than five times the detection limit, and therefore RPD values were not calculated. Of the remaining results, only eight of the parameters exceeded the threshold of 20% indicated by provincial guidance. These include total suspended solids, total phosphate, and dissolved species of aluminum, copper, iron, manganese, nickel, and silicon for SW7.

2.5.7 Monitoring

Water quality monitoring of all eighteen sites (SW1 to SW18) will continue to be sampled on a quarterly basis. Additional sampling sites may be considered as additions to the existing program. The sampled sites meet the Mine Effluent Discharge Permit requirements of the Ministry of Environment.

2.5.8 Summary

The New Afton Mine Permit area and surrounding lands operated by New Gold Inc are presently being sampled at 18 sites on a quarterly basis for surface water quality. The sites included a diversity of conditions; small shallow ponds, creeks, Kamloops Lake, other mine site seepage drainage. The New Afton Mine Site itself does not result in any surface water discharge off-site; hence certain sites (e.g. SW 4, 12, 15, 16) are not directly nor indirectly affect by mine site geology or activities. SW 15 and SW16 are located in an area of past mining activities, with more recent anthropopenic activity, and may need to be investigated further. Similarly, SW7, SW8 and SW9 are directly related to the Teck TSF from former Afton Mine operations, a facility for which New Gold Inc is not the permitted owner.

High metal concentrations observed at various locations around the mine appear to be naturally derived from local geological conditions or from past land use activities. New Afton mine is a zero-discharge site and therefore has minimal impact on the pre-existing surface water quality conditions upstream or downstream of the mine. Previous activities (i.e., mining and agriculture) around the current mine area may contribute to the high metal concentrations observed at various sample locations within the current mining lease boundary. Water quality monitoring will continue at the eighteen sites on a quarterly basis a subset of which includes the sites required by the Ministry of Environment's Mine Effluent Discharge Permit.

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2.6 GROUNDWATER QUALITY

2.6.1 Introduction

This section presents groundwater quality data collected in 2010 and compares the results to historical monitoring data as required by Permit M-229, dated October 30, 2007, which states that the "Permittee shall monitor and track changes to surface and groundwater drainage chemistry from individual disturbed areas". A detailed groundwater report presenting all the available groundwater quality data for the New Afton Mine Project was completed by Rescan in 2010. The report provided a review of historical data, a characterization of the site hydrostratigraphy, a compilation of groundwater level data and a potentiometric surface map.

The site stratigraphy comprises bedrock overlain by overburden materials up to 72 m thick. The report characterizes the overburden material as "modified in many areas due to historical mining operations and is composed mainly of till and mine waste rock". The measured hydraulic conductivities (K) are typical of the rocks and overburden materials present in the mine site area. The of overburden average K (geometric mean) is highly variable: 1×10^{-10} m/s 8.4×10^{-4} m/s for till and waste rock respectively. Bedrock K in the top 50 m of the mine site area has moderate average K of 8.6×10^{-7} m/s.

The results of the 2010 report demonstrated that the Afton Pit is a groundwater sink with groundwater flow vectors converging on the pit at least 1 km distance from the pit. Most mine infrastructure is within a kilometre of the pit so that groundwater flow within the mine site is considered 'captured' by the pit. The western parts of the former Teck TSF may be an exception to the groundwater flow towards the pit and there may be a component of north-westerly flow in the tailings deposit area.

Historical and current groundwater quality results indicate that groundwater has elevated concentrations of parameters typically associated with mining activities. The extent to which these concentrations reflect historical mining activities as opposed to naturally elevated background concentrations is unknown (for example, >2,000 mg/L sulphate in the Stenger well, located some 4 km northwest of the mine site).

Groundwater monitoring wells within the mine area have been installed in overburden and bedrock at various periods during previous mining operations. The wells are predominantly clustered on the western edge of the former Teck TSF (Figure 2.6-1) and east of a waste rock dump. The monitoring wells show elevated Electrical Conductivity (EC) as well as concentrations of sulphate and several metals consistent with mining impacts. Some noteworthy conclusions from the 2010 report include:

- The well to the north of the site PA-3P1 shows very high total dissolved solids (TDS) and elevated ammonia consistent with the sewage lagoon north of the mine office area.
- RES-01A is a grout impacted well (pH >10) and should not be used in future groundwater monitoring.
- A 'background' monitoring well (RES-05) is screened at a depth of 430 m below surface and is located north of the mine and TransCanada Highway.
- Samples from a number of the wells had very high total suspended solids (TSS) possibly related to inappropriate sampling techniques (e.g., they may require low flow sampling). Alternatively, these wells may have been poorly installed or failed and may be no longer suitable as monitoring wells since elevated total metal concentrations are often related to the suspended solid content.

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FIGURE 2.6-1

New Afton Project Groundwater and Surface Water Sampling Sites

- Some of the shallow screened wells (in overburden) show influences from surface water and soil processes, for example, elevated total dissolved solids (evaporative concentration) and total organic carbon / nitrate (form organic matter decomposition).

2.6.2 Scope of Work

The scope of work for this report is limited to assessment of groundwater quality in the following four (4) residential wells and 11 mine site monitoring wells from which samples were collected in 2010:

- Residential Wells:
  - ~~Mahal~~;
  - Asquini;
  - Killback; and
  - Stenger.
- Mine Area Monitoring Wells:
  - M5202;
  - M5203;
  - M5301;
  - M5302;
  - M5303;
  - PA-1P1;
  - PA-2P1;
  - PA-3P1;
  - RES-01A;
  - RES-05; and
  - RES-06.

Figure 2.6-1 shows the locations of groundwater monitoring wells. At the mine site, two of the monitoring wells are installed in overburden (M5203 and M5303) and the remainder are installed in bedrock. The residential wells are screened in bedrock. Table 2.6-1 provides construction details of the mine site and residential monitoring wells including well and screen depth (slotted PVC interval).

2.6.3 Objectives

The objectives of this assessment are to determine whether there are any significant changes in groundwater quality from previous years.

2.6.4 Methods

Rescan completed monitoring of the mine site and residential wells in March 2010. New Gold completed sampling in August and September 2010. The wells were sampled according to the *British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples (Water, Air and Climate Change Branch Ministry of Water, Land and Air Protection Province of British Columbia 2003)*. Groundwater samples were submitted to ALS Laboratory in Vancouver.

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Table 2.6-1. Groundwater Well and Piezometer Completion Details

Location Identifier	Installation Type	Installation Date	Location Description	UTM Location		Ground Elevation (masl)	Drill Hole Depth (mgbs)	Stick up (mags)	Drill Hole Diameter (mm)	Well Inner Diameter (mm)	(mbgs)		(mbgs)		Screened Horizon
				Easting	Northing						Top	Bottom	Top	Bottom	
Overburden wells															
M5203	Well	Dec-76	NW Edge of Old W Tailings Dam	673887[2]	5614368[2]	644.5	21.34	1.12	N/A	N/A	N/A	N/A	15.24	19.81	Overburden
M5303	Well	Dec-76	SW Edge of Old W Tailings Dam	673763[2]	5613406[2]	674.5	15.24	0.50	N/A	N/A	N/A	N/A	11.58	14.63	Overburden
Bedrock Wells															
M5301	Well	Dec-76	SW Edge of Old W Tailings Dam	673765[2]	5613407[2]	674.2	32.00	N/A	N/A	N/A	N/A	N/A	17.08	23.78	Bedrock
M5302	Well	Dec-76	SW Edge of Old W Tailings Dam	673722[2]	5613407[2]	674.4	21.34	N/A	N/A	N/A	N/A	N/A	17.68	20.73	Bedrock
M5202	Well	Dec-76	NW Edge of Old W Tailings Dam	673875[2]	5614292[2]	646.3	51.82	1.70	N/A	N/A	N/A	N/A	42.68	47.25	Bedrock
PA-1 P1	Well	Sep-06	SE Property Corner	676818	5613441	746.2	N/A	0.93	83	50	28.65	30.18	24.68	30.18	Bedrock
PA-2 P1	Well	Sep-06	SE of Pothook Pit	676901	5614022	741.5	N/A	1.04	112	50	43.89	45.42	41.82	45.42	Bedrock
PA-3 P1	Well	Sep-06	N of Sewage Lagoons	676628	5615549	658.5	N/A	0.99	83	50	43.89	45.42	42.42	45.42	Bedrock
RES-01A	Well	Apr-06	SE Edge of Old Tailings Pond	675220	5613350	710.0	N/A	1.09	96	49	18.64	21.64	17.90	22.23	Bedrock
RES-05	Well	Jun-06	N Property Edge	675368	5616067	673.0	N/A	0.95	96	49	429.50	441.66	423.11	442.36	Bedrock
RES-06	Well	May-06	SE of Rock Dump #1	676288	5614022	732.0	43.28	1.22	96	49	36.25	42.35	35.85	42.69	Bedrock
Residential Wells															
Asgoni	Well	N/A	NW of Property	672265	5615435	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kilback	Well	N/A	NW of Property	671034	5617368	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mahal	Well	N/A	NW of Property	672980	5615427	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Bedrock
Stenger	Well	N/A	NW of Property	669484	5617775	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Bedrock

Notes:

N/A - not available.

masl - metres above sea level.

mbgs - meters below ground surface.

mags - meters above ground surface.

[1] assumed half way between bottom of well screen and bottom of bentonite.

[2] coordinates taken from GIS plot.

[3] coordinates inferred from Pothook Dam map in Vector Report (Appendix J).

Coordinates are NAD 83, UTM Zone 9.

Results for groundwater quality were compared against the British Columbia Ministry of Environment's Water Quality Guidelines for Fresh Water Aquatic Life (BCFAL) for the wells on the New Afton mine site. Groundwater quality of residential wells was compared to the British Columbia Drinking Water Guidelines (BCDW).

2.6.5 Results

All raw groundwater quality data is presented in Appendix 2.6-1. Analytes include those recommended in Permit M-229 and the BC MOE Effluent Permit 100224 and typically monitored for mining projects in British Columbia; they include general chemistry, major anions and cations, dissolved and total metals.

2.6.5.1 Data Quality Assurance

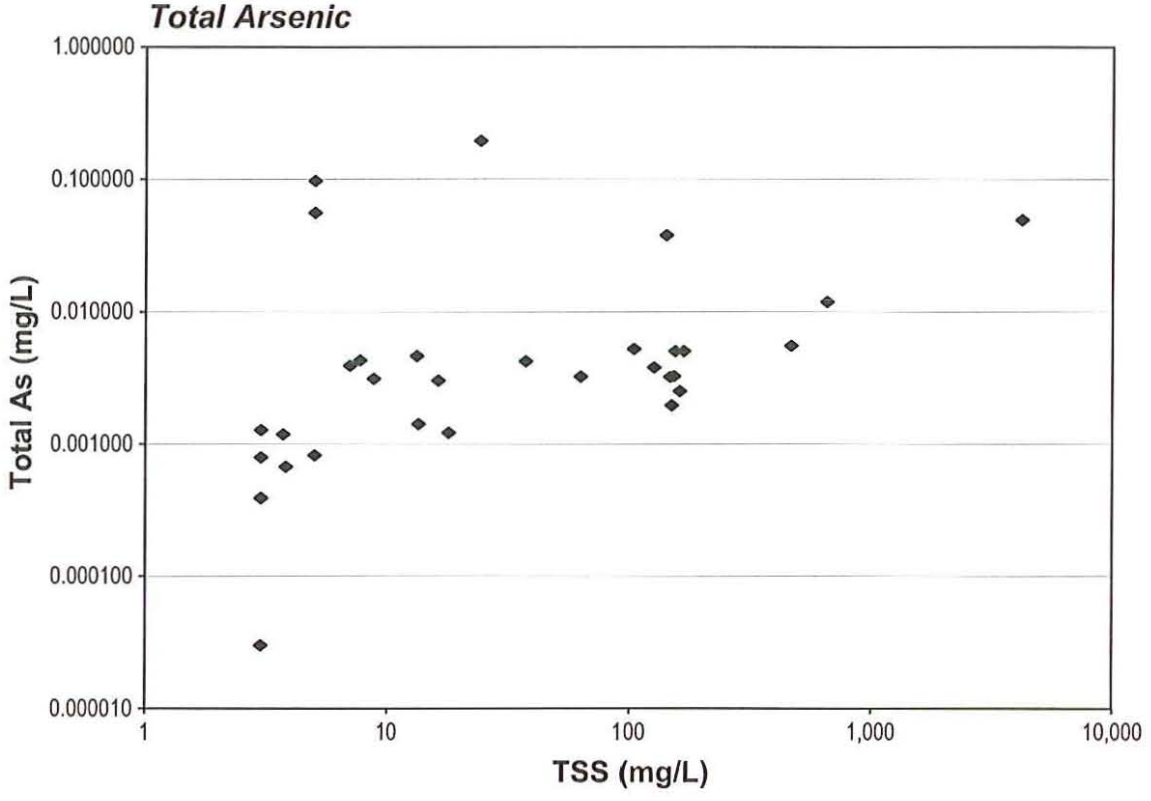
Four samples from 2010 were taken in duplicate to ensure proper data quality. Table 2.6-2 shows the relative percent differences (RPD) for conductivity, sulphate and dissolved arsenic, iron, aluminum and selenium. The RPDs for EC, SO4, As and Se, are less than 20%, indicating acceptable data quality. Dissolved aluminum in the Mahal well had a higher RPD (56%); however, in this case the result is close to the detection limit and therefore higher RPDs (up to 100%) are acceptable. RPDs for dissolved iron and aluminum in M5301 are high (116% and 233%, respectively) but the result is not close to the detection limit. In this case, the error is believed to be from sampling since dissolved metals require a field-filtering step that introduces potential for error (high RPDs were not observed in unfiltered parameters such as EC and sulphate). Typically the higher value is assumed as the result.

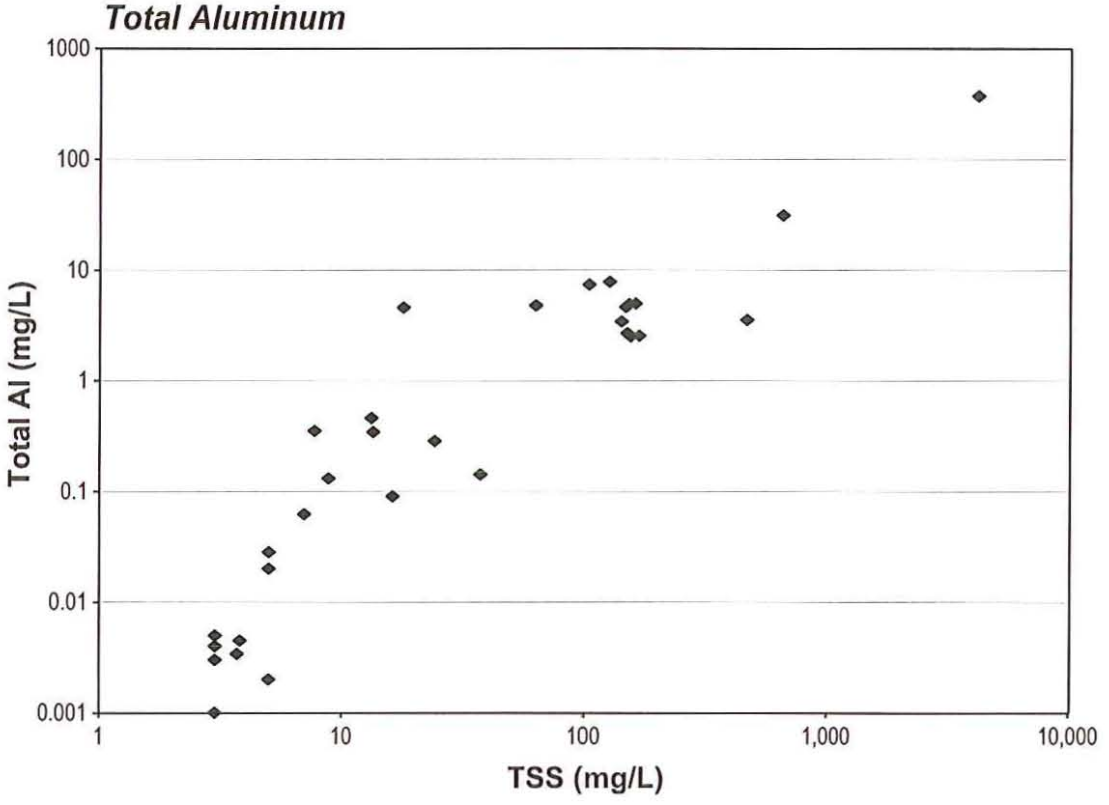
Table 2.6-2. Relative Percent Difference between Samples and Duplicates, 2010

Well Sampled	Date Sampled		EC (µS/cm)	SO4 (mg/L)	Dissolved As (mg/L)	Dissolved Fe (mg/L)	Dissolved Al (mg/L)	Dissolved Se (mg/L)
Mahal	14-Jul-10	sample	606	81.1	0.000483	0.012	0.0034	0.00133
		duplicate	609	81.1	0.000429	<0.010	0.0015	0.00128
		RPD (%):	***0.5***	***0.0***	***11.2***	-	***55.9***	***3.8***
PA-3P1	24-Mar-10	sample	18200	13300	<0.0050	1.67	<0.050	<0.0050
		duplicate	18300	13500	<0.0050	1.64	<0.050	<0.0050
		RPD (%):	***0.5***	***1.5***	-	***1.8***	-	-
Stenger	31-Mar-10	sample	6850	3490	0.0034	<0.060	<0.020	<0.0040
		duplicate	6910	3500	0.0028	<0.060	<0.020	<0.0040
		RPD (%):	***0.9***	***0.3***	***17.6***	-	-	-
M5301	1-Sep-10	sample	1690	760	0.00173	0.058	0.0292	<0.0010
		duplicate	1680	759	0.00169	0.125	0.0973	<0.0010
		RPD (%):	***0.6***	***0.1***	***2.3***	***115.5***	***233.2***	-

Both the BCFAL and BCDW guidelines are predominantly for total metal concentrations and are not generally suitable for assessment of groundwater quality. Typically only the dissolved portion of groundwater (<0.45 micron) is transported in aquifers and ultimately discharged to surface water bodies where freshwater aquatic life may reside. Figures 2.6-2 and 2.6-3 show the relationship of elevated total metal to elevated TSS (for total As, Fe, Al and Se for the 2010 groundwater samples) and therefore the effect that poor well construction and/or poor sampling methods can have on metals results. The relationship is especially clear for Al and Fe (derived from fine clay and Fe-hydroxides particles). For this reason, dissolved metals are considered as indicators of groundwater quality rather than total metals.

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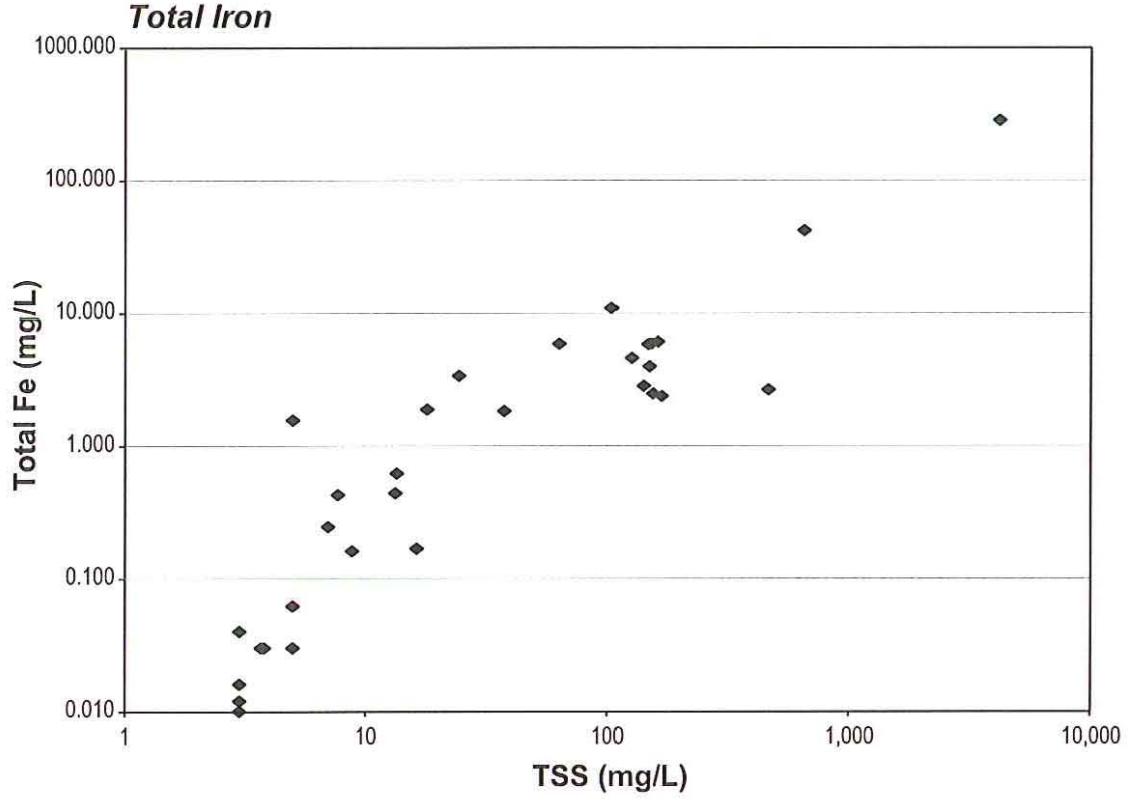


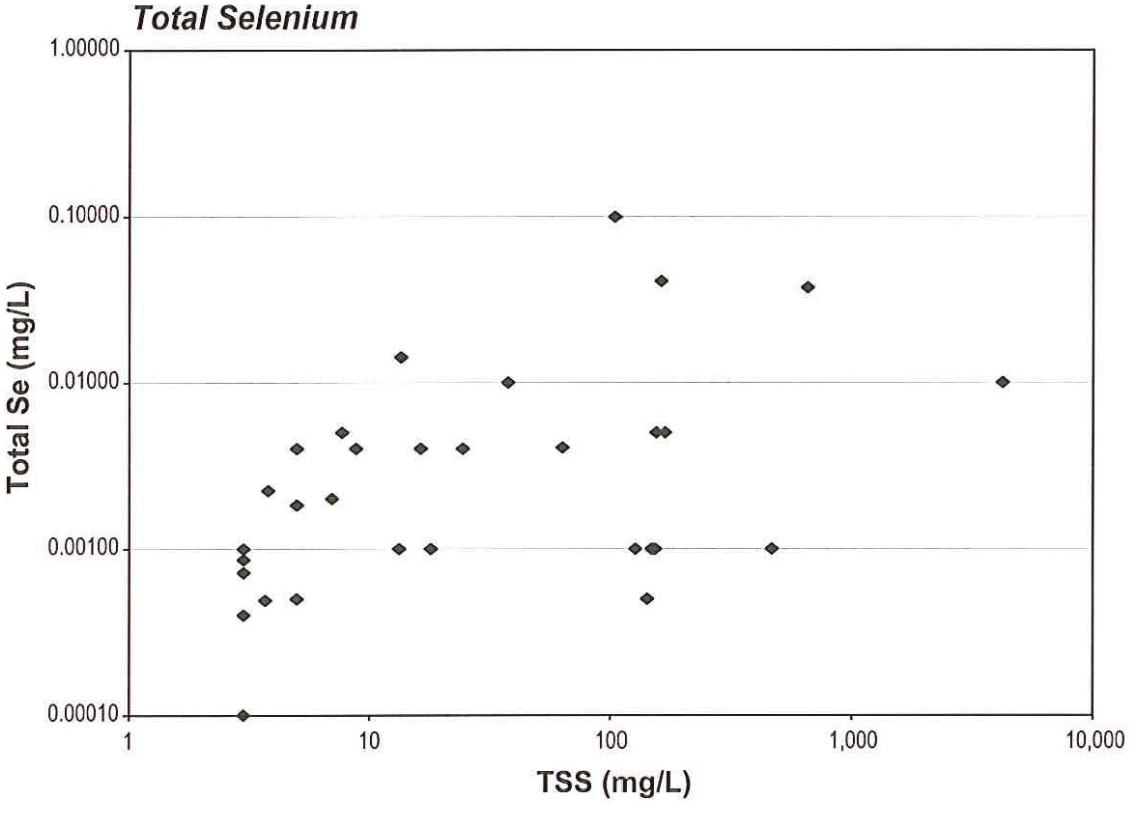
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Total Arsenic and Total Aluminum versus Total Suspended Solids - 2010 Groundwater Sampling

Figure 2.6-2

Rescan™ Engineers/Scientists





newgold

Total Iron and Total Selenium versus Total Suspended Solids - 2010 Groundwater Sampling

Figure 2.6-3

Rescan™ Environmental Consultants

Historical and current sampling of RES-01A shows elevated pH in the 11 to 12 range. This is a clear indication that the well water quality has been compromised by lime-based grout during construction. Results from RES-01A are therefore not included in this report.

2.6.5.2 *Groundwater Quality Results*

The groundwater quality results from the mine site and residential wells were screened for exceedences of the BCFAL guidelines (site wells only) and BCDW guidelines (residential wells only). Table 2.6-3 shows exceedences of guidelines for 2010 groundwater sampling.

All wells sampled in 2010 show exceedence of either the BCFAL or BCDW guidelines. Most common exceedences were for total arsenic, total and/or dissolved iron, dissolved aluminum, total chromium and total cadmium. There were very few exceedances of the guidelines based on dissolved metal concentrations; aluminum and iron being the parameters exceeding. Some constituents, most notably cadmium and chromium, commonly exceeded guidelines for total metals, but contained low concentrations of dissolved metals and are therefore not considered contaminants of concern. One well, PA-1P1, showed many exceedences for total metals but low concentrations of dissolved metals, which is likely due to fine particulate material in the sample. Residential wells often exceeded for sulphate, TDS and conductivity.

Time series graphs for selected parameters related to mining derived contaminants (EC, sulphate, iron, arsenic, aluminum and selenium) are presented for the mine site and domestic wells in Figures 2.6-4 to 2.6-9. EC, sulphate, iron, arsenic, aluminum and selenium have been observed at elevated levels in some mine site and residential wells since environmental sampling began in 2006. The plots show that most constituent concentrations have not changed significantly since 2006.

Electrical Conductivity

Electrical conductivity (EC) is elevated in most wells but is most prominent in PA-3P1 where EC was 19,100 µS/cm in August 2010. This well is downgradient of the sewage lagoon to the north of the mine's offices and likely recharged from this surface water body in which evaporative concentration has likely increased the EC. All residential wells exceeded the BCDW guideline (700 µS/cm). Historical and recent data show that EC has been essentially stable since sampling began in 2006.

Sulphate

Sulphate is an indicator of mining-impacts and is elevated (above 1,000 mg/L) in most site wells. Monitoring well RES-05, north of the Trans Canada Highway and screened around 430 m below ground surface does not have elevated sulphate (and did not exceed the BCFAL guideline). The highest sulphate concentration (13,000 mg/L) was in PA-3P1 and is likely the result of seepage from the adjacent sewage effluent pond.

Arsenic

Two mine site wells (PA-1P1 and RES-06) had concentrations of dissolved arsenic that exceeded the BCFAL guideline. In RES-06, which is east of the waste rock dump, dissolved arsenic concentrations are the highest (0.06 mg/L) and have been steady since 2008 when a three-fold increase (from around 0.02 to 0.06 mg/L) was noted. A new water supply at the Stenger residence showed elevated dissolved arsenic concentrations above the BCDW guideline in 2010; the older well indicated lower concentrations. Both wells will continue to be sampled. The elevated concentrations in the new well are thought to result from mineralized bedrock in this area and not through transport from the mine site.

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Table 2.6-3. Guideline Exceedances for 2010 Groundwater Sampling

Well	Sampling Date	Analyte	Total Conc. (mg/L)	Guideline (BCFAL or BCDW)	Dissolved Conc. (mg/L)	Guideline (BCFAL or BCDW)
Site Overburden Wells						
M5203	1-Sep-10	Chromium	***0.0093***	0.001	<0.0050	-
		Iron	***6.07***	1.0	0.137	0.35
		Selenium	***0.0408***	0.002	0.0396	-
		Aluminum	4.96	-	***0.107***	0.1
		Cadmium	***0.00026***	0.000082	<0.00017	-
	23-Mar-10	Arsenic	***0.0118***	0.005	<0.0010	-
		Chromium	***0.0494***	0.001	<0.0050	-
		Iron	***41.9***	1.0	<0.030	0.35
		Selenium	***0.0373***	0.002	0.0389	-
		Cadmium	***0.0003***	0.000076	<0.00010	-
		Sulfate	***1570***	100	-	-
M5303	24-Mar-10	Chromium	***0.0076***	0.001	<0.0025	-
		Iron	***5.87***	1.000	<0.030	0.35
		Selenium	***0.00407***	0.002	0.00318	-
		Cadmium	***0.00016***	0.00011	0.000085	-
		Sulfate	***913***	100	-	-
		Fluoride	***0.21***	0.2	-	-
Site Bedrock Wells						
M5301	1-Sep-10	Chromium	***0.0085***	0.001	<0.0025	-
		Iron	***5.90***	1.0	0.058	0.35
		Cadmium	***0.000205***	0.00011	0.000119	-
		Sulfate	***760***	100	-	-
M5302	26-Mar-10	Arsenic	***0.0375***	0.005	-	-
		Boron	***2.30***	1.2	-	-
		Iron	***2.82***	1.0	<0.030	0.35
		Cadmium	***0.000099***	0.000043	-	-
		Sulfate	***528***	100	-	-
		Fluoride	***0.23***	0.20	-	-
M5202	1-Sep-10	Chromium	***0.0065***	0.001	<0.0025	-
		Iron	***3.95***	1.0	0.328	0.35
		Aluminum	2.68	-	***0.251***	0.1
		Cadmium	***0.000859***	0.00032	0.000439	-
PA-1P1	25-Mar-10	Arsenic	***0.0055***	0.005	0.0051	-
		Boron	***1.40***	1.20	1.41	-
		Iron	***2.65***	1.0	0.054	0.35
		Sulfate	***903***	100	-	-
		Fluoride	***1.07***	0.20	-	-

(continued)

Table 2.6-3. Guideline Exceedances for 2010 Groundwater Sampling (continued)

Well	Sampling Date	Analyte	Total Conc. (mg/L)	Guideline (BCFAL or BCDW)	Dissolved Conc. (mg/L)	Guideline (BCFAL or BCDW)
PA-1P1 *(cont.)*	1-Sep-10	Arsenic	***0.0491***	0.005	0.0064	-
		Boron	***1.52***	1.20	1.50	-
		Chromium	***0.555***	0.001	<0.010	-
		Cobalt	***0.316***	0.11	<0.0050	-
		Iron	***283***	1.0	0.053	0.35
		Cadmium	***0.00185***	0.000026	<0.00085	-
		Copper	***0.709***	0.074	<0.0050	-
		Manganese	***8.24***	1.4	0.0226	-
		Nickel	***0.627***	0.025	<0.0050	-
		Silver	***0.00089***	0.0001	<0.00050	-
		Zinc	***0.954***	0.033	<0.050	-
		Sulfate	***740***	100	-	-
		Fluoride	***0.95***	0.2	-	-
PA-2P1	23-Mar-10	Sulfate	***4120***	100	-	-
	31-Aug-10	Arsenic	***0.0052***	0.005	<0.0010	-
		Chromium	***0.0680***	0.001	<0.010	-
		Iron	***10.9***	1.0	0.177	0.35
		Selenium	***0.0993***	0.002	0.0953	-
		Sulfate	***5660***	100	-	-
PA-3P1	30-Aug-10	Iron	***1.83***	1.0	<0.10	0.35
		Sulfate	***12700***	100	-	-
		Fluoride	***0.262***	0.20	-	-
	24-Mar-10	Iron	***2.37***	1.0	***1.67***	0.35
		Sulfate	***13300***	100	-	-
		Fluoride	***0.306***	0.20	-	-
RES-05	25-Mar-10	Fluoride	***1.59***	0.2	-	-
	2-Sep-10	Boron	***1.22***	1.2	1.18	-
		Aluminum	0.352	-	***0.337***	0.1
		Iron	0.426	-	***0.362***	0.35
		Cadmium	***0.000074***	0.00000083	<0.00025	-
		Fluoride	***2.03***	0.20	-	-
RES-06	23-Mar-10	Arsenic	***0.0555***	0.005	0.0575	-
		Iron	***1.56***	1.0	***1.56***	0.35
		Sulfate	***1290***	100	-	-
Residential Wells						
Asquini	14-Jul-10	Sulfate	***528***	500	-	-
		Conductivity	***1890***	700	-	-

(continued)

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Table 2.6-3. Guideline Exceedances for 2010 Groundwater Sampling (completed)

Well	Sampling Date	Analyte	Total Conc. (mg/L)	Guideline (BCFAL or BCDW)	Dissolved Conc. (mg/L)	Guideline (BCFAL or BCDW)
	31-Mar-10	Sulfate	***539***	500	-	-
		TDS	***1210***	500	-	-
		Conductivity	***1550***	700	-	-
Kitlback	31-Mar-10	TDS	***1090***	500	-	-
		Conductivity	***1400***	700	-	-
	14-Jul-10	Conductivity	***1330***	700	-	-
Mahal	31-Mar-10	Copper	***0.696***	0.5	0.421	-
Stenger	31-Mar-10	Sulfate	***3490***	500	-	-
		TDS	***5590***	500	-	-
		Conductivity	***6850***	700	-	-
	15-Jul-10	Arsenic	***0.194***	0.025	0.0659	-
		Chromium	***0.016***	0.005	<0.010	-
		Sulfate	***2820***	500	-	-
		Conductivity	***5920***	700	-	-

Notes:
Bold/Italic - Exceeds BCFAL (site wells) or BCDW (residential wells) guidelines.
TDS - total dissolved solids.

Iron

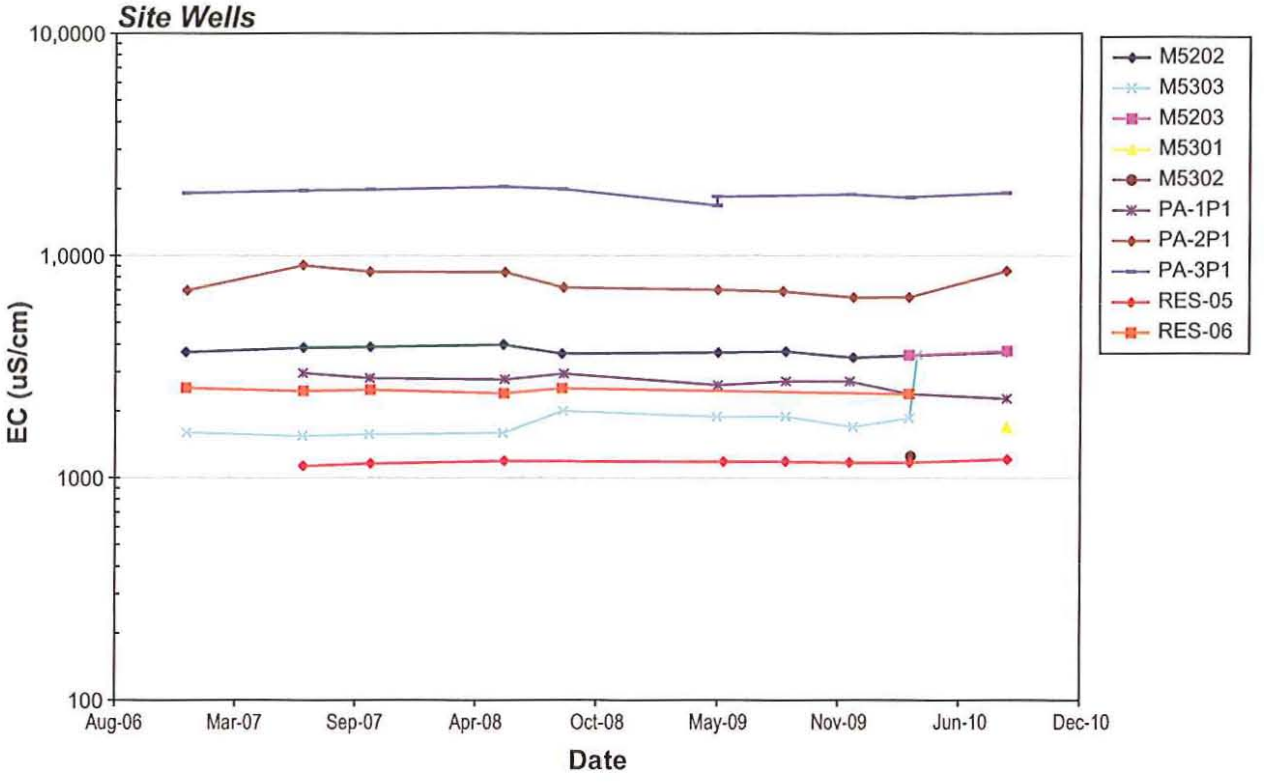
Dissolved iron concentrations have generally been below the BCFAL guideline except in two mine site wells: PA-3P1 and RES-06); these wells are adjacent to the waste rock dump and sewage lagoon. Concentrations in 2010 were above the BCFAL in the March sampling event but below the guideline in July/August sampling event.

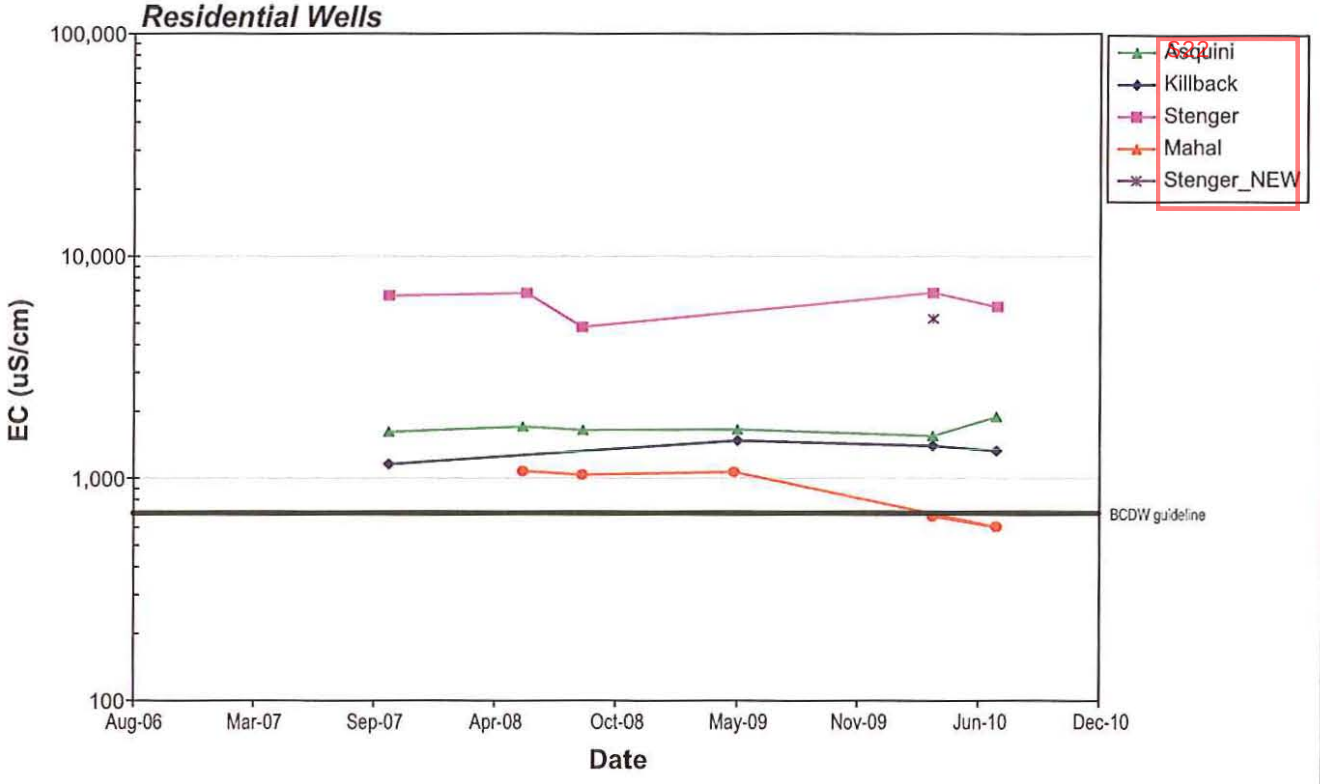
Aluminum

Dissolved aluminum concentrations in 2010 have varied between sampling events with lower concentrations noted in the March sampling event (less than the BCFAL guideline of 0.1 mg/L) but higher concentrations noted in the July/September sampling event (exceeded the BCFAL guideline in wells M5202 and M5203 (west of the tailings area). These results may be from differences in sampling methods than from natural variation.

Selenium

Elevated dissolved selenium concentrations above the BCFAL guideline were noted in mine site wells M5203, M5303, PA-2P1 and RES-05 in 2010. Concentrations increased from the March to the July/September sampling periods in M5303, PA-2P1 and RES-05, but remained similar for M5203 (Figure 2.6-9). Well PA3-P1 had detection limits above the guideline (dilution required in sample preparation). Selenium in M5202 was below detection in 2010 after showing elevated concentration in 2009 (~0.04 mg/L).



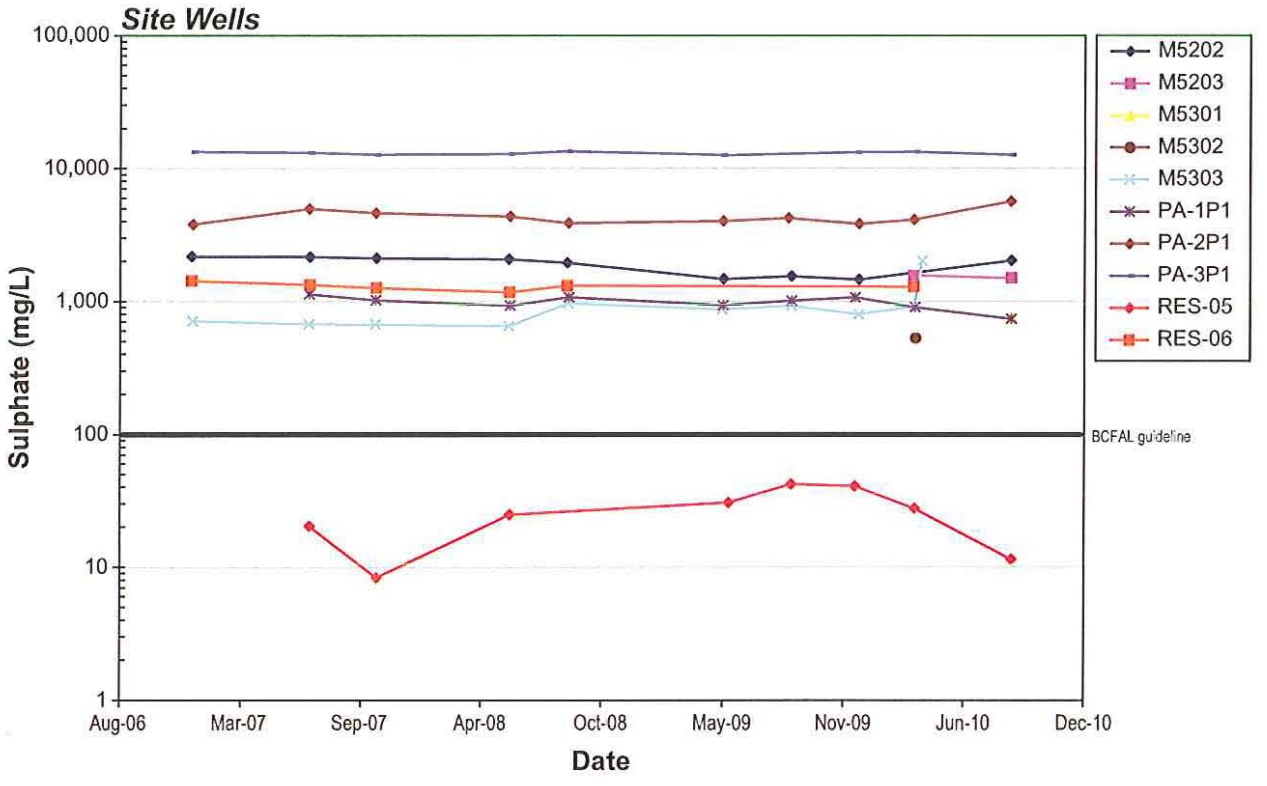


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Electrical Conductivity (EC) in Site Wells and Residential Wells

Figure 2.6-4

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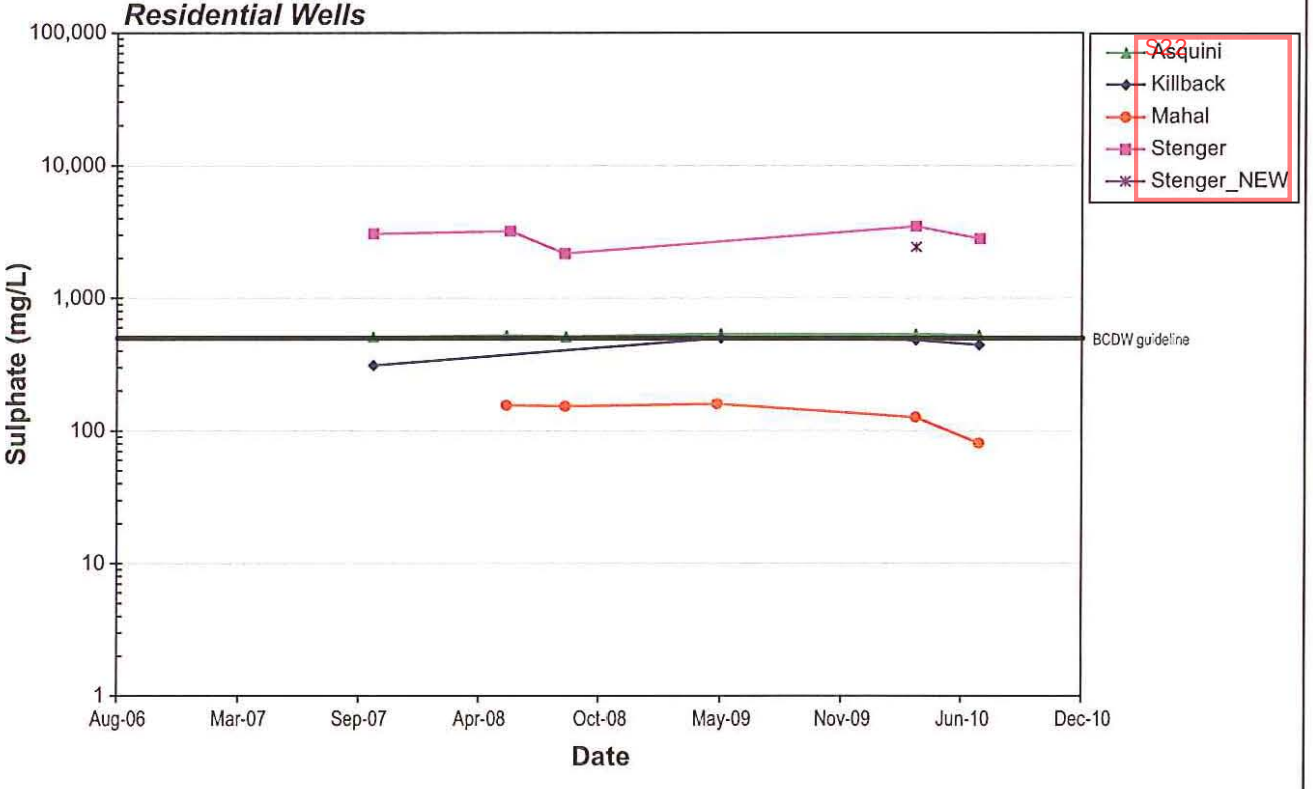
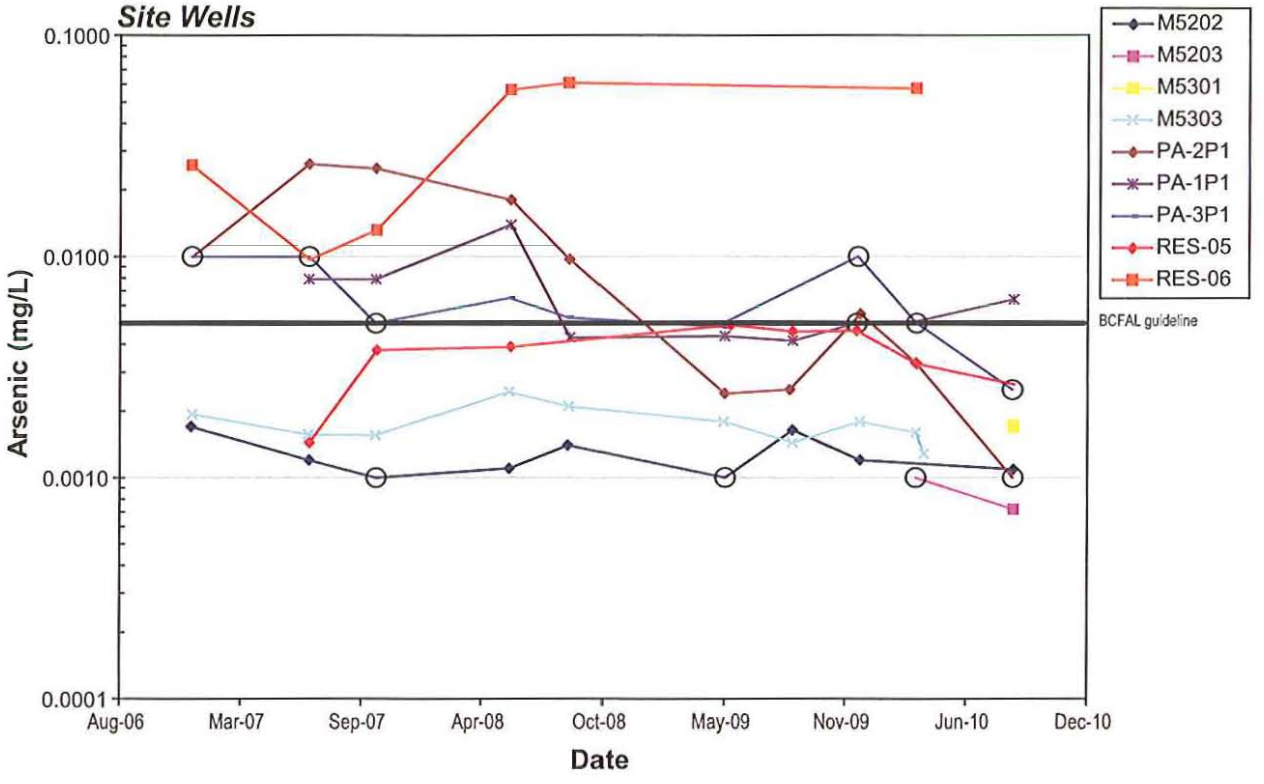


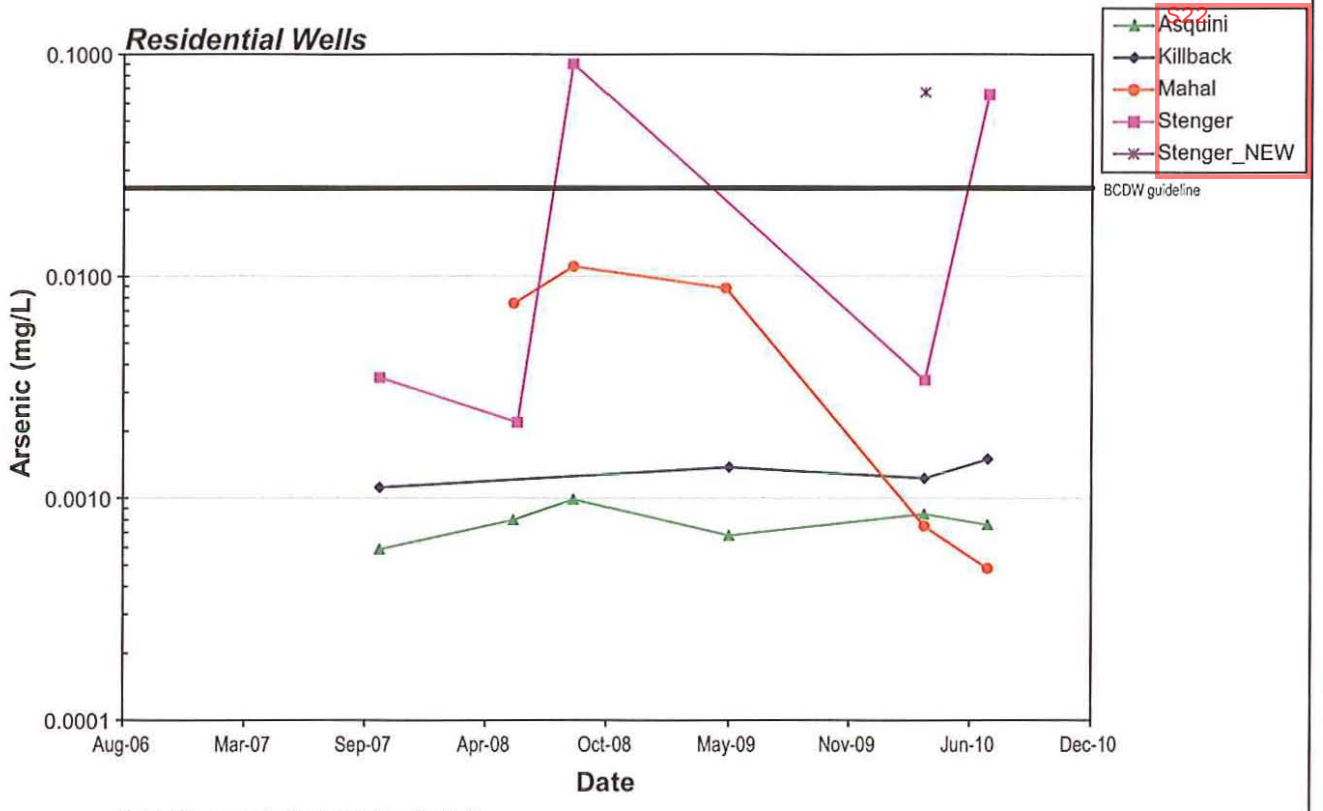
Figure 2.6-5

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Sulphate in
Site and Residential Wells

Rescan





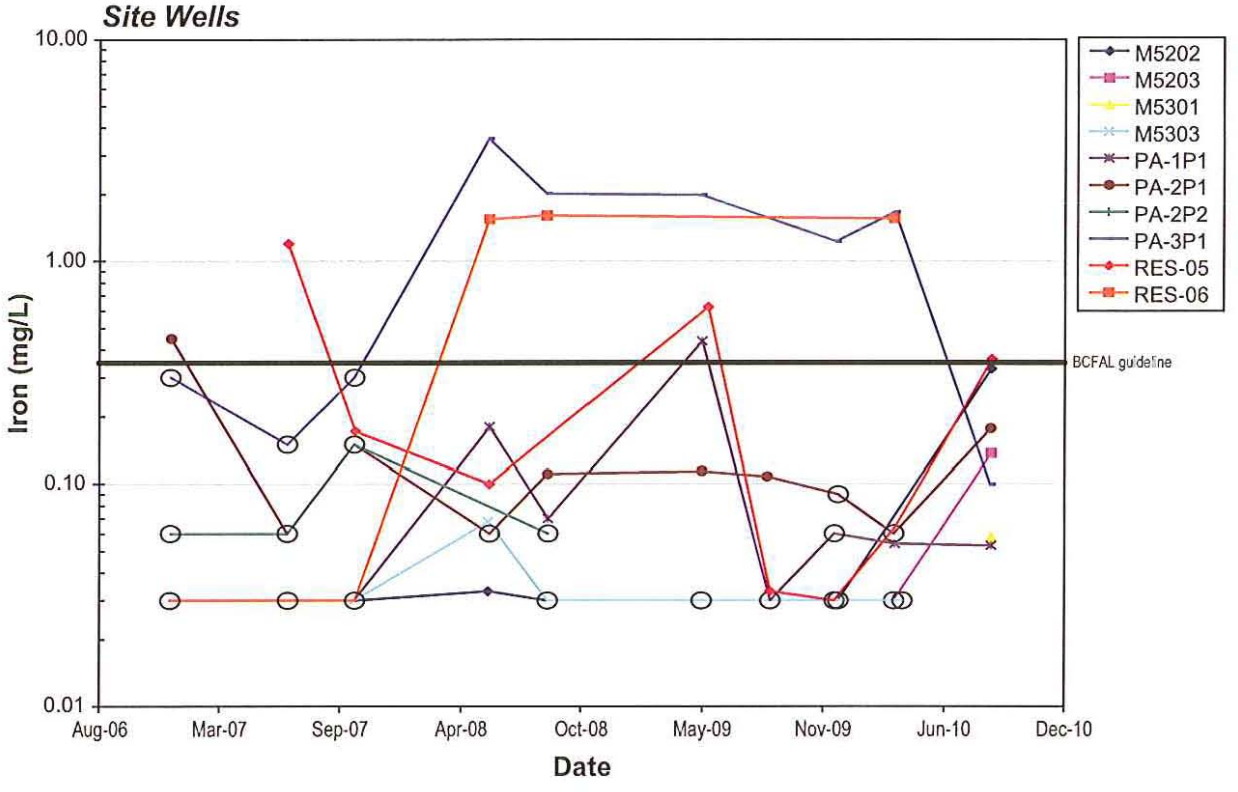
Note: ○ - concentration below detection limit.

Figure 2.6-6

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Dissolved Arsenic in Site Wells and Residential Wells

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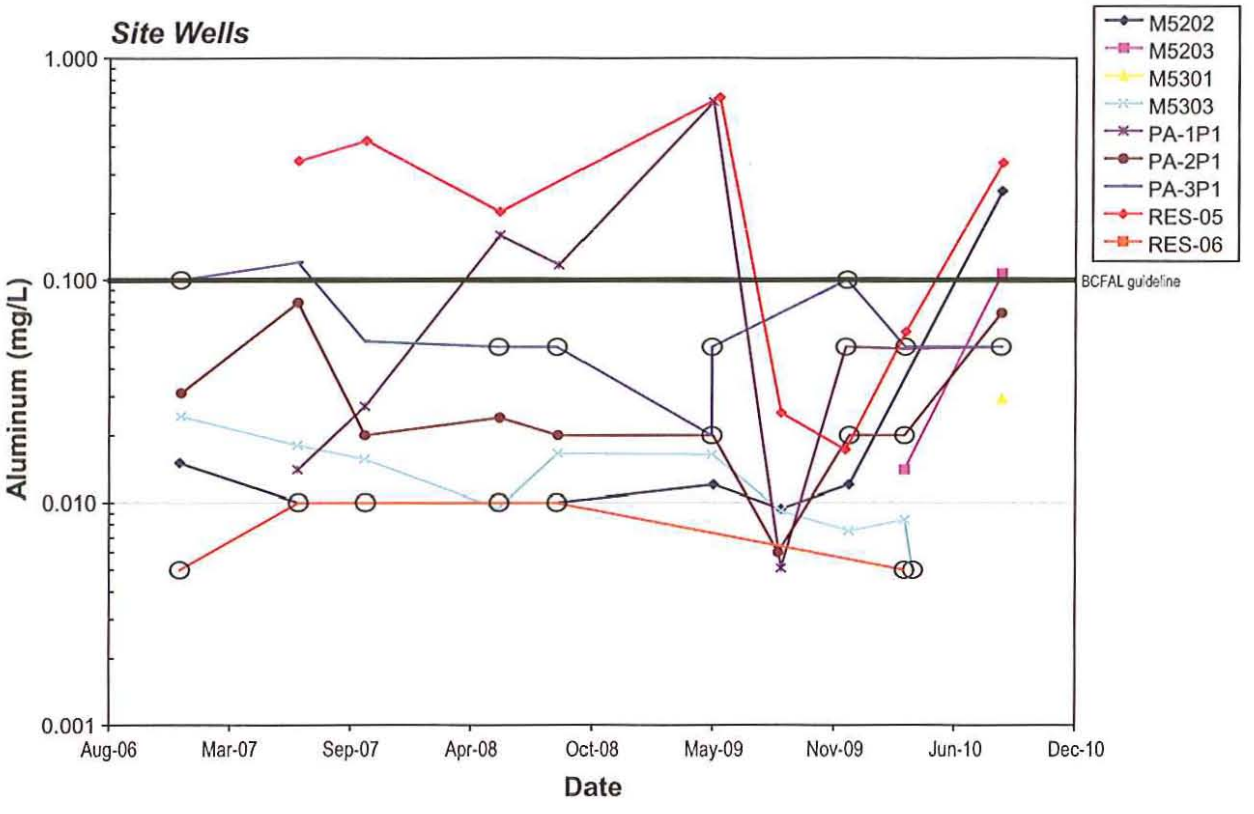
Note: ○ - concentration below detection limit.

Figure 2.6-7

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Dissolved Iron in Site Wells

Rescan™ Environmental Consultants



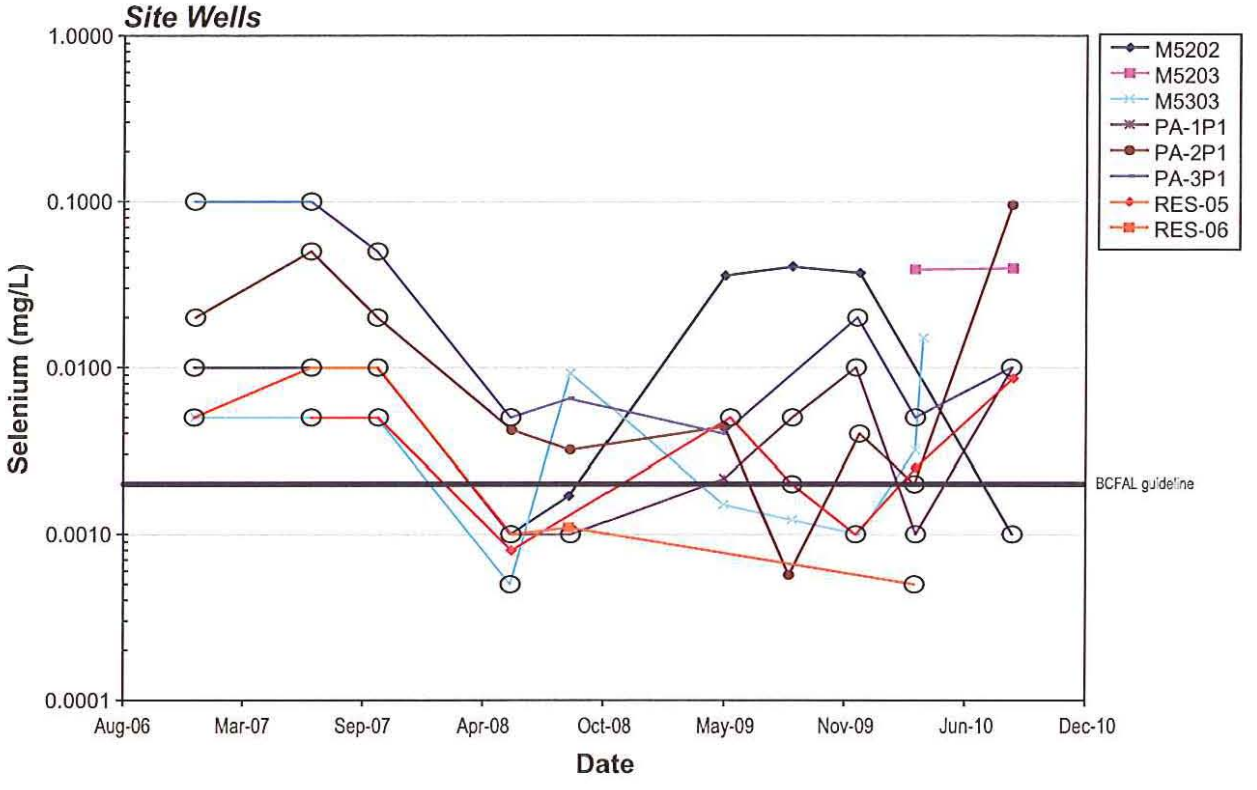
Note: ○ - concentration below detection limit.

Figure 2.6-8

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Dissolved Aluminum in Site Wells

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Note: ○ - concentration below detection limit.

Figure 2.6-9

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Dissolved Selenium in Site Wells

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Residential Wells

The new Stenger water supply well, located some 4 km to the northwest of the mine site, has elevated levels of EC, sulphate and arsenic and has higher concentrations than the older well. The elevated concentrations in these wells are likely a result of local mineralization in the aquifer as they are too distant from the mine site to have been affected by the mining activity. These wells should not be used as a potable source since arsenic exceeds the BCDW guideline. Most wells exceed the BCDW guideline for EC.

Piper Plot

A Piper plot of the 2010 groundwater quality results together with selected surface water quality results is presented in Figure 2.6-10. The Piper plot shows the ratios of major cations and anions in a sample. The sample locations in the plot can shed light on possible source of a sample and on relationships between samples. Surface water samples have been included in the Piper Plot to observe any similarities to groundwater samples that may suggest a connection or flowpath.

The mine site groundwater is dominated by sodium (Na>Mg>Ca) and sulphate (SO_4>HCO_3>Cl) in both overburden and bedrock wells. Mine site wells screened in the overburden show similar ion ratios to those screened in the bedrock suggesting that recharge of bedrock aquifers occurs through overburden. Residential wells, with the exception of the Stenger well, have more calcium and bicarbonate relative to mine site wells and show a closer relationship to surface waters than the mine site wells.

Surface waters show considerable variation in ion ratios, for example, SW14 sampled near the Asquini well is predominantly Ca and HCO_3 whereas samples closer to the mine site (SW8 and SW17 adjacent to the waste rock dumps) show influence of mining impacted discharge. Specific information on surface water quality is provided in Section 2.5 of this report.

Site wells show groundwater quality characteristic of mine activity or a mineralized zone. However, as noted in Rescan's 2009 hydrogeological report (Rescan 2010), the Afton Pit provides a sink for groundwater flow that extends to a radius of approximately 1 km. Therefore, residential wells that show "impacted" groundwater quality are likely a result of local mineralization occurring in the subsurface rather than mining activity from the Afton mine.

2.6.6 Monitoring

The 2009 report (Rescan 2010) provided a potentiometric surface map of regional groundwater flow. The groundwater elevations in this map were taken from bedrock wells and may not be coincident with groundwater elevations and flow directions in overburden (if present). The potentiometric map represents regional flows and has been shown to be controlled by the pit, at least within 1 km of the pit area.

The flow lines indicated in the potentiometric surface map may not represent groundwater flow through overburden and unconsolidated deposits that may flow to surface water bodies. Characterization of overburden in the mine area could lead to a better understanding of potential flow paths from groundwater to surface water receptors and indicate whether there are sufficient monitoring wells in potentially transmissive areas.

Monitoring well RES-01A should be removed from the monitoring program and decommissioned as it has been affected by lime-based grout.

Quarterly groundwater sampling is a requirement of the Mine's Effluent Licence. The existing monitoring wells should be assessed for inclusion in the Mine's future monitoring program both in terms of location and integrity (some of the monitoring wells are approximately 30 years old).

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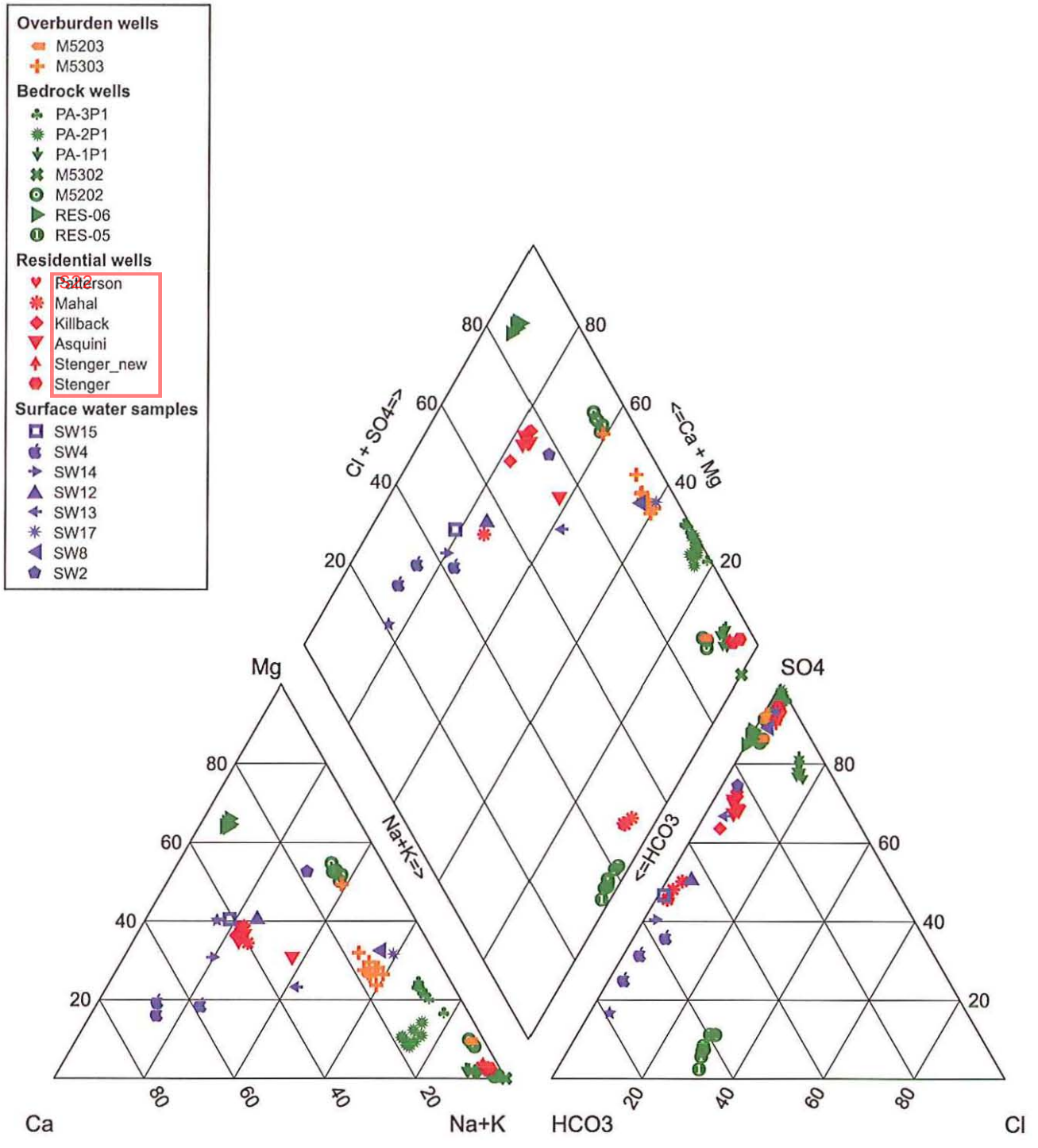


Figure 2.6-10

newgold

New Afton Project: Piper Plot

Rescan Environmental Services

2.7 SOIL SALVAGE AND STORAGE

2.7.1 Introduction

During 2007 and 2008, topsoil was salvaged and stockpiled on site. In the case of the grubbing of the TSF area, the topsoil removal was not completed and several smaller stockpiles remain at the end of 2010. While there has been concerns raised regarding wind and water erosion of the topsoil in the TSF area, there is no evidence of loss of topsoil through either agent.

While 2009 saw very little surface activity, 2010 saw a great increase in construction activity across site. This activity increased the disturbance of ground around site and the need to conserve viable topsoil.

2.7.2 Scope of Work

2010 activities included the laying of buried services, construction of the tailings pipeline, erection of water tanks, and the installation of new power lines. All of these activities involved some level of disturbance on land that had differing levels of disturbance previously.

The following outlines activities that were conducted during 2010 to conserve topsoil and store material useful for later reclamation.

2.7.3 Objectives

The objective of the Soil Salvage and Storage Plan is to ensure that:

1. Top-soil is preserved on site and not removed through agents such as wind and water to contaminate off-site receptors.
2. Top-soil is retained either in-situ or in stockpiles such that it remains viable for use at the end of the life of mine or during progressive reclamation activities.

2.7.4 Methods

In accordance to the Construction Standards, all top-soil and sub-soils were removed and separated during construction works. Where the work involved covering pipework or cables, the soils were put back in the trenches, sub-soil first, then the top-soil so the soil profile is maintained and to take advantage of the organic layer during re-seeding.

Once the soils were replaced, the area was re-seeded. A rate of 22.3 lbs per acre was used. The seed mixture used was composed of Crested Wheat Grass, Alfalfa, and Annual Ryegrass. The alfalfa seed was pre-inoculated with rhizobium bacteria. The total amount of seed used was 67 lbs. The total fertilizer used was 100 kg. The mixture consisted of 17-20-0 (i.e., 17 parts nitrogen, 20 parts phosphorus, 0 parts potassium). The technique used to seed and fertilize was by a hand seeder. The areas were traversed in roughly parallel swathes no larger than 10 m wide. One person ran the hand seeder, the other person spread fertilizer. These areas will be monitored for the progress of the seed over time.

During activities which did not require the topsoil to be immediately replaced, the excavated topsoil was hauled to the topsoil stockpile south of the pit. This will continue to be the management practice during 2011, although there may be the need for additional topsoil and subsoil stockpiles closer to the TSF footprint.

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2.7.5 Results

Approximately 7.41 hectares total were seeded by the end of June. As well as this, minor quantities of topsoil were added to the topsoil stockpiles.

2.7.6 Monitoring

Topsoil and sub-soil monitoring is performed through the "Permit to Disturb" system. In each case of minor disturbance, the Environmental Specialist must sign off on the planned disturbance and provide input on where topsoil and subsoil should be stored.

In addition to this, areas that have been seeded are monitored to ensure that the intended species have taken. The site has been surveyed previously in 2009 in terms of vegetative growth on disturbed areas and this is likely to be repeated in 2011.

Dust continues to be monitored as well (see Section 2.10). This is an additional way in which soils are monitored as controls are put in place if dust from stockpiles becomes an issue. This has not been the case to date.

2.8 INVASIVE PLANT MANAGEMENT

2.8.1 Introduction

Control of noxious weeds is an obligation under the BC *Weed Control Act* and forms an important part of the end land use objectives for the site. This section describes the works that were performed during 2010 in the area of invasive plant management. It also provides some insight into the success of works performed in previous years.

2.8.2 Scope of Work

During 2010, the scope of work included:

- providing training and identification handbooks to the surface crews;
- mechanical removal of diffuse and spotted knapweed (*Centaurea spp.*);
- monitoring of the released biological control agents;
- slashing of Russian thistle and kochia populations along road verges and removal followed by seeding with species to out-compete invasive species; and
- seeding bare or newly disturbed areas to compete with invasive species.

2.8.3 Objectives

The objective of the Invasive Plant Management Plan is to reduce and eventually eradicate invasive species that are at or have the ability to form populations that exclude native species or threaten biodiversity in the immediate area. The objective of the plan is to prioritise the weeds present on site and to reduce their size systematically.

2.8.4 Methods

All works were conducted manually with the assistance of the First Nations. No chemical pesticides were used during any of the works performed, and all manual removal was performed following a safety risk assessment. Mechanical treatment (i.e., handpulling) was conducted on two sites to remove the invasive plants. Handpulling was chosen as it was the most environmentally-friendly treatment

option available. The two sites were treated in a way that removed all of the outlying plants, while maintaining smaller epicenters where bio-control insects existed. Further monitoring and possible treatment of these sites will need to occur to properly manage the spread of the invasive plants.

Works involving the manual removal of vegetation from site involved the hauling of covered loads of invasive weeds to the Kamloops green-waste area.

The New Afton workforce, through the Environmental Orientation, is trained to:

- report new outbreaks of weeds to the Environmental Specialist;
- ensure vehicles are free from seed and weeds prior where practicable; and
- avoid driving off roads.

2.8.5 Results

Approximately 3 ha of ground was treated for knapweed. Areas that maintained a good harbour for biological agents (*Larinus minutus, Larinus obtuses, Cyphocleonus achates, Agapeta zoegana*) were spared to allow the agents to remain present on site. Works were performed by the First Nations and a small report compiled detailing the works. Internally, weeds were removed by the surface crews along the main road verges. This removal was coupled with seeding of areas bare from this work. The treated area was approximately 2.5 ha.

2.8.6 Monitoring

During 2010, monitoring of vegetation consisted of looking for potential hotspots of priority weeds (knapweed) and ensuring that the biological controls are still active in areas of infestation on site.

In 2009, the site was surveyed in terms of invasive vegetation. This work will be repeated in 2011 to see if there have been temporal changes in the number and species of weeds. This work will be conducted in parallel with future removal projects and will guide any additional work.

2.9 WILDLIFE

2.9.1 Introduction

The local habitat associated with the Project has been substantially affected by past activity. This may have affected the local wildlife habitat and populations, including some species potentially at risk. The southern interior of BC, including areas near Kamloops, supports some of the rarest ecosystems and also the most degraded habitats in the province. Past land use has had an effect on many species that exist within this area, and many wildlife species are now considered at risk within the region. The baseline report developed for the Project identified 24 species at risk that may have occurred on the site (Rescan 2006). This included species of mammals, birds, reptiles, and amphibians. Two amphibian species, western toad and Great Basin spadefoot, were confirmed as present on the site and possibly one bat species at risk, the western small-footed myotis, was also identified. In addition, a relatively diverse community of wildlife that is currently not at risk was also noted. Although habitat on-site has been severely degraded from past land use, adjacent areas still support habitat that may be occupied by wildlife at risk. There is also potential for these species to occur on the New Afton property during certain times of the year.

Wildlife protection initiatives were developed in association with New Gold to minimize further effects to species at risk and to enhance the habitat suitability in the Project area for certain wildlife groups.

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2.9.2 Scope of Work

The scope of wildlife protection work in 2010 included delivering a programme for limiting direct mortality or injury to species at risk during construction and operations, documenting important wildlife observations, and continuing with initiatives to place artificial habitat structures to enhance the site for wildlife and monitor their use.

2.9.3 Objectives

The initial objective of the construction and operations management plan was to reduce effects on species at risk and other wildlife that may occur on the property during construction and operations. The long-term objective is to enhance the property so as to benefit wildlife, ideally improving its habitat value beyond the condition of the property when New Gold was issued *Mines Act* Permit M-229.

2.9.4 Methods

A number of methods were employed to meet the two objectives of limiting impacts to species at risk and enhancing local habitat.

Limiting impacts to species at risk included:

- Implementing a construction and operations monitoring plan directed at identifying the species at risk most vulnerable to construction activities.
- Having in place appropriate permits and trained personnel to safely move vulnerable species at risk such as western toad and Great Basin spadefoot to safer areas.

Wildlife habitat enhancement included ongoing monitoring of use and maintenance of the artificial habitat features installed to attract wildlife.

The monitoring plan implemented for construction and operations included using knowledgeable Skeetchestn Natural Resource workers or the dedicated Environmental Specialist on site to identify vulnerable species such as toads or snakes that may have been in the path of heavy equipment. Monitors were instructed to contact individuals permitted by BC MOE and assigned with the task of removing species to safe locations on the property. These individuals were identified under a permit provided by BC MOE (permit number KA10-60070). They were appropriately equipped and familiar with handling techniques required to limit the spread of chytrid fungus, a major source of mortality for toads. The occurrence of toads or snake species at risk during development activities was to be documented to facilitate adaptive management techniques for species conservation, including directing the implementation of drift fencing or toad tunnels where concentrations of these species were detected. All workers received education regarding sensitive wildlife species as part of their orientation. Employees were also encouraged to report other wildlife observations of interest or importance and fill in a short document that was specifically developed for this purpose (Appendix 2.9-1). This document will be further modified from the experience gained in its use in 2010.

To enhance habitat, a number of artificial structures were placed throughout the site between March 31 and April 1, 2009. These included 22 small songbird nest boxes for tree swallows or blue birds, 10 northern flicker-sized woodpecker boxes, 10 cavity nesting waterfowl boxes, 7 downy/hairy woodpecker boxes, and 9 bat houses. Plates 2.9-1 and 2.9-2 show examples of the nest boxes and Figure 2.9-1 provides a map of their locations. These structures were constructed to specifications suitable for species most likely to occur on-site. They were positioned at locations expected to provide optimum conditions to attract the focal wildlife. This includes considerations for such features as aspect, local vegetation, availability of suitable waterbodies, etc.

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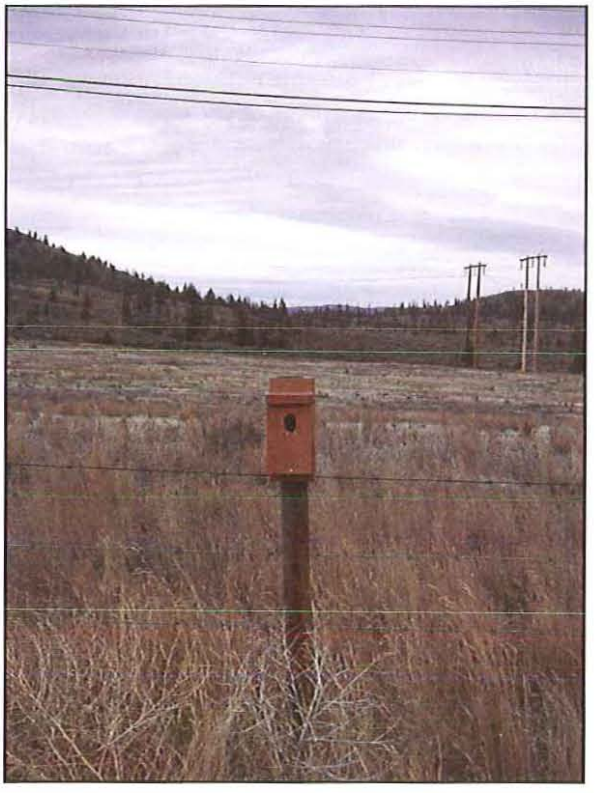


Plate 2.9-1. Bluebird/tree swallow nest box placed in 2009.

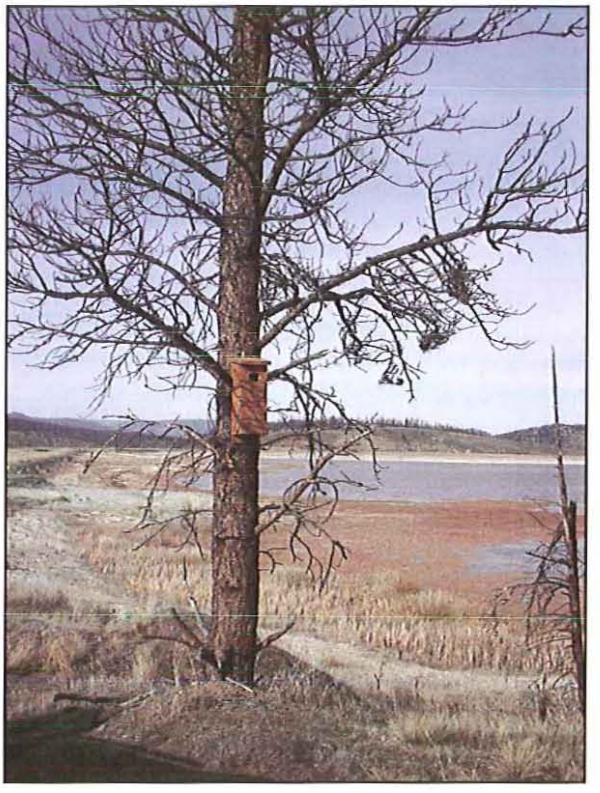


Plate 2.9-2. Cavity nesting waterfowl nest box placed in 2009.

The structures were monitored in September 2009 for evidence of use and to assess their condition. The structures were revisited in March 2010 to assess condition over winter and remove debris that may have been accumulated by small mammals (e.g., bushy tailed woodrat) between the September 2009 visit and the 2010 nesting season. Routine maintenance was also conducted during the March 2010 visit to provide fresh nesting materials prior to the 2010 season. The structures will continue to be monitored annually for use by preferred, endemic species. Adaptive management measures to limit structures' attractiveness to invasive species (e.g., European starling and English sparrow) will also be implemented on an annual basis. Long-term monitoring will be valuable to document the success of the program and to evaluate changes in wildlife communities facilitated by the habitat enhancement initiatives.

2.9.5 Results

During 2010 there were 13 incidental reports of important wildlife observations on the property. Table 2.9-1 summarises the observations, and Figure 2.9-2 identifies their location. There were two observations of toads, including an incident on August 20, 2010 where a Great Basin spadefoot and a western toad were encountered during cleanup of construction material between the staff parking lot and construction office (Plates 2.9-3 and 2.9-4). The two amphibians were relocated to a safe area away from the activity. The relocation efforts were reported to MOE consistent with terms of the permit to handle these species.

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673000 674000 675000 676000 677000 678000

5616000 5615000 5614000 5613000

N

Trans Canada Highway

Coquihalla Highway

R1 R2 R3 R4

DA1 DA2 DA3 DA4 DA5 DA6 DA7 DA8 DA9 DA10 DA11 DA12 DA13 DA14 DA15 DA16 DA17 DA18 DA19

T1 (Topsoil)

Structure Type:

- Bat House
- Bluebird Box
- Cavity Nesting Duck House
- Downy / Hairy Woodpecker Box
- Northern Flicker Box
- Highway
- Major Road
- Gravel Road
- Trails
- Open Pit
- Mining Lease Application Boundary
- Newly Disturbed Area
- Revegetated Area
- Topsoil Area
- Legacy Area Requireing Reclamation

1:17,000

0 275 550

Meters

Projection: UTM9, NAD 83

673000 674000 675000 676000 677000 678000

newgold

New Afton Project - Artificial Habitat Structure Location, 2010

FIGURE 2.9-1

Rescan

gis no. AFT-23-002

Job No. 0916-006

February 22 2011

674000

675000

676000

677000

5615000

Coyote (Feeding)

Dead Bat

Bat

Toads

Red Fox

Toad spotted but not found

Bear Scats

Red Fox

Little Brown Bat

3 Deer

Deer

Dead Coyote

Coyote

Marmots

N

Species

- Bat
- Bear
- Coyote
- Deer
- Fox
- Marmot
- Toad
- Highway
- Major Road
- Gravel Road
- Trails
- Open Pit
- Mining Lease Application Boundary

1:8,000

0 130 260

Meters

Projection: UTM9, NAD 83

FIGURE 2.9-2

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New Afton Wildlife Sightings

Table 2.9-1. Wildlife Observations Reported during the 2010 Operations

Species or Group	Date of Observation	Wildlife Activity	General Location	Observation Number
Bat: Myotis sp (likely little brown myotis)	August 6, 2010	dead	Leg 1 between Safety Bay 37 and the next re-muck down	1
Bat; Myotis sp (likely M. Evotis)	July 20, 2011	roosting	Under eve of Dry storage shed	2
Bat; Myotis sp (possibly fringed Myotis)	September 17, 2010	dead	Near water shed next to office	3
Coyote	May 21, 2010	hunting	Between office and highway	4
Coyote	August 26, 2010	dead	Killed on highway by turning lane	5
Mule deer	May 18, 2010	standing	On north side of Teck tailings pond	6
Mule deer (3)	September 1, 2010	standing on hill	On hill behind portal	7
Porcupine	January 7, 2010	sign observed	South of old Teck office	8
Red fox	May 7, 2010	living	Parking lot behind new water trailer	9
Red fox	May 10, 2010	investigating worker	Between conveyor portal and pit	10
Unspecified toad	September 29, 2010	living	Between CM trailer and Mine Rescue building	11
Western toad and Great Basin spadefoot	August 20 2010	hiding under bricks	Between staff parking lot and construction office	12
Yellow bellied marmot	May 5, 2010	living	Core rack roof within exploration site	13



Plate 2.9-3. Great Basin Spadefoot encountered August 20, 2010.



Plate 2.9-4. Western Toad Encountered August 20, 2010.

There were 3 encounters with bats, 2 mortalities of *Myotis spp* and one live Myotis (likely a western long-eared bat, *M. evotis*). Plate 2.9.5 illustrates the bat roosting from the eave of the dry storage building. The bat was left alone and did not return to roost. Future collection and preservation of moribund bats will be included in protocol and the specimens will be forwarded to the Royal BC Museum for confirmation of species and to be used as voucher specimens.

Possible badger tracks were identified in December 2009 by an alert mine employee. Badger is a red-listed species and a review of the available provincial online databases maintained by the Conservation Data Centre (BC CDC 2010) suggested that badger could occur on-site. A wildlife professional was called to visit the site in early January 2010 and evaluate the sign left. Evidence suggested that the animal was more likely a porcupine and no additional effort directed at managing its conservation was taken. The findings and action taken were included in the 2009 Annual Reclamation Report.

Deer are common on the north side of the highway and were also observed closer to the development. Mule deer were encountered north of the Teck tailings pond and near the Portal during May and September 2010 respectively. Other wildlife encountered included coyotes, red fox, and yellow-bellied marmot.

2.9.6 Monitoring

Wildlife sightings reported by New Gold employees and resulting actions taken have been described in the Results section and illustrate the success of the reporting and documentation procedure implemented in 2010. During the spring, construction was necessary in an area that may have supported fox or coyote dens. A Skeetchestn Natural Resource worker was employed to monitor the construction for presence of coyote or fox dens, no dens were encountered during the May 4, 2010 survey (SIB Natural Resource Department 2010 New Gold, New Afton Copper Gold Mine AOA Non Permit Pipeline Survey).

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Plate 2.9-5. Myotis sp roosting in Dry Shed Encountered July 20, 2010.

Artificial habitat structures were monitored and evaluated for success in September 2009 and then re-visited in March 2010 to clean up and prepare for the 2010 nesting period. However, some evidence of use within the boxes was recorded in March 2010. Additional accumulation of materials was observed inside 10 of the 22 Tree Swallow/ Western Bluebird boxes, 1 of the 10 Northern Flicker boxes, 9 of the 10 waterfowl boxes; including 3 expired eggs collected from one location, and 1 of the 7 Hairy Woodpecker boxes. This could be attributed to early nesting of species or to use of boxes by small mammals such as mice or bushy tailed woodrat during the late fall, winter, and early spring seasons. All nest boxes were cleaned out and refilled with new material during the March 2010 visit in preparation for the 2010 nesting season. One box had fallen from its tree location and needed to be re-attached; however, all of the boxes were reported to be in good condition.

2.9.7 Wildlife Monitoring and Habitat Enhancement

In 2011, continued monitoring for species at risk will be carried out in association with construction and operations. As with past efforts, emphasis will be on species at risk that may be most vulnerable, including western toad and Great Basin spadefoot. A more refined training and observation reporting procedure was implemented in 2010 to include all staff on-site and the scope of wildlife observations recorded was increased to include other species of importance. The efforts from 2010 have highlighted opportunities to modify the reporting protocol in the pursuit of continual improvement of environmental management on site.

Artificial habitat structures have been placed at strategic locations on the property. These structures will continue to be maintained and monitored in 2011. An additional monitoring effort will be attempted during the breeding period to confirm species use of the structures. Effort will be directed at assessing use by indigenous species for which the structures are intended. Attempts to limit their attractiveness to invasive species (European starling, English sparrow) will be completed in an adaptive management fashion.

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Additional habitat enhancement initiatives, such as developing boulder and brush piles are also being considered for future years. Additional nest boxes and other structures may be placed in 2011 as well.

Long-term monitoring will be valuable to document the success of the program and to evaluate changes in wildlife communities facilitated by the habitat enhancement initiatives. A permit for removing toads is to be reissued to cover 2011 activities and similar monitoring is expected to occur in 2011 as occurred in the two previous years.

2.10 AIR QUALITY

2.10.1 Introduction

Air quality is of concern in terms of its effects on local vegetation, wildlife, and human populations. Poor air quality can negatively affect vegetation growth and may pose a risk to the general health of local human populations and wildlife. Due to the dry climate, occasional high winds, sparse grass, and sage-brush fields at the New Afton mine site, the primary air quality parameter of concern is particulate matter (PM) from fugitive dust. The methods and results for the 2010 field studies for air quality are summarized in the following sections.

2.10.2 Scope of Work

As part of the air quality baseline monitoring program, six dustfall stations were established on April 26, 2006, and a seventh was added in July 2008. Dustfall was monitored from April to December 2010 and dustfall samples were analyzed at an accredited laboratory in Vancouver for total dustfall, soluble dustfall, insoluble dustfall, sulphate, nitrate, and total metals.

2.10.3 Objectives

The objective of this study was to determine the baseline air quality, in terms of total dustfall, and assess potential effects on the reclamation and mine closure processes.

2.10.4 Methods

On April 26, 2006, six dust collector stations were installed at and around the Project area to monitor dustfall. The dustfall monitoring stations were located at the southern, northern, eastern, and western perimeter of the Project area. An additional dustfall monitoring station was added south of the mining lease boundary in July 2008 to give a total of seven stations. Figure 2.10-1 shows the station locations.

The methodology used for the dustfall monitoring followed American Society for Testing and Materials (ASTM) D 1739 - 98 (re-approved 2004) Standard Test Method for Collection and Measurement of Dustfall (Settleable Particulate Matter). The dust collectors were 1 L-volume Nalgene sample containers mounted in plastic windscreens on a 2.5 m-high metal pedestal. Two dustfall collectors were installed at each monitoring station (Plate 2.10-1). One of the collectors would be analyzed for particulates (total, soluble and insoluble) and anions (sulphate, nitrate, chloride, and ammonia) and the other analyzed for total metals and various cations.

The collectors were partially filled with de-ionized water upon installation to avoid re-suspending dust after it deposited in the collectors. De-ionized water was added as necessary to prevent the collectors from drying out during the monitoring period. The dustfall collectors were collected and replaced approximately every 30 days and samples were sent to ALS Environmental Laboratory in Vancouver for analysis. On June 12, 2008, bird spikes were added to each of the collectors to prevent birds from negatively affecting the dustfall samples (e.g., faeces).

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672000 673000 674000 675000 676000 677000 678000 679000

5616000 5615000 5614000 5613000

N

Trans Canada Highway

Coquihalla Highway

DC 1 DC 2 DC 3 DC 4 DC 5 DC 6 DC 7

Dustfall Monitoring Station
Highway
Paved Road
Gravel Road
Open Pit
Mining Land in Proposed Lease Area
Modified
Unmodified
Crown Lands:
Crown Land
Grazing Lease 0095450
Grazing Lease 0311961
Mining Lease Boundary
1:20,000
0 250 500
Meters
Projection: UTM10, NAD 83

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New Afton Project - Location of Dustfall Monitoring Locations

FIGURE 2.10-1



Plate 2.10-1. The DC-1 dustfall monitoring station looking west (April 2006).

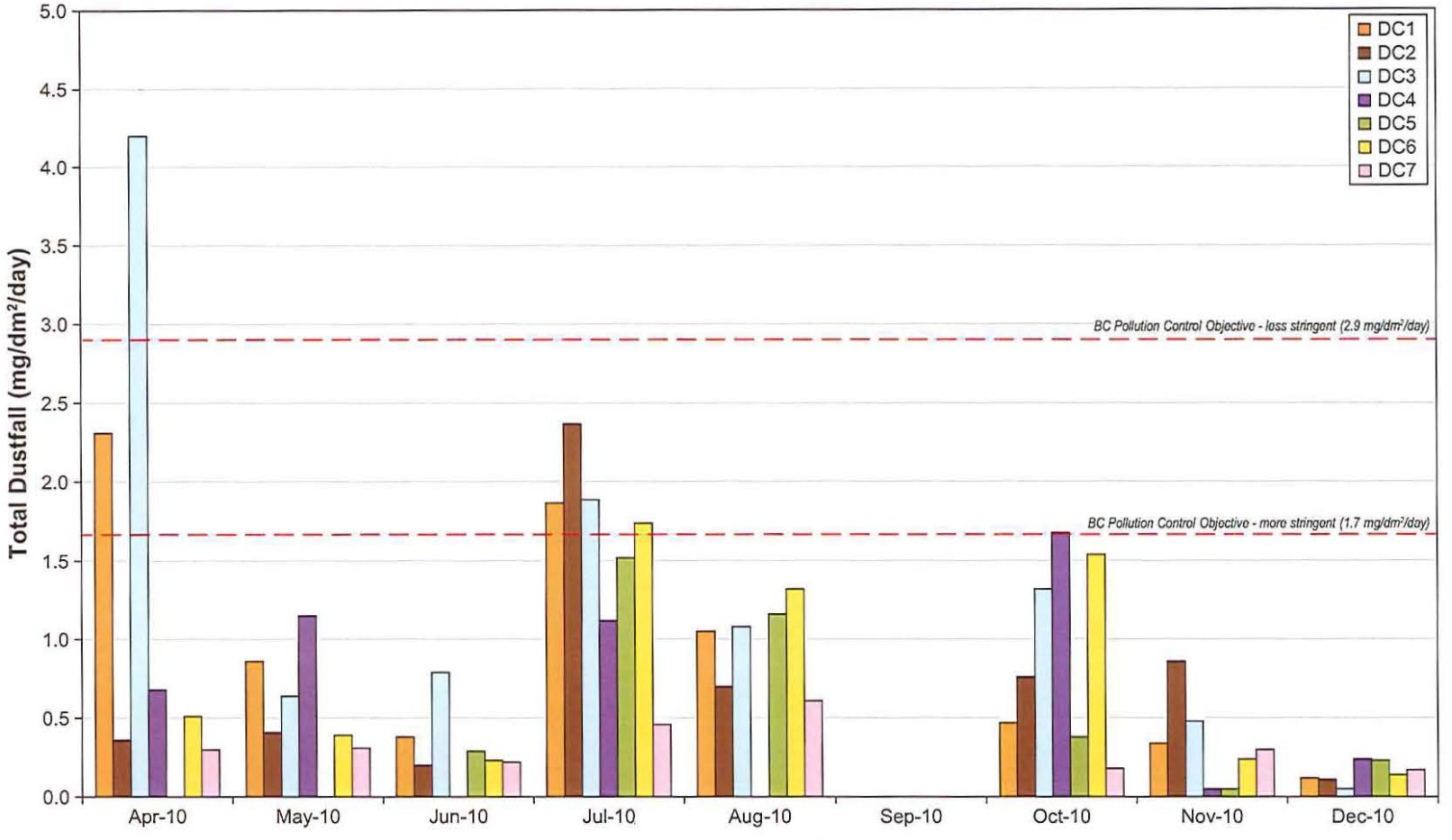
2.10.5 Results

Table 2.10-1 and Figure 2.10-2 summarize total dustfall results from April to December 2010. Peak total dustfall was 4.20 mg/dm^2/day at DC3 during April 2010 and was above both of the 1979 BC MOE Pollution Control Objectives of 1.7 (most stringent) and 2.9 mg/dm^2/day (least stringent; as a 30-day average) but below the peak mean total dustfall (9.85 mg/dm^2/day) from the historical period of measurement (1978 to 1987) at the former Afton mine. The average dustfall values were within the least and most stringent 1979 BC MOE Pollution Control Objectives for the Mining, Smelting, and Related industries of BC (2.9 mg/dm^2/day) during all months and at all stations. During the measurement period average total dustfall (0.78 mg/dm^2/day) was similar to or lower than it was during previous mining operations (1978 to 1987) at the site and fell well within applicable BC Pollution Control Objectives.

Figure 2.10-3 shows 2010 precipitation departures from normal (based on 1971 to 2000 climate normals) at the Kamloops Airport. A correlation was made in 2009 between drier than normal periods and higher total dustfall; however, it does not appear that precipitation departures contributed to dustfall levels in 2010.

Maximum metal deposition values are summarized in Table 2.10-2. Maximum copper levels remained within the historical range of 0.0007 to 0.0640 mg/dm^2/day recorded during operation of the former Afton mine. The peak copper level during this measurement period was 0.0014 mg/dm^2/day and occurred at DC4 during October 2010. Other metal deposition results are at or near the detection limits.

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Note: Data were not available during Sep-10 for all stations or during Apr-10 and May-10 for station DC5.
Total dustfall was reported below the detection limit at DC4 and DC5 during Nov-10 and at DC3 during Dec-10.
The total dustfall value recorded at DC4 during Aug-10 was deemed an outlier and removed from the figure.

Figure 10.2-2

Figure 2.10-2

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Total Dustfall Results (mg/dm²/day)

Rescan™ Engineers & Scientists

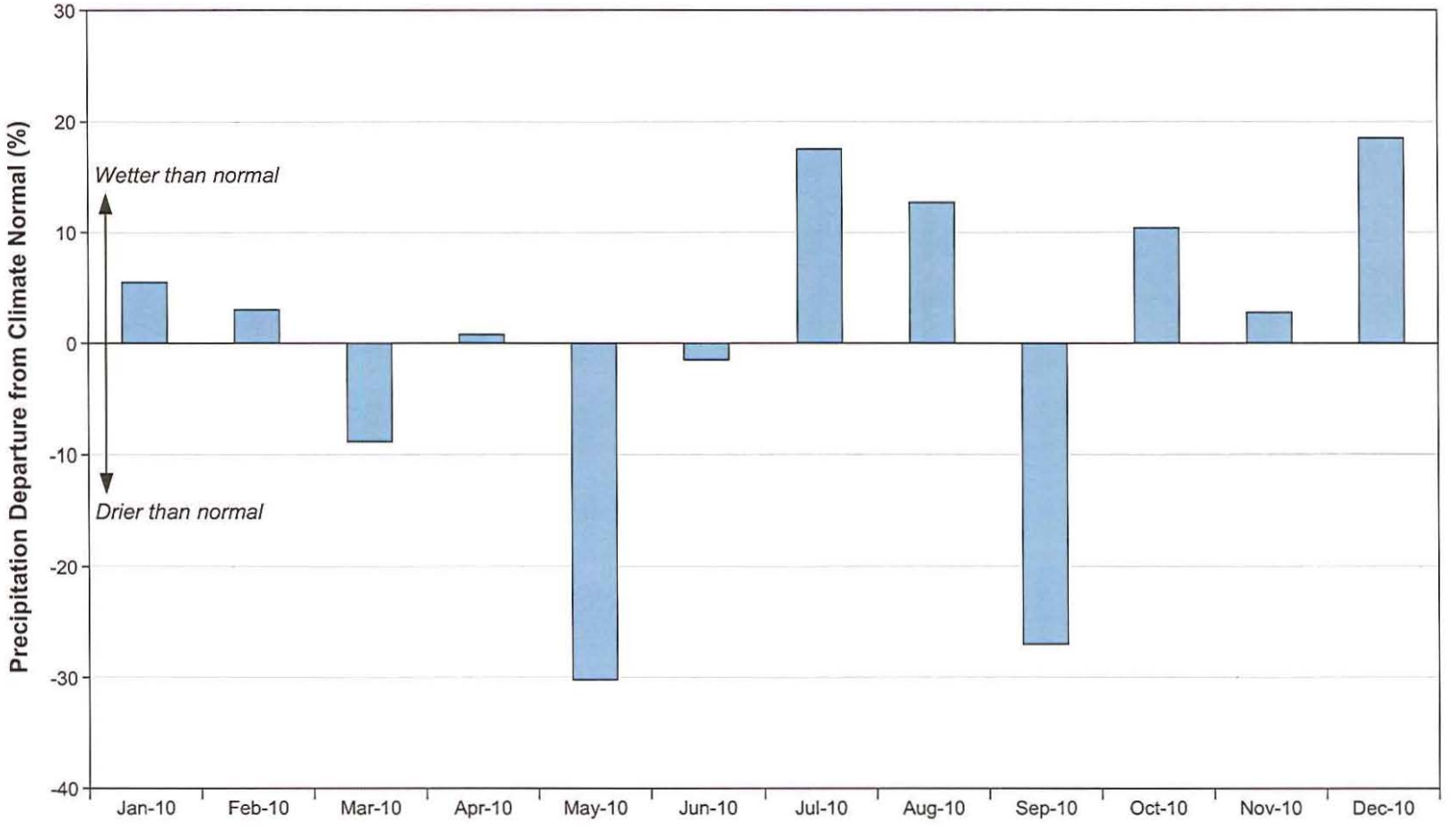


Figure 10.2-3

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2010 Monthly Precipitation Departure from 1971 to 2000 Climate Normals at Kamloops Airport

Figure 2.10-3

Rescan™ Engineers & Scientists

Table 2.10-1. Total Dustfall Results (mg/dm^2/day)

Site	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Oct-10	Nov-10	Dec-10	*Average*
DC1	2.31	0.86	0.38	1.87	1.05	0.47	0.34	0.12	*0.93*
DC2	0.36	0.41	0.20	2.37	0.70	0.76	0.86	0.11	*0.72*
DC3	4.2	0.64	0.79	1.89	1.08	1.32	0.48	*<0.10*	*1.31*
DC4	0.68	1.15	n/a	1.12	n/a[1]	1.68	*<0.10*	0.24	*0.82*
DC5	n/a	n/a	0.29	1.52	1.16	0.38	*<0.10*	0.23	*0.61*
DC6	0.51	0.39	0.23	1.74	1.32	1.54	0.24	0.14	*0.76*
DC7	0.3	0.31	0.22	0.46	0.61	0.18	0.3	0.17	*0.32*
Average	**1.39**	**0.63**	**0.35**	**1.57**	**0.99**	**0.90**	**0.33**	**0.15**	**0.78**

Notes:
n/a = not available. No monitoring was conducted during Jan-10 to Mar-10 or Sep-10.
All cells in italics were below detection limits. For calculation of averages it was assumed that dustfall values were ½ of the detection limit. For example, dustfall was assumed to be 0.05 (= 0.10/2) mg/dm^2/day when measurements were below the detection limit of 0.10 mg/dm^2·day.
[1] The total dustfall value recorded at DC4 during Aug-10 was deemed an outlier and removed. DC4 is upwind of the main sources of dust on the mine site and none of the other dustfall stations recorded elevated dustfall during Aug-10. It is likely that the dustfall sample was contaminated and not accurate.
The 1979 BC MOE Pollution Control Objective for the Mining, Smelting and Related Industries of BC for dustfall is 1.7 to 2.9 mg/dm^2·day.

Table 2.10-2. Maximum Metal Deposition Summary (mg/dm^2/day)

Station	DC1	DC2	DC3	DC4	DC5	DC6	DC7	Maximum	Average
Aluminum (Al)-Total	0.0173	0.0064	0.0811	0.0222	0.0054	0.0043	0.0024	0.0811	0.0199
Antimony (Sb)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Arsenic (As)-Total	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Barium (Ba)-Total	0.0002	0.0007	0.0007	0.0004	0.0001	0.0001	0.0001	0.0007	0.0003
Beryllium (Be)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Bismuth (Bi)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Boron (B)-Total	0.0003	0.0005	0.0003	0.0010	0.0003	0.0003	0.0002	0.0010	0.0004
Cadmium (Cd)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Calcium (Ca)-Total	0.0862	0.3000	0.2020	0.1460	0.0149	0.0154	0.0102	0.3000	0.1107
Chromium (Cr)-Total	0.0001	0.0000	0.0003	0.0001	0.0000	0.0000	0.0000	0.0003	0.0001
Cobalt (Co)-Total	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
Copper (Cu)-Total	0.0006	0.0003	0.0014	0.0014	0.0004	0.0003	0.0003	0.0014	0.0007
Lead (Pb)-Total	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000
Lithium (Li)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Magnesium (Mg)-Total	0.0200	0.0401	0.0643	0.1520	0.0053	0.0063	0.0033	0.1520	0.0416
Manganese (Mn)-Total	0.0005	0.0006	0.0012	0.0014	0.0003	0.0005	0.0005	0.0014	0.0007
Molybdenum (Mo)-Total	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
Nickel (Ni)-Total	0.0001	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001
Potassium (K)-Total	0.0102	0.4180	0.0186	0.3630	0.0161	0.0301	0.0159	0.4180	0.1246
Selenium (Se)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Silver (Ag)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

(continued)

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Table 2.10-2. Maximum Metal Deposition Summary (mg/dm^2/day) (completed)

Station	DC1	DC2	DC3	DC4	DC5	DC6	DC7	Maximum	Average
Sodium (Na)-Total	0.0084	0.1450	0.0205	0.0384	0.0044	0.0357	0.0043	0.1450	0.0367
Strontium (Sr)-Total	0.0001	0.0032	0.0004	0.0028	0.0001	0.0001	0.0001	0.0032	0.0010
Thallium (Tl)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tin (Sn)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Uranium (U)-Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vanadium (V)-Total	0.0001	0.0000	0.0004	0.0001	0.0000	0.0000	0.0000	0.0004	0.0001
Zinc (Zn)-Total	0.0002	0.0005	0.0002	0.0015	0.0003	0.0002	0.0002	0.0015	0.0005

Note: Values of zero indicate that deposition was below the detection limit during all months of monitoring.

The most stringent BC Pollution Control Objective for total dustfall was exceeded once and the least stringent objective was exceeded six times during the measurement period. The reason for the exceedance of the most stringent Pollution Control Objective, recorded at DC3 during April 2010, is undetermined but because calcium and sodium were recorded at higher than normal concentrations it is speculated that the exceedance of total dustfall could have been caused by road salt which would be applied during icy road conditions or gravel dust generated from the nearby roadways (i.e., the TransCanada Highway or local gravel roads). The other elevated dustfall levels were below the most stringent Pollution Control Objective and are likely due to the dry, dusty nature of the environment. There is no pattern present to indicate that dustfall generated by Project activities has contributed significantly to exceedances in total dustfall.

2.10.6 Monitoring

Air quality (i.e., dustfall) monitoring will continue throughout 2011 as part of the on-site environmental monitoring program. Results will be presented in the 2011 Annual Reclamation Report which will be prepared in Q1 of 2012.

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3. New Afton Mine Monitoring Board

3. New Afton Mine Monitoring Board

3.1 INTRODUCTION

New Gold has established a New Afton Mine Monitoring Board as required by the *Mines Act* Permit M-229. The Board's inaugural meeting was held in April 2008 and the Board members have met quarterly in 2010. The Board membership has changed throughout 2010 which has caused some issues around consistency. During the year, the Terms of Reference were reviewed and the focus of the meeting shifted from permitting and regulatory matters to more operations related matters.

3.2 MEETING SUMMARY 2010

There were four New Afton Monitoring Board Meetings scheduled during 2010 (one per quarter).The meetings were attended by First Nations, BC MOE, BC MEMPR, and New Afton representatives with consultants or additional parties attending to provide additional information or to lend support to discussions.

A copy of the minutes from each meeting is attached in Appendix 3.2-1. While the meeting in December was scheduled, it was not attended by either First Nations band representatives. The meeting held was considered unofficial and no minutes taken for that meeting.

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4. Outlook for 2010

4. Outlook for 2011

4.1 WORK SYSTEM AND RECLAMATION

As New Afton is in a construction phase of development, opportunities for reclamation are few. Despite this, there are some reclamation related activities that are planned for 2011.

- Commencing the re-sloping and reclamation of the slope running west from the batch plant along the bone yard road.
- Continuing to manage topsoil in a way that ensures that the materials required for reclamation are stockpiled in sufficient quantities and in a viable condition.
- Ensuring that enough sub-soil is stockpiled to provide the basis for soil structure during future reclamation.
- Stockpiling vegetative waste on site so that it may be used for reclamation activities.
- Seeding or re-seeding disturbed areas as the need arises.
- Further mechanical removal of knapweed from identified hotspots.

4.2 ENVIRONMENTAL PERFORMANCE AND MONITORING

The following environmental performance and monitoring projects are planned for 2011 over and above current and ongoing programs;

- A study of the leaching of heavy metals from tailing sands at neutral pH and how this affects the environmental performance of the future TSF.
- Monitoring of emissions from underground sources in terms of total particulate and volumetric flow rate.
- A review of the current hydrogeological data and model by a third party.
- Continuing to develop an ISO14001 compliant Environmental Management System framework.
- Enter into a biodiversity offsetting arrangement with the Nature Conservancy of Canada.

4.3 RESEARCH

In 2011, the following research activities are planned;

- Commence monitoring of heavy metal uptake in vegetation and soils to provide a baseline for future monitoring.
- Identify and trial the use of "species of cultural significance" for reclamation.

4.4 NEW AFTON MINE MONITORING BOARD

During 2011, the Monitoring Board will continue to meet and provide a great opportunity for identifying projects that will add value and enhance the environmental performance of the site as well as provide a forum for communicating performance to the regulators and First Nations.

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5. Archaeology

5. Archaeology

During the 2010 construction period, a decision was made to have check areas that were to affected by construction despite being previously the subject of the initial archaeological survey during the permitting process. A First Nations archaeology technician inspected the areas just prior to construction activities on five separate occasions;

- Buried services corridor to the water tanks on the hill behind the portal.
- Fence line through area of minimal disturbance south-west of site.
- Drill pad used for Pothook condemnation drilling south of Pothook Pit.
- Area on top of hill behind portal prior to disturbance by tree felling activity.
- Area north of offices and parallel to the Trans-Canada Hwy during the installation of a power line.

As a result of the inspections, 3 small rock chips (dacite) were found in an area that shall remain outside the footprint of disturbance. These areas are marked and a Chance Find Form has been filled to record the findings (Appendix 5.1-1). New Afton will continue to utilise the First Nations for these inspections while construction activity is taking place in areas of low level previous disturbance.

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References

References

American Society for Testing and Materials (ASTM) D 1739 - 98 (re-approved 2004) Standard Test Method for Collection and Measurement of Dustfall (Settleable Particulate Matter)

BC CDC. 2010. *homepage*. http://www.env.gov.bc.ca/cdc/ (accessed April 2010).

BC MOE Pollution Control Objectives for the Mining, Smelting, and Related industries of BC. 1979

BC MOE. 2004. *British Columbia field sampling manual: 2003-For continuous monitoring and the collection of air, air-emission, water, wastewater, soil, sediment and biological samples.* http://www.env.gov.bc.ca/epd/wamr/labsys/field_man_03.html (accessed February 2011).

BC MOE. 2010. *British Columbia approved water quality guidelines 2010 edition* http://www.env.gov.bc.ca/wat/wq/wq_guidelines.html (accessed February 2011).

BC Water Guidelines. Nagpal, N.K.; Pommen, L.W. and Swain, L.G. 2006. *A Compendium of Working Water Quality Guidelines for British Columbia.* British Columbia Ministry of Environment. http://www.env.gov.bc.ca/wat/wq/BCguidelines/working.html#table1 (accessed January 2011).

British Columbia Drinking Water Guidelines

British Columbia Ministry of Environment's Water Quality Guidelines for Fresh Water Aquatic Life

CCME 2011. *Canadian environmental quality guidelines for the protection of aquatic life: Summary table.* Updated January 2011. In Canadian environmental quality guidelines, 1999. Winnipeg, MB: Canadian Council of Ministers of the Environment.

CCME Canadian Council of Ministers of the Environment, October 2005. Canadian Environmental Quality Guidelines.

Rescan. 2006. *Wildlife baseline report*. Vancouver, BC: Prepared for New Gold Inc. by Rescan Environmental Services Ltd.

Rescan. 2009. *Annual reclamation report New Afton Mine - 2008*. Vancouver, BC: Prepared for New Gold Inc. by Rescan Environmental Services Ltd.

Rescan. 2010. New Afton Mine Project: Annual Hydrogeological Reclamation Report 2009. Report prepared for New Gold Inc. February 2010.

RISC. 1997. *Freshwater biological sampling manual*. Victoria, BC: Province of British Columbia, Resources Information Standards Committee.

SIB Natural Resource Department 2010 New Gold, New Afton Copper Gold Mine AOA Non Permit Pipeline Survey

USGS. 2009. From Briggs, J.C., and Ficke, J.F., 1977, *Quality of Rivers of the United States, 1975 Water Year - Based on the National Stream Quality Accounting Network (NASQAN): U.S. Geological Survey Open-File Report 78-200*, 436p. http://water.usgs.gov/owq/hardness-alkalinity.html#briggs. (accessed February 2011).

Water, Air and Climate Change Branch Ministry of Water, Land and Air Protection Province of British Columbia. 2003. British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2003 Edition (Permittee). January 2003.

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Appendix 1.2-1

New Gold Health, Safety, Environment and Sustainability Policy

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Engineers and Scientists

newgold

HEALTH, SAFETY, ENVIRONMENT AND SUSTAINABILITY POLICY

New Gold Inc. ("New Gold") is committed to excellence in the management of health, safety, environment and sustainability and considers this to be a key driver to achieving a productive and profitable business that contributes to sustainable development for present and future generations.

New Gold's objectives are to:

- ensure the health and safety of employees, contractors and visitors in the workplace;
- prevent pollution;
- minimize impact that its mining operations may cause to the environment;
- demonstrate its commitment to fostering sustainable communities;
- practice the progressive rehabilitation of areas impacted by its activities.

To achieve these objectives New Gold will:

- apply a proactive risk management approach using best practices appropriate to the local conditions and needs that will meet our legal obligations as a minimum;
- identify and engage with our stakeholders and work to take their views, customs and culture into account throughout the life cycle of our operations;
- maintain a responsible mine closure plan that considers the future needs of the local communities;
- continuously improve the health, safety and environmental systems, by establishing and reviewing its objectives and targets, through evaluation, auditing and development of performance improvement plans;
- educate and train our employees and contractors, and inform surrounding communities to promote the application of Health, Safety, Environment and Sustainability principles;
- seek and adopt sustainable practices in the use of natural resources taking into consideration the protection of the local and regional biodiversity where we operate;
- maximize the reuse of materials and recycle of waste, and minimize the use of consumables and raw materials;
- promote economic prosperity in our surrounding communities, both during and post mining operations by fostering local entrepreneurship;

New Gold will report openly to its stakeholders on its progress to achieve the objectives of this policy.



Robert Gallagher
President and Chief Executive Officer (CEO)
New Gold Inc.

Appendix 2.3-1
Field Leach Barrels Geochemical Results

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Engineers and Scientists

Appendix 2.3-1. Field Leach Barrels Geochemical Results

Sample ID		ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 2 (TRANSITION ORE MUCK)	FIELD BLANK	TRAVEL BLANK	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD-5 high sulphide waste muck
Date Sampled		29-Apr-09	29-Apr-09	29-Apr-09	29-Apr-09	29-Apr-09	29-Apr-09	29-Apr-09	18-Nov-09	18-Nov-09	18-Nov-09	18-Nov-09	20-Apr-10	20-Apr-10	20-Apr-10	20-Apr-10	10-Sep-10	10-Sep-10	10-Sep-10	10-Sep-10
Time Sampled		11:20:00 AM	12:05:00 PM	12:00:00 PM	12:10:00 PM	12:20:00 PM	12:20:00 PM	12:20:00 PM	00:00	00:00	00:00	00:00								
Lab Sample ID		L758109-1	L758109-3	L758109-2	L758109-4	L758109-5	L758109-6	L758109-7	L841595-1	L841595-2	L841595-3	L841595-4	E10-0884	E10-0884	E10-0884	E10-0884	E10-2223	E10-2223	E10-2223	E10-2223
Matrix	Units	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests																				
Colour, True	CU	<5.0	5.1	9.9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0					10	8	8	20
Conductivity	µS/cm	2580	3490	1350	2420	4350	<2.0	<2.0	3600	4810	1570	2620	3980	6030	2060	3320	466	1068	1007	1620
Hardness (as $CaCO_3$)	mg/L	176	249	27.6	165	410	<0.50	<0.50	282	168	19.6	68.1					44	44	28	740
pH	ph Units	8.14	8.3	8.8	8.63	8.3	5.58	5.62	7.07	8.42	8.83	8.66	8.41	8.53	9.06	8.62	7.75	7.85	8.11	6.68
Total Suspended Solids	mg/L	27.1	2690	3.1	2450	385	<3.0	<3.0	91.3	629	47.3	385					26	32	11	<1
Total Dissolved Solids	mg/L	1680	4420	939	2310	3300	<10	<10	2620	3530	1090	1800	2578	4190	1721	2850	391	824	852	1241
Turbidity	NTU	8.6	3350	41.6	3260	216	<0.10	<0.10	32.0	324	68.4	203					32	45	43	2.3
Anions and Nutrients	mg/L																			
Acidity (as $CaCO_3$)	mg/L	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	24.4	<1.0	<1.0	<1.0								
Alkalinity, Bicarbonate (as $CaCO_3$)	mg/L	241	308	401	433	256	<2.0	<2.0	237	320	427	341								
Alkalinity, Carbonate (as $CaCO_3$)	mg/L	<2.0	4.4	49.2	33.6	<1.0	<2.0	<2.0	<2.0	16.7	65.5	38.1								
Alkalinity, Hydroxide (as $CaCO_3$)	mg/L	<2.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0								
Alkalinity, Total (as $CaCO_3$)	mg/L	241	312	450	467	256	<2.0	<2.0	237	336	493	379	218	332	564	523	90	109	144	11
Ammonia as N	mg/L	0.131	0.102	0.0185	0.0221	0.188	<0.0050	<0.0050	0.0354	0.0181	0.0347	0.0117					0.073	0.55	0.036	0.942
Bromide (Br)	mg/L	<0.50	<1.0	<0.25	<0.50	<1.0	<0.050	<0.050	<1.0	<1.0	<0.50	<1.0								
Chloride (Cl)	mg/L	8.5	<10	7.5	11.1	12	<0.50	<0.50	15	16	11.1	16					1.1	2.0	3.1	9.1
Fluoride (F)	mg/L	1.29	2.04	1.34	2.51	1.7	<0.020	<0.020	0.99	1.63	1.11	1.79					0.31	0.91	1.4	0.35
Nitrate (as N)	mg/L	35.1	37.4	23.3	8.64	34.2	<0.0050	<0.0050	52.9	66.4	31.6	15.6					3.76	11.6	5.31	5.16
Nitrite (as N)	mg/L	0.039	0.091	0.0341	0.021	0.761	<0.0010	<0.0010	<0.020	0.078	0.129	0.076					<0.003	<0.03	0.003	0.67
Total Kjeldahl Nitrogen	mg/L	1.62	7.05	1.45	2.85	2.71	<0.050	<0.050	1.11	1.7	1.65	1.15					1.32	1.46	0.987	1.79
Total Nitrogen	mg/L	36.8	44.5	24.7	11.5	37.7	<0.050	<0.050	54.0	68.2	33.3	16.8					3.76	11.6	5.31	5.83
Total Phosphate as P	mg/L	0.071	1.05	0.0491	2.02	0.195	<0.0020	<0.0020	0.102	0.63	0.221	0.346					0.126	0.62	0.127	0.043
Dissolved Phosphate as P	mg/L																0.05	0.451	0.08	0.043
Sulfate (SO_4)	mg/L	939	1290	162	756	1930	<0.50	<0.50	1550	2100	216	923	1465	2385	258	959	106	300	260	816
Sulphide	mg/L												<0.15	<0.15	<0.15	<0.5	0.1	<0.25	<0.25	<0.25
Cyanides																				
Cyanide, Total	mg/L	0.0067	-	0.0075	-	0.0121	<0.0010	<0.0010	0.0059	0.0069	0.0111	0.0069								
Organic / Inorganic Carbon																				
Total Organic Carbon	mg/L	9.07	-	13.5	-	15.9	<0.50	<0.50	7.53	13.4	12.9	14.3								
Total Metals																				
Aluminum (Al)-Total	mg/L	14.3	22.9	9.88	23.7	1.22	<0.0010	<0.0010	0.259	3.14	4.09	3.67	4.249	33.15	2.742	67.99	0.995	0.803	0.46	0.003
Antimony (Sb)-Total	mg/L	0.0198	0.14	0.0133	0.0198	0.237	<0.00010	<0.00010	0.0118	0.188	0.0174	0.0145	0.023	0.316	0.033	0.049	0.006	0.107	0.012	<0.001
Arsenic (As)-Total	mg/L	0.0461	1.63	0.0588	0.153	3.84	<0.00010	<0.00010	0.0136	1.52	0.0650	0.0544	0.027	2.338	0.095	0.471	0.012	1.348	0.059	<0.001
Barium (Ba)-Total	mg/L	0.108	0.168	0.158	0.0746	0.0424	<0.000050	<0.000050	0.0133	0.0323	0.0303	0.0219	0.04	0.29	0.08	0.38	0.02	0.01	<0.01	0.02
Beryllium (Be)-Total	mg/L	<0.0050	<0.0050	<0.0025	<0.0050	<0.0050	<0.00050	<0.00050	<0.0050	<0.010	<0.0025	<0.0050	<0.001	<0.001	0.002	0.004	<0.001	<0.001	<0.001	<0.001
Bismuth (Bi)-Total	mg/L	<0.0050	<0.0050	<0.0025	<0.0050	<0.0050	<0.00050	<0.00050	<0.0050	<0.010	<0.0025	<0.0050	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Boron (B)-Total	mg/L	0.45	0.73	0.392	0.35	0.19	<0.010	<0.010	0.34	0.71	0.440	0.23	0.39	1.006	0.453	0.462	0.094	0.754	0.581	1.497
Cadmium (Cd)-Total	mg/L	0.00045	0.00061	0.000136	0.00024	<0.00090	<0.000017	<0.000017	0.00025	0.00052	0.000058	<0.00010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium (Ca)-Total	mg/L	112	57.2	7.64	29.2	102	<0.020	<0.020	51.7	57.6	3.72	16.5	70.02	110.21	4.94	100.2	12.95	11.69	4.49	163.7

Appendix 2.3-1. Field Leach Barrels Geochemical Results

Sample ID		ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 2 (TRANSITION ORE MUCK)	FIELD BLANK	TRAVEL BLANK	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD-5 high sulphide waste muck
Chromium (Cr)-Total	mg/L	0.0297	0.0653	0.008	0.0238	<0.0050	<0.00050	<0.00050	<0.0050	<0.010	0.0051	0.0070	0.008	0.109	<0.001	0.069	0.003	0.002	<0.001	<0.001
Cobalt (Co)-Total	mg/L	0.0192	0.0264	0.00898	0.0463	0.0324	<0.00010	<0.00010	<0.0010	0.0022	0.00164	0.0053	0.005	0.044	0.004	0.172	0.001	0.002	<0.001	0.003
Copper (Cu)-Total	mg/L	2.34	1.74	0.219	0.344	0.599	<0.00010	<0.00010	0.0954	0.186	0.0786	0.0552	0.411	2.002	0.121	1.53	0.28	0.245	0.033	0.636
Iron (Fe)-Total	mg/L	23.4	14.6	6.68	30.3	1.65	<0.030	<0.030	0.389	1.52	1.46	5.15	4.603	23.79	2.344	136.4	1.422	0.567	0.458	0.013
Lead (Pb)-Total	mg/L	0.0249	0.0361	0.0326	0.00561	0.00094	<0.000050	<0.000050	0.00092	0.0049	0.00519	0.00087	0.047	0.073	0.021	0.042	<0.001	<0.001	<0.001	<0.001
Lithium (Li)-Total	mg/L	<0.050	<0.050	<0.025	<0.050	<0.050	<0.0050	<0.0050	<0.050	<0.10	<0.025	<0.050								
Magnesium (Mg)-Total	mg/L	37.3	25.7	6.12	22.4	37.5	<0.0050	<0.0050	16.8	19.8	3.04	13.6	26	48.3	4.2	61.3	4.24	4.6	4.17	82.4
Manganese (Mn)-Total	mg/L	1.09	0.687	0.138	0.464	0.126	<0.000050	<0.000050	0.0268	0.0608	0.0249	0.0960	0.222	1.131	0.078	2.11	0.041	0.017	0.005	0.308
Mercury (Hg)-Total	mg/L	0.000035	0.000113	0.000014	0.000032	0.000157	<0.000010	<0.000010	<0.000010	0.000036	<0.000010	<0.000010								
Molybdenum (Mo)-Total	mg/L	0.0827	0.0891	0.0344	0.137	0.23	<0.000050	<0.000050	0.0899	0.174	0.0817	0.192	0.098	0.172	0.068	0.158	0.016	0.029	0.052	0.003
Nickel (Ni)-Total	mg/L	0.0256	0.0386	0.0143	0.0325	0.0336	<0.00050	<0.00050	<0.0050	<0.010	0.0036	<0.0050	0.006	0.052	0.006	0.108	0.003	0.003	0.001	0.003
Phosphorus (P)-Total	mg/L	2.12	1.01	<0.30	1.29	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0.80	3.11	0.27	6.41	0.08	0.12	<0.08	<0.08
Potassium (K)-Total	mg/L	18.4	35	17.1	21.2	37.1	<0.050	<0.050	14.9	33.6	13.5	12.5	20.21	52.09	16.55	61.86	4.81	9.87	4.75	12.73
Selenium (Se)-Total	mg/L	0.0451	0.133	0.0069	0.0279	0.158	<0.00010	<0.00010	0.0263	0.156	0.00717	0.0268	0.075	0.413	0.016	0.053	0.004	0.03	0.008	0.01
Silicon (Si)-Total	mg/L	23.8	40.5	17.4	32.9	3.75	<0.050	<0.050	2.06	8.46	8.20	7.30	4.95	33.19	2.25	42.16	2.05	1.65	0.83	0.43
Silver (Ag)-Total	mg/L	0.00131	0.00051	<0.000050	0.00047	0.00013	<0.000010	<0.000010	<0.00010	<0.00020	<0.000050	<0.00010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sodium (Na)-Total	mg/L	734	803	329	574	957	<2.0	<2.0	516	985	346	537	747	1264	421.3	670	74.06	189.6	184.5	83.51
Strontium (Sr)-Total	mg/L	2.79	2.26	0.346	1.32	4.48	<0.00010	<0.00010	1.73	2.81	0.190	1.03	2.57	4.26	0.27	2.18	0.24	0.47	0.3	2.21
Thallium (Tl)-Total	mg/L	<0.0010	<0.0010	<0.00050	<0.0010	<0.0010	<0.00010	<0.00010	<0.0010	<0.0020	<0.00050	<0.0010								
Tin (Sn)-Total	mg/L	<0.0010	<0.0010	0.00057	<0.0010	<0.0010	<0.00010	<0.00010	<0.0010	<0.0020	<0.00050	<0.0010	<0.01	0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01
Titanium (Ti)-Total	mg/L	0.305	0.034	0.01	0.032	0.022	<0.010	<0.010	<0.010	0.033	0.012	0.023	0.165	0.131	0.01	0.056	0.021	<0.007	<0.007	<0.007
Uranium (U)-Total	mg/L	0.00073	0.0014	0.00202	0.00329	0.00067	<0.000010	<0.000010	0.00028	0.00115	0.00168	0.00232	<0.001	<0.001	0.002	0.003	<0.001	<0.001	<0.001	<0.001
Vanadium (V)-Total	mg/L	0.176	0.158	0.0505	0.079	0.012	<0.0010	<0.0010	<0.010	0.040	0.0228	0.017	0.049	0.246	0.018	0.248	0.016	0.03	0.003	<0.001
Yittrium (Y) - Total	mg/L												0.01	0.033	0.002	0.042	<0.001	<0.001	<0.001	<0.001
Zinc (Zn)-Total	mg/L	0.051	0.085	0.0314	0.056	<0.010	<0.0010	<0.0010	<0.010	<0.020	0.0069	0.012	0.027	0.273	0.027	0.397	0.015	<0.005	<0.005	0.013
Dissolved Metals																				
Aluminum (Al)-Dissolved	mg/L	0.029	-	7.57	-	-	-	-	0.026	0.186	1.40	1.95	0.011	0.251	0.873	0.231	0.012	0.127	0.159	0.003
Antimony (Sb)-Dissolved	mg/L	0.0222	-	0.0171	-	-	-	-	0.0151	0.166	0.0190	0.0166	0.023	0.311	0.033	0.049	0.006	0.106	0.012	<0.001
Arsenic (As)-Dissolved	mg/L	0.0261	-	0.0422	-	-	-	-	0.0154	1.26	0.0637	0.0438	0.024	2.113	0.084	0.147	0.01	1.276	0.058	<0.001
Barium (Ba)-Dissolved	mg/L	0.0156	-	0.0437	-	-	-	-	0.0203	0.0178	0.0244	0.0120	0.02	0.02	0.02	<0.01	0.02	<0.01	<0.01	0.02
Beryllium (Be)-Dissolved	mg/L	<0.0050	-	<0.0025	-	-	-	-	<0.0050	<0.010	<0.0025	<0.0050	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bismuth (Bi)-Dissolved	mg/L	<0.0050	-	<0.0025	-	-	-	-	<0.0050	<0.010	<0.0025	<0.0050	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron (B)-Dissolved	mg/L	0.4	-	0.375	-	-	-	-	0.45	0.57	0.441	0.21	0.392	0.86	0.452	0.25	0.082	0.633	0.509	1.484
Cadmium (Cd)-Dissolved	mg/L	0.00032	-	0.000173	-	-	-	-	0.00016	0.00082	0.000134	0.00012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium (Ca)-Dissolved	mg/L	46.8	-	5.03	-	-	-	-	73.6	43.3	3.54	10.4	60.1	49.45	3.26	10.03	12.34	11.05	4.42	162.2
Chromium (Cr)-Dissolved	mg/L	0.0081	-	0.016	-	-	-	-	<0.0050	<0.010	0.0034	<0.0050	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt (Co)-Dissolved	mg/L	<0.0010	-	0.00148	-	-	-	-	<0.0010	<0.0020	0.00076	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
Copper (Cu)-Dissolved	mg/L	0.0997	-	0.074	-	-	-	-	0.0715	0.0715	0.0542	0.0263	0.087	0.088	0.034	0.021	0.048	0.075	0.02	0.635
Iron (Fe)-Dissolved	mg/L	0.045	-	1.12	-	-	-	-	<0.030	0.040	0.310	0.487	0.008	0.024	0.141	0.042	0.01	0.029	0.038	0.011
Lead (Pb)-Dissolved	mg/L	<0.00050	-	0.00437	-	-	-	-	<0.00050	<0.0010	0.00203	<0.00050	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium (Li)-Dissolved	mg/L	<0.050	-	<0.025	-	-	-	-	<0.050	<0.10	<0.025	<0.050								
Magnesium (Mg)-Dissolved	mg/L	14.5	-	3.66	-	-	-	-	23.8	14.4	2.61	10.3	20.5	21.23	3.1	9	3.1	4	4.1	81.42
Manganese (Mn)-Dissolved	mg/L	0.00459	-	0.0225	-	-	-	-	0.00202	0.0055	0.00934	0.00912	0.005	0.003	0.002	<0.001	0.009	<0.001	<0.001	0.305
Mercury (Hg)-Dissolved	mg/L	<0.000010	-	<0.000010	-	-	-	-	<0.000010	<0.000010	0.000016	<0.000010								

Appendix 2.3-1. Field Leach Barrels Geochemical Results

Sample ID		ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 2 (TRANSITION ORE MUCK)	FIELD BLANK	TRAVEL BLANK	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 3 (MONZONITE (DMZ) MUCK)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD 1 (HYPOGENE ORE MUCK)	ARD 2A (NO LABEL)	ARD 4 (LOW SULPHIDE WASTE MUCK)	ARD-5 high sulphide waste muck
Molybdenum (Mo)-Dissolved	mg/L	0.0822	-	0.0344	-	-	-	-	0.122	0.142	0.0848	0.183	0.104	0.171	0.067	0.156	0.016	0.029	0.052	0.003
Nickel (Ni)-Dissolved	mg/L	<0.0050	-	0.0047	-	-	-	-	<0.0050	<0.010	<0.0025	<0.0050	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.003
Phosphorus (P)-Dissolved	mg/L	<0.30	-	<0.30	-	-	-	-	<0.30	<0.30	<0.30	<0.30	0.15	0.27	<0.08	0.1	<0.08	<0.08	<0.08	<0.08
Potassium (K)-Dissolved	mg/L	15	-	14.9	-	-	-	-	19.1	27.4	12.5	10.7	19.18	42.73	14.56	14.02	4.73	9.31	4.59	12.68
Selenium (Se)-Dissolved	mg/L	0.0348	-	0.00696	-	-	-	-	0.0331	0.125	0.00770	0.0282	0.074	0.409	0.016	0.047	0.004	0.029	0.008	0.01
Silicon (Si)-Dissolved	mg/L	2.41	-	6.12	-	-	-	-	2.08	1.87	1.52	1.64	1.11	1.19	0.85	0.9	0.85	0.88	0.55	0.41
Silver (Ag)-Dissolved	mg/L	<0.00010	-	<0.000050	-	-	-	-	<0.00010	<0.00020	<0.000050	<0.00010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sodium (Na)-Dissolved	mg/L	571	-	319	-	-	-	-	706	828	350	510	729.4	1252	418.4	666	73.08	186	183.4	82.57
Strontium (Sr)-Dissolved	mg/L	1.9	-	0.261	-	-	-	-	2.58	2.08	0.187	0.884	2.51	3.29	0.23	0.91	0.23	0.45	0.3	2.21
Thallium (Tl)-Dissolved	mg/L	<0.0010	-	<0.00050	-	-	-	-	<0.0010	<0.0020	<0.00050	<0.0010								
Tin (Sn)-Dissolved	mg/L	<0.0010	-	<0.00050	-	-	-	-	<0.0010	<0.0020	<0.00050	<0.0010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium (Ti)-Dissolved	mg/L	<0.010	-	<0.010	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Uranium (U)-Dissolved	mg/L	0.00046	-	0.00184	-	-	-	-	0.00039	0.00083	0.00163	0.00218	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001
Vanadium (V)-Dissolved	mg/L	0.011	-	0.0346	-	-	-	-	<0.010	<0.020	0.0127	<0.010	0.007	0.031	0.009	0.003	0.005	0.026	0.002	<0.001
Yittrium (Y) - Dissolved	mg/L												<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc (Zn)-Dissolved	mg/L	<0.010	-	0.007	-	-	-	-	<0.010	<0.020	<0.0050	<0.010	0.017	0.011	<0.005	0.015	<0.005	<0.005	<0.005	0.013

Appendix 2.5-1

Surface Water Quality Results, New Afton Project, 2010

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Appendix 2.5-1. Surface Water Quality Results, New Afton Project, 2010

Sample ID		SW4	SW13	SW15	SW16	SW17	SW2	SW5	SW7	SW8	SW7 DUPLICATE	FIELD BLANK
Date Sampled		02-JUN-10	02-JUN-10	01-JUN-10	01-JUN-10	02-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10
ALS Sample ID		L895571-5	L895571-4	L895571-2	L895571-1	L895571-3	L899402-3	L899402-4	L899402-5	L899402-6	L899402-1	L899402-8
Parameter	Units											
Physical Tests												
Conductivity	uS/cm	83.8	11300	516	5720	9580	2400	69200	2280	57300	2270	13.4
Hardness (as $CaCO_3$)	mg/L	32.4	3540	207	2070	2770	1180	38600	382	11500	381	<0.50
pH	pH	7.66	9.13	7.31	7.74	8.23	8.59	8.64	8.85	8.87	9.07	5.76
Total Suspended Solids	mg/L	-	-	-	-	-	54.5	406	115	115	179	<3.0
Anions and Nutrients												
Alkalinity, Total (as $CaCO_3$)	mg/L	34.1	261	209	555	456	656	1480	577	<2.0	573	<2.0
Ammonia as N	mg/L	<0.025	0.218	0.053	1.50	0.086	<0.010	3.65	0.040	5.29	0.036	<0.010
Bromide (Br)	mg/L	<0.050	<2.5	<0.050	<2.5	<2.5	<2.5	<25	<1.0	<25	<1.0	<0.050
Chloride (Cl)	mg/L	<0.50	211	0.83	34	70	25	5530	59	980	61	<0.50
Fluoride (F)	mg/L	0.041	<1.0	0.094	<1.0	<1.0	<1.0	0.60	0.46	<0.30	0.47	<0.020
Nitrate (as N)	mg/L	0.0981	<0.25	<0.0050	<0.25	<0.25	<0.25	<2.5	<0.10	<2.5	<0.10	<0.0050
Nitrite (as N)	mg/L	<0.0010	0.108	<0.0010	<0.050	<0.050	<0.050	<0.50	<0.020	<0.50	<0.020	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.176	4.01	0.168	4.48	1.51	2.25	29.6	0.979	33.8	0.943	<0.050
Total Nitrogen	mg/L	-	-	-	-	-	2.25	<3.0	0.98	3.4	0.94	<0.060
Total Phosphate as P	mg/L	0.150	0.151	0.0172	0.346	0.0667	0.320	3.22	0.161	1.94	0.279	<0.0020
Sulfate (SO_4)	mg/L	6.36	7160	85.2	3390	6230	885	74900	622	50400	648	<0.50
Leachable Anions & Nutrients												
Anion Sum	meq/L	0.82	160	5.98	82.7	141	32.2	1740	26.2	1080	26.7	-
Cation Sum	meq/L	0.77	185	4.87	69.6	136	33.1	2650	27.7	1150	26.6	-
Cation - Anion Balance	%	-3.1	7.1	-10.1	-8.6	-1.6	1.2	20.6	2.8	3.3	-0.3	-
Cyanides												
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	0.0074	0.0053	0.0229	0.0560	0.0100	-	0.0101	<0.0050
Organic / Inorganic Carbon												
Dissolved Organic Carbon	mg/L	2.11	33.3	2.20	18.9	12.5	-	-	-	-	-	-
Total Organic Carbon	mg/L	2.12	33.0	1.91	19.1	12.9	-	-	-	-	-	-
Total Metals												
Aluminum (Al)-Total	mg/L	2.15	0.58	0.0084	0.046	0.126	0.0170	<0.50	6.17	<0.30	5.63	<0.0010
Antimony (Sb)-Total	mg/L	<0.000050	<0.0050	0.000143	<0.00050	<0.0010	0.00018	<0.025	0.00984	<0.015	0.00924	<0.000050
Arsenic (As)-Total	mg/L	0.000478	0.0072	0.00459	0.00211	0.0053	0.0124	0.032	0.0189	0.070	0.0174	<0.000050
Barium (Ba)-Total	mg/L	0.0304	0.0263	0.0536	0.0284	0.0158	0.0144	0.070	0.125	0.032	0.118	<0.000050
Beryllium (Be)-Total	mg/L	<0.00020	<0.020	<0.00020	<0.0020	<0.0040	<0.00040	<0.10	<0.0010	<0.060	<0.0010	<0.00020
Bismuth (Bi)-Total	mg/L	<0.00050	<0.050	<0.00050	<0.0050	<0.010	<0.0010	<0.25	<0.0025	<0.15	<0.0025	<0.00050
Boron (B)-Total	mg/L	0.0070	1.67	0.272	5.14	1.41	0.554	11.4	0.276	22.1	0.259	<0.0050
Cadmium (Cd)-Total	mg/L	0.000030	<0.0017	0.000054	<0.00017	<0.00034	<0.000034	<0.0085	<0.00061	<0.0051	<0.000085	<0.000017
Calcium (Ca)-Total	mg/L	13.1	128	47.6	238	168	82.9	679	46.1	172	42.7	<0.020
Chromium (Cr)-Total	mg/L	0.00381	<0.020	<0.00020	<0.0020	<0.0040	<0.00070	0.12	0.0238	<0.060	0.0208	<0.00020
Cobalt (Co)-Total	mg/L	0.00158	<0.010	<0.00010	<0.0010	<0.0020	<0.00020	<0.050	0.00634	<0.030	0.00596	<0.00010
Copper (Cu)-Total	mg/L	0.00532	0.032	0.0137	<0.0080	<0.025	<0.0020	<0.25	0.0767	<0.080	0.0709	<0.00010
Iron (Fe)-Total	mg/L	2.40	0.743	0.030	0.190	0.549	0.022	<1.0	5.87	<0.50	5.87	<0.010
Lead (Pb)-Total	mg/L	0.000871	<0.0050	<0.000050	<0.00050	<0.0010	<0.00010	<0.025	<0.00025	<0.015	<0.00025	<0.000050
Lithium (Li)-Total	mg/L	<0.0050	<0.50	0.0062	<0.050	<0.10	0.014	<2.5	<0.025	<1.5	<0.025	<0.0050
Magnesium (Mg)-Total	mg/L	3.01	720	28.6	411	600	230	8960	74.9	2680	71.8	<0.0050
Manganese (Mn)-Total	mg/L	0.0623	0.0531	0.0113	0.156	0.611	0.0432	0.607	0.101	0.137	0.0961	<0.000050
Mercury (Hg)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000026	<0.000010	0.000017	<0.000010
Molybdenum (Mo)-Total	mg/L	0.000742	0.0288	0.108	0.0148	0.0264	0.00294	0.940	0.152	0.080	0.141	<0.000050
Nickel (Ni)-Total	mg/L	0.00458	<0.010	0.00129	0.0031	0.0040	0.00036	<0.050	0.0270	<0.030	0.0243	<0.00010
Phosphorus (P)-Total	mg/L	<0.30	<0.90	<0.30	<0.60	<0.90	<0.30	<30	0.39	<15	0.39	<0.30
Potassium (K)-Total	mg/L	1.29	186	1.30	222	88.9	36.9	813	33.0	191	31.0	<0.050
Selenium (Se)-Total	mg/L	0.00021	<0.020	0.00178	<0.0020	0.0117	<0.0010	<0.25	<0.0025	<0.15	<0.0025	<0.00050
Silicon (Si)-Total	mg/L	6.75	1.60	11.3	2.38	0.53	0.862	<5.0	17.5	<2.5	16.8	<0.050
Silver (Ag)-Total	mg/L	<0.000010	<0.0010	<0.000010	<0.00010	<0.00020	<0.000020	<0.0050	<0.000050	<0.0030	<0.000050	<0.000010
Sodium (Na)-Total	mg/L	3.01	2450	19.0	564	1760	188	42700	425	21100	416	<0.010
Strontium (Sr)-Total	mg/L	0.0816	2.89	0.365	5.99	3.90	2.07	22.0	0.919	6.73	0.862	<0.00010
Thallium (Tl)-Total	mg/L	<0.000050	<0.0050	<0.000050	<0.00050	<0.0010	<0.00010	<0.025	<0.00025	<0.015	<0.00025	<0.000050
Tin (Sn)-Total	mg/L	<0.00010	<0.010	<0.00010	<0.0010	<0.0020	<0.00020	<0.050	<0.00050	<0.030	<0.00050	<0.00010
Titanium (Ti)-Total	mg/L	0.098	<0.030	<0.010	<0.020	<0.030	<0.010	<1.0	0.352	<0.50	0.342	<0.010
Uranium (U)-Total	mg/L	0.000406	0.0067	0.00204	0.00168	0.00734	0.000967	0.478	0.00276	0.0469	0.00259	<0.000010
Vanadium (V)-Total	mg/L	0.00545	0.010	0.00233	<0.0010	<0.0020	<0.00040	<0.10	0.0481	<0.060	0.0449	<0.00020
Zinc (Zn)-Total	mg/L	0.0069	<0.10	0.0407	<0.010	<0.020	<0.0020	<0.50	0.0064	<0.30	0.0050	<0.0010

Appendix 2.5-1. Surface Water Quality Results, New Afton Project, 2010

Sample ID		SW4	SW13	SW15	SW16	SW17	SW2	SW5	SW7	SW8	SW7 DUPLICATE	FIELD BLANK
Date Sampled		02-JUN-10	02-JUN-10	01-JUN-10	01-JUN-10	02-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10
ALS Sample ID		L895571-5	L895571-4	L895571-2	L895571-1	L895571-3	L899402-3	L899402-4	L899402-5	L899402-6	L899402-1	L899402-8
Parameter	Units											
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	0.0382	<0.10	0.0018	<0.010	<0.020	0.0064	-	1.67	-	1.29	-
Antimony (Sb)-Dissolved	mg/L	<0.000050	<0.0050	0.000185	<0.00050	<0.0010	0.00017	-	0.00871	-	0.00908	-
Arsenic (As)-Dissolved	mg/L	0.000140	0.0104	0.00563	0.00184	0.0047	0.0156	-	0.0195	-	0.0181	-
Barium (Ba)-Dissolved	mg/L	0.00723	0.0199	0.0387	0.0256	0.0140	0.0139	-	0.109	-	0.0923	-
Beryllium (Be)-Dissolved	mg/L	<0.00020	<0.020	<0.00020	<0.0020	<0.0040	<0.00040	-	<0.0010	-	<0.0010	-
Bismuth (Bi)-Dissolved	mg/L	<0.00050	<0.050	<0.00050	<0.0050	<0.010	<0.0010	-	<0.0025	-	<0.0025	-
Boron (B)-Dissolved	mg/L	0.0062	1.57	0.275	4.88	1.32	0.564	-	0.257	-	0.254	-
Cadmium (Cd)-Dissolved	mg/L	<0.000017	<0.0017	<0.000017	<0.00017	<0.00034	<0.000034	-	<0.00051	-	<0.000085	-
Calcium (Ca)-Dissolved	mg/L	10.0	112	42.0	213	164	83.5	-	38.8	-	36.5	-
Chromium (Cr)-Dissolved	mg/L	<0.00020	<0.020	<0.00050	<0.0013	<0.0040	<0.0020	-	<0.011	-	<0.0080	-
Cobalt (Co)-Dissolved	mg/L	<0.00010	<0.010	<0.00010	<0.0010	<0.0020	<0.00020	-	0.00296	-	0.00232	-
Copper (Cu)-Dissolved	mg/L	0.00079	<0.010	0.00726	<0.0070	<0.025	<0.0020	-	0.0627	-	0.0486	-
Iron (Fe)-Dissolved	mg/L	0.054	0.035	0.018	0.082	<0.030	0.018	-	2.24	-	1.56	-
Lead (Pb)-Dissolved	mg/L	<0.000050	<0.0050	<0.000050	<0.00050	<0.0010	<0.00010	-	<0.00025	-	<0.00025	-
Lithium (Li)-Dissolved	mg/L	<0.0050	<0.50	0.0052	<0.050	<0.10	0.014	-	<0.025	-	<0.025	-
Magnesium (Mg)-Dissolved	mg/L	1.80	791	24.8	374	574	236	-	69.2	-	70.4	-
Manganese (Mn)-Dissolved	mg/L	0.00153	0.0311	0.00910	0.122	0.547	0.0398	-	0.0517	-	0.0362	-
Mercury (Hg)-Dissolved	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	0.000017	-	<0.000010	-
Molybdenum (Mo)-Dissolved	mg/L	0.000747	0.0135	0.105	0.0155	0.0218	0.00291	-	0.145	-	0.141	-
Nickel (Ni)-Dissolved	mg/L	0.00045	<0.010	0.00096	0.0024	0.0047	0.00056	-	0.0120	-	0.00948	-
Phosphorus (P)-Dissolved	mg/L	<0.30	<0.90	<0.30	<0.60	<0.90	<0.30	-	<0.30	-	<0.30	-
Potassium (K)-Dissolved	mg/L	0.851	171	1.12	203	86.7	37.6	-	31.7	-	31.5	-
Selenium (Se)-Dissolved	mg/L	<0.00020	<0.020	0.00218	<0.0020	0.0129	<0.0010	-	<0.0025	-	<0.0025	-
Silicon (Si)-Dissolved	mg/L	2.89	<0.15	11.4	2.08	0.33	0.804	-	7.83	-	6.08	-
Silver (Ag)-Dissolved	mg/L	<0.000010	<0.0010	<0.000010	<0.00010	<0.00020	<0.000020	-	<0.000050	-	<0.000050	-
Sodium (Na)-Dissolved	mg/L	2.23	2530	16.2	527	1810	196	-	436	-	412	-
Strontium (Sr)-Dissolved	mg/L	0.0654	2.34	0.348	5.51	3.82	2.10	-	0.860	-	0.845	-
Thallium (Tl)-Dissolved	mg/L	<0.000050	<0.0050	<0.000050	<0.00050	<0.0010	<0.00010	-	<0.00025	-	<0.00025	-
Tin (Sn)-Dissolved	mg/L	0.00065	<0.010	<0.00010	<0.0010	<0.0020	0.00036	-	0.00068	-	0.00067	-
Titanium (Ti)-Dissolved	mg/L	<0.010	<0.030	<0.010	<0.020	<0.030	<0.010	-	0.046	-	0.029	-
Uranium (U)-Dissolved	mg/L	0.000256	0.0043	0.00186	0.00175	0.00680	0.000926	-	0.00258	-	0.00259	-
Vanadium (V)-Dissolved	mg/L	0.00023	<0.010	0.00212	<0.0010	<0.0020	<0.00040	-	0.0201	-	0.0173	-
Zinc (Zn)-Dissolved	mg/L	<0.0010	<0.10	0.0453	<0.010	<0.020	<0.0020	-	<0.0050	-	<0.0050	-
Aggregate Organics												
Oil and Grease	mg/L	-	-	-	-	<5.0	-	-	-	-	-	-
Hydrocarbons												
EPH10-19	mg/L	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	mg/L	-	-	-	-	-	-	-	-	-	-	-

Appendix 2.5-1. Surface Water Quality Results, New Afton Project, 2010

Sample ID		TRAVEL BLANK	SW1	SW6	SW9	SW10	SW12	SW14	SW18	BLANK	SW1	SW2
Date Sampled		15-JUN-10	23-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	23-JUN-10	22-JUN-10	30-NOV-10	30-NOV-10
ALS Sample ID		L899402-9	L901812-2	L901812-3	L901812-4	L901812-5	L901812-6	L901812-7	L901812-8	L901812-1	L960333-1	L960333-2
Parameter	Units											
Physical Tests												
Conductivity	uS/cm	<2.0	7690	75900	3840	65100	663	365	8070	<2.0	-	-
Hardness (as $CaCO_3$)	mg/L	-	1860	60800	893	29700	267	164	1230	0.85	2310	1520
pH	pH	5.66	8.28	7.98	8.94	7.80	8.47	8.46	8.45	5.57	-	-
Total Suspended Solids	mg/L	<3.0	8.2	2210	7.5	2960	<3.0	8.2	8.2	<3.0	-	-
Anions and Nutrients												
Alkalinity, Total (as $CaCO_3$)	mg/L	<2.0	199	1360	275	1210	306	165	264	<2.0	-	-
Ammonia as N	mg/L	<0.010	0.0326	0.149	0.0513	21.4	<0.0050	<0.0050	0.291	<0.0050	-	-
Bromide (Br)	mg/L	<0.050	<1.0	<50	<1.0	<50	<0.050	<0.050	<0.050	<0.050	<1.0	<1.0
Chloride (Cl)	mg/L	<0.50	97	7480	37	3810	4.93	1.33	70.2	<0.50	97	29
Fluoride (F)	mg/L	<0.020	0.49	1.46	0.86	<0.30	0.243	0.104	0.519	<0.020	0.41	<0.40
Nitrate (as N)	mg/L	<0.0050	116	<5.0	0.16	<5.0	0.0092	0.0352	17.3	<0.0050	104	<0.10
Nitrite (as N)	mg/L	<0.0010	0.428	<1.0	0.025	<1.0	<0.0010	<0.0010	0.254	<0.0010	0.079	<0.020
Total Kjeldahl Nitrogen	mg/L	<0.050	0.085	35.9	0.727	95.0	0.570	0.258	0.39	<0.050	-	-
Total Nitrogen	mg/L	<0.060	-	-	-	-	-	-	-	-	-	-
Total Phosphate as P	mg/L	<0.0020	0.0108	5.01	0.0537	9.5	0.179	0.0301	0.0140	<0.0020	-	-
Sulfate (SO_4)	mg/L	<0.50	4110	103000	1930	68300	59.7	31.9	4280	<0.50	4650	1240
Leachable Anions & Nutrients												
Anion Sum	meq/L	-	101	2380	46.8	1550	7.51	4.00	97.7	<0.10	-	-
Cation Sum	meq/L	-	91.3	3630	44.3	1930	6.80	3.86	105	<0.10	-	-
Cation - Anion Balance	%	-	-4.8	20.9	-2.7	10.8	-5.0	-1.8	3.5	0.0	-	-
Cyanides												
Cyanide, Total	mg/L	<0.0050	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon												
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	<0.50	-	-	-	-	-	-	-	-	-	-
Total Metals												
Aluminum (Al)-Total	mg/L	-	0.023	1.9	0.474	2.85	0.0984	0.253	0.520	<0.0010	1.53	0.126
Antimony (Sb)-Total	mg/L	-	0.0021	<0.050	0.00121	<0.025	0.000103	0.000099	0.0047	<0.000050	0.00110	0.00018
Arsenic (As)-Total	mg/L	-	0.0046	<0.050	0.00472	0.041	0.00295	0.000683	0.0076	<0.000030	0.00434	0.0113
Barium (Ba)-Total	mg/L	-	0.0399	<0.050	0.00646	0.039	0.0387	0.0524	0.0300	<0.000050	0.0542	0.0446
Beryllium (Be)-Total	mg/L	-	<0.0040	<0.20	<0.0020	<0.10	<0.00020	<0.00020	<0.010	<0.00020	<0.0020	<0.00040
Bismuth (Bi)-Total	mg/L	-	<0.010	<0.50	<0.0050	<0.25	<0.00050	<0.00050	<0.025	<0.00050	<0.0050	<0.0010
Boron (B)-Total	mg/L	-	0.479	18.2	0.565	5.60	0.0559	0.0206	0.820	<0.0010	0.387	0.331
Cadmium (Cd)-Total	mg/L	-	<0.00034	<0.017	<0.00017	<0.0085	<0.000017	<0.000017	<0.00085	<0.000017	<0.00017	<0.000034
Calcium (Ca)-Total	mg/L	-	306	563	66.8	753	55.9	47.1	198	<0.020	368	159
Chromium (Cr)-Total	mg/L	-	<0.0040	<0.20	<0.0020	<0.10	<0.00050	0.00075	<0.025	<0.00010	0.0038	0.00046
Cobalt (Co)-Total	mg/L	-	<0.0020	<0.10	<0.0010	<0.050	0.00016	0.00023	<0.0050	<0.00010	0.0016	0.00022
Copper (Cu)-Total	mg/L	-	<0.040	<1.0	<0.020	<1.0	0.00389	0.00453	0.0068	<0.00010	0.0126	0.0013
Iron (Fe)-Total	mg/L	-	0.198	4.6	0.585	4.64	0.127	0.335	0.525	<0.010	2.39	0.280
Lead (Pb)-Total	mg/L	-	<0.0010	<0.050	<0.00050	<0.025	<0.000050	0.000060	<0.0025	<0.000050	0.00091	0.00011
Lithium (Li)-Total	mg/L	-	<0.10	<5.0	<0.050	<2.5	0.0075	<0.0050	<0.25	<0.0050	<0.050	0.014
Magnesium (Mg)-Total	mg/L	-	284	14400	183	6760	35.4	15.0	182	<0.0050	283	272
Manganese (Mn)-Total	mg/L	-	0.0041	2.56	0.0552	0.837	0.0982	0.0211	0.0236	<0.000050	0.104	0.350
Mercury (Hg)-Total	mg/L	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	mg/L	-	0.0535	0.054	0.180	0.080	0.00269	0.0114	0.0473	<0.000050	0.0401	0.00308
Nickel (Ni)-Total	mg/L	-	<0.0020	<0.10	0.0020	<0.050	0.00107	0.00022	0.0067	<0.00010	0.0038	0.00083
Phosphorus (P)-Total	mg/L	-	<0.60	<30	<0.30	<15	<0.30	<0.30	<0.90	<0.30	<0.60	<0.30
Potassium (K)-Total	mg/L	-	35.3	772	14.4	485	8.87	2.19	26.8	<0.050	29.0	40.6
Selenium (Se)-Total	mg/L	-	0.0878	<0.20	0.0319	<0.10	0.00023	0.00043	0.044	<0.00010	0.0660	<0.00020
Silicon (Si)-Total	mg/L	-	3.31	12.5	2.89	7.2	11.8	8.01	6.80	<0.050	7.27	23.7
Silver (Ag)-Total	mg/L	-	<0.00020	<0.010	0.00022	<0.0050	<0.000010	<0.000010	<0.00050	<0.000010	<0.00010	<0.000020
Sodium (Na)-Total	mg/L	-	1270	55100	614	30500	31.8	10.4	1850	<0.010	1180	229
Strontium (Sr)-Total	mg/L	-	11.7	7.87	1.33	21.8	0.384	0.183	9.46	<0.00010	10.1	2.71
Thallium (Tl)-Total	mg/L	-	<0.0010	<0.050	<0.00050	<0.025	<0.000050	<0.000050	<0.0025	<0.000050	<0.00050	<0.00010
Tin (Sn)-Total	mg/L	-	<0.0020	<0.10	<0.0010	<0.050	<0.00010	<0.00010	<0.0050	<0.00010	<0.0010	<0.00020
Titanium (Ti)-Total	mg/L	-	<0.020	<1.0	0.017	<0.50	<0.010	0.013	<0.030	<0.010	0.066	<0.010
Uranium (U)-Total	mg/L	-	0.0109	0.043	0.00378	0.0639	0.000925	0.000372	0.00574	<0.000010	0.0101	0.000988
Vanadium (V)-Total	mg/L	-	0.0144	<0.050	0.00718	0.047	0.00466	0.00304	0.0134	<0.000050	0.0180	0.00105
Zinc (Zn)-Total	mg/L	-	<0.020	<1.0	<0.010	<0.50	<0.0010	0.0010	<0.050	<0.0010	<0.030	<0.0060

Appendix 2.5-1. Surface Water Quality Results, New Afton Project, 2010

Sample ID		TRAVEL BLANK	SW1	SW6	SW9	SW10	SW12	SW14	SW18	BLANK	SW1	SW2
Date Sampled		15-JUN-10	23-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	23-JUN-10	22-JUN-10	30-NOV-10	30-NOV-10
ALS Sample ID		L899402-9	L901812-2	L901812-3	L901812-4	L901812-5	L901812-6	L901812-7	L901812-8	L901812-1	L960333-1	L960333-2
Parameter	Units											
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	<0.020	-	0.026	-	0.0023	0.0238	0.070	<0.0010	<0.030	0.0061
Antimony (Sb)-Dissolved	mg/L	-	0.0020	-	0.00105	-	0.000115	0.000111	0.0049	<0.000050	0.00115	0.00014
Arsenic (As)-Dissolved	mg/L	-	0.0035	-	0.00441	-	0.00459	0.000740	0.0076	<0.000030	0.00404	0.0114
Barium (Ba)-Dissolved	mg/L	-	0.0382	-	0.00284	-	0.0354	0.0486	0.0269	0.000128	0.0396	0.0401
Beryllium (Be)-Dissolved	mg/L	-	<0.0040	-	<0.0020	-	<0.00020	0.00025	<0.010	<0.00020	<0.0020	<0.00040
Bismuth (Bi)-Dissolved	mg/L	-	<0.010	-	<0.0050	-	<0.00050	<0.00050	<0.025	<0.00050	<0.0050	<0.0010
Boron (B)-Dissolved	mg/L	-	0.451	-	0.539	-	0.0522	0.0191	0.786	<0.0010	0.430	0.327
Cadmium (Cd)-Dissolved	mg/L	-	<0.00034	-	<0.00017	-	<0.000017	<0.000017	<0.00085	<0.000017	<0.00017	<0.000034
Calcium (Ca)-Dissolved	mg/L	-	290	-	64.7	-	53.9	43.2	191	0.140	405	158
Chromium (Cr)-Dissolved	mg/L	-	<0.0040	-	<0.0050	-	<0.00050	<0.00050	<0.010	<0.00010	0.0015	<0.00020
Cobalt (Co)-Dissolved	mg/L	-	<0.0020	-	<0.0010	-	0.00011	<0.00010	<0.0050	<0.00010	<0.0010	<0.00020
Copper (Cu)-Dissolved	mg/L	-	<0.040	-	<0.020	-	0.00308	0.00330	<0.0050	0.00018	0.0059	<0.0010
Iron (Fe)-Dissolved	mg/L	-	<0.020	-	0.031	-	0.023	0.041	<0.030	<0.010	0.027	0.034
Lead (Pb)-Dissolved	mg/L	-	<0.0010	-	<0.00050	-	<0.000050	<0.000050	<0.0025	<0.000050	<0.00050	<0.00010
Lithium (Li)-Dissolved	mg/L	-	<0.10	-	<0.050	-	0.0064	<0.0050	<0.25	<0.0050	<0.050	0.014
Magnesium (Mg)-Dissolved	mg/L	-	276	-	178	-	32.1	13.7	182	0.121	315	275
Manganese (Mn)-Dissolved	mg/L	-	0.0049	-	0.0169	-	0.0845	0.0106	<0.0025	0.000196	0.00470	0.343
Mercury (Hg)-Dissolved	mg/L	-	<0.000010	-	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved	mg/L	-	0.0508	-	0.177	-	0.00267	0.0105	0.0467	<0.000050	0.0449	0.00287
Nickel (Ni)-Dissolved	mg/L	-	<0.0020	-	0.0016	-	0.00084	<0.00010	0.0053	<0.00010	0.0019	0.00050
Phosphorus (P)-Dissolved	mg/L	-	<0.60	-	<0.30	-	<0.30	<0.30	<0.90	<0.30	<0.60	<0.30
Potassium (K)-Dissolved	mg/L	-	34.0	-	14.1	-	8.73	2.15	26.5	0.056	32.1	40.6
Selenium (Se)-Dissolved	mg/L	-	0.0822	-	0.0291	-	0.00031	0.00059	0.047	<0.00010	0.0728	<0.00020
Silicon (Si)-Dissolved	mg/L	-	3.04	-	1.73	-	11.9	7.75	5.64	<0.050	3.94	23.7
Silver (Ag)-Dissolved	mg/L	-	<0.00020	-	<0.00010	-	<0.000010	<0.000010	<0.00050	<0.000010	<0.00010	<0.000020
Sodium (Na)-Dissolved	mg/L	-	1220	-	600	-	28.5	12.0	1830	0.747	1320	231
Strontium (Sr)-Dissolved	mg/L	-	11.1	-	1.30	-	0.379	0.178	9.47	0.00325	11.0	2.70
Thallium (Tl)-Dissolved	mg/L	-	<0.0010	-	<0.00050	-	<0.000050	<0.000050	<0.0025	<0.000050	<0.00050	<0.00010
Tin (Sn)-Dissolved	mg/L	-	<0.0020	-	<0.0010	-	0.00010	0.00011	<0.0050	<0.00010	<0.0010	<0.00020
Titanium (Ti)-Dissolved	mg/L	-	<0.020	-	<0.010	-	<0.010	<0.010	<0.030	<0.010	0.021	<0.010
Uranium (U)-Dissolved	mg/L	-	0.0104	-	0.00354	-	0.000816	0.000328	0.00583	<0.000010	0.0112	0.000980
Vanadium (V)-Dissolved	mg/L	-	0.0140	-	0.00576	-	0.00416	0.00188	0.0114	<0.000050	0.0106	0.00081
Zinc (Zn)-Dissolved	mg/L	-	<0.020	-	<0.010	-	<0.0010	0.0037	<0.050	<0.0010	<0.030	<0.0060
Aggregate Organics												
Oil and Grease	mg/L	-	-	-	-	-	-	-	-	-	<5.0	-
Hydrocarbons												
EPH10-19	mg/L	-	-	-	-	-	-	-	-	-	<0.25	-
EPH19-32	mg/L	-	-	-	-	-	-	-	-	-	<0.25	-

Appendix 2.5-1. Surface Water Quality Results, New Afton Project, 2010

Sample ID		SW4	SW7	SW9	SW12	SW13	SW14	SW15	SW17	SW18	SW12 DUPLICATE	BLANK
Date Sampled		29-NOV-10	30-NOV-10	30-NOV-10	30-NOV-10	29-NOV-10	29-NOV-10	02-DEC-10	NOV	29-NOV-10	30-NOV-10	29-NOV-10
ALS Sample ID		L960333-3	L960333-4	L960333-5	L960333-6	L960333-7	L960333-8	L960333-9	L960333-18	L960333-11	L960333-17	L960333-12
Parameter	Units											
Physical Tests												
Conductivity	uS/cm	-	-	-	-	-	-	-	-	-	-	-
Hardness (as $CaCO_3$)	mg/L	38.2	564	756	458	4460	332	272	3580	1320	454	<0.50
pH	pH	-	-	-	-	-	-	-	-	-	-	-
Total Suspended Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-
Anions and Nutrients												
Alkalinity, Total (as $CaCO_3$)	mg/L	-	-	-	-	-	-	-	-	-	-	-
Ammonia as N	mg/L	-	-	-	-	-	-	-	-	-	-	-
Bromide (Br)	mg/L	<0.050	<1.0	<1.0	<0.50	<2.5	<0.050	<0.050	<2.5	<1.0	<0.50	<0.050
Chloride (Cl)	mg/L	1.23	111	35	9.0	304	3.82	1.51	100	75	9.0	<0.50
Fluoride (F)	mg/L	0.051	0.88	1.05	<0.20	<1.0	0.111	0.106	<1.0	0.54	<0.20	<0.020
Nitrate (as N)	mg/L	0.158	<0.10	2.95	<0.050	<0.25	0.324	<0.0050	<0.25	16.5	<0.050	<0.0050
Nitrite (as N)	mg/L	<0.0010	<0.020	<0.020	<0.010	<0.050	0.0020	<0.0010	<0.050	0.047	<0.010	<0.0010
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-
Total Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-
Total Phosphate as P	mg/L	-	-	-	-	-	-	-	-	-	-	-
Sulfate (SO_4)	mg/L	9.33	1130	1550	104	10100	108	90.1	7790	4480	104	<0.50
Leachable Anions & Nutrients												
Anion Sum	meq/L	-	-	-	-	-	-	-	-	-	-	-
Cation Sum	meq/L	-	-	-	-	-	-	-	-	-	-	-
Cation - Anion Balance	%	-	-	-	-	-	-	-	-	-	-	-
Cyanides												
Cyanide, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon												
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-
Total Metals												
Aluminum (Al)-Total	mg/L	0.0415	11.0	0.436	0.0859	0.055	0.0167	10.2	0.121	<0.030	0.0793	<0.0030
Antimony (Sb)-Total	mg/L	<0.000050	0.0126	0.00143	0.000096	0.00055	0.000074	0.000694	0.00053	0.00408	0.000103	<0.000050
Arsenic (As)-Total	mg/L	0.000147	0.0344	0.00634	0.00294	0.0100	0.000483	0.109	0.00767	0.00600	0.00276	<0.000030
Barium (Ba)-Total	mg/L	0.00905	0.202	0.0168	0.0654	0.0242	0.0971	0.414	0.0219	0.0289	0.0650	<0.000050
Beryllium (Be)-Total	mg/L	<0.00020	<0.0010	<0.00040	<0.00020	<0.0020	<0.00020	<0.00020	<0.0020	<0.0020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L	<0.00050	<0.0025	<0.0010	<0.00050	<0.0050	<0.00050	<0.00050	<0.0050	<0.0050	<0.00050	<0.00050
Boron (B)-Total	mg/L	<0.0050	0.407	0.450	0.0641	1.45	0.0430	0.316	1.50	0.662	0.0711	<0.0010
Cadmium (Cd)-Total	mg/L	<0.000017	<0.000085	0.000060	<0.000017	<0.00017	<0.000017	<0.00050	<0.00017	<0.00017	<0.000017	<0.000017
Calcium (Ca)-Total	mg/L	12.2	53.4	102	86.5	157	87.0	64.6	222	256	82.8	<0.020
Chromium (Cr)-Total	mg/L	<0.00025	0.0401	0.00102	<0.00025	<0.0010	<0.00020	0.0666	<0.0010	0.0054	<0.00030	<0.00010
Cobalt (Co)-Total	mg/L	<0.00010	0.0122	0.00042	0.00020	<0.0010	<0.00010	0.0142	<0.0010	<0.0010	0.00019	<0.00010
Copper (Cu)-Total	mg/L	0.00078	0.112	0.0258	0.00250	0.0059	0.00133	3.84	0.0087	<0.0050	0.00240	<0.00050
Iron (Fe)-Total	mg/L	0.071	10.9	0.597	0.138	0.122	0.056	28.3	0.182	0.038	0.138	<0.010
Lead (Pb)-Total	mg/L	<0.000050	0.00052	0.00019	<0.000050	<0.00050	<0.000050	0.0108	<0.00050	<0.00050	<0.000050	<0.000050
Lithium (Li)-Total	mg/L	<0.0050	<0.025	<0.010	0.0108	<0.050	<0.0050	0.0112	<0.050	<0.050	0.0098	<0.0050
Magnesium (Mg)-Total	mg/L	1.97	121	117	56.7	902	29.2	52.8	728	151	55.3	<0.0050
Manganese (Mn)-Total	mg/L	0.00504	0.197	0.0204	0.538	0.0359	0.0410	0.992	0.0372	0.00485	0.519	<0.000050
Mercury (Hg)-Total	mg/L	<0.000010	0.000123	<0.000010	<0.000010	<0.000010	<0.000010	0.000185	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	mg/L	0.000725	0.249	0.208	0.00229	0.0148	0.00890	0.170	0.0299	0.0479	0.00231	<0.000050
Nickel (Ni)-Total	mg/L	0.00052	0.0491	0.00241	0.00128	0.0034	0.00042	0.114	0.0034	0.0040	0.00131	<0.00010
Phosphorus (P)-Total	mg/L	<0.30	0.55	<0.30	<0.30	<1.5	<0.30	1.68	<1.5	<0.90	<0.30	<0.30
Potassium (K)-Total	mg/L	0.930	55.7	11.6	11.6	206	3.96	3.42	116	29.4	11.1	<0.050
Selenium (Se)-Total	mg/L	<0.00010	0.00108	0.0402	<0.00010	0.0026	0.00036	0.00966	0.0160	0.0431	0.00011	<0.00010
Silicon (Si)-Total	mg/L	2.57	22.6	5.50	12.6	1.45	8.21	41.4	5.69	5.12	12.3	<0.050
Silver (Ag)-Total	mg/L	<0.000010	0.000053	<0.000020	<0.000010	<0.00010	<0.000010	0.000161	<0.00010	<0.00010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	2.68	699	469	46.2	2650	32.8	16.1	1950	1530	46.4	<0.010
Strontium (Sr)-Total	mg/L	0.0812	1.20	2.40	0.727	2.88	0.375	0.536	4.13	9.45	0.716	<0.00010
Thallium (Tl)-Total	mg/L	<0.000050	<0.00025	<0.00010	<0.000050	<0.00050	<0.000050	0.000086	<0.00050	<0.00050	<0.000050	<0.000050
Tin (Sn)-Total	mg/L	<0.00010	<0.00050	<0.00020	<0.00010	<0.0010	<0.00010	<0.00010	<0.0010	<0.0010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	<0.010	0.628	0.020	<0.010	<0.050	<0.010	0.406	<0.050	<0.030	<0.010	<0.010
Uranium (U)-Total	mg/L	0.000273	0.00384	0.00315	0.00176	0.00401	0.000778	0.00413	0.00860	0.00509	0.00180	<0.000010
Vanadium (V)-Total	mg/L	0.000255	0.0820	0.00510	0.00370	0.00424	0.00148	0.0675	0.00427	0.0144	0.00355	<0.000050
Zinc (Zn)-Total	mg/L	<0.0030	<0.015	<0.0060	<0.0030	<0.030	0.0060	0.889	<0.030	<0.030	<0.0030	<0.0030

Appendix 2.5-1. Surface Water Quality Results, New Afton Project, 2010

Sample ID		SW4	SW7	SW9	SW12	SW13	SW14	SW15	SW17	SW18	SW12 DUPLICATE	BLANK
Date Sampled		29-NOV-10	30-NOV-10	30-NOV-10	30-NOV-10	29-NOV-10	29-NOV-10	02-DEC-10	NOV	29-NOV-10	30-NOV-10	29-NOV-10
ALS Sample ID		L960333-3	L960333-4	L960333-5	L960333-6	L960333-7	L960333-8	L960333-9	L960333-18	L960333-11	L960333-17	L960333-12
Parameter	Units											
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	0.0087	0.144	0.0081	0.0045	<0.030	0.0086	<0.0030	0.048	<0.030	0.0039	<0.0030
Antimony (Sb)-Dissolved	mg/L	<0.000050	0.0139	0.00148	0.000099	0.00053	0.000081	0.000196	0.00053	0.00431	0.000092	<0.000050
Arsenic (As)-Dissolved	mg/L	0.000167	0.0323	0.00617	0.00323	0.0101	0.000475	0.00716	0.00815	0.00586	0.00322	0.000030
Barium (Ba)-Dissolved	mg/L	0.00865	0.124	0.0134	0.0664	0.0254	0.0995	0.0554	0.0202	0.0293	0.0668	0.000050
Beryllium (Be)-Dissolved	mg/L	<0.00020	<0.0010	<0.00040	<0.00020	<0.0020	<0.00020	<0.00020	<0.0020	<0.0020	<0.00020	<0.00020
Bismuth (Bi)-Dissolved	mg/L	<0.00050	<0.0025	<0.0010	<0.00050	<0.0050	<0.00050	<0.00050	<0.0050	<0.0050	<0.00050	<0.00050
Boron (B)-Dissolved	mg/L	0.0018	0.420	0.445	0.0595	1.58	0.0382	0.275	1.54	0.699	0.0642	<0.0010
Cadmium (Cd)-Dissolved	mg/L	<0.000017	<0.000085	0.000056	<0.000017	<0.00017	0.000096	<0.000030	<0.00017	<0.00017	<0.000017	<0.000017
Calcium (Ca)-Dissolved	mg/L	12.1	34.6	103	87.7	176	85.8	52.7	229	270	86.2	0.045
Chromium (Cr)-Dissolved	mg/L	<0.00010	<0.00050	<0.00020	<0.00010	<0.0010	<0.00010	<0.00010	<0.0010	0.0056	<0.00010	<0.00010
Cobalt (Co)-Dissolved	mg/L	<0.00010	0.00129	<0.00020	0.00017	<0.0010	<0.00010	0.00024	<0.0010	<0.0010	0.00015	<0.00010
Copper (Cu)-Dissolved	mg/L	0.00059	0.0092	0.0052	0.00152	<0.0050	0.00154	0.00494	0.0052	<0.0050	0.00157	<0.00050
Iron (Fe)-Dissolved	mg/L	0.014	0.157	0.011	0.033	<0.050	0.043	0.143	<0.050	<0.030	0.032	<0.010
Lead (Pb)-Dissolved	mg/L	<0.000050	<0.00025	<0.00010	<0.000050	<0.00050	<0.000050	<0.000050	<0.00050	<0.00050	<0.000050	<0.000050
Lithium (Li)-Dissolved	mg/L	<0.0050	<0.025	<0.010	0.0109	<0.050	<0.0050	0.0065	<0.050	<0.050	0.0100	<0.0050
Magnesium (Mg)-Dissolved	mg/L	1.98	116	121	58.1	977	28.7	34.1	731	157	57.9	0.0122
Manganese (Mn)-Dissolved	mg/L	0.00112	0.00531	0.00677	0.544	0.0252	0.0400	0.232	0.0252	0.00379	0.552	0.000057
Mercury (Hg)-Dissolved	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.000672	0.256	0.214	0.00217	0.0157	0.00852	0.142	0.0301	0.0498	0.00221	<0.000050
Nickel (Ni)-Dissolved	mg/L	0.00042	0.0108	0.00156	0.00116	0.0032	0.00052	0.00054	0.0034	0.0042	0.00118	<0.00010
Phosphorus (P)-Dissolved	mg/L	<0.30	<0.30	<0.30	<0.30	<1.5	<0.30	<0.30	<1.5	<0.90	<0.30	<0.30
Potassium (K)-Dissolved	mg/L	0.937	56.5	11.8	11.7	240	3.99	2.34	116	30.8	11.7	<0.050
Selenium (Se)-Dissolved	mg/L	<0.00010	0.00114	0.0425	0.00011	0.0028	0.00040	0.00201	0.0156	0.0454	0.00013	<0.00010
Silicon (Si)-Dissolved	mg/L	2.54	2.04	4.57	12.8	1.20	8.26	13.3	5.64	4.78	12.5	<0.050
Silver (Ag)-Dissolved	mg/L	<0.000010	<0.000050	<0.000020	<0.000010	<0.00010	<0.000010	<0.000010	<0.00010	<0.00010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	2.68	730	484	46.8	2880	31.9	16.6	1980	1600	48.5	0.032
Strontium (Sr)-Dissolved	mg/L	0.0796	1.14	2.44	0.731	3.05	0.368	0.435	4.12	9.87	0.724	0.00015
Thallium (Tl)-Dissolved	mg/L	<0.000050	<0.00025	<0.00010	<0.000050	<0.00050	<0.000050	<0.000050	<0.00050	<0.00050	<0.000050	<0.000050
Tin (Sn)-Dissolved	mg/L	<0.00010	0.00070	<0.00020	<0.00010	<0.0010	0.00012	<0.00010	<0.0010	<0.0010	<0.00010	0.00012
Titanium (Ti)-Dissolved	mg/L	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.050	<0.030	<0.010	<0.010
Uranium (U)-Dissolved	mg/L	0.000259	0.00368	0.00318	0.00175	0.00423	0.000769	0.00267	0.00846	0.00526	0.00183	<0.000010
Vanadium (V)-Dissolved	mg/L	0.000175	0.0160	0.00327	0.00338	0.00464	0.00142	0.00224	0.00403	0.0140	0.00347	<0.000050
Zinc (Zn)-Dissolved	mg/L	<0.0030	<0.015	<0.0060	<0.0030	<0.030	0.0036	0.0212	<0.030	<0.030	<0.0030	<0.0030
Aggregate Organics												
Oil and Grease	mg/L	-	-	-	-	<5.0	-	-	-	<5.0	-	-
Hydrocarbons												
EPH10-19	mg/L	-	-	-	-	-	-	-	-	<0.25	-	-
EPH19-32	mg/L	-	-	-	-	-	-	-	-	<0.25	-	-

Appendix 2.5-1. Surface Water Quality Results, New Afton Project, 2010

Sample ID		SW11	SW16	BLANK
Date Sampled		09-DEC-10	16-DEC-10	14-DEC-10
ALS Sample ID		L964377-1	L964377-12	L964377-4
Parameter	Units			
Physical Tests				
Conductivity	uS/cm	5340	8290	<2.0
Hardness (as $CaCO_3$)	mg/L	238	3430	<0.50
pH	pH	8.24	8.01	6.06
Total Suspended Solids	mg/L	47.8	14.4	<3.0
Anions and Nutrients				
Alkalinity, Total (as $CaCO_3$)	mg/L	-	-	-
Ammonia as N	mg/L	-	-	-
Bromide (Br)	mg/L	<2.5	<1.0	<0.050
Chloride (Cl)	mg/L	80	72	<0.50
Fluoride (F)	mg/L	3.4	<0.40	<0.020
Nitrate (as N)	mg/L	<0.25	0.21	<0.0050
Nitrite (as N)	mg/L	<0.050	0.023	<0.0010
Total Kjeldahl Nitrogen	mg/L	-	-	-
Total Nitrogen	mg/L	-	-	-
Total Phosphate as P	mg/L	-	-	-
Sulfate (SO_4)	mg/L	2440	5260	<0.50
Leachable Anions & Nutrients				
Anion Sum	meq/L	-	-	-
Cation Sum	meq/L	-	-	-
Cation - Anion Balance	%	-	-	-
Cyanides				
Cyanide, Total	mg/L	-	-	-
Organic / Inorganic Carbon				
Dissolved Organic Carbon	mg/L	-	-	-
Total Organic Carbon	mg/L	-	-	<0.50
Total Metals				
Aluminum (Al)-Total	mg/L	1.92	0.048	<0.0030
Antimony (Sb)-Total	mg/L	<0.00025	<0.00025	<0.000050
Arsenic (As)-Total	mg/L	0.0414	0.00270	<0.000030
Barium (Ba)-Total	mg/L	0.0199	0.00900	<0.000050
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.00020
Bismuth (Bi)-Total	mg/L	<0.0025	<0.0025	<0.00050
Boron (B)-Total	mg/L	2.00	8.05	0.0014
Cadmium (Cd)-Total	mg/L	<0.000085	0.000502	<0.000017
Calcium (Ca)-Total	mg/L	72.9	304	<0.020
Chromium (Cr)-Total	mg/L	0.00258	0.00058	<0.00010
Cobalt (Co)-Total	mg/L	0.00114	<0.00050	<0.00010
Copper (Cu)-Total	mg/L	<0.0025	0.0026	<0.00050
Iron (Fe)-Total	mg/L	2.65	0.124	<0.010
Lead (Pb)-Total	mg/L	0.00083	<0.00025	<0.000050
Lithium (Li)-Total	mg/L	0.051	0.043	<0.0050
Magnesium (Mg)-Total	mg/L	15.3	671	<0.0050
Manganese (Mn)-Total	mg/L	0.0895	0.233	<0.000050
Mercury (Hg)-Total	mg/L	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	mg/L	0.0151	0.0358	<0.000050
Nickel (Ni)-Total	mg/L	0.0021	0.00262	<0.00010
Phosphorus (P)-Total	mg/L	<0.60	<0.90	<0.30
Potassium (K)-Total	mg/L	13.8	362	<0.050
Selenium (Se)-Total	mg/L	<0.00050	<0.00050	<0.00010
Silicon (Si)-Total	mg/L	10.5	5.50	<0.050
Silver (Ag)-Total	mg/L	<0.000050	0.000119	<0.000010
Sodium (Na)-Total	mg/L	1290	922	<0.010
Strontium (Sr)-Total	mg/L	3.69	6.20	<0.00010
Thallium (Tl)-Total	mg/L	<0.00025	<0.00025	<0.000050
Tin (Sn)-Total	mg/L	<0.00050	<0.00050	<0.00010
Titanium (Ti)-Total	mg/L	0.036	<0.030	<0.010
Uranium (U)-Total	mg/L	0.000086	0.00530	<0.000010
Vanadium (V)-Total	mg/L	0.0103	0.00088	<0.000050
Zinc (Zn)-Total	mg/L	<0.015	0.038	<0.0030

Appendix 2.5-1. Surface Water Quality Results, New Afton Project, 2010

Sample ID		SW11	SW16	BLANK
Date Sampled		09-DEC-10	16-DEC-10	14-DEC-10
ALS Sample ID		L964377-1	L964377-12	L964377-4
Parameter	Units			
Dissolved Metals				
Aluminum (Al)-Dissolved	mg/L	0.906	<0.015	<0.0030
Antimony (Sb)-Dissolved	mg/L	<0.00025	<0.00025	<0.000050
Arsenic (As)-Dissolved	mg/L	0.0400	0.00239	<0.000030
Barium (Ba)-Dissolved	mg/L	0.0197	0.00778	0.000111
Beryllium (Be)-Dissolved	mg/L	<0.0010	<0.0010	<0.00020
Bismuth (Bi)-Dissolved	mg/L	<0.0025	<0.0025	<0.00050
Boron (B)-Dissolved	mg/L	1.94	7.93	0.0019
Cadmium (Cd)-Dissolved	mg/L	<0.000085	0.000375	0.000062
Calcium (Ca)-Dissolved	mg/L	70.5	302	0.068
Chromium (Cr)-Dissolved	mg/L	0.00176	<0.00050	<0.00010
Cobalt (Co)-Dissolved	mg/L	0.00056	<0.00050	<0.00010
Copper (Cu)-Dissolved	mg/L	<0.0025	<0.0025	0.00073
Iron (Fe)-Dissolved	mg/L	1.60	0.036	<0.010
Lead (Pb)-Dissolved	mg/L	0.00074	<0.00025	<0.000050
Lithium (Li)-Dissolved	mg/L	0.047	0.042	<0.0050
Magnesium (Mg)-Dissolved	mg/L	15.0	651	0.0115
Manganese (Mn)-Dissolved	mg/L	0.0713	0.221	0.000236
Mercury (Hg)-Dissolved	mg/L	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.0143	0.0356	<0.000050
Nickel (Ni)-Dissolved	mg/L	0.00217	0.00195	<0.00010
Phosphorus (P)-Dissolved	mg/L	<0.60	<0.90	<0.30
Potassium (K)-Dissolved	mg/L	13.4	358	<0.050
Selenium (Se)-Dissolved	mg/L	<0.00050	<0.00050	<0.00010
Silicon (Si)-Dissolved	mg/L	8.08	5.31	<0.050
Silver (Ag)-Dissolved	mg/L	<0.000050	<0.000050	<0.000010
Sodium (Na)-Dissolved	mg/L	1270	895	0.168
Strontium (Sr)-Dissolved	mg/L	3.52	6.15	0.00161
Thallium (Tl)-Dissolved	mg/L	<0.00025	<0.00025	<0.000050
Tin (Sn)-Dissolved	mg/L	<0.00050	<0.00050	<0.00010
Titanium (Ti)-Dissolved	mg/L	<0.020	<0.030	<0.010
Uranium (U)-Dissolved	mg/L	0.000071	0.00518	<0.000010
Vanadium (V)-Dissolved	mg/L	0.00612	0.00065	<0.000050
Zinc (Zn)-Dissolved	mg/L	<0.015	0.022	<0.0030
Aggregate Organics				
Oil and Grease	mg/L	<5.0	-	-
Hydrocarbons				
EPH10-19	mg/L	0.44	-	-
EPH19-32	mg/L	0.40	-	-

Appendix 2.5-2

Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

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Appendix 2.5-2. Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

Sample ID		SW4	SW13	SW16	SW15	SW17	SW2	SW5	SW7	SW8
Date Sampled		02-JUN-10	02-JUN-10	01-JUN-10	01-JUN-10	02-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10
ALS Sample ID		L895571-5	L895571-4	L895571-1	L895571-2	L895571-3	L899402-3	L899402-4	L899402-5	L899402-6
Physical Tests	Units									
Conductivity	uS/cm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Hardness (as $CaCO_3$)	mg/L	0.50	3.7	1.2	0.50	1.6	0.96	8.2	0.82	6.4
pH	pH	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Suspended Solids	mg/L	-	-	-	-	-	3.0	9.0	3.0	3.0
Anions and Nutrients										
Alkalinity, Total (as $CaCO_3$)	mg/L	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ammonia as N	mg/L	0.025	0.025	0.050	0.025	0.025	0.010	0.25	0.010	0.25
Bromide (Br)	mg/L	0.050	2.5	2.5	0.050	2.5	2.5	25	1.0	25
Chloride (Cl)	mg/L	0.50	25	25	0.50	25	25	250	10	250
Fluoride (F)	mg/L	0.020	1.0	1.0	0.020	1.0	1.0	0.30	0.40	0.30
Nitrate (as N)	mg/L	0.0050	0.25	0.25	0.0050	0.25	0.25	2.5	0.10	2.5
Nitrite (as N)	mg/L	0.0010	0.050	0.050	0.0010	0.050	0.050	0.50	0.020	0.50
Total Kjeldahl Nitrogen	mg/L	0.050	0.050	0.050	0.050	0.050	0.050	0.50	0.050	0.50
Total Nitrogen	mg/L	-	-	-	-	-	0.40	3.0	0.20	3.0
Total Phosphate as P	mg/L	0.020	0.020	0.020	0.0020	0.0020	0.020	0.20	0.020	0.20
Sulfate (SO_4)	mg/L	0.50	25	25	0.50	25	25	250	10	250
Leachable Anions & Nutrients										
Anion Sum	meq/L	-	-	-	-	-	-	-	-	-
Cation Sum	meq/L	-	-	-	-	-	-	-	-	-
Cation - Anion Balance	%	-	-	-	-	-	-	-	-	-
Cyanides										
Cyanide, Total	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	-
Organic / Inorganic Carbon										
Dissolved Organic Carbon	mg/L	0.50	0.20	0.20	0.20	0.20	-	-	-	-
Total Organic Carbon	mg/L	0.20	0.20	0.20	0.20	0.20	-	-	-	-
Total Metals										
Aluminum (Al)-Total	mg/L	0.0010	0.10	0.010	0.0010	0.020	0.0020	0.50	0.0050	0.30
Antimony (Sb)-Total	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	0.025	0.00025	0.015
Arsenic (As)-Total	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	0.025	0.00025	0.015
Barium (Ba)-Total	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	0.025	0.00025	0.015
Beryllium (Be)-Total	mg/L	0.00020	0.020	0.0020	0.00020	0.0040	0.00040	0.10	0.0010	0.060
Bismuth (Bi)-Total	mg/L	0.00050	0.050	0.0050	0.00050	0.010	0.0010	0.25	0.0025	0.15
Boron (B)-Total	mg/L	0.0050	0.50	0.050	0.0050	0.10	0.010	2.5	0.025	1.5
Cadmium (Cd)-Total	mg/L	0.000017	0.0017	0.00017	0.000017	0.00034	0.000034	0.0085	0.00061	0.0051
Calcium (Ca)-Total	mg/L	0.020	2.0	0.20	0.020	0.40	0.040	10	0.10	6.0
Chromium (Cr)-Total	mg/L	0.00020	0.020	0.0020	0.00020	0.0040	0.00070	0.10	0.0010	0.060
Cobalt (Co)-Total	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00020	0.050	0.00050	0.030
Copper (Cu)-Total	mg/L	0.00010	0.010	0.0080	0.00010	0.025	0.0020	0.25	0.00050	0.080
Iron (Fe)-Total	mg/L	0.010	0.030	0.020	0.010	0.030	0.010	1.0	0.010	0.50
Lead (Pb)-Total	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	0.025	0.00025	0.015
Lithium (Li)-Total	mg/L	0.0050	0.50	0.050	0.0050	0.10	0.010	2.5	0.025	1.5
Magnesium (Mg)-Total	mg/L	0.0050	0.50	0.050	0.0050	0.10	0.10	2.5	0.025	1.5
Manganese (Mn)-Total	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	0.025	0.00025	0.015
Mercury (Hg)-Total	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010
Molybdenum (Mo)-Total	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	0.025	0.00025	0.015
Nickel (Ni)-Total	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00020	0.050	0.00050	0.030
Phosphorus (P)-Total	mg/L	0.30	0.90	0.60	0.30	0.90	0.30	30	0.30	15
Potassium (K)-Total	mg/L	0.050	5.0	0.50	0.050	1.0	0.10	25	0.25	15
Selenium (Se)-Total	mg/L	0.00020	0.020	0.0020	0.00020	0.0040	0.0010	0.25	0.0025	0.15
Silicon (Si)-Total	mg/L	0.050	0.15	0.10	0.050	0.15	0.050	5.0	0.050	2.5
Silver (Ag)-Total	mg/L	0.000010	0.0010	0.00010	0.000010	0.00020	0.000020	0.0050	0.000050	0.0030
Sodium (Na)-Total	mg/L	0.010	1.0	0.10	0.010	0.50	2.0	200	2.0	100
Strontium (Sr)-Total	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00020	0.050	0.00050	0.030
Thallium (Tl)-Total	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	0.025	0.00025	0.015
Tin (Sn)-Total	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00020	0.050	0.00050	0.030
Titanium (Ti)-Total	mg/L	0.010	0.030	0.020	0.010	0.030	0.010	1.0	0.010	0.50
Uranium (U)-Total	mg/L	0.000010	0.0010	0.00010	0.000010	0.00020	0.000020	0.0050	0.000050	0.0030
Vanadium (V)-Total	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00040	0.10	0.0010	0.060
Zinc (Zn)-Total	mg/L	0.0010	0.10	0.010	0.0010	0.020	0.0020	0.50	0.0050	0.30

Appendix 2.5-2. Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

Sample ID		SW4	SW13	SW16	SW15	SW17	SW2	SW5	SW7	SW8
Date Sampled		02-JUN-10	02-JUN-10	01-JUN-10	01-JUN-10	02-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10	15-JUN-10
ALS Sample ID		L895571-5	L895571-4	L895571-1	L895571-2	L895571-3	L899402-3	L899402-4	L899402-5	L899402-6
Dissolved Metals	**Units**									
Aluminum (Al)-Dissolved	mg/L	0.0010	0.10	0.010	0.0010	0.020	0.0020	-	0.0050	-
Antimony (Sb)-Dissolved	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	-	0.00025	-
Arsenic (As)-Dissolved	mg/L	0.000050	0.0050	0.00050	0.00050	0.0010	0.00010	-	0.00025	-
Barium (Ba)-Dissolved	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	-	0.00025	-
Beryllium (Be)-Dissolved	mg/L	0.00020	0.020	0.0020	0.00020	0.0040	0.00040	-	0.0010	-
Bismuth (Bi)-Dissolved	mg/L	0.00050	0.050	0.0050	0.00050	0.010	0.0010	-	0.0025	-
Boron (B)-Dissolved	mg/L	0.0050	0.50	0.050	0.0050	0.10	0.010	-	0.025	-
Cadmium (Cd)-Dissolved	mg/L	0.000017	0.0017	0.00017	0.000017	0.00034	0.000034	-	0.00051	-
Calcium (Ca)-Dissolved	mg/L	0.020	2.0	0.20	0.020	0.40	0.040	-	0.10	-
Chromium (Cr)-Dissolved	mg/L	0.00020	0.020	0.0013	0.00050	0.0040	0.0020	-	0.011	-
Cobalt (Co)-Dissolved	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00020	-	0.00050	-
Copper (Cu)-Dissolved	mg/L	0.00010	0.010	0.0070	0.00010	0.025	0.0020	-	0.00050	-
Iron (Fe)-Dissolved	mg/L	0.010	0.030	0.020	0.010	0.030	0.010	-	0.010	-
Lead (Pb)-Dissolved	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	-	0.00025	-
Lithium (Li)-Dissolved	mg/L	0.0050	0.50	0.050	0.0050	0.10	0.010	-	0.025	-
Magnesium (Mg)-Dissolved	mg/L	0.0050	0.50	0.050	0.0050	0.10	0.10	-	0.025	-
Manganese (Mn)-Dissolved	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	-	0.00025	-
Mercury (Hg)-Dissolved	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	-	0.000010	-
Molybdenum (Mo)-Dissolved	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	-	0.00025	-
Nickel (Ni)-Dissolved	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00020	-	0.00050	-
Phosphorus (P)-Dissolved	mg/L	0.30	0.90	0.60	0.30	0.90	0.30	-	0.30	-
Potassium (K)-Dissolved	mg/L	0.050	5.0	0.50	0.050	1.0	0.10	-	0.25	-
Selenium (Se)-Dissolved	mg/L	0.00020	0.020	0.0020	0.00020	0.0040	0.0010	-	0.0025	-
Silicon (Si)-Dissolved	mg/L	0.050	0.15	0.10	0.050	0.15	0.050	-	0.050	-
Silver (Ag)-Dissolved	mg/L	0.000010	0.0010	0.00010	0.000010	0.00020	0.000020	-	0.000050	-
Sodium (Na)-Dissolved	mg/L	0.010	1.0	0.10	0.010	0.50	2.0	-	2.0	-
Strontium (Sr)-Dissolved	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00020	-	0.00050	-
Thallium (Tl)-Dissolved	mg/L	0.000050	0.0050	0.00050	0.000050	0.0010	0.00010	-	0.00025	-
Tin (Sn)-Dissolved	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00020	-	0.00050	-
Titanium (Ti)-Dissolved	mg/L	0.010	0.030	0.020	0.010	0.030	0.010	-	0.010	-
Uranium (U)-Dissolved	mg/L	0.000010	0.0010	0.00010	0.000010	0.00020	0.000020	-	0.000050	-
Vanadium (V)-Dissolved	mg/L	0.00010	0.010	0.0010	0.00010	0.0020	0.00040	-	0.0010	-
Zinc (Zn)-Dissolved	mg/L	0.0010	0.10	0.010	0.0010	0.020	0.0020	-	0.0050	-
Aggregate Organics										
Oil and Grease	mg/L	-	-	-	-	5.0	-	-	-	-
Hydrocarbons										
EPH10-19	mg/L	-	-	-	-	-	-	-	-	-
EPH19-32	mg/L	-	-	-	-	-	-	-	-	-

Appendix 2.5-2. Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

Sample ID		SW7 Duplicate	FIELD BLANK	TRAVEL BLANK	SW1	SW6	SW9	SW10	SW12	SW14
Date Sampled		15-JUN-10	15-JUN-10	15-JUN-10	23-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10
ALS Sample ID		L899402-1	L899402-8	L899402-9	L901812-2	L901812-3	L901812-4	L901812-5	L901812-6	L901812-7
Physical Tests	**Units**									
Conductivity	uS/cm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Hardness (as $CaCO_3$)	mg/L	0.82	0.50	-	1.1	54	0.54	27	0.50	0.50
pH	pH	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Suspended Solids	mg/L	3.0	3.0	3.0	3.0	45	3.0	45	3.0	3.0
Anions and Nutrients										
Alkalinity, Total (as $CaCO_3$)	mg/L	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ammonia as N	mg/L	0.010	0.010	0.010	0.0050	0.020	0.0050	0.10	0.0050	0.0050
Bromide (Br)	mg/L	1.0	0.050	0.050	1.0	50	1.0	50	0.050	0.050
Chloride (Cl)	mg/L	10	0.50	0.50	10	500	10	500	0.50	0.50
Fluoride (F)	mg/L	0.40	0.020	0.020	0.40	0.30	0.40	0.30	0.020	0.020
Nitrate (as N)	mg/L	0.10	0.0050	0.0050	0.10	5.0	0.10	5.0	0.0050	0.0050
Nitrite (as N)	mg/L	0.020	0.0010	0.0010	0.020	1.0	0.020	1.0	0.0010	0.0010
Total Kjeldahl Nitrogen	mg/L	0.050	0.050	0.050	0.050	0.25	0.050	1.3	0.050	0.050
Total Nitrogen	mg/L	0.20	0.060	0.060	-	-	-	-	-	-
Total Phosphate as P	mg/L	0.020	0.0020	0.0020	0.0020	0.20	0.0020	2.0	0.020	0.0020
Sulfate (SO_4)	mg/L	10	0.50	0.50	10	500	10	500	0.50	0.50
Leachable Anions & Nutrients										
Anion Sum	meq/L	-	-	-	-	-	-	-	-	-
Cation Sum	meq/L	-	-	-	-	-	-	-	-	-
Cation - Anion Balance	%	-	-	-	-	-	-	-	-	-
Cyanides										
Cyanide, Total	mg/L	0.0050	0.0050	0.0050	-	-	-	-	-	-
Organic / Inorganic Carbon										
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	0.50	-	-	-	-	-	-
Total Metals										
Aluminum (Al)-Total	mg/L	0.0050	0.0010	-	0.020	1.0	0.010	0.50	0.0010	0.0010
Antimony (Sb)-Total	mg/L	0.00025	0.000050	-	0.0010	0.050	0.00050	0.025	0.000050	0.000050
Arsenic (As)-Total	mg/L	0.00025	0.000050	-	0.0010	0.050	0.00050	0.025	0.000050	0.000050
Barium (Ba)-Total	mg/L	0.00025	0.000050	-	0.0010	0.050	0.00050	0.025	0.000050	0.000050
Beryllium (Be)-Total	mg/L	0.0010	0.00020	-	0.0040	0.20	0.0020	0.10	0.00020	0.00020
Bismuth (Bi)-Total	mg/L	0.0025	0.00050	-	0.010	0.50	0.0050	0.25	0.00050	0.00050
Boron (B)-Total	mg/L	0.025	0.0050	-	0.020	1.0	0.010	0.50	0.0010	0.0010
Cadmium (Cd)-Total	mg/L	0.000085	0.000017	-	0.00034	0.017	0.00017	0.0085	0.000017	0.000017
Calcium (Ca)-Total	mg/L	0.10	0.020	-	0.40	20	0.20	10	0.020	0.020
Chromium (Cr)-Total	mg/L	0.0010	0.00020	-	0.0040	0.20	0.0020	0.10	0.00050	0.00050
Cobalt (Co)-Total	mg/L	0.00050	0.00010	-	0.0020	0.10	0.0010	0.050	0.00010	0.00010
Copper (Cu)-Total	mg/L	0.00050	0.00010	-	0.040	1.0	0.020	1.0	0.00010	0.00010
Iron (Fe)-Total	mg/L	0.010	0.010	-	0.020	1.0	0.010	0.50	0.010	0.010
Lead (Pb)-Total	mg/L	0.00025	0.000050	-	0.0010	0.050	0.00050	0.025	0.000050	0.000050
Lithium (Li)-Total	mg/L	0.025	0.0050	-	0.10	5.0	0.050	2.5	0.0050	0.0050
Magnesium (Mg)-Total	mg/L	0.025	0.0050	-	0.10	5.0	0.050	2.5	0.0050	0.0050
Manganese (Mn)-Total	mg/L	0.00025	0.000050	-	0.0010	0.050	0.00050	0.025	0.000050	0.000050
Mercury (Hg)-Total	mg/L	0.000010	0.000010	-	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010
Molybdenum (Mo)-Total	mg/L	0.00025	0.000050	-	0.0010	0.050	0.00050	0.025	0.000050	0.000050
Nickel (Ni)-Total	mg/L	0.00050	0.00010	-	0.0020	0.10	0.0010	0.050	0.00010	0.00010
Phosphorus (P)-Total	mg/L	0.30	0.30	-	0.60	30	0.30	15	0.30	0.30
Potassium (K)-Total	mg/L	0.25	0.050	-	1.0	50	0.50	25	0.050	0.050
Selenium (Se)-Total	mg/L	0.0025	0.00050	-	0.0040	0.20	0.0020	0.10	0.00020	0.00020
Silicon (Si)-Total	mg/L	0.050	0.050	-	0.10	5.0	0.050	2.5	0.050	0.050
Silver (Ag)-Total	mg/L	0.000050	0.000010	-	0.00020	0.010	0.00010	0.0050	0.000010	0.000010
Sodium (Na)-Total	mg/L	2.0	0.010	-	0.20	10	0.10	5.0	0.010	0.010
Strontium (Sr)-Total	mg/L	0.00050	0.00010	-	0.0020	0.10	0.0010	0.050	0.00010	0.00010
Thallium (Tl)-Total	mg/L	0.00025	0.000050	-	0.0010	0.050	0.00050	0.025	0.000050	0.000050
Tin (Sn)-Total	mg/L	0.00050	0.00010	-	0.0020	0.10	0.0010	0.050	0.00010	0.00010
Titanium (Ti)-Total	mg/L	0.010	0.010	-	0.020	1.0	0.010	0.50	0.010	0.010
Uranium (U)-Total	mg/L	0.000050	0.000010	-	0.00020	0.010	0.00010	0.0050	0.000010	0.000010
Vanadium (V)-Total	mg/L	0.0010	0.00020	-	0.0010	0.050	0.00050	0.025	0.000050	0.000050
Zinc (Zn)-Total	mg/L	0.0050	0.0010	-	0.020	1.0	0.010	0.50	0.0010	0.0010

Appendix 2.5-2. Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

Sample ID		SW7 Duplicate	FIELD BLANK	TRAVEL BLANK	SW1	SW6	SW9	SW10	SW12	SW14
Date Sampled		15-JUN-10	15-JUN-10	15-JUN-10	23-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10	22-JUN-10
ALS Sample ID		L899402-1	L899402-8	L899402-9	L901812-2	L901812-3	L901812-4	L901812-5	L901812-6	L901812-7
Dissolved Metals	**Units**									
Aluminum (Al)-Dissolved	mg/L	0.0050	-	-	0.020	-	0.010	-	0.0010	0.0010
Antimony (Sb)-Dissolved	mg/L	0.00025	-	-	0.0010	-	0.00050	-	0.000050	0.000050
Arsenic (As)-Dissolved	mg/L	0.00025	-	-	0.0010	-	0.00050	-	0.000050	0.000050
Barium (Ba)-Dissolved	mg/L	0.00025	-	-	0.0010	-	0.00050	-	0.000050	0.000050
Beryllium (Be)-Dissolved	mg/L	0.0010	-	-	0.0040	-	0.0020	-	0.00020	0.00020
Bismuth (Bi)-Dissolved	mg/L	0.0025	-	-	0.010	-	0.0050	-	0.00050	0.00050
Boron (B)-Dissolved	mg/L	0.025	-	-	0.020	-	0.010	-	0.0010	0.0010
Cadmium (Cd)-Dissolved	mg/L	0.000085	-	-	0.00034	-	0.00017	-	0.000017	0.000017
Calcium (Ca)-Dissolved	mg/L	0.10	-	-	0.40	-	0.20	-	0.020	0.020
Chromium (Cr)-Dissolved	mg/L	0.0080	-	-	0.0040	-	0.0050	-	0.00050	0.00050
Cobalt (Co)-Dissolved	mg/L	0.00050	-	-	0.0020	-	0.0010	-	0.00010	0.00010
Copper (Cu)-Dissolved	mg/L	0.00050	-	-	0.040	-	0.020	-	0.00010	0.00010
Iron (Fe)-Dissolved	mg/L	0.010	-	-	0.020	-	0.010	-	0.010	0.010
Lead (Pb)-Dissolved	mg/L	0.00025	-	-	0.0010	-	0.00050	-	0.000050	0.000050
Lithium (Li)-Dissolved	mg/L	0.025	-	-	0.10	-	0.050	-	0.0050	0.0050
Magnesium (Mg)-Dissolved	mg/L	0.025	-	-	0.10	-	0.050	-	0.0050	0.0050
Manganese (Mn)-Dissolved	mg/L	0.00025	-	-	0.0010	-	0.00050	-	0.000050	0.000050
Mercury (Hg)-Dissolved	mg/L	0.000010	-	-	0.000010	-	0.000010	-	0.000010	0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.00025	-	-	0.0010	-	0.00050	-	0.000050	0.000050
Nickel (Ni)-Dissolved	mg/L	0.00050	-	-	0.0020	-	0.0010	-	0.00010	0.00010
Phosphorus (P)-Dissolved	mg/L	0.30	-	-	0.60	-	0.30	-	0.30	0.30
Potassium (K)-Dissolved	mg/L	0.25	-	-	1.0	-	0.50	-	0.050	0.050
Selenium (Se)-Dissolved	mg/L	0.0025	-	-	0.0040	-	0.0020	-	0.00020	0.00020
Silicon (Si)-Dissolved	mg/L	0.050	-	-	0.10	-	0.050	-	0.050	0.050
Silver (Ag)-Dissolved	mg/L	0.000050	-	-	0.00020	-	0.00010	-	0.000010	0.000010
Sodium (Na)-Dissolved	mg/L	2.0	-	-	0.20	-	0.10	-	0.010	0.010
Strontium (Sr)-Dissolved	mg/L	0.00050	-	-	0.0020	-	0.0010	-	0.00010	0.00010
Thallium (Tl)-Dissolved	mg/L	0.00025	-	-	0.0010	-	0.00050	-	0.000050	0.000050
Tin (Sn)-Dissolved	mg/L	0.00050	-	-	0.0020	-	0.0010	-	0.00010	0.00010
Titanium (Ti)-Dissolved	mg/L	0.010	-	-	0.020	-	0.010	-	0.010	0.010
Uranium (U)-Dissolved	mg/L	0.000050	-	-	0.00020	-	0.00010	-	0.000010	0.000010
Vanadium (V)-Dissolved	mg/L	0.0010	-	-	0.0010	-	0.00050	-	0.000050	0.000050
Zinc (Zn)-Dissolved	mg/L	0.0050	-	-	0.020	-	0.010	-	0.0010	0.0010
Aggregate Organics										
Oil and Grease	mg/L	-	-	-	-	-	-	-	-	-
Hydrocarbons										
EPH10-19	mg/L	-	-	-	-	-	-	-	-	-
EPH19-32	mg/L	-	-	-	-	-	-	-	-	-

Appendix 2.5-2. Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

Sample ID		SW18	BLANK	SW1	SW2	SW4	SW7	SW9	SW12	SW13
Date Sampled		23-JUN-10	22-Jun-10	30-NOV-10	30-NOV-10	29-NOV-10	30-NOV-10	30-NOV-10	30-NOV-10	29-NOV-10
ALS Sample ID		L901812-8	L901812-1	L960333-1	L960333-2	L960333-3	L960333-4	L960333-5	L960333-6	L960333-7
Physical Tests	**Units**									
Conductivity	uS/cm	2.0	-	-	-	-	-	-	-	-
Hardness (as $CaCO_3$)	mg/L	2.7	-	0.54	0.50	0.50	0.50	0.50	0.50	0.54
pH	pH	0.10	-	-	-	-	-	-	-	-
Total Suspended Solids	mg/L	3.0	-	-	-	-	-	-	-	-
Anions and Nutrients										
Alkalinity, Total (as $CaCO_3$)	mg/L	2.0	-	-	-	-	-	-	-	-
Ammonia as N	mg/L	0.0050	-	-	-	-	-	-	-	-
Bromide (Br)	mg/L	0.050	-	1.0	1.0	0.050	1.0	1.0	0.50	2.5
Chloride (Cl)	mg/L	0.50	-	10	10	0.50	10	10	5.0	25
Fluoride (F)	mg/L	0.020	-	0.40	0.40	0.020	0.40	0.40	0.20	1.0
Nitrate (as N)	mg/L	0.0050	-	0.10	0.10	0.0050	0.10	0.10	0.050	0.25
Nitrite (as N)	mg/L	0.020	-	0.020	0.020	0.0010	0.020	0.020	0.010	0.050
Total Kjeldahl Nitrogen	mg/L	0.10	-	-	-	-	-	-	-	-
Total Nitrogen	mg/L	-	-	-	-	-	-	-	-	-
Total Phosphate as P	mg/L	0.0020	-	-	-	-	-	-	-	-
Sulfate (SO_4)	mg/L	10	-	10	10	0.50	10	10	5.0	25
Leachable Anions & Nutrients										
Anion Sum	meq/L	-	-	-	-	-	-	-	-	-
Cation Sum	meq/L	-	-	-	-	-	-	-	-	-
Cation - Anion Balance	%	-	-	-	-	-	-	-	-	-
Cyanides										
Cyanide, Total	mg/L	-	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon										
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-
Total Metals										
Aluminum (Al)-Total	mg/L	0.050	-	0.030	0.0060	0.0030	0.015	0.0060	0.0030	0.030
Antimony (Sb)-Total	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Arsenic (As)-Total	mg/L	0.0025	-	0.00030	0.000060	0.000030	0.00015	0.000060	0.000030	0.00030
Barium (Ba)-Total	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Beryllium (Be)-Total	mg/L	0.010	-	0.0020	0.00040	0.00020	0.0010	0.00040	0.00020	0.0020
Bismuth (Bi)-Total	mg/L	0.025	-	0.0050	0.0010	0.00050	0.0025	0.0010	0.00050	0.0050
Boron (B)-Total	mg/L	0.050	-	0.010	0.0020	0.0050	0.0050	0.0020	0.0010	0.010
Cadmium (Cd)-Total	mg/L	0.00085	-	0.00017	0.000034	0.000017	0.000085	0.000034	0.000017	0.00017
Calcium (Ca)-Total	mg/L	1.0	-	0.20	0.040	0.020	0.10	0.040	0.020	0.20
Chromium (Cr)-Total	mg/L	0.025	-	0.0010	0.00020	0.00025	0.00050	0.00020	0.00025	0.0010
Cobalt (Co)-Total	mg/L	0.0050	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Copper (Cu)-Total	mg/L	0.0050	-	0.0050	0.0010	0.00050	0.0025	0.0010	0.00050	0.0050
Iron (Fe)-Total	mg/L	0.030	-	0.020	0.010	0.010	0.010	0.010	0.010	0.050
Lead (Pb)-Total	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Lithium (Li)-Total	mg/L	0.25	-	0.050	0.010	0.0050	0.025	0.010	0.0050	0.050
Magnesium (Mg)-Total	mg/L	0.25	-	0.050	0.010	0.0050	0.025	0.010	0.0050	0.050
Manganese (Mn)-Total	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Mercury (Hg)-Total	mg/L	0.000010	-	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010
Molybdenum (Mo)-Total	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Nickel (Ni)-Total	mg/L	0.0050	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Phosphorus (P)-Total	mg/L	0.90	-	0.60	0.30	0.30	0.30	0.30	0.30	1.5
Potassium (K)-Total	mg/L	2.5	-	0.50	0.10	0.050	0.25	0.10	0.050	0.50
Selenium (Se)-Total	mg/L	0.010	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Silicon (Si)-Total	mg/L	0.15	-	0.10	0.050	0.050	0.050	0.050	0.050	0.25
Silver (Ag)-Total	mg/L	0.00050	-	0.00010	0.000020	0.000010	0.000050	0.000020	0.000010	0.00010
Sodium (Na)-Total	mg/L	0.50	-	0.10	0.020	0.010	0.050	0.020	0.010	0.10
Strontium (Sr)-Total	mg/L	0.0050	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Thallium (Tl)-Total	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Tin (Sn)-Total	mg/L	0.0050	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Titanium (Ti)-Total	mg/L	0.030	-	0.020	0.010	0.010	0.010	0.010	0.010	0.050
Uranium (U)-Total	mg/L	0.00050	-	0.00010	0.000020	0.000010	0.000050	0.000020	0.000010	0.00010
Vanadium (V)-Total	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Zinc (Zn)-Total	mg/L	0.050	-	0.030	0.0060	0.0030	0.015	0.0060	0.0030	0.030

Appendix 2.5-2. Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

Sample ID		SW18	FIELD BLANK	SW1	SW2	SW4	SW7	SW9	SW12	SW13
Date Sampled		23-JUN-10	-	30-NOV-10	30-NOV-10	29-NOV-10	30-NOV-10	30-NOV-10	30-NOV-10	29-NOV-10
ALS Sample ID		L901812-8	-	L960333-1	L960333-2	L960333-3	L960333-4	L960333-5	L960333-6	L960333-7
Dissolved Metals	**Units**									
Aluminum (Al)-Dissolved	mg/L	0.050	-	0.030	0.0060	0.0030	0.015	0.0060	0.0030	0.030
Antimony (Sb)-Dissolved	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Arsenic (As)-Dissolved	mg/L	0.0025	-	0.00030	0.000060	0.000030	0.00015	0.000060	0.000030	0.00030
Barium (Ba)-Dissolved	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Beryllium (Be)-Dissolved	mg/L	0.010	-	0.0020	0.00040	0.00020	0.0010	0.00040	0.00020	0.0020
Bismuth (Bi)-Dissolved	mg/L	0.025	-	0.0050	0.0010	0.00050	0.0025	0.0010	0.00050	0.0050
Boron (B)-Dissolved	mg/L	0.050	-	0.010	0.0020	0.0010	0.0050	0.0020	0.0010	0.010
Cadmium (Cd)-Dissolved	mg/L	0.00085	-	0.00017	0.000034	0.000017	0.000085	0.000034	0.000017	0.00017
Calcium (Ca)-Dissolved	mg/L	1.0	-	0.20	0.040	0.020	0.10	0.040	0.020	0.20
Chromium (Cr)-Dissolved	mg/L	0.010	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Cobalt (Co)-Dissolved	mg/L	0.0050	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Copper (Cu)-Dissolved	mg/L	0.0050	-	0.0050	0.0010	0.00050	0.0025	0.0010	0.00050	0.0050
Iron (Fe)-Dissolved	mg/L	0.030	-	0.020	0.010	0.010	0.010	0.010	0.010	0.050
Lead (Pb)-Dissolved	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Lithium (Li)-Dissolved	mg/L	0.25	-	0.050	0.010	0.0050	0.025	0.010	0.0050	0.050
Magnesium (Mg)-Dissolved	mg/L	0.25	-	0.050	0.010	0.0050	0.025	0.010	0.0050	0.050
Manganese (Mn)-Dissolved	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Mercury (Hg)-Dissolved	mg/L	0.000010	-	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Nickel (Ni)-Dissolved	mg/L	0.0050	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Phosphorus (P)-Dissolved	mg/L	0.90	-	0.60	0.30	0.30	0.30	0.30	0.30	1.5
Potassium (K)-Dissolved	mg/L	2.5	-	0.50	0.10	0.050	0.25	0.10	0.050	0.50
Selenium (Se)-Dissolved	mg/L	0.010	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Silicon (Si)-Dissolved	mg/L	0.15	-	0.10	0.050	0.050	0.050	0.050	0.050	0.25
Silver (Ag)-Dissolved	mg/L	0.00050	-	0.00010	0.000020	0.000010	0.000050	0.000020	0.000010	0.00010
Sodium (Na)-Dissolved	mg/L	0.50	-	0.10	0.020	0.010	0.050	0.020	0.010	0.10
Strontium (Sr)-Dissolved	mg/L	0.0050	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Thallium (Tl)-Dissolved	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Tin (Sn)-Dissolved	mg/L	0.0050	-	0.0010	0.00020	0.00010	0.00050	0.00020	0.00010	0.0010
Titanium (Ti)-Dissolved	mg/L	0.030	-	0.020	0.010	0.010	0.010	0.010	0.010	0.050
Uranium (U)-Dissolved	mg/L	0.00050	-	0.00010	0.000020	0.000010	0.000050	0.000020	0.000010	0.00010
Vanadium (V)-Dissolved	mg/L	0.0025	-	0.00050	0.00010	0.000050	0.00025	0.00010	0.000050	0.00050
Zinc (Zn)-Dissolved	mg/L	0.050	-	0.030	0.0060	0.0030	0.015	0.0060	0.0030	0.030
Aggregate Organics										
Oil and Grease	mg/L	-	-	5.0	-	-	-	-	-	5.0
Hydrocarbons										
EPH10-19	mg/L	-	-	0.25	-	-	-	-	-	-
EPH19-32	mg/L	-	-	0.25	-	-	-	-	-	-

Appendix 2.5-2. Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

Sample ID		SW14	SW15	SW17	SW18	BLANK	SW11	SW16	BLANK
Date Sampled		29-NOV-10	02-DEC-10	NOV	29-NOV-10	29-NOV-10	09-DEC-10	16-DEC-10	14-DEC-10
ALS Sample ID		L960333-8	L960333-9	L960333-18	L960333-11	L960333-12	L964377-1	L964377-12	L964377-4
Physical Tests	Units								
Conductivity	uS/cm	-	-	-	-	-	2.0	2.0	2.0
Hardness (as $CaCO_3$)	mg/L	0.50	0.50	0.54	0.54	0.50	0.50	0.50	0.50
pH	pH	-	-	-	-	-	0.10	0.10	0.10
Total Suspended Solids	mg/L	-	-	-	-	-	3.0	3.0	3.0
Anions and Nutrients									
Alkalinity, Total (as $CaCO_3$)	mg/L	-	-	-	-	-	-	-	-
Ammonia as N	mg/L	-	-	-	-	-	-	-	-
Bromide (Br)	mg/L	0.050	0.050	2.5	1.0	0.050	2.5	1.0	0.050
Chloride (Cl)	mg/L	0.50	0.50	25	10	0.50	25	10	0.50
Fluoride (F)	mg/L	0.020	0.020	1.0	0.40	0.020	1.0	0.40	0.020
Nitrate (as N)	mg/L	0.0050	0.0050	0.25	0.10	0.0050	0.25	0.10	0.0050
Nitrite (as N)	mg/L	0.0010	0.0010	0.050	0.020	0.0010	0.050	0.020	0.0010
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	-	-	-	-
Total Nitrogen	mg/L	-	-	-	-	-	-	-	-
Total Phosphate as P	mg/L	-	-	-	-	-	-	-	-
Sulfate (SO_4)	mg/L	0.50	0.50	25	10	0.50	25	10	0.50
Leachable Anions & Nutrients									
Anion Sum	meq/L	-	-	-	-	-	-	-	-
Cation Sum	meq/L	-	-	-	-	-	-	-	-
Cation - Anion Balance	%	-	-	-	-	-	-	-	-
Cyanides									
Cyanide, Total	mg/L	-	-	-	-	-	-	-	-
Organic / Inorganic Carbon									
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	0.50
Total Metals									
Aluminum (Al)-Total	mg/L	0.0030	0.0030	0.030	0.030	0.0030	0.015	0.015	0.0030
Antimony (Sb)-Total	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Arsenic (As)-Total	mg/L	0.000030	0.000030	0.00030	0.00030	0.000030	0.00015	0.00015	0.000030
Barium (Ba)-Total	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Beryllium (Be)-Total	mg/L	0.00020	0.00020	0.0020	0.0020	0.00020	0.0010	0.0010	0.00020
Bismuth (Bi)-Total	mg/L	0.00050	0.00050	0.0050	0.0050	0.00050	0.0025	0.0025	0.00050
Boron (B)-Total	mg/L	0.0010	0.0010	0.010	0.010	0.0010	0.0050	0.0050	0.0010
Cadmium (Cd)-Total	mg/L	0.000017	0.00050	0.00017	0.00017	0.000017	0.000085	0.000085	0.000017
Calcium (Ca)-Total	mg/L	0.020	0.020	0.20	0.20	0.020	0.10	0.10	0.020
Chromium (Cr)-Total	mg/L	0.00020	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Cobalt (Co)-Total	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Copper (Cu)-Total	mg/L	0.00050	0.00050	0.0050	0.0050	0.00050	0.0025	0.0025	0.00050
Iron (Fe)-Total	mg/L	0.010	0.010	0.050	0.030	0.010	0.020	0.030	0.010
Lead (Pb)-Total	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Lithium (Li)-Total	mg/L	0.0050	0.0050	0.050	0.050	0.0050	0.025	0.025	0.0050
Magnesium (Mg)-Total	mg/L	0.0050	0.0050	0.050	0.050	0.0050	0.025	0.025	0.0050
Manganese (Mn)-Total	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Mercury (Hg)-Total	mg/L	0.000010	0.000050	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010
Molybdenum (Mo)-Total	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Nickel (Ni)-Total	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.0010	0.00050	0.00010
Phosphorus (P)-Total	mg/L	0.30	0.30	1.5	0.90	0.30	0.60	0.90	0.30
Potassium (K)-Total	mg/L	0.050	0.050	0.50	0.50	0.050	0.25	0.25	0.050
Selenium (Se)-Total	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Silicon (Si)-Total	mg/L	0.050	0.050	0.25	0.15	0.050	0.10	0.15	0.050
Silver (Ag)-Total	mg/L	0.000010	0.000010	0.00010	0.00010	0.000010	0.000050	0.000050	0.000010
Sodium (Na)-Total	mg/L	0.010	0.010	0.10	0.10	0.010	0.050	0.050	0.010
Strontium (Sr)-Total	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Thallium (Tl)-Total	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Tin (Sn)-Total	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Titanium (Ti)-Total	mg/L	0.010	0.010	0.050	0.030	0.010	0.020	0.030	0.010
Uranium (U)-Total	mg/L	0.000010	0.000010	0.00010	0.00010	0.000010	0.000050	0.000050	0.000010
Vanadium (V)-Total	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Zinc (Zn)-Total	mg/L	0.0030	0.0030	0.030	0.030	0.0030	0.015	0.015	0.0030

Appendix 2.5-2. Surface Water Quality Analytical Detection Limits, New Afton Project, 2010

Sample ID		SW14	SW15	SW17	SW18	BLANK	SW11	SW16	BLANK
Date Sampled		29-NOV-10	02-DEC-10	NOV	29-NOV-10	29-NOV-10	09-DEC-10	16-DEC-10	14-DEC-10
ALS Sample ID		L960333-8	L960333-9	L960333-18	L960333-11	L960333-12	L964377-1	L964377-12	L964377-4
Dissolved Metals	**Units**								
Aluminum (Al)-Dissolved	mg/L	0.0030	0.0030	0.030	0.030	0.0030	0.015	0.015	0.0030
Antimony (Sb)-Dissolved	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Arsenic (As)-Dissolved	mg/L	0.000030	0.000030	0.00030	0.00030	0.000030	0.00015	0.00015	0.000030
Barium (Ba)-Dissolved	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Beryllium (Be)-Dissolved	mg/L	0.00020	0.00020	0.0020	0.0020	0.00020	0.0010	0.0010	0.00020
Bismuth (Bi)-Dissolved	mg/L	0.00050	0.00050	0.0050	0.0050	0.00050	0.0025	0.0025	0.00050
Boron (B)-Dissolved	mg/L	0.0010	0.0010	0.010	0.010	0.0010	0.0050	0.0050	0.0010
Cadmium (Cd)-Dissolved	mg/L	0.000017	0.000030	0.00017	0.00017	0.000017	0.000085	0.000085	0.000017
Calcium (Ca)-Dissolved	mg/L	0.020	0.020	0.20	0.20	0.020	0.10	0.10	0.020
Chromium (Cr)-Dissolved	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Cobalt (Co)-Dissolved	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Copper (Cu)-Dissolved	mg/L	0.00050	0.00050	0.0050	0.0050	0.00050	0.0025	0.0025	0.00050
Iron (Fe)-Dissolved	mg/L	0.010	0.010	0.050	0.030	0.010	0.020	0.030	0.010
Lead (Pb)-Dissolved	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Lithium (Li)-Dissolved	mg/L	0.0050	0.0050	0.050	0.050	0.0050	0.025	0.025	0.0050
Magnesium (Mg)-Dissolved	mg/L	0.0050	0.0050	0.050	0.050	0.0050	0.025	0.025	0.0050
Manganese (Mn)-Dissolved	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Mercury (Hg)-Dissolved	mg/L	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Nickel (Ni)-Dissolved	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Phosphorus (P)-Dissolved	mg/L	0.30	0.30	1.5	0.90	0.30	0.60	0.90	0.30
Potassium (K)-Dissolved	mg/L	0.050	0.050	0.50	0.50	0.050	0.25	0.25	0.050
Selenium (Se)-Dissolved	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Silicon (Si)-Dissolved	mg/L	0.050	0.050	0.25	0.15	0.050	0.10	0.15	0.050
Silver (Ag)-Dissolved	mg/L	0.000010	0.000010	0.00010	0.00010	0.000010	0.000050	0.000050	0.000010
Sodium (Na)-Dissolved	mg/L	0.010	0.010	0.10	0.10	0.010	0.050	0.050	0.010
Strontium (Sr)-Dissolved	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Thallium (Tl)-Dissolved	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Tin (Sn)-Dissolved	mg/L	0.00010	0.00010	0.0010	0.0010	0.00010	0.00050	0.00050	0.00010
Titanium (Ti)-Dissolved	mg/L	0.010	0.010	0.050	0.030	0.010	0.020	0.030	0.010
Uranium (U)-Dissolved	mg/L	0.000010	0.000010	0.00010	0.00010	0.000010	0.000050	0.000050	0.000010
Vanadium (V)-Dissolved	mg/L	0.000050	0.000050	0.00050	0.00050	0.000050	0.00025	0.00025	0.000050
Zinc (Zn)-Dissolved	mg/L	0.0030	0.0030	0.030	0.030	0.0030	0.015	0.015	0.0030
Aggregate Organics									
Oil and Grease	mg/L	-	-	-	5.0	-	5.0	-	-
Hydrocarbons									
EPH10-19	mg/L	-	-	-	0.25	-	0.25	-	-
EPH19-32	mg/L	-	-	-	0.25	-	0.25	-	-

Appendix 2.5-3

Surface Water Quality QA/QC, New Afton Project, 2010

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Appendix 2.5-3. Surface Water Quality QA/QC, New Afton Project, 2010

Sample Name		FIELD BLANK	TRAVEL BLANK	BLANK	BLANK
Date Sampled		15-JUN-10	15-JUN-10	22-JUN-10	14-DEC-10
ALS Sample ID	Units	L899402-8	L899402-9	L901812-1	L964377-4
Physical Tests					
Conductivity	uS/cm	13.4	1.0	1.0	1.0
Hardness (as $CaCO_3$)	mg/L	0.25	-	0.85	0.25
pH	pH	5.76	5.66	5.57	6.06
Total Suspended Solids	mg/L	2.5	2.5	2.5	2.5
Anions and Nutrients					
Alkalinity, Total (as $CaCO_3$)	mg/L	1.0	1.0	1.0	-
Ammonia as N	mg/L	0.005	0.005	0.0025	-
Bromide (Br)	mg/L	0.025	0.025	0.025	0.025
Chloride (Cl)	mg/L	0.25	0.25	0.25	0.25
Fluoride (F)	mg/L	0.010	0.010	0.010	0.010
Nitrate (as N)	mg/L	0.0025	0.0025	0.0025	0.0025
Nitrite (as N)	mg/L	0.0005	0.0005	0.0005	0.0005
Total Kjeldahl Nitrogen	mg/L	0.025	0.025	0.025	-
Total Nitrogen	mg/L	0.030	0.030	-	-
Total Phosphate as P	mg/L	0.0010	0.0010	0.0010	-
Sulfate (SO_4)	mg/L	0.25	0.25	0.25	0.25
Leachable Anions & Nutrients					
Anion Sum	meq/L	-	-	0.1	-
Cation Sum	meq/L	-	-	0.1	-
Cation - Anion Balance	%	-	-	-	-
Cyanides					
Cyanide, Total	mg/L	0.0025	0.0025	-	-
Organic / Inorganic Carbon					
Dissolved Organic Carbon	mg/L	-	-	-	-
Total Organic Carbon	mg/L	0.25	-	0.25	-
Total Metals					
Aluminum (Al)-Total	mg/L	0.0005	-	0.0005	0.0015
Antimony (Sb)-Total	mg/L	0.000025	-	0.000025	0.000025
Arsenic (As)-Total	mg/L	0.000025	-	0.000015	0.000015
Barium (Ba)-Total	mg/L	0.000025	-	0.000025	0.000025
Beryllium (Be)-Total	mg/L	0.00010	-	0.00010	0.00010
Bismuth (Bi)-Total	mg/L	0.00025	-	0.00025	0.00025
Boron (B)-Total	mg/L	0.0025	-	0.0005	0.0014
Cadmium (Cd)-Total	mg/L	0.0000085	-	0.0000085	0.0000085
Calcium (Ca)-Total	mg/L	0.010	-	0.010	0.010
Chromium (Cr)-Total	mg/L	0.00010	-	0.00005	0.00005
Cobalt (Co)-Total	mg/L	0.00005	-	0.00005	0.00005
Copper (Cu)-Total	mg/L	0.00005	-	0.00005	0.00025
Iron (Fe)-Total	mg/L	0.005	-	0.005	0.005
Lead (Pb)-Total	mg/L	0.000025	-	0.000025	0.000025
Lithium (Li)-Total	mg/L	0.0025	-	0.0025	0.0025
Magnesium (Mg)-Total	mg/L	0.0025	-	0.0025	0.0025
Manganese (Mn)-Total	mg/L	0.000025	-	0.000025	0.000025
Mercury (Hg)-Total	mg/L	0.000005	-	0.000005	0.000005
Molybdenum (Mo)-Total	mg/L	0.000025	-	0.000025	0.000025
Nickel (Ni)-Total	mg/L	0.00005	-	0.00005	0.00005
Phosphorus (P)-Total	mg/L	0.15	-	0.15	0.15
Potassium (K)-Total	mg/L	0.025	-	0.025	0.025
Selenium (Se)-Total	mg/L	0.00025	-	0.00005	0.00005

Bold values indicate values reported as half detection limit

Appendix 2.5-3. Surface Water Quality QA/QC, New Afton Project, 2010

Sample Name		FIELD BLANK	TRAVEL BLANK	BLANK	BLANK
Date Sampled		15-JUN-10	15-JUN-10	22-JUN-10	14-DEC-10
ALS Sample ID	Units	L899402-8	L899402-9	L901812-1	L964377-4
Total Metals *(continued)*					
Silicon (Si)-Total	mg/L	**0.025**	-	**0.025**	**0.025**
Silver (Ag)-Total	mg/L	**0.000005**	-	**0.000005**	**0.000005**
Sodium (Na)-Total	mg/L	**0.005**	-	**0.005**	**0.005**
Strontium (Sr)-Total	mg/L	**0.00005**	-	**0.00005**	**0.00005**
Thallium (Tl)-Total	mg/L	**0.000025**	-	**0.000025**	**0.000025**
Tin (Sn)-Total	mg/L	**0.00005**	-	**0.00005**	**0.00005**
Titanium (Ti)-Total	mg/L	**0.005**	-	**0.005**	**0.005**
Uranium (U)-Total	mg/L	**0.000005**	-	**0.000005**	**0.000005**
Vanadium (V)-Total	mg/L	**0.00010**	-	**0.000025**	**0.000025**
Zinc (Zn)-Total	mg/L	**0.0005**	-	**0.0005**	**0.0015**
Dissolved Metals					
Aluminum (Al)-Dissolved	mg/L	-	-	**0.0005**	**0.0015**
Antimony (Sb)-Dissolved	mg/L	-	-	**0.000025**	**0.000025**
Arsenic (As)-Dissolved	mg/L	-	-	**0.000015**	**0.000015**
Barium (Ba)-Dissolved	mg/L	-	-	0.000128	0.000111
Beryllium (Be)-Dissolved	mg/L	-	-	**0.00010**	**0.00010**
Bismuth (Bi)-Dissolved	mg/L	-	-	**0.00025**	**0.00025**
Boron (B)-Dissolved	mg/L	-	-	**0.0005**	0.0019
Cadmium (Cd)-Dissolved	mg/L	-	-	**0.0000085**	0.000062
Calcium (Ca)-Dissolved	mg/L	-	-	0.140	0.068
Chromium (Cr)-Dissolved	mg/L	-	-	**0.00005**	**0.00005**
Cobalt (Co)-Dissolved	mg/L	-	-	**0.00005**	**0.00005**
Copper (Cu)-Dissolved	mg/L	-	-	0.00018	0.00073
Iron (Fe)-Dissolved	mg/L	-	-	**0.005**	**0.005**
Lead (Pb)-Dissolved	mg/L	-	-	**0.000025**	**0.000025**
Lithium (Li)-Dissolved	mg/L	-	-	**0.0025**	**0.0025**
Magnesium (Mg)-Dissolved	mg/L	-	-	0.121	0.0115
Manganese (Mn)-Dissolved	mg/L	-	-	0.000196	0.000236
Mercury (Hg)-Dissolved	mg/L	-	-	**0.000005**	**0.000005**
Molybdenum (Mo)-Dissolved	mg/L	-	-	**0.000025**	**0.000025**
Nickel (Ni)-Dissolved	mg/L	-	-	**0.00005**	**0.00005**
Phosphorus (P)-Dissolved	mg/L	-	-	**0.15**	**0.15**
Potassium (K)-Dissolved	mg/L	-	-	0.056	**0.025**
Selenium (Se)-Dissolved	mg/L	-	-	**0.00005**	**0.00005**
Silicon (Si)-Dissolved	mg/L	-	-	**0.025**	**0.025**
Silver (Ag)-Dissolved	mg/L	-	-	**0.000005**	**0.000005**
Sodium (Na)-Dissolved	mg/L	-	-	0.747	0.168
Strontium (Sr)-Dissolved	mg/L	-	-	0.00325	0.00161
Thallium (Tl)-Dissolved	mg/L	-	-	**0.000025**	**0.000025**
Tin (Sn)-Dissolved	mg/L	-	-	**0.00005**	**0.00005**
Titanium (Ti)-Dissolved	mg/L	-	-	**0.005**	**0.005**
Uranium (U)-Dissolved	mg/L	-	-	**0.000005**	**0.000005**
Vanadium (V)-Dissolved	mg/L	-	-	**0.000025**	**0.000025**
Zinc (Zn)-Dissolved	mg/L	-	-	**0.0005**	**0.0015**
Aggregate Organics					
Oil and Grease	mg/L	-	-	-	-
Hydrocarbons					
EPH10-19	mg/L	-	-	-	-
EPH19-32	mg/L	-	-	-	-

Bold values indicate values reported as half detection limit

Appendix 2.5-4

Notable Results for QA/QC Field Duplicate Samples, New Afton Project, 2010

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Appendix 2.5-4. Notable Results for QA/QC Field Duplicate Samples, New Afton Project, 2010

Parameter	Units	SW7 15-JUN-10			SW12 30-NOV-10		
		Sample	Duplicate	RPD[a]	Sample	Duplicate	RPD[a]
Physical Tests							
Conductivity	uS/cm	2280	2270	0	-	-	-
Hardness (as $CaCO_3$)	mg/L	382	381	0	458	454	1
pH	pH	8.85	9.07	2	-	-	-
Total Suspended Solids	mg/L	115	179	44	-	-	-
Anions and Nutrients							
Alkalinity, Total (as $CaCO_3$)	mg/L	577	573	1	-	-	-
Ammonia as N	mg/L	0.040	0.036	11	-	-	-
Bromide (Br)	mg/L	<1.0	<1.0	*	<0.50	<0.50	*
Chloride (Cl)	mg/L	59	61	3	9.0	9.0	0
Fluoride (F)	mg/L	0.46	0.47	2	<0.20	<0.20	*
Nitrate (as N)	mg/L	<0.10	<0.10	*	<0.050	<0.050	*
Nitrite (as N)	mg/L	<0.020	<0.020	*	<0.010	<0.010	*
Total Kjeldahl Nitrogen	mg/L	0.979	0.943	4	-	-	-
Total Nitrogen	mg/L	0.98	0.94	4	-	-	-
Total Phosphate as P	mg/L	0.161	0.279	54	-	-	-
Sulfate (SO_4)	mg/L	622	648	4	104	104	0
Leachable Anions & Nutrients							
Anion Sum	meq/L	26.2	26.7	2	-	-	-
Cation Sum	meq/L	27.7	26.6	4	-	-	-
Cation - Anion Balance	%	2.8	-0.3	-	-	-	-
Cyanides							
Cyanide, Total	mg/L	0.0100	0.0101	1	-	-	-
Organic / Inorganic Carbon							
Dissolved Organic Carbon		-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	-	-
Total Metals							
Aluminum (Al)-Total	mg/L	6.17	5.63	9	0.0859	0.0793	8
Antimony (Sb)-Total	mg/L	0.00984	0.00924	6	0.000096	0.000103	7
Arsenic (As)-Total	mg/L	0.0189	0.0174	8	0.00294	0.00276	6
Barium (Ba)-Total	mg/L	0.125	0.118	6	0.0654	0.0650	1
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	*	<0.00020	<0.00020	*
Bismuth (Bi)-Total	mg/L	<0.0025	<0.0025	*	<0.00050	<0.00050	*
Boron (B)-Total	mg/L	0.276	0.259	6	0.0641	0.0711	10
Cadmium (Cd)-Total	mg/L	<0.00061	<0.000085	*	<0.000017	<0.000017	*
Calcium (Ca)-Total	mg/L	46.1	42.7	8	86.5	82.8	4
Chromium (Cr)-Total	mg/L	0.0238	0.0208	13	<0.00025	<0.00030	*
Cobalt (Co)-Total	mg/L	0.00634	0.00596	6	0.00020	0.00019	5
Copper (Cu)-Total	mg/L	0.0767	0.0709	8	0.00250	0.00240	4
Iron (Fe)-Total	mg/L	5.87	5.87	0	0.138	0.138	0
Lead (Pb)-Total	mg/L	<0.00025	<0.00025	*	<0.000050	<0.000050	*
Lithium (Li)-Total	mg/L	<0.025	<0.025	*	0.0108	0.0098	10
Magnesium (Mg)-Total	mg/L	74.9	71.8	4	56.7	55.3	3
Manganese (Mn)-Total	mg/L	0.101	0.0961	5	0.538	0.519	4
Mercury (Hg)-Total	mg/L	0.000026	0.000017	42	<0.000010	<0.000010	*
Molybdenum (Mo)-Total	mg/L	0.152	0.141	8	0.00229	0.00231	1
Nickel (Ni)-Total	mg/L	0.0270	0.0243	11	0.00128	0.00131	2
Phosphorus (P)-Total	mg/L	0.39	0.39	0	<0.30	<0.30	*

shaded values exceed the 20% relative percent difference and are more than five times the detection limit

[a] *RPD = relative percent difference to mean (in %)*

* *Denotes that RPD was not caluculated due to one or more values being <5 times the detection limit*

Appendix 2.5-4. Notable Results for QA/QC Field Duplicate Samples, New Afton Project, 2010

Parameter	Units	SW7 15-JUN-10 Sample	SW7 15-JUN-10 Duplicate	SW7 15-JUN-10 RPD[a]	SW12 30-NOV-10 Sample	SW12 30-NOV-10 Duplicate	SW12 30-NOV-10 RPD[a]
Total Metals *(continued)*							
Potassium (K)-Total	mg/L	33.0	31.0	6	11.6	11.1	4
Selenium (Se)-Total	mg/L	<0.0025	<0.0025	*	<0.00010	0.00011	*
Silicon (Si)-Total	mg/L	17.5	16.8	4	12.6	12.3	2
Silver (Ag)-Total	mg/L	<0.000050	<0.000050	*	<0.000010	<0.000010	*
Sodium (Na)-Total	mg/L	425	416	2	46.2	46.4	0
Strontium (Sr)-Total	mg/L	0.919	0.862	6	0.727	0.716	2
Thallium (Tl)-Total	mg/L	<0.00025	<0.00025	*	<0.000050	<0.000050	*
Tin (Sn)-Total	mg/L	<0.00050	<0.00050	*	<0.00010	<0.00010	*
Titanium (Ti)-Total	mg/L	0.352	0.342	3	<0.010	<0.010	*
Uranium (U)-Total	mg/L	0.00276	0.00259	6	0.00176	0.00180	2
Vanadium (V)-Total	mg/L	0.0481	0.0449	7	0.00370	0.00355	4
Zinc (Zn)-Total	mg/L	0.0064	0.0050	25	<0.0030	<0.0030	*
Dissolved Metals							
Aluminum (Al)-Dissolved	mg/L	1.67	1.29	26	0.0045	0.0039	14
Antimony (Sb)-Dissolved	mg/L	0.00871	0.00908	4	0.000099	0.000092	7
Arsenic (As)-Dissolved	mg/L	0.0195	0.0181	7	0.00323	0.00322	0
Barium (Ba)-Dissolved	mg/L	0.109	0.0923	17	0.0664	0.0668	1
Beryllium (Be)-Dissolved	mg/L	<0.0010	<0.0010	*	<0.00020	<0.00020	*
Bismuth (Bi)-Dissolved	mg/L	<0.0025	<0.0025	*	<0.00050	<0.00050	*
Boron (B)-Dissolved	mg/L	0.257	0.254	1	0.0595	0.0642	8
Cadmium (Cd)-Dissolved	mg/L	<0.00051	<0.000085	*	<0.000017	<0.000017	*
Calcium (Ca)-Dissolved	mg/L	38.8	36.5	6	87.7	86.2	2
Chromium (Cr)-Dissolved	mg/L	<0.011	<0.0080	*	<0.00010	<0.00010	*
Cobalt (Co)-Dissolved	mg/L	0.00296	0.00232	24	0.00017	0.00015	13
Copper (Cu)-Dissolved	mg/L	0.0627	0.0486	25	0.00152	0.00157	3
Iron (Fe)-Dissolved	mg/L	2.24	1.56	36	0.033	0.032	3
Lead (Pb)-Dissolved	mg/L	<0.00025	<0.00025	*	<0.000050	<0.000050	*
Lithium (Li)-Dissolved	mg/L	<0.025	<0.025	*	0.0109	0.0100	9
Magnesium (Mg)-Dissolved	mg/L	69.2	70.4	2	58.1	57.9	0
Manganese (Mn)-Dissolved	mg/L	0.0517	0.0362	35	0.544	0.552	1
Mercury (Hg)-Dissolved	mg/L	0.000017	<0.000010	*	<0.000010	<0.000010	*
Molybdenum (Mo)-Dissolved	mg/L	0.145	0.141	3	0.00217	0.00221	2
Nickel (Ni)-Dissolved	mg/L	0.0120	0.00948	23	0.00116	0.00118	2
Phosphorus (P)-Dissolved	mg/L	<0.30	<0.30	*	<0.30	<0.30	*
Potassium (K)-Dissolved	mg/L	31.7	31.5	1	11.7	11.7	0
Selenium (Se)-Dissolved	mg/L	<0.0025	<0.0025	-	0.00011	0.00013	17
Silicon (Si)-Dissolved	mg/L	7.83	6.08	25	12.8	12.5	2
Silver (Ag)-Dissolved	mg/L	<0.000050	<0.000050	*	<0.000010	<0.000010	*
Sodium (Na)-Dissolved	mg/L	436	412	6	46.8	48.5	4
Strontium (Sr)-Dissolved	mg/L	0.860	0.845	2	0.731	0.724	1
Thallium (Tl)-Dissolved	mg/L	<0.00025	<0.00025	*	<0.000050	<0.000050	*
Tin (Sn)-Dissolved	mg/L	0.00068	0.00067	1	<0.00010	<0.00010	*
Titanium (Ti)-Dissolved	mg/L	0.046	0.029	45	<0.010	<0.010	-
Uranium (U)-Dissolved	mg/L	0.00258	0.00259	0	0.00175	0.00183	4
Vanadium (V)-Dissolved	mg/L	0.0201	0.0173	15	0.00338	0.00347	3
Zinc (Zn)-Dissolved	mg/L	<0.0050	<0.0050	*	<0.0030	<0.0030	*

shaded values exceed the 20% relative percent difference and are more than five times the detection limit

[a] *RPD = relative percent difference to mean (in %)*

* *Denotes that RPD was not caluculated due to one or more values being <5 times the detection limit*

Appendix 2.6-1
Groundwater Quality

Rescan™
Engineers and Scientists

Certificate of Analysis

RESCAN ENVIRONMENTAL SERVICES
ATTN: MARIANNE NGUYEN

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Report Date: 19-MAR-10 13:14 (MT)
Version: FINAL

Lab Work Order #: L866196 **Date Received:** 03-MAR-10

Project P.O. #: NOT SUBMITTED
Job Reference: NEW AFTON (0916-003-07)
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

Dean Watt
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L866196-1	L866196-2	L866196-3	L866196-4	L866196-5
Sample ID		L866196-1	L866196-2	L866196-3	L866196-4	L866196-5
Description						
Sampled Date		02-MAR-10	02-MAR-10	02-MAR-10	02-MAR-10	02-MAR-10
Sampled Time		10:00	10:30	11:30	12:30	13:30
Client ID		UPPER CHERRY CREEK	LOWER CHERRY CREEK	LAKE PUMP HOUSE	WASTE DUMP POND	POTHOOK LAKE
WATER						
Physical Tests	Colour, True (CU)	7.9	8.1	5.8	<5.0	<5.0
	Conductivity (uS/cm)	153	764	126	1320	192
	Hardness (as CaCO3) (mg/L)	68.5	340	44.7	245	50.4
	pH (pH)	8.17	8.44	8.19	8.07	8.02
	Total Suspended Solids (mg/L)	5.3	<3.0	3.8	9.8	4.8
	Total Dissolved Solids (mg/L)	87	505	69	917	108
	Turbidity (NTU)	5.24	1.26	0.95	2.06	1.60
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1.7	<1.0	1.8	2.5	2.3
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	70.3	367	41.8	64.2	40.7
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<1.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<1.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	70.3	367	41.8	64.2	40.7
	Ammonia as N (mg/L)	<0.020	0.021	<0.020	0.027	<0.020
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<1.0	<0.050
	Chloride (Cl) (mg/L)	1.42	5.67	1.79	11	2.27
	Fluoride (F) (mg/L)	0.054	0.107	0.053	0.41	0.041
	Nitrate (as N) (mg/L)	0.0151	0.190	0.145	<0.10	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	0.0022	0.0015	<0.020	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.29	0.24	0.100	0.532	0.331
	Total Nitrogen (mg/L)	0.180	0.440	0.250	0.400	0.180
	Ortho Phosphate as P (mg/L)	0.0093	0.0109	<0.0010	<0.0010	0.0082
	Total Phosphate as P (mg/L)	0.0296	0.0243	0.0094	0.0429	0.0657
	Sulfate (SO4) (mg/L)	7.11	124	12.3	624	45.6
Cyanides	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	3.80	5.01	2.37	3.50	2.83
Bacteriological Tests	Coliform Bacteria - Fecal (MPN/100mL)			<2		
Total Metals	Aluminum (Al)-Total (mg/L)	0.150	0.0266	0.0579	0.106	0.0665
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00020	<0.00010	<0.00020	<0.00010
	Arsenic (As)-Total (mg/L)	0.00040	0.00053	0.00015	0.00067	0.00179
	Barium (Ba)-Total (mg/L)	0.0253	0.0941	0.0105	0.00552	0.00816
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.0010	<0.00050	<0.0010	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.0010	<0.00050	<0.0010	<0.00050
	Boron (B)-Total (mg/L)	0.012	0.047	<0.010	0.140	0.023
	Cadmium (Cd)-Total (mg/L)	<0.000010	0.000021	<0.000010	<0.000020	0.000016
	Calcium (Ca)-Total (mg/L)	15.1	89.4	14.6	25.1	12.4
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.0010	<0.00050	<0.0010	0.00355

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L866196-6	L866196-7			
	Description					
	Sampled Date	02-MAR-10				
	Sampled Time	14:30				
	Client ID	SEEPAGE POND	TRAVEL BLANKS			
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	<5.0			
	Conductivity (uS/cm)	189	<2.0			
	Hardness (as CaCO3) (mg/L)	26.6	<0.50			
	pH (pH)	7.74	5.89			
	Total Suspended Solids (mg/L)	<3.0	<3.0			
	Total Dissolved Solids (mg/L)	108	<10			
	Turbidity (NTU)	1.30	<0.10			
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.5	2.2			
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	13.5	<2.0			
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0			
	Alkalinity, Total (as CaCO3) (mg/L)	13.5	<2.0			
	Ammonia as N (mg/L)	0.036	<0.020			
	Bromide (Br) (mg/L)	<0.050	<0.050			
	Chloride (Cl) (mg/L)	1.35	<0.50			
	Fluoride (F) (mg/L)	0.108	<0.020			
	Nitrate (as N) (mg/L)	0.0101	<0.0050			
	Nitrite (as N) (mg/L)	<0.0010	<0.0010			
	Total Kjeldahl Nitrogen (mg/L)	0.193	<0.050			
	Total Nitrogen (mg/L)	0.120	<0.050			
	Ortho Phosphate as P (mg/L)	0.0018	<0.0010			
	Total Phosphate as P (mg/L)	0.0236	<0.0020			
	Sulfate (SO4) (mg/L)	66.6	<0.50			
Cyanides	Cyanide, Total (mg/L)	<0.0050	<0.0050			
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	1.51	<0.50			
Bacteriological Tests	Coliform Bacteria - Fecal (MPN/100mL)					
Total Metals	Aluminum (Al)-Total (mg/L)	0.0256	<0.0010			
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010			
	Arsenic (As)-Total (mg/L)	0.00102	<0.00010			
	Barium (Ba)-Total (mg/L)	0.00125	<0.000050			
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050			
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050			
	Boron (B)-Total (mg/L)	0.033	<0.010			
	Cadmium (Cd)-Total (mg/L)	0.000019	<0.000010			
	Calcium (Ca)-Total (mg/L)	3.32	<0.020			
	Chromium (Cr)-Total (mg/L)	0.00202	<0.00050			

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L866196-1	L866196-2	L866196-3	L866196-4	L866196-5
	Sample ID	L866196-1	L866196-2	L866196-3	L866196-4	L866196-5
	Description					
	Sampled Date	02-MAR-10	02-MAR-10	02-MAR-10	02-MAR-10	02-MAR-10
	Sampled Time	10:00	10:30	11:30	12:30	13:30
	Client ID	UPPER CHERRY CREEK	LOWER CHERRY CREEK	LAKE PUMP HOUSE	WASTE DUMP POND	POTHOOK LAKE
WATER						
Total Metals	Cobalt (Co)-Total (mg/L)	0.00012	<0.00020	<0.00010	0.00024	0.00010
	Copper (Cu)-Total (mg/L)	0.00172	0.00169	0.00079	0.00463	0.00429
	Iron (Fe)-Total (mg/L)	0.165	0.099	0.104	0.214	0.113
	Lead (Pb)-Total (mg/L)	0.000089	<0.00010	0.000063	0.00015	0.000181
	Lithium (Li)-Total (mg/L)	<0.0050	<0.010	<0.0050	<0.010	<0.0050
	Magnesium (Mg)-Total (mg/L)	8.20	33.4	2.79	49.5	5.44
	Manganese (Mn)-Total (mg/L)	0.00594	0.0751	0.0107	0.0598	0.00968
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	0.00217	0.00892	0.000888	0.00265	0.00206
	Nickel (Ni)-Total (mg/L)	<0.00050	<0.0010	0.00056	<0.0010	0.00057
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	1.58	4.48	1.05	8.69	2.22
	Selenium (Se)-Total (mg/L)	<0.00020	0.00056	<0.00020	0.00488	0.00028
	Silicon (Si)-Total (mg/L)	1.05	6.92	2.81	0.573	1.50
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000020	<0.000010	<0.000020	<0.000010
	Sodium (Na)-Total (mg/L)	5.2	36.7	5.7	155	17.3
	Strontium (Sr)-Total (mg/L)	0.106	0.417	0.0924	0.633	0.125
	Sulfur (S)-Total (mg/L)	2.61	43.4	4.42	187	14.3
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00020	<0.00010	<0.00020	<0.00010
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00020	<0.00010	<0.00020	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	0.000169	0.000935	0.000374	0.000770	0.000236
	Vanadium (V)-Total (mg/L)	0.0013	<0.0020	<0.0010	<0.0020	<0.0010
	Zinc (Zn)-Total (mg/L)	0.0022	<0.0020	<0.0010	<0.0020	0.0053
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.165	0.0140	0.0454	0.0362	0.0192
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00020	<0.00010	<0.00020	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00043	0.00060	0.00016	0.00056	0.00034
	Barium (Ba)-Dissolved (mg/L)	0.0246	0.0892	0.0104	0.00445	0.00765
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.0010	<0.00050	<0.0010	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.0010	<0.00050	<0.0010	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.010	0.043	<0.010	0.129	0.018
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010	0.000023	<0.000010	<0.000020	<0.000010
	Calcium (Ca)-Dissolved (mg/L)	14.3	83.9	13.6	22.4	12.1
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.0015	<0.00050	<0.0010	<0.00050
	Cobalt (Co)-Dissolved (mg/L)	0.00012	<0.00020	<0.00010	<0.00020	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00150	0.00151	0.00080	0.00369	0.00301
	Iron (Fe)-Dissolved (mg/L)	0.163	0.091	0.117	0.100	0.037

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L866196-6	L866196-7			
	Description					
	Sampled Date	02-MAR-10				
	Sampled Time	14:30				
	Client ID	SEEPAGE POND	TRAVEL BLANKS			
Grouping	**Analyte**					
WATER						
Total Metals	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010			
	Copper (Cu)-Total (mg/L)	0.00213	<0.00010			
	Iron (Fe)-Total (mg/L)	0.033	<0.030			
	Lead (Pb)-Total (mg/L)	0.000081	<0.000050			
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050			
	Magnesium (Mg)-Total (mg/L)	5.55	<0.0050			
	Manganese (Mn)-Total (mg/L)	0.00780	<0.000050			
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010			
	Molybdenum (Mo)-Total (mg/L)	0.00609	<0.000050			
	Nickel (Ni)-Total (mg/L)	<0.00050	<0.00050			
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30			
	Potassium (K)-Total (mg/L)	0.639	<0.050			
	Selenium (Se)-Total (mg/L)	0.00105	<0.00020			
	Silicon (Si)-Total (mg/L)	0.165	<0.050			
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010			
	Sodium (Na)-Total (mg/L)	18.0	<2.0			
	Strontium (Sr)-Total (mg/L)	0.0656	<0.00010			
	Sulfur (S)-Total (mg/L)	16.9	<0.50			
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010			
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010			
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010			
	Uranium (U)-Total (mg/L)	0.000145	<0.000010			
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010			
	Zinc (Zn)-Total (mg/L)	0.0017	<0.0010			
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0169				
	Antimony (Sb)-Dissolved (mg/L)	<0.00010				
	Arsenic (As)-Dissolved (mg/L)	0.00052				
	Barium (Ba)-Dissolved (mg/L)	0.00127				
	Beryllium (Be)-Dissolved (mg/L)	<0.00050				
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050				
	Boron (B)-Dissolved (mg/L)	0.026				
	Cadmium (Cd)-Dissolved (mg/L)	0.000021				
	Calcium (Ca)-Dissolved (mg/L)	2.88				
	Chromium (Cr)-Dissolved (mg/L)	<0.00050				
	Cobalt (Co)-Dissolved (mg/L)	<0.00010				
	Copper (Cu)-Dissolved (mg/L)	0.00242				
	Iron (Fe)-Dissolved (mg/L)	0.041				

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L866196-1	L866196-2	L866196-3	L866196-4	L866196-5
Sample ID		L866196-1	L866196-2	L866196-3	L866196-4	L866196-5
Description						
Sampled Date		02-MAR-10	02-MAR-10	02-MAR-10	02-MAR-10	02-MAR-10
Sampled Time		10:00	10:30	11:30	12:30	13:30
Client ID		UPPER CHERRY CREEK	LOWER CHERRY CREEK	LAKE PUMP HOUSE	WASTE DUMP POND	POTHOOK LAKE
WATER						
Dissolved Metals	Lead (Pb)-Dissolved (mg/L)	0.000055	<0.00010	0.000097	<0.00010	<0.000050
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.010	<0.0050	<0.010	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)	7.95	31.6	2.60	46.0	4.88
	Manganese (Mn)-Dissolved (mg/L)	0.00843	0.0746	0.0107	0.0544	0.00702
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.00197	0.00843	0.000817	0.00245	0.00203
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.0010	0.00058	<0.0010	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	1.51	4.22	0.984	7.92	2.02
	Selenium (Se)-Dissolved (mg/L)	<0.00020	0.00088	<0.00020	0.00444	0.00025
	Silicon (Si)-Dissolved (mg/L)	1.15	7.20	2.86	0.435	1.56
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000020	<0.000010	<0.000020	<0.000010
	Sodium (Na)-Dissolved (mg/L)	5.1	35.8	5.6	159	15.5
	Strontium (Sr)-Dissolved (mg/L)	0.102	0.392	0.0860	0.572	0.119
	Sulfur (S)-Dissolved (mg/L)	2.71	43.8	4.63	196	13.9
	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00020	<0.00010	<0.00020	<0.00010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00020	<0.00010	<0.00020	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000154	0.000868	0.000362	0.000663	0.000214
	Vanadium (V)-Dissolved (mg/L)	0.0012	<0.0020	<0.0010	<0.0020	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0014	<0.0020	0.0010	<0.0020	<0.0010

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L866196-6	L866196-7			
	Description					
	Sampled Date	02-MAR-10				
	Sampled Time	14:30				
	Client ID	SEEPAGE POND	TRAVEL BLANKS			
Grouping	Analyte					
WATER						
Dissolved Metals	Lead (Pb)-Dissolved (mg/L)	0.000093				
	Lithium (Li)-Dissolved (mg/L)	<0.0050				
	Magnesium (Mg)-Dissolved (mg/L)	4.72				
	Manganese (Mn)-Dissolved (mg/L)	0.00752				
	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	0.00496				
	Nickel (Ni)-Dissolved (mg/L)	<0.00050				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	0.534				
	Selenium (Se)-Dissolved (mg/L)	0.00104				
	Silicon (Si)-Dissolved (mg/L)	0.133				
	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	15.0				
	Strontium (Sr)-Dissolved (mg/L)	0.0573				
	Sulfur (S)-Dissolved (mg/L)	15.7				
	Thallium (Tl)-Dissolved (mg/L)	<0.00010				
	Tin (Sn)-Dissolved (mg/L)	<0.00010				
	Titanium (Ti)-Dissolved (mg/L)	<0.010				
	Uranium (U)-Dissolved (mg/L)	0.000114				
	Vanadium (V)-Dissolved (mg/L)	<0.0010				
	Zinc (Zn)-Dissolved (mg/L)	0.0022				

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. OR This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.			
ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN "Cyanide"
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN Cyanide
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	APHA 2120 "Color"
This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	APHA 2120 Color
This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample			

Reference Information

through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

FCOLI-MTF-ENV-VA Water Fecal coliform by MPN APHA METHOD 9221

This analysis is carried out using procedures adapted from APHA Method 9221 "Multiple-Tube Fermentation Technique for Members of the Coliform Group". Serial dilutions of the sample are incubated with the appropriate growth medium, and coliform bacteria is quantified by a statistical estimation of bacteria density (most probable number). The test involves an initial 48 hour incubation (presumptive test), postive results require further testing (up to an additional 72 hours) to confirm and quantify total and fecal coliform.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA Water Dissolved Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA Water Diss. Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or

Reference Information

microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA Water Total Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

N-TOT-COMBUST-VA Water Total Nitrogen by Combustion ASTM D5176-91, EN12260 (EU STD Method)

This analysis is carried out using procedures adapted from ASTM Method D 5176-91 "Standard Test Method for Total Chemically Bound Nitrogen in Water by Pyrolysis and Chemiluminescence detection." Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation. Total Kjedahl Nitrogen is determined by calculation.

NH3-SIE-VA Water Ammonia by SIE APHA 4500 D. - NH3 NITROGEN (AMMONIA)

This analysis is carried out, on sulphuric acid preserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using an ammonia selective electrode.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA Water Dissolved ortho Phosphate by Colour APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA Water Dissolved ortho Phosphate by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA Water Total Phosphate P by Color APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA Water Total Phosphate P by Color APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulphur results for all samples. Sulphide or other volatile forms of sulphur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulphur represents all non-volatile forms of sulphur present in a particular sample.

S-TOT-ICP-VA Water Total Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or

Reference Information

microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulphur results for all samples. Sulphide or other volatile forms of sulphur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulphur represents all non-volatile forms of sulphur present in a particular sample.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-SIE-VA Water Total Kjeldahl Nitrogen by SIE APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate □ A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg □ milligrams per kilogram based on dry weight of sample.
mg/kg wwt □ milligrams per kilogram based on wet weight of sample.
mg/kg lwt □ milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L □ milligrams per litre.
< - Less than.
D.L. □ The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A □ Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Short Holding Time

Rush Processing

1988 Triumph Street, **Vancouver**, BC Canada V5L 1K5 Tel: 604-253-4188 Toll Free: 1-800-665-0243 Fax: 604-253-6700
#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8820 100th Street, **Fort St. John**, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286
www.alsenviro.com

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Rescan Environmental Services, Ltd				
ADDRESS:	6th Floor, 1111 West Hastings Street				
CITY:	Vancouver	PROV:	BC	POSTAL CODE:	V6E 2J3
TEL:	(604) 689-9460	FAX:	(604) 687-4277	CONTACT:	Mariane Nguyen
PROJECT NAME AND NO.:		New Afton (0916-003-07)		SAMPLER:	N.Anderson
QUOTE NO.:		PO NO.:		ALS CONTACT:	A. Springer
REPORT FORMAT:	☑ HARDCOPY ☑ EMAIL - ADDRESS: mnguyen@rescan.com ☐ FAX ☑ EXCEL ☐ PDF ☐ OTHER:				

ANALYSIS REQUESTED:

L866196

	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	General Chemistry	Total Metals	Dissolved Metals	Nutrients	TOC	Cyanide	Fecal Coliform	NOTES (sample specific comments, due dates, etc.)
FOR LAB USE ONLY	Upper Cherry Creek	2010-03-02	10:00	water	x	x	x	x	x	x		
	Lower Cherry Creek	2010-03-02	10:30	water	x	x	x	x	x	x		
	Lake Pump House	2010-03-02	11:30	water	x	x	x	x	x	x	x	
	Waste Dump Pond	2010-03-02	12:30	water	x	x	x	x	x	x		
	Pothook Lake	2010-03-02	13:30	water	x	x	x	x	x	x		
	Seepage Pond	2010-03-02	14:30	water	x	x	x	x	x	x		
	Travel Blanks			water	X	X		X	X	X		

TURN AROUND REQUIRED:	◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)	RELINQUISHED BY:	DATE:	Mar 2/10	RECEIVED BY:	DATE:	10/03/03
		N. Anderson	TIME:	17:29	HD	TIME:	9:04
SEND INVOICE TO:	☑ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)	RELINQUISHED BY:	DATE:		RECEIVED BY:	DATE:	
INVOICE FORMAT:	☑ HARDCOPY ☐ PDF ☐ FAX		TIME:			TIME:	

SPECIAL INSTRUCTIONS:
Always analyze with lowest detection limits possible, including cyanides and all metals.

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature: 3 °C	Cooling Method?
___Yes X No ___N/A	Frozen? ___Yes X No	X Icepacks ___Ice ___None

Certificate of Analysis

RESCAN ENVIRONMENTAL SERVICES
ATTN: DR. COLIN FYFE

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Report Date: 15-APR-10 17:31 (MT)
Version: FINAL

Lab Work Order #: L873084 **Date Received:** 30-MAR-10

Project P.O. #: NOT SUBMITTED
Job Reference: 0916-003-07
Legal Site Desc: NEW AFTON
CofC Numbers:

Other Information:

Comments: Please note: due to a field sampling error(samples preserved without filtering) - sample 4 and 5 were re-analyzed for dissolved metals using a portion of unpreserved water submitted for those samples. This portion was then filtered and preserved by the lab.

Bryan Mark
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L873084-1	L873084-2	L873084-3	L873084-4	L873084-5
Sample ID		L873084-1	L873084-2	L873084-3	L873084-4	L873084-5
Description						
Sampled Date		25-MAR-10	25-MAR-10	23-MAR-10	24-MAR-10	24-MAR-10
Sampled Time		11:00	16:00	17:00	13:45	13:05
Client ID		RES-01A (GROUNDWATER)	RES-05 (GROUNDWATER)	RES-06 (GROUNDWATER)	RUSSEL SLOUGH (SURFACE WATER)	ALKALI CREEK (SURFACE WATER)
WATER						
Physical Tests	Colour, True (CU)	10.8	11.6	<5.0	53.7	17.9
	Conductivity (uS/cm)	3850	1170	2380	2040	993
	Hardness (as CaCO3) (mg/L)	173	19.9	1450	871	422
	pH (pH)	11.91	8.10	7.64	8.25	8.12
	Total Suspended Solids (mg/L)	18.0	13.3	<5.0	7.0	10.7
	Total Dissolved Solids (mg/L)	924	773	2230	1590	695
	Turbidity (NTU)	25.1	18.2	18.3	3.32	2.95
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<1.0	5.9	23.6	<1.0	5.0
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	<1.0	498	403	515	376
	Alkalinity, Carbonate (as CaCO3) (mg/L)	126	<1.0	<2.0	<1.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	793	<1.0	<2.0	<1.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	919	498	403	515	376
	Ammonia-N (mg/L)	0.549	0.292	0.136	0.021	0.032
	Bromide (Br) (mg/L)	<1.0	<0.50	<1.0	<1.0	<0.50
	Chloride (Cl) (mg/L)	25	82.4	12	28	15.2
	Fluoride (F) (mg/L)	<0.40	1.59	<0.40	<0.40	<0.20
	Nitrate (as N) (mg/L)	<0.10	<0.050	<0.10	<0.10	<0.050
	Nitrite (as N) (mg/L)	<0.020	<0.010	<0.020	<0.020	<0.010
	Total Kjeldahl Nitrogen (mg/L)	2.72	1.11	0.178	1.35	0.915
	Total Nitrogen (mg/L)	2.51	1.15	0.150	1.23	0.700
	Ortho Phosphate as P (mg/L)	<0.0010	0.223	<0.0010	0.0132	0.0557
	Total Phosphate as P (mg/L)	0.0560	0.635	0.0074	0.0960	0.115
	Sulfate (SO4) (mg/L)	20	27.7	1290	822	207
Cyanides	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	24.9	18.3	1.03	18.3	11.7
Total Metals	Aluminum (Al)-Total (mg/L)	4.57	0.459	0.0282	0.0250	0.111
	Antimony (Sb)-Total (mg/L)	0.00226	<0.00050	<0.00050	<0.00020	0.00011
	Arsenic (As)-Total (mg/L)	0.00121	0.00461	0.0555	0.0138	0.00176
	Barium (Ba)-Total (mg/L)	0.171	0.0821	0.0107	0.0402	0.0586
	Beryllium (Be)-Total (mg/L)	<0.0025	<0.0025	<0.0025	<0.0010	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.0025	<0.0025	<0.0025	<0.0010	<0.00050
	Boron (B)-Total (mg/L)	<0.050	1.17	0.090	0.239	0.064
	Cadmium (Cd)-Total (mg/L)	<0.0015	0.000074	<0.000050	<0.000020	<0.000010
	Calcium (Ca)-Total (mg/L)	73.0	5.26	187	90.9	80.5
	Chromium (Cr)-Total (mg/L)	0.0119	<0.0025	<0.0025	<0.0010	<0.00050
	Cobalt (Co)-Total (mg/L)	0.00191	<0.00050	<0.00050	<0.00020	0.00018

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L873084-6	L873084-7	L873084-8	L873084-9	L873084-10
Description	FIELD BLANK (AT RUSSEL SLOUGH)	PA1-P1 (GROUNDWATER)	PA2-P1 (GROUNDWATER)	PA3-P1 (GROUNDWATER)	M5203 (GROUNDWATER)
Sampled Date	24-MAR-10	25-MAR-10	23-MAR-10	24-MAR-10	23-MAR-10
Sampled Time	13:45	13:30	13:00	13:00	14:30
Client ID					
Grouping / **Analyte**					
WATER					
Physical Tests Colour, True (CU)	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (uS/cm)	<2.0	2380	6480	18200	3560
Hardness (as CaCO3) (mg/L)	<0.50	90.8	1100	2830	264
pH (pH)	6.04	8.11	7.86	7.75	8.25
Total Suspended Solids (mg/L)	<3.0	465	7.0	167	654
Total Dissolved Solids (mg/L)	<10	1650	5890	20100	2680
Turbidity (NTU)	<0.10	520	3.46	39.4	255
Anions and Nutrients Acidity (as CaCO3) (mg/L)	1.7	2.6	3.1	10.0	1.9
Alkalinity, Bicarbonate (as CaCO3) (mg/L)	<2.0	172	94.3	202	417
Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity, Total (as CaCO3) (mg/L)	<2.0	172	94.3	202	417
Ammonia-N (mg/L)	<0.020	0.221	0.681	4.42	<0.020
Bromide (Br) (mg/L)	<0.050	<1.0	<1.0	<5.0	<1.0
Chloride (Cl) (mg/L)	<0.50	145	30	339	36
Fluoride (F) (mg/L)	<0.020	1.07	<0.40	0.306	<0.40
Nitrate (as N) (mg/L)	<0.0050	<0.10	<0.10	<0.50	10.2
Nitrite (as N) (mg/L)	<0.0010	<0.020	<0.020	<0.10	<0.020
Total Kjeldahl Nitrogen (mg/L)	<0.050	0.46	1.03	5.98	0.272
Total Nitrogen (mg/L)	0.170 RRV	0.301	0.920	5.28	14.6
Ortho Phosphate as P (mg/L)	<0.0010	<0.0010	0.0019	0.0023	0.0221
Total Phosphate as P (mg/L)	<0.0020	0.470	0.0291	0.0584	0.551
Sulfate (SO4) (mg/L)	<0.50	903	4120	13300	1570
Cyanides Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon Total Organic Carbon (mg/L)	0.88 RRV	2.85	4.86	10.6	3.97
Total Metals Aluminum (Al)-Total (mg/L)	<0.0010	3.53	0.062	2.54	31.1
Antimony (Sb)-Total (mg/L)	<0.00010	<0.0010	<0.0020	<0.0050	<0.0010
Arsenic (As)-Total (mg/L)	<0.00010	0.0055	0.0039	<0.0050	0.0118
Barium (Ba)-Total (mg/L)	<0.000050	0.0433	0.0326	0.0131	0.241
Beryllium (Be)-Total (mg/L)	<0.00050	<0.0050	<0.010	<0.025	<0.0050
Bismuth (Bi)-Total (mg/L)	<0.00050	<0.0050	<0.010	<0.025	<0.0050
Boron (B)-Total (mg/L)	<0.010	1.40	0.44	0.54	0.85
Cadmium (Cd)-Total (mg/L)	<0.000010	<0.00010	<0.00020	<0.00050	0.00030
Calcium (Ca)-Total (mg/L)	<0.020	27.9	303	423	48.8
Chromium (Cr)-Total (mg/L)	<0.00050	<0.0050	<0.010	<0.025	0.0494
Cobalt (Co)-Total (mg/L)	<0.00010	0.0012	<0.0020	<0.0050	0.0349

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L873084-11	L873084-12	L873084-13	L873084-14	L873084-15
Sample ID		L873084-11	L873084-12	L873084-13	L873084-14	L873084-15
Description						
Sampled Date		24-MAR-10	26-MAR-10	24-MAR-10	25-MAR-10	25-MAR-10
Sampled Time		12:00	12:30	15:30	12:00	11:00
Client ID		DUPLICATE-1	M5302 (GROUNDWATER)	M5303 (GROUNDWATER)	TRAVEL BLANK	FIELD BLANK
WATER						
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0	<5.0	<5.0
	Conductivity (uS/cm)	18300	1250	1850	<2.0	<2.0
	Hardness (as CaCO3) (mg/L)	4340	134	425	<0.50	<0.50
	pH (pH)	7.76	8.23	8.09	5.82	5.77
	Total Suspended Solids (mg/L)	154	141	63.3	<3.0	<3.0
	Total Dissolved Solids (mg/L)	19300	849	1450	<10	<10
	Turbidity (NTU)	52.7	70.2	53.9	<0.10	<0.10
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	9.8	1.3	2.8	1.8	1.7
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	200	91.9	127	<2.0	<2.0
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	200	91.9	127	<2.0	<2.0
	Ammonia-N (mg/L)	4.31	0.029	<0.020	<0.020	<0.020
	Bromide (Br) (mg/L)	<5.0	<0.50	<0.50	<0.050	<0.050
	Chloride (Cl) (mg/L)	339	8.3	13.4	<0.50	<0.50
	Fluoride (F) (mg/L)	0.314	0.23	0.21	<0.020	<0.020
	Nitrate (as N) (mg/L)	<0.50	<0.050	0.153	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.10	<0.010	<0.010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	6.11	0.066	0.122	<0.050	<0.050
	Total Nitrogen (mg/L)	6.01	0.082	0.188	<0.050	<0.050
	Ortho Phosphate as P (mg/L)	0.0020	0.0089	0.0256	<0.0010	<0.0010
	Total Phosphate as P (mg/L)	0.0561	0.130	0.107	<0.0020	<0.0020
	Sulfate (SO4) (mg/L)	13500	528	913	<0.50	<0.50
Cyanides	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	10.0	1.23	2.22	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	2.50	3.41	4.78	<0.0010	<0.0010
	Antimony (Sb)-Total (mg/L)	<0.0050	<0.00050	<0.00050	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	<0.0050	0.0375	0.00321	<0.00010	<0.00010
	Barium (Ba)-Total (mg/L)	0.0129	0.0335	0.0920	<0.000050	<0.000050
	Beryllium (Be)-Total (mg/L)	<0.025	<0.0025	<0.0025	<0.00050	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.025	<0.0025	<0.0025	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	0.58	2.30	0.466	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.00050	0.000099	0.000160	<0.000010	<0.000010
	Calcium (Ca)-Total (mg/L)	434	31.9	65.9	<0.020	<0.020
	Chromium (Cr)-Total (mg/L)	<0.025	<0.0025	0.0076	<0.00050	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.0050	0.00153	0.00351	<0.00010	<0.00010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L873084-16	L873084-17			
	Description					
	Sampled Date	24-MAR-10	24-MAR-10			
	Sampled Time	13:45	13:05			
	Client ID	RUSSEL SLOUGH (SURFACE WATER) LAB F/P	ALKALI CREEK (SURFACE WATER) LAB F/P			
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)					
	Conductivity (uS/cm)					
	Hardness (as CaCO3) (mg/L)	895	431			
	pH (pH)					
	Total Suspended Solids (mg/L)					
	Total Dissolved Solids (mg/L)					
	Turbidity (NTU)					
Anions and Nutrients	Acidity (as CaCO3) (mg/L)					
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)					
	Alkalinity, Carbonate (as CaCO3) (mg/L)					
	Alkalinity, Hydroxide (as CaCO3) (mg/L)					
	Alkalinity, Total (as CaCO3) (mg/L)					
	Ammonia-N (mg/L)					
	Bromide (Br) (mg/L)					
	Chloride (Cl) (mg/L)					
	Fluoride (F) (mg/L)					
	Nitrate (as N) (mg/L)					
	Nitrite (as N) (mg/L)					
	Total Kjeldahl Nitrogen (mg/L)					
	Total Nitrogen (mg/L)					
	Ortho Phosphate as P (mg/L)					
	Total Phosphate as P (mg/L)					
	Sulfate (SO4) (mg/L)					
Cyanides	Cyanide, Total (mg/L)					
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)					
Total Metals	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L873084-1 Description: Sampled Date: 25-MAR-10 Sampled Time: 11:00 Client ID: RES-O1A (GROUNDWATER)	L873084-2 25-MAR-10 16:00 RES-05 (GROUNDWATER)	L873084-3 23-MAR-10 17:00 RES-06 (GROUNDWATER)	L873084-4 24-MAR-10 13:45 RUSSEL SLOUGH (SURFACE WATER)	L873084-5 24-MAR-10 13:05 ALKALI CREEK (SURFACE WATER)
WATER						
Total Metals	Copper (Cu)-Total (mg/L)	0.0183	0.00299	0.00093	<0.0025	0.00220
	Iron (Fe)-Total (mg/L)	1.88	0.440	1.56	0.045	0.215
	Lead (Pb)-Total (mg/L)	0.00203	0.00059	<0.00025	<0.00010	0.000064
	Lithium (Li)-Total (mg/L)	<0.025	<0.025	<0.025	0.010	0.0093
	Magnesium (Mg)-Total (mg/L)	0.757	1.01	247	161	59.2
	Manganese (Mn)-Total (mg/L)	0.0185	0.0294	0.0295	0.0645	0.13&
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	0.325	0.118	0.00392	0.00555	0.00307
	Nickel (Ni)-Total (mg/L)	0.0273	<0.0025	<0.0025	<0.0010	0.00114
	Phosphorus (P)-Total (mg/L)	<0.30	0.57	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	3.99	2.39	6.07	25.5	10.7
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.00050	0.00027	0.00082
	Silicon (Si)-Total (mg/L)	3.49	7.05	7.26	10.5	7.37
	Silver (Ag)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000020	<0.000010
	Sodium (Na)-Total (mg/L)	325	284	46.6	148	55.7
	Strontium (Sr)-Total (mg/L)	3.03	0.188	4.27	1.81	0.675
	Sulfur (S)-Total (mg/L)	8.01	8.78	411	252	67.8
	Thallium (Tl)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00020	<0.00010
	Tin (Sn)-Total (mg/L)	0.00114	0.00993	<0.00050	<0.00020	<0.00010
	Titanium (Ti)-Total (mg/L)	0.031	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	<0.000050	0.000105	0.000166	0.00168	0.00201
	Vanadium (V)-Total (mg/L)	0.0062	<0.0050	<0.0050	<0.0020	0.0042
	Zinc (Zn)-Total (mg/L)	0.0244	0.0097	<0.0050	<0.0020	0.0017
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	3.98	0.0583	<0.0050	0.0064	0.0689
	Antimony (Sb)-Dissolved (mg/L)	0.00197	<0.00050	<0.00050	<0.00020	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00087	0.00327	0.0575	0.0151	0.00199
	Barium (Ba)-Dissolved (mg/L)	0.177	0.0776	0.00960	0.0401	0.0580
	Beryllium (Be)-Dissolved (mg/L)	<0.0025	<0.0025	<0.0025	<0.0010	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)	<0.0025	<0.0025	<0.0025	<0.0010	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.050	1.24	0.089	0.239	0.060
	Cadmium (Cd)-Dissolved (mg/L)	<0.0010	<0.000050	<0.000050	<0.000020	<0.000010
	Calcium (Ca)-Dissolved (mg/L)	69.4	6.20	183	88.7	77.3
	Chromium (Cr)-Dissolved (mg/L)	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010
	Cobalt (Co)-Dissolved (mg/L)	0.00148	<0.00050	<0.00050	<0.00020	0.00016
	Copper (Cu)-Dissolved (mg/L)	0.0126	<0.00050	<0.00050	<0.0015	0.00201
	Iron (Fe)-Dissolved (mg/L)	1.59	0.064	1.56	<0.030	0.182
	Lead (Pb)-Dissolved (mg/L)	0.00107	<0.00025	<0.00025	<0.00010	0.000053

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L873084-6	L873084-7	L873084-8	L873084-9	L873084-10
Description	FIELD BLANK (AT RUSSEL SLOUGH)	PA1-P1 (GROUNDWATER)	PA2-P1 (GROUNDWATER)	PA3-P1 (GROUNDWATER)	M5203 (GROUNDWATER)
Sampled Date	24-MAR-10	25-MAR-10	23-MAR-10	24-MAR-10	23-MAR-10
Sampled Time	13:45	13:30	13:00	13:00	14:30
Grouping / Analyte					
WATER					
Total Metals					
Copper (Cu)-Total (mg/L)	<0.00010	0.0030	<0.0020	<0.040	0.160
Iron (Fe)-Total (mg/L)	<0.030	2.65	0.245	2.37	41.9
Lead (Pb)-Total (mg/L)	<0.000050	<0.00050	<0.0010	<0.0025	0.0263
Lithium (Li)-Total (mg/L)	<0.0050	<0.050	<0.10	<0.25	<0.050
Magnesium (Mg)-Total (mg/L)	<0.0050	5.27	92.9	742	66.9
Manganese (Mn)-Total (mg/L)	<0.000050	0.0541	0.436	0.894	1.30
Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	0.000034
Molybdenum (Mo)-Total (mg/L)	<0.000050	0.0459	0.0197	0.0146	0.00897
Nickel (Ni)-Total (mg/L)	<0.00050	<0.0050	<0.010	<0.025	0.0585
Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.60	<1.5	0.93
Potassium (K)-Total (mg/L)	<0.050	3.01	44.9	18.3	17.5
Selenium (Se)-Total (mg/L)	<0.00010	<0.0010	<0.0020	<0.0050	0.0373
Silicon (Si)-Total (mg/L)	<0.050	11.6	5.49	11.0	56.2
Silver (Ag)-Total (mg/L)	<0.000010	<0.00010	<0.00020	<0.00050	0.00023
Sodium (Na)-Total (mg/L)	<2.0	530	1370	4420	804
Strontium (Sr)-Total (mg/L)	<0.00010	1.17	11.1	6.84	1.17
Sulfur (S)-Total (mg/L)	<0.50	285	1330	4360	481
Thallium (Tl)-Total (mg/L)	<0.00010	<0.0010	<0.0020	<0.0050	<0.0010
Tin (Sn)-Total (mg/L)	<0.00010	<0.0010	<0.0020	<0.0050	0.0017
Titanium (Ti)-Total (mg/L)	<0.010	0.105	<0.020	<0.050	1.90
Uranium (U)-Total (mg/L)	<0.000010	0.00032	0.00246	0.00095	0.00506
Vanadium (V)-Total (mg/L)	<0.0010	0.011	<0.020	<0.050	0.111
Zinc (Zn)-Total (mg/L)	<0.0010	<0.010	<0.020	<0.050	0.086
Dissolved Metals					
Aluminum (Al)-Dissolved (mg/L)		0.049	<0.020	<0.050	0.014
Antimony (Sb)-Dissolved (mg/L)		<0.0010	<0.0020	<0.0050	<0.0010
Arsenic (As)-Dissolved (mg/L)		0.0051	0.0033	<0.0050	<0.0010
Barium (Ba)-Dissolved (mg/L)		0.0383	0.0318	0.0036	0.0216
Beryllium (Be)-Dissolved (mg/L)		<0.0050	<0.010	<0.025	<0.0050
Bismuth (Bi)-Dissolved (mg/L)		<0.0050	<0.010	<0.025	<0.0050
Boron (B)-Dissolved (mg/L)		1.41	0.43	<0.50	0.84
Cadmium (Cd)-Dissolved (mg/L)		0.00011	<0.00020	<0.00050	<0.00010
Calcium (Ca)-Dissolved (mg/L)		29.0	292	287	27.3
Chromium (Cr)-Dissolved (mg/L)		<0.0050	<0.010	<0.025	<0.0050
Cobalt (Co)-Dissolved (mg/L)		<0.0010	<0.0020	<0.0050	<0.0010
Copper (Cu)-Dissolved (mg/L)		<0.0010	<0.0020	<0.0050	0.0015
Iron (Fe)-Dissolved (mg/L)		0.054	<0.060	1.67	<0.030
Lead (Pb)-Dissolved (mg/L)		<0.00050	<0.0010	<0.0025	<0.00050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L873084-11	L873084-12	L873084-13	L873084-14	L873084-15
Description					
Sampled Date	24-MAR-10	26-MAR-10	24-MAR-10	25-MAR-10	25-MAR-10
Sampled Time	12:00	12:30	15:30	12:00	11:00
Client ID	DUPLICATE-1	M5302 (GROUNDWATER)	M5303 (GROUNDWATER)	TRAVEL BLANK	FIELD BLANK
Grouping / **Analyte**					
WATER					
Total Metals					
Copper (Cu)-Total (mg/L)	<0.040	0.00936	0.0277	<0.00010	<0.00010
Iron (Fe)-Total (mg/L)	2.47	2.82	5.87	<0.030	<0.030
Lead (Pb)-Total (mg/L)	<0.0025	0.0304	0.0614	<0.000050	<0.000050
Lithium (Li)-Total (mg/L)	<0.25	0.057	<0.025	<0.0050	<0.0050
Magnesium (Mg)-Total (mg/L)	798	13.2	75.1	<0.0050	<0.0050
Manganese (Mn)-Total (mg/L)	0.920	0.131	0.182	<0.000050	<0.000050
Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	0.000055	<0.000010	<0.000010
Molybdenum (Mo)-Total (mg/L)	0.0156	0.0308	0.0313	<0.000050	<0.000050
Nickel (Ni)-Total (mg/L)	<0.025	0.0030	0.0071	<0.00050	<0.00050
Phosphorus (P)-Total (mg/L)	<3.0	<0.30	<0.30	<0.30	<0.30
Potassium (K)-Total (mg/L)	18.7	1.82	7.52	<0.050	<0.050
Selenium (Se)-Total (mg/L)	<0.0050	<0.00050	0.00407	<0.00010	<0.00010
Silicon (Si)-Total (mg/L)	11.2	11.2	13.4	<0.050	<0.050
Silver (Ag)-Total (mg/L)	<0.00050	<0.000050	<0.000050	<0.000010	<0.000010
Sodium (Na)-Total (mg/L)	4440	224	255	<2.0	<2.0
Strontium (Sr)-Total (mg/L)	7.17	1.09	2.01	<0.00010	<0.00010
Sulfur (S)-Total (mg/L)	4460	166	285	<0.50	<0.50
Thallium (Tl)-Total (mg/L)	<0.0050	<0.00050	<0.00050	<0.00010	<0.00010
Tin (Sn)-Total (mg/L)	<0.0050	<0.00050	<0.00050	<0.00010	<0.00010
Titanium (Ti)-Total (mg/L)	<0.10	0.087	0.342	<0.010	<0.010
Uranium (U)-Total (mg/L)	0.00106	0.000643	0.00138	<0.000010	<0.000010
Vanadium (V)-Total (mg/L)	<0.050	0.0075	0.0210	<0.0010	<0.0010
Zinc (Zn)-Total (mg/L)	<0.050	0.0097	0.0135	<0.0010	<0.0010
Dissolved Metals					
Aluminum (Al)-Dissolved (mg/L)	<0.050	0.0187	0.0084		
Antimony (Sb)-Dissolved (mg/L)	<0.0050		<0.00050		
Arsenic (As)-Dissolved (mg/L)	<0.0050		0.00160		
Barium (Ba)-Dissolved (mg/L)	0.0052		0.0172		
Beryllium (Be)-Dissolved (mg/L)	<0.025		<0.0025		
Bismuth (Bi)-Dissolved (mg/L)	<0.025		<0.0025		
Boron (B)-Dissolved (mg/L)	0.58		0.436		
Cadmium (Cd)-Dissolved (mg/L)	<0.00050		0.000085		
Calcium (Ca)-Dissolved (mg/L)	439		59.6		
Chromium (Cr)-Dissolved (mg/L)	<0.025		<0.0025		
Cobalt (Co)-Dissolved (mg/L)	<0.0050		<0.00050		
Copper (Cu)-Dissolved (mg/L)	<0.040		0.00124		
Iron (Fe)-Dissolved (mg/L)	1.64	<0.030	<0.030		
Lead (Pb)-Dissolved (mg/L)	<0.0025		0.00045		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L873084-16	L873084-17			
	Description					
	Sampled Date	24-MAR-10	24-MAR-10			
	Sampled Time	13:45	13:05			
	Client ID	RUSSEL SLOUGH (SURFACE WATER) LAB F/P	ALKALI CREEK (SURFACE WATER) LAB F/P			
Grouping	Analyte					
WATER						
Total Metals	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Mercury (Hg)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
	Silver (Ag)-Total (mg/L)					
	Sodium (Na)-Total (mg/L)					
	Strontium (Sr)-Total (mg/L)					
	Sulfur (S)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	<0.0050	<0.0020			
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00020			
	Arsenic (As)-Dissolved (mg/L)	0.0141	0.00164			
	Barium (Ba)-Dissolved (mg/L)	0.0385	0.0580			
	Beryllium (Be)-Dissolved (mg/L)	<0.0025	<0.0010			
	Bismuth (Bi)-Dissolved (mg/L)	<0.0025	<0.0010			
	Boron (B)-Dissolved (mg/L)	0.244	0.062			
	Cadmium (Cd)-Dissolved (mg/L)	<0.000050	<0.000020			
	Calcium (Ca)-Dissolved (mg/L)	92.1	77.9			
	Chromium (Cr)-Dissolved (mg/L)	<0.0025	<0.0010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00050	<0.00020			
	Copper (Cu)-Dissolved (mg/L)	0.00086	0.00150			
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030			
	Lead (Pb)-Dissolved (mg/L)	<0.00025	<0.00010			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L873084-1	L873084-2	L873084-3	L873084-4	L873084-5
Sample ID		L873084-1	L873084-2	L873084-3	L873084-4	L873084-5
Description						
Sampled Date		25-MAR-10	25-MAR-10	23-MAR-10	24-MAR-10	24-MAR-10
Sampled Time		11:00	16:00	17:00	13:45	13:05
Client ID		RES-O1A (GROUNDWATER)	RES-05 (GROUNDWATER)	RES-06 (GROUNDWATER)	RUSSEL SLOUGH (SURFACE WATER)	ALKALI CREEK (SURFACE WATER)
WATER						
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	<0.025	<0.025	<0.025	0.011	0.0085
	Magnesium (Mg)-Dissolved (mg/L)	<0.025	1.08	240	158	55.7
	Manganese (Mn)-Dissolved (mg/L)	0.00029	0.0390	0.0289	0.0644	0.160
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.323	0.0709	0.00392	0.00478	0.00247
	Nickel (Ni)-Dissolved (mg/L)	0.0246	<0.0025	<0.0025	<0.0010	0.00105
	Phosphorus (P)-Dissolved (mg/L)	<0.30	0.67	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	3.91	3.60	6.06	25.1	10.2
	Selenium (Se)-Dissolved (mg/L)	<0.0010	0.0025	<0.00050	<0.00020	0.00086
	Silicon (Si)-Dissolved (mg/L)	2.46	6.44	7.44	11.0	7.48
	Silver (Ag)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000020	<0.000010
	Sodium (Na)-Dissolved (mg/L)	347	301	46.5	154	56.7
	Strontium (Sr)-Dissolved (mg/L)	3.00	0.191	4.18	1.79	0.667
	Sulfur (S)-Dissolved (mg/L)	7.78	142	416	261	69.0
	Thallium (Tl)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00020	<0.00010
	Tin (Sn)-Dissolved (mg/L)	0.00066	0.00798	<0.00050	<0.00020	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	<0.000050	0.000086	0.000156	0.00122	0.00161
	Vanadium (V)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0020	0.0039
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0020	0.0016

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L873084-6	L873084-7	L873084-8	L873084-9	L873084-10
Description					
Sampled Date	24-MAR-10	25-MAR-10	23-MAR-10	24-MAR-10	23-MAR-10
Sampled Time	13:45	13:30	13:00	13:00	14:30
Client ID	FIELD BLANK (AT RUSSEL SLOUGH)	PA1-P1 (GROUNDWATER)	PA2-P1 (GROUNDWATER)	PA3-P1 (GROUNDWATER)	M5203 (GROUNDWATER)
Grouping **Analyte**					
WATER					
Dissolved Metals Lithium (Li)-Dissolved (mg/L)		<0.050	<0.10	<0.25	<0.050
Magnesium (Mg)-Dissolved (mg/L)		4.45	90.5	513	47.6
Manganese (Mn)-Dissolved (mg/L)		0.0432	0.430	0.598	<0.00050
Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved (mg/L)		0.0492	0.0191	0.0106	0.00825
Nickel (Ni)-Dissolved (mg/L)		<0.0050	<0.010	<0.025	<0.0050
Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.60	<1.5	<0.30
Potassium (K)-Dissolved (mg/L)		4.52	43.9	12.4	15.2
Selenium (Se)-Dissolved (mg/L)		<0.0010	<0.0020	<0.0050	0.0389
Silicon (Si)-Dissolved (mg/L)		3.73	5.33	5.56	4.24
Silver (Ag)-Dissolved (mg/L)		<0.00010	<0.00020	<0.00050	<0.00010
Sodium (Na)-Dissolved (mg/L)		535	1370	4600	828
Strontium (Sr)-Dissolved (mg/L)		1.20	10.9	4.69	1.07
Sulfur (S)-Dissolved (mg/L)		293	1350	4490	497
Thallium (Tl)-Dissolved (mg/L)		<0.0010	<0.0020	<0.0050	<0.0010
Tin (Sn)-Dissolved (mg/L)		0.0044	<0.0020	<0.0050	<0.0010
Titanium (Ti)-Dissolved (mg/L)		<0.010	<0.020	<0.050	<0.010
Uranium (U)-Dissolved (mg/L)		0.00027	0.00223	<0.00050	0.00451
Vanadium (V)-Dissolved (mg/L)		<0.010	<0.020	<0.050	<0.010
Zinc (Zn)-Dissolved (mg/L)		<0.010	<0.020	<0.050	<0.010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L873084-11	L873084-12	L873084-13	L873084-14	L873084-15
Description					
Sampled Date	24-MAR-10	26-MAR-10	24-MAR-10	25-MAR-10	25-MAR-10
Sampled Time	12:00	12:30	15:30	12:00	11:00
Client ID	DUPLICATE-1	M5302 (GROUNDWATER)	M5303 (GROUNDWATER)	TRAVEL BLANK	FIELD BLANK
Grouping **Analyte**					
WATER					
Dissolved Metals Lithium (Li)-Dissolved (mg/L)	<0.25		<0.025		
Magnesium (Mg)-Dissolved (mg/L)	788		67.2		
Manganese (Mn)-Dissolved (mg/L)	0.888		0.0243		
Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
Molybdenum (Mo)-Dissolved (mg/L)	0.0174		0.0306		
Nickel (Ni)-Dissolved (mg/L)	<0.025		<0.0025		
Phosphorus (P)-Dissolved (mg/L)	<3.0	<0.30	<0.30		
Potassium (K)-Dissolved (mg/L)	19.1		6.53		
Selenium (Se)-Dissolved (mg/L)	<0.0050		0.00318		
Silicon (Si)-Dissolved (mg/L)	5.62	3.80	4.97		
Silver (Ag)-Dissolved (mg/L)	<0.00050		<0.000050		
Sodium (Na)-Dissolved (mg/L)	4500	236	257		
Strontium (Sr)-Dissolved (mg/L)	7.25		1.85		
Sulfur (S)-Dissolved (mg/L)	4560	176	296		
Thallium (Tl)-Dissolved (mg/L)	<0.0050		<0.00050		
Tin (Sn)-Dissolved (mg/L)	<0.0050		<0.00050		
Titanium (Ti)-Dissolved (mg/L)	<0.10	<0.010	<0.010		
Uranium (U)-Dissolved (mg/L)	<0.00050		0.00122		
Vanadium (V)-Dissolved (mg/L)	<0.050		<0.0050		
Zinc (Zn)-Dissolved (mg/L)	<0.050		<0.0050		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L873084-16	L873084-17			
	Description					
	Sampled Date	24-MAR-10	24-MAR-10			
	Sampled Time	13:45	13:05			
	Client ID	RUSSEL SLOUGH (SURFACE WATER) LAB F/P	ALKALI CREEK (SURFACE WATER) LAB F/P			
Grouping	Analyte					
WATER						
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	<0.025	<0.010			
	Magnesium (Mg)-Dissolved (mg/L)	161	57.4			
	Manganese (Mn)-Dissolved (mg/L)	0.00211	0.00244			
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010			
	Molybdenum (Mo)-Dissolved (mg/L)	0.00537	0.00306			
	Nickel (Ni)-Dissolved (mg/L)	<0.0025	<0.0010			
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30			
	Potassium (K)-Dissolved (mg/L)	25.3	10.7			
	Selenium (Se)-Dissolved (mg/L)	<0.00050	0.00073			
	Silicon (Si)-Dissolved (mg/L)	10.7	7.13			
	Silver (Ag)-Dissolved (mg/L)	<0.000050	<0.000020			
	Sodium (Na)-Dissolved (mg/L)	154	56.4			
	Strontium (Sr)-Dissolved (mg/L)	1.81	0.675			
	Sulfur (S)-Dissolved (mg/L)					
	Thallium (Tl)-Dissolved (mg/L)	<0.00050	<0.00020			
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00020			
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010			
	Uranium (U)-Dissolved (mg/L)	0.00171	0.00201			
	Vanadium (V)-Dissolved (mg/L)	<0.0050	0.0034			
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0020			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
SPL	Sample was Preserved at the laboratory - sample # 15 - Total Metals

Qualifiers for Individual Parameters Listed:

Qualifier	Description
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. OR This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.			
ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN "Cyanide"
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN Cyanide

Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.

COLOUR-TRUE-VA Water Colour (True) by Spectrometer APHA 2120 "Color"

This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

COLOUR-TRUE-VA Water Colour (True) by Spectrometer APHA 2120 Color

This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

F-SIE-VA Water Fluoride by SIE APHA 4500-F "Fluoride"

This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al3+ is present in the sample at a concentration greater than 2.5 mg/L.

F-SIE-VA Water Fluoride by SIE APHA 4500-F Fluoride

This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al3+ is present in the sample at a concentration greater than 2.5 mg/L.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA Water Dissolved Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA Water Diss. Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United

Reference Information

States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA Water Total Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

N-TOT-COMBUST-VA Water Total Nitrogen by Combustion ASTM D5176-91, EN12260 (EU STD Method)

This analysis is carried out using procedures adapted from ASTM Method D 5176-91 "Standard Test Method for Total Chemically Bound Nitrogen in Water by Pyrolysis and Chemiluminescence detection." Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation. Total Kjedahl Nitrogen is determined by calculation.

NH4-LOW-ED Water Ammonia-N Low Level APHA 4500 NH3F-Colorimetry

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA Water Dissolved ortho Phosphate by Colour APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA Water Dissolved ortho Phosphate by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA Water Total Phosphate P by Color APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA Water Total Phosphate P by Color APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulphur results for all samples. Sulphide or other volatile forms of sulphur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulphur represents all non-volatile forms of sulphur present in a particular sample.

S-TOT-ICP-VA Water Total Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

Reference Information

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulphur results for all samples. Sulphide or other volatile forms of sulphur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulphur represents all non-volatile forms of sulphur present in a particular sample.

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

* ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS LABORATORY GROUP - EDMONTON, ALBERTA, CANADA
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate □ A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg □ milligrams per kilogram based on dry weight of sample.
mg/kg wwt □ milligrams per kilogram based on wet weight of sample.
mg/kg lwt □ milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L □ milligrams per litre.
< - Less than.
D.L. □ The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A □ Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Short Holding Time

Rush Processing

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

Chain of Custody / Analytical
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC #: _____

Report to:		Report Format / Distribution		Service Requested:	
Company:	Rescan Environmental Services Ltd.	☑ Standard ☐ Other		☑	Regular Service (Default)
Contact:	6th Floor, 1111 West Hastings Street	☑ PDF ☑ Excel ☐ Fax		☐	Rush Service (2-3 Days)
Address:	Vancouver, BC V6E 2J3	Email 1: cfyfe@rescan.com		☐	Priority Service (1 Day or ASAP)
		Email 2:		☐	Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604-689-9460 Fax: 604-687-4277			Analysis Request	
Invoice To:	☑ Same as Report	Indicate Bottles: Filtered / Preserved (F/P) →			
Company:		Client / Project Information:			
Contact:		Job #: 0916-003-07			
Address:		PO/AFE:			
Sample		Legal Site Description: NEW AFTON			
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)	L873084	ALS Contact: Amber Springer	Sampler (initials): RH		

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	General Chemistry	Cyanide	Total Metals	Dissolved Metals	Nutrients	TOC					Hazardous?	Highly Contaminated?	Number of Containers
	RES-O1A (groundwater)	25-Mar-10	11:00	Water	X	X	X	X	X	X							
	RES-05 (groundwater)	25-Mar-10	16:00	Water	X	X	X	X	X	X							
	RES-06 (groundwater)	23-Mar-10	17:00	Water	X	X	X	X	X	X							
	Russell Slough (surface water)	24-Mar-10	13:45	Water	X	X	X	X	X	X							
	Alkali Creek (surface water)	24-Mar-10	13:05	Water	X	X	X	X	X	X							
	Field Blanks (at Russell Slough)	24-Mar-10	13:45	Water	X	X	X		X	X							

Guidelines / Regulations	Special Instructions / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

Relinquished By:	N. Anderson	Date & Time:	29-Mar-10 10:40	Received By:	MB	Date & Time:	Mar 30 9:36	Sample Condition (lab use only)	
Relinquished By:		Date & Time:		Received By:		Date & Time:		Temperature 8 °C	Samples Received in Good Condition? Y / N (if no provided details)

Short Holding Time

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

Chain of Custody / Analytical
Canada Toll Free: 1 800
www.alsglobal.co

Rush Processing

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Report to:		Report Format / Distribution		Service Requested:	
Company:	Rescan Environmental Services Ltd.	☑ Standard ☐ Other		☑	Regular Service (Default)
Contact:	6th Floor, 1111 West Hastings Street	☑ PDF ☑ Excel ☐ Fax		☐	Rush Service (2-3 Days)
Address:	Vancouver, BC V6E 2J3	Email 1: cfyfe@rescan.com		☐	Priority Service (1 Day or ASAP)
		Email 2:		☐	Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604-689-9460 Fax: 604-687-4277			Analysis Request	
Invoice To:	☑ Same as Report	Indicate Bottles: Filtered / Preserved (F/P) →			
Company:		Client / Project Information:			
Contact:		Job #: 0916-003-07			
Address:		PO/AFE:			
Sample		Legal Site Description: NEW AFTON			
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)		ALS Contact: Amber Springer	Sampler (Initials): RH		

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	General Chemistry	Cyanide	Total Metals	Dissolved Metals	Nutrients	TOC					Hazardous?	Highly Contaminated?	Number of Containers
	PA1-P1 (groundwater)	25-Mar-10	13:30	Water	X	X	X	X	X	X							
	PA2-P1 (groundwater)	23-Mar-10	13:00	Water	X	X	X	X	X	X							
	PA3-P1 (groundwater)	24-Mar-10	13:00	Water	X	X	X	X	X	X							
	M5203 (groundwater)	23-Mar-10	14:30	Water	X	X	X	X	X	X							
	Duplicate-1	24-Mar-10	12:00	Water	X	X	X	X	X	X							

Guidelines / Regulations	Special Instructions / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

								Sample Condition (lab use only)	
Relinquished By:	N. Anderson	Date & Time:	29-Mar-10 12:40	Received By:	MB	Date & Time:	Mar 30	Temperature	Samples Received in Good Condition? Y / N (if no provided details)
Relinquished By:		Date & Time:		Received By:		Date & Time:	939	0°C	

Short Holding Time

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

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Canada T
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Rush Processing

COC # _____

Page 3 of 3

Report to:		Report Format / Distribution		Service Requested:	
Company:	Rescan Environmental Services Ltd.	☑ Standard ☐ Other		☑	Regular Service (Default)
Contact:	6th Floor, 1111 West Hastings Street	☑ PDF ☑ Excel ☐ Fax		☐	Rush Service (2-3 Days)
Address:	Vancouver, BC V6E 2J3	Email 1: cfyfe@rescan.com		☐	Priority Service (1 Day or ASAP)
		Email 2:		☐	Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604-689-9460 Fax: 604-687-4277			Analysis Request	
Invoice To:	☑ Same as Report	Indicate Bottles: Filtered / Preserved (F/P) →			
Company:		Client / Project Information:			
Contact:		Job #: 0916-003-07			
Address:		PO/AFE:			
Sample		Legal Site Description: NEW AFTON			
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)		ALS Contact: Amber Springer	Sampler (Initials): RH		

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	General Chemistry	Cyanide	Total Metals	Dissolved Metals	Nutrients	TOC					Hazardous?	Highly Contaminated?	Number of Containers
	M5302 (groundwater)	26-Mar-10	12:30	Water	X	X	X	X	X	X							
	M5303 (groundwater)	24-Mar-10	15:30	Water	X	X	X	X	X	X							
	Travel Blank	25-Mar-10	12:00	Water	X	X	X		X	X							
	Field Blank	25-Mar-10	11:00	Water	X	X	X		X	X							

Guidelines / Regulations	Special Instructions / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

								Sample Condition (lab use only)	
Relinquished By:	N. Anderson	Date & Time:	29-Mar-10 10:40	Received By:	MB	Date & Time:	Mar 30 937	Temperature	Samples Received in Good Condition? Y / N (if no provided details)
Relinquished By:		Date & Time:		Received By:		Date & Time:		6°C	

Certificate of Analysis

RESCAN ENVIRONMENTAL SERVICES
ATTN: DR. COLIN FYFE

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Report Date: 23-APR-10 11:57 (MT)
Version: FINAL

Lab Work Order #: L875087 **Date Received:** 07-APR-10

Project P.O. #: NOT SUBMITTED
Job Reference: 0916-003-07
Legal Site Desc: NEW AFTON
CofC Numbers:

Other Information:

Comments:

Dean Watt
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L875087-1	L875087-2	L875087-3	L875087-4	L875087-5
Sample ID		L875087-1	L875087-2	L875087-3	L875087-4	L875087-5
Description						
Sampled Date		31-MAR-10	31-MAR-10	31-MAR-10	31-MAR-10	31-MAR-10
Sampled Time		13:50	14:15	15:00	15:45	15:45
Client ID		SAD MAHAL	ASQUINI	KILLBACK	STENGER	STENGER (NEW)
WATER						
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0	<5.0	<5.0
	Conductivity (uS/cm)	675	1550	1400	6850	5230
	Hardness (as CaCO3) (mg/L)	301	730	654	188	189
	pH (pH)	8.27	7.99	8.04	8.25	8.42
	Total Suspended Solids (mg/L)	3.8	<5.0	3.7	16.3	<3.0
	Total Dissolved Solids (mg/L)	438	1210	1090	5590	3860
	Turbidity (NTU)	0.52	0.79	0.11	4.85	0.87
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1.6	9.4	7.8	2.4	<1.0
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	248	395	339	259	323
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	10.8
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	248	395	339	259	334
	Ammonia as N (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Bromide (Br) (mg/L)	<0.050	<0.50	<0.50	<1.0	<1.0
	Chloride (Cl) (mg/L)	6.25	24.3	22.7	63	77
	Fluoride (F) (mg/L)	0.118	<0.20	<0.20	<0.40	1.74
	Nitrate (as N) (mg/L)	0.439	0.857	0.201	0.22	0.15
	Nitrite (as N) (mg/L)	0.0012	<0.010	<0.010	<0.020	<0.020
	Total Kjeldahl Nitrogen (mg/L)	0.160	0.129	0.140	0.098	0.188
	Total Nitrogen (mg/L)	0.450	1.54	0.430	0.320	0.310
	Ortho Phosphate as P (mg/L)	0.0030	0.0089	0.0242	0.0014	0.0072
	Total Phosphate as P (mg/L)	0.0107	0.0106	0.0245	0.0157	0.0107
	Sulfate (SO4) (mg/L)	127	539	485	3490	2440
Cyanides	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	3.50	2.38	3.13	1.65	2.71
Total Metals	Aluminum (Al)-Total (mg/L)	0.0045	<0.0020	0.0034	0.090	<0.020
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00020	<0.00020	0.0022	<0.0020
	Arsenic (As)-Total (mg/L)	0.00067	0.00082	0.00118	0.0030	0.0969
	Barium (Ba)-Total (mg/L)	0.0949	0.111	0.0828	0.0066	0.0160
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.0010	<0.0010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.0010	<0.0010	<0.010	<0.010
	Boron (B)-Total (mg/L)	0.128	0.205	0.153	1.05	2.29
	Cadmium (Cd)-Total (mg/L)	0.000056	0.000079	0.000023	<0.00020	<0.00020
	Calcium (Ca)-Total (mg/L)	67.8	156	142	36.6	50.5
	Chromium (Cr)-Total (mg/L)	<0.00050	0.0012	<0.0010	<0.010	<0.010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00020	<0.00020	<0.0020	<0.0020

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L875087-6 31-MAR-10 15:45 DUPLICATE	L875087-7 31-MAR-10 15:45 FIELD BLANK	L875087-8 TRAVEL BLANK	L875087-9 06-APR-10 14:30 M5 303
WATER					
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0	<5.0
	Conductivity (uS/cm)	6910	<2.0	<2.0	3560
	Hardness (as CaCO3) (mg/L)	184	<0.50	<0.50	1370
	pH (pH)	8.25	7.96	7.63	8.08
	Total Suspended Solids (mg/L)	8.8	<3.0	<3.0	13.5
	Total Dissolved Solids (mg/L)	5850	<10	<10	3210
	Turbidity (NTU)	3.40	<0.10	<0.10	8.65
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.2	1.4	1.7	7.8
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	260	<2.0	<2.0	350
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	260	<2.0	<2.0	350
	Ammonia as N (mg/L)	<0.020	<0.020	<0.020	<0.020
	Bromide (Br) (mg/L)	<1.0	<0.050	<0.050	<1.0
	Chloride (Cl) (mg/L)	61	<0.50	<0.50	31
	Fluoride (F) (mg/L)	<0.40	<0.020	<0.020	<0.40
	Nitrate (as N) (mg/L)	0.22	<0.0050	<0.0050	2.04
	Nitrite (as N) (mg/L)	<0.020	<0.0010	<0.0010	<0.020
	Total Kjeldahl Nitrogen (mg/L)	0.096	<0.050	<0.050	0.347
	Total Nitrogen (mg/L)	0.280	<0.050	<0.050	2.87
	Ortho Phosphate as P (mg/L)	0.0014	<0.0010	<0.0010	0.0097
	Total Phosphate as P (mg/L)	0.0096	<0.0020	<0.0020	0.0295
	Sulfate (SO4) (mg/L)	3500	<0.50	<0.50	2020
Cyanides	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	1.41	<0.50	<0.50	4.07
Total Metals	Aluminum (Al)-Total (mg/L)	0.131	<0.0010	<0.0010	0.343
	Antimony (Sb)-Total (mg/L)	0.0023	<0.00010	<0.00010	<0.00050
	Arsenic (As)-Total (mg/L)	0.0031	<0.00010	<0.00010	0.00141
	Barium (Ba)-Total (mg/L)	0.0069	<0.000050	<0.000050	0.0121
	Beryllium (Be)-Total (mg/L)	<0.010	<0.00050	<0.00050	<0.0025
	Bismuth (Bi)-Total (mg/L)	<0.010	<0.00050	<0.00050	<0.0025
	Boron (B)-Total (mg/L)	1.04	<0.010	<0.010	0.587
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.000010	<0.000010	0.000196
	Calcium (Ca)-Total (mg/L)	36.4	<0.020	<0.020	107
	Chromium (Cr)-Total (mg/L)	<0.010	<0.00050	<0.00050	<0.0025
	Cobalt (Co)-Total (mg/L)	<0.0020	<0.00010	<0.00010	0.00140

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L875087-1	L875087-2	L875087-3	L875087-4	L875087-5
Description					
Sampled Date	31-MAR-10	31-MAR-10	31-MAR-10	31-MAR-10	31-MAR-10
Sampled Time	13:50	14:15	15:00	15:45	15:45
Client ID	MAIN	ASQUINI	KILLBACK	STENGER	STENGER (NEW)
Grouping / **Analyte**					
WATER					
Total Metals					
Copper (Cu)-Total (mg/L)	0.696	0.0674	0.0155	0.0038	0.0200
Iron (Fe)-Total (mg/L)	<0.030	<0.030	<0.030	0.168	0.062
Lead (Pb)-Total (mg/L)	0.00161	0.00145	0.00104	<0.0010	0.0013
Lithium (Li)-Total (mg/L)	<0.0050	<0.010	<0.010	0.31	0.16
Magnesium (Mg)-Total (mg/L)	34.1	87.8	78.7	23.9	34.3
Manganese (Mn)-Total (mg/L)	0.00213	0.00061	0.157	0.0086	0.0276
Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total (mg/L)	0.0112	0.00880	0.0217	0.0659	0.0330
Nickel (Ni)-Total (mg/L)	0.00139	<0.0010	0.0012	<0.010	<0.010
Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.60	<0.60
Potassium (K)-Total (mg/L)	3.16	5.69	5.10	11.2	3.8
Selenium (Se)-Total (mg/L)	0.00224	0.00183	0.00049	<0.0040	<0.0040
Silicon (Si)-Total (mg/L)	6.74	8.58	8.24	2.99	5.68
Silver (Ag)-Total (mg/L)	0.000026	<0.000020	<0.000020	<0.00020	<0.00020
Sodium (Na)-Total (mg/L)	44.2	98.4	79.5	1730	1190
Strontium (Sr)-Total (mg/L)	0.393	1.28	1.24	9.76	7.59
Sulfur (S)-Total (mg/L)	53.1	179	159	1130	774
Thallium (Tl)-Total (mg/L)	<0.00010	<0.00020	<0.00020	<0.0020	<0.0020
Tin (Sn)-Total (mg/L)	<0.00010	<0.00020	<0.00020	<0.0020	<0.0020
Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.020	<0.020
Uranium (U)-Total (mg/L)	0.000762	0.00261	0.00197	0.0108	0.00037
Vanadium (V)-Total (mg/L)	0.0016	0.0031	0.0021	<0.020	<0.020
Zinc (Zn)-Total (mg/L)	0.131	0.190	0.0523	1.21	<0.020
Dissolved Metals					
Aluminum (Al)-Dissolved (mg/L)	0.0015	<0.0020	<0.0020	<0.020	<0.020
Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00020	<0.00020	0.0024	<0.0020
Arsenic (As)-Dissolved (mg/L)	0.00075	0.00085	0.00123	0.0034	0.0674
Barium (Ba)-Dissolved (mg/L)	0.0949	0.104	0.0812	0.0055	0.0110
Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.0010	<0.0010	<0.010	<0.010
Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.0010	<0.0010	<0.010	<0.010
Boron (B)-Dissolved (mg/L)	0.125	0.201	0.145	1.08	1.62
Cadmium (Cd)-Dissolved (mg/L)	0.000041	0.000058	0.000042	<0.00020	<0.00020
Calcium (Ca)-Dissolved (mg/L)	64.8	152	134	36.3	35.2
Chromium (Cr)-Dissolved (mg/L)	<0.00060	<0.0020	<0.0012	<0.010	<0.010
Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00020	<0.00020	<0.0020	<0.0020
Copper (Cu)-Dissolved (mg/L)	0.421	0.0408	0.0182	0.0046	0.0065
Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.060	<0.060
Lead (Pb)-Dissolved (mg/L)	0.000758	0.00069	0.00146	<0.0010	<0.0010

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L875087-6	L875087-7	L875087-8	L875087-9
Description				
Sampled Date	31-MAR-10	31-MAR-10		06-APR-10
Sampled Time	15:45	15:45		14:30
Client ID	DUPLICATE	FIELD BLANK	TRAVEL BLANK	M5 303
Grouping / **Analyte**				
WATER				
Total Metals Copper (Cu)-Total (mg/L)	0.0044	<0.00010	<0.00010	0.00651
Iron (Fe)-Total (mg/L)	0.161	<0.030	<0.030	0.619
Lead (Pb)-Total (mg/L)	<0.0010	<0.000050	<0.000050	0.0143
Lithium (Li)-Total (mg/L)	0.31	<0.0050	<0.0050	<0.025
Magnesium (Mg)-Total (mg/L)	23.3	<0.0050	<0.0050	268
Manganese (Mn)-Total (mg/L)	0.0076	<0.000050	<0.000050	0.193
Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total (mg/L)	0.0674	<0.000050	<0.000050	0.00897
Nickel (Ni)-Total (mg/L)	<0.010	<0.00050	<0.00050	0.0035
Phosphorus (P)-Total (mg/L)	<0.60	<0.30	<0.30	<0.30
Potassium (K)-Total (mg/L)	11.5	<0.050	<0.050	20.1
Selenium (Se)-Total (mg/L)	<0.0040	<0.00020	<0.00020	0.0142
Silicon (Si)-Total (mg/L)	2.95	<0.050	<0.050	9.53
Silver (Ag)-Total (mg/L)	<0.00020	<0.000010	<0.000010	<0.000050
Sodium (Na)-Total (mg/L)	1700	<2.0	<2.0	383
Strontium (Sr)-Total (mg/L)	9.96	<0.00010	<0.00010	5.01
Sulfur (S)-Total (mg/L)	1140	<0.50	<0.50	663
Thallium (Tl)-Total (mg/L)	<0.0020	<0.00010	<0.00010	<0.00050
Tin (Sn)-Total (mg/L)	<0.0020	<0.00010	<0.00010	0.00125
Titanium (Ti)-Total (mg/L)	<0.020	<0.010	<0.010	0.013
Uranium (U)-Total (mg/L)	0.0110	<0.000010	<0.000010	0.00700
Vanadium (V)-Total (mg/L)	<0.020	<0.0010	<0.0010	<0.0050
Zinc (Zn)-Total (mg/L)	1.23	<0.0010	<0.0010	0.0082
Dissolved Metals Aluminum (Al)-Dissolved (mg/L)	<0.020			<0.0050
Antimony (Sb)-Dissolved (mg/L)	0.0024			<0.00050
Arsenic (As)-Dissolved (mg/L)	0.0028			0.00128
Barium (Ba)-Dissolved (mg/L)	0.0049			0.00732
Beryllium (Be)-Dissolved (mg/L)	<0.010			<0.0025
Bismuth (Bi)-Dissolved (mg/L)	<0.010			<0.0025
Boron (B)-Dissolved (mg/L)	1.03			0.586
Cadmium (Cd)-Dissolved (mg/L)	<0.00020			0.000124
Calcium (Ca)-Dissolved (mg/L)	36.2			107
Chromium (Cr)-Dissolved (mg/L)	<0.010			<0.0025
Cobalt (Co)-Dissolved (mg/L)	<0.0020			<0.00050
Copper (Cu)-Dissolved (mg/L)	0.0028			0.00390
Iron (Fe)-Dissolved (mg/L)	<0.060			<0.030
Lead (Pb)-Dissolved (mg/L)	<0.0010			0.00044

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID	L875087-1	L875087-2	L875087-3	L875087-4	L875087-5
		Description					
		Sampled Date	31-MAR-10	31-MAR-10	31-MAR-10	31-MAR-10	31-MAR-10
		Sampled Time	13:50	14:15	15:00	15:45	15:45
		Client ID	MAHAL	ASQUINI	KILLBACK	STENGER	STENGER (NEW)
WATER							
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)		<0.0050	<0.010	<0.010	0.31	0.12
	Magnesium (Mg)-Dissolved (mg/L)		33.7	85.3	77.9	23.7	24.5
	Manganese (Mn)-Dissolved (mg/L)		0.00229	0.00031	0.151	0.0060	0.0194
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		0.0111	0.00862	0.0213	0.0657	0.0231
	Nickel (Ni)-Dissolved (mg/L)		0.00147	<0.0010	0.0016	<0.010	<0.010
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.60	<0.60
	Potassium (K)-Dissolved (mg/L)		3.22	5.64	5.03	11.4	2.8
	Selenium (Se)-Dissolved (mg/L)		0.00259	0.00193	0.00055	<0.0040	<0.0040
	Silicon (Si)-Dissolved (mg/L)		6.75	8.78	8.50	2.76	5.58
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000020	<0.000020	<0.00020	<0.00020
	Sodium (Na)-Dissolved (mg/L)		45.2	101	82.7	1700	1180
	Strontium (Sr)-Dissolved (mg/L)		0.390	1.26	1.22	9.90	5.35
	Sulfur (S)-Dissolved (mg/L)		51.0	177	156	1130	813
	Thallium (Tl)-Dissolved (mg/L)		<0.00010	<0.00020	<0.00020	<0.0020	<0.0020
	Tin (Sn)-Dissolved (mg/L)		0.00015	0.00024	<0.00020	<0.0020	<0.0020
	Titanium (Ti)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.020	<0.020
	Uranium (U)-Dissolved (mg/L)		0.000720	0.00248	0.00189	0.0109	0.00023
	Vanadium (V)-Dissolved (mg/L)		0.0015	0.0029	<0.0020	<0.020	<0.020
	Zinc (Zn)-Dissolved (mg/L)		0.0851	0.146	0.154	1.16	<0.020

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L875087-6	L875087-7	L875087-8	L875087-9
	Description:				
	Sampled Date:	31-MAR-10	31-MAR-10		06-APR-10
	Sampled Time:	15:45	15:45		14:30
	Client ID:	DUPLICATE	FIELD BLANK	TRAVEL BLANK	M5 303
WATER					
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	0.30			<0.025
	Magnesium (Mg)-Dissolved (mg/L)	22.9			269
	Manganese (Mn)-Dissolved (mg/L)	0.0055			0.00479
	Mercury (Hg)-Dissolved (mg/L)	<0.000010			<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.0657			0.00877
	Nickel (Ni)-Dissolved (mg/L)	<0.010			<0.0025
	Phosphorus (P)-Dissolved (mg/L)	<0.60			<0.30
	Potassium (K)-Dissolved (mg/L)	11.3			20.2
	Selenium (Se)-Dissolved (mg/L)	<0.0040			0.0151
	Silicon (Si)-Dissolved (mg/L)	2.78			8.69
	Silver (Ag)-Dissolved (mg/L)	<0.00020			<0.000050
	Sodium (Na)-Dissolved (mg/L)	1720			390
	Strontium (Sr)-Dissolved (mg/L)	9.83			4.98
	Sulfur (S)-Dissolved (mg/L)	1170			625
	Thallium (Tl)-Dissolved (mg/L)	<0.0020			<0.00050
	Tin (Sn)-Dissolved (mg/L)	<0.0020			<0.00050
	Titanium (Ti)-Dissolved (mg/L)	<0.020			<0.010
	Uranium (U)-Dissolved (mg/L)	0.0107			0.00703
	Vanadium (V)-Dissolved (mg/L)	<0.020			<0.0050
	Zinc (Zn)-Dissolved (mg/L)	1.18			<0.0050

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. OR This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.			
ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 "TOTAL ORGANIC CARBON (TOC)"
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN "Cyanide"
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN Cyanide
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	APHA 2120 "Color"
This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	APHA 2120 Color
This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample			

Reference Information

through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DIS-CCME-MS-VA Water Diss. Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA Water Dissolved Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA Water Diss. Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA Water Total Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or

Reference Information

microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

N-TOT-COMBUST-VA Water Total Nitrogen by Combustion ASTM D5176-91, EN12260 (EU STD Method)

This analysis is carried out using procedures adapted from ASTM Method D 5176-91 "Standard Test Method for Total Chemically Bound Nitrogen in Water by Pyrolysis and Chemiluminescence detection." Total Nitrogen is determined directly by pyrolysis with chemiluminescence detection using automated instrumentation. Total Kjedahl Nitrogen is determined by calculation.

NH3-SIE-VA Water Ammonia by SIE APHA 4500 D. - NH3 NITROGEN (AMMONIA)

This analysis is carried out, on sulphuric acid preserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using an ammonia selective electrode.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA Water Dissolved ortho Phosphate by Colour APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-DO-COL-VA Water Dissolved ortho Phosphate by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA Water Total Phosphate P by Color APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA Water Total Phosphate P by Color APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulphur results for all samples. Sulphide or other volatile forms of sulphur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulphur represents all non-volatile forms of sulphur present in a particular sample.

S-TOT-ICP-VA Water Total Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulphur results for all samples. Sulphide or other volatile forms of sulphur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulphur represents all non-volatile forms of sulphur present in a particular sample.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-SIE-VA Water Total Kjeldahl Nitrogen by SIE APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by

Reference Information

sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate □A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg □milligrams per kilogram based on dry weight of sample.
mg/kg wwt □milligrams per kilogram based on wet weight of sample.
mg/kg lwt □milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L □milligrams per litre.
< - Less than.
D.L. □The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A □Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Short Holding Time

ALS Laboratory
Environmental Division

Rush Processing

tody / Analytical Request Form
Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Report to:		Report Format / Distribution		Service Requested:	
Company:	Rescan Environmental Services Ltd.	☑ Standard ☐ Other		☑	Regular Service (Default)
Contact:	6th Floor, 1111 West Hastings Street	☑ PDF ☑ Excel ☐ Fax		☐	Rush Service (2-3 Days)
Address:	Vancouver, BC V6E 2J3	Email 1:	cfyfe@rescan.com	☐	Priority Service (1 Day or ASAP)
		Email 2:	rhughes@rescan.com	☐	Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604-689-9460 Fax: 604-687-4277			Analysis Request	
Invoice To:	☑ Same as Report		Indicate Bottles: Filtered / Preserved (F/P) →		
Company:		Client / Project Information:			
Contact:		Job #:	0916-003-07		
Address:		PO/AFE:			
Sample		Legal Site Description:	NEW AFTON		
Phone:	Fax 6975087	Quote #:			
Lab Work Order # (lab use only)	L8004587	ALS Contact:	Amber Springer	Sampler (initials):	NA/DW

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	General Chemistry	Cyanide	Total Metals	Dissolved Metals	Nutrients	TOC					Hazardous?	Highly Contaminated?	Number of Containers
522	Mahal	Mar 31-2010	13:50	Water	x	x	x	x	x	x							
	Asquini	Mar 31-2010	14:15	Water	x	x	x	x	x	x							
	Killback	Mar 31-2010	15:00	Water	x	x	x	x	x	x							
	Stenger	Mar 31-2010	15:45	Water	x	x	x	x	x	x							
	Stenger (New)	Mar 31-2010	15:45	Water	x	x	x	x	x	x							

Guidelines / Regulations	Special Instructions / Hazardous Details
	* possible cross preservation in Filed Blanks (Total Metals and Nutrients)

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

Relinquished By:	N. Anderson	Date & Time:	April 6-2010 15:30	Received By:	HD	Date & Time:		Sample Condition (lab use only)	
Relinquished By:		Date & Time:		Received By:	6/04/07	Date & Time:	9:50	Temperature: 5	Samples Received in Good Condition? Y/N (if no provided details)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 2 of 2

Report to:	Report Format / Distribution	Service Requested:
Company: Rescan Environmental Services Ltd.	☑ Standard ☐ Other	☑ Regular Service (Default)
Contact: 6th Floor, 1111 West Hastings Street	☑ PDF ☑ Excel ☐ Fax	☐ Rush Service (2-3 Days)
Address: Vancouver, BC V6E 2J3	Email 1: cfyfe@rescan.com	☐ Priority Service (1 Day or ASAP)
	Email 2: rhughes@rescan.com	☐ Emergency Service (<1 Day / Wkend) - Contact ALS
Phone: 604-689-9460 Fax: 604-687-4277		Analysis Request
Invoice To: ☑ Same as Report	Indicate Bottles: Filtered / Preserved (F/P) →	
Company:	Client / Project Information:	
Contact:	Job #: 0916-003-07	
Address:	PO/AFE:	
Sample	Legal Site Description: NEW AFTON	
Phone: Fax: L875087	Quote #:	
Lab Work Order # (lab use only): L875087	ALS Contact: Amber Springer	Sampler (initials):

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	General Chemistry	Cyanide	Total Metals	Dissolved Metals	Nutrients	TOC					Hazardous?	Highly Contaminated?	Number of Containers
	Duplicate	Mar 31-2010	15:45	water	x	x	x	x	x	x							
	Field Blank	Mar 31-2010	15:45	water	x	x	x		x	x							
	Travel Blank				x	x	x		x	x							
	M5 303	Apr 6-2010	14:30	Water	x	x	x	x	x	x							

Guidelines / Regulations	Special Instructions / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

Relinquished By:	N. Anderson	Date & Time:	31-Mar-10 15:30	Received By:	HD	Date & Time:		Sample Condition (lab use only)	
Relinquished By:		Date & Time:		Received By:	10/04/07	Date & Time:	8:49	Temperature: 5	Samples Received in Good Condition? Y / N (if no provided details)

Certificate of Analysis

NEW GOLD INC.
ATTN: Dennis Wilson
Box 948 Stn Main
Kamloops BC V2C 5N4

Report Date: 30-JUL-10 11:41 (MT)
Version: FINAL

Lab Work Order #: L910042 **Date Received:** 19-JUL-10

Project P.O. #: B4964
Job Reference:
Legal Site Desc:
CofC Numbers: 09-020225
Other Information:

Comments:

Amber Springer
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L910042-1	L910042-2	L910042-3	L910042-4	L910042-5
Sample ID		L910042-1	L910042-2	L910042-3	L910042-4	L910042-5
Description						
Sampled Date		14-JUL-10	14-JUL-10	14-JUL-10	15-JUL-10	14-JUL-10
Sampled Time						
Client ID		R-1 (SURINDER MAHAL)	R-3 (CARLO ASQUINI RESIDENCE)	R-4 (AARON KLEBACK RESIDENCE)	R-5 (STEVE STENGER RESIDENCE)	BLANK
WATER						
Physical Tests	Conductivity (uS/cm)	606	1890	1330	5920	<2.0
	Hardness (as CaCO3) (mg/L)	275	18.7	620	251	0.61
	pH (pH)	8.35	8.38	8.22	8.50	5.62
	Total Suspended Solids (mg/L)	<3.0	<3.0	3.0	24.3	<3.0
Leachable Anions & Nutrients	Anion Sum (meq/L)	6.99	19.6	15.7	68.5	<0.10
	Cation Sum (meq/L)	6.80	17.3	15.5	65.1	<0.10
	Cation - Anion Balance (%)	-1.4	-6.4	-0.6	-2.5	0.0
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	246	381	319	286	<1.0
	Alkalinity, Carbonate (as CaCO3) (mg/L)	7.1	10.4	<1.0	18.9	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	253	391	319	305	<1.0
	Ammonia as N (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bromide (Br) (mg/L)	<0.050	<2.5	<2.5	<5.0	<0.050
	Chloride (Cl) (mg/L)	5.71	27	<25	125	<0.50
	Fluoride (F) (mg/L)	0.133	<1.0	<1.0	1.39	<0.020
	Nitrate (as N) (mg/L)	1.04	0.51	<0.25	<0.50	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.050	<0.050	<0.10	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.417	0.133	0.131	0.289	<0.050
	Total Phosphate as P (mg/L)	0.0090	0.0098	0.0250	0.0821	<0.0020
	Sulfate (SO4) (mg/L)	81.1	528	446	2820	<0.50
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	5.49	2.33	3.06	2.34	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0040	<0.0050	<0.0030	0.285	<0.0010
	Antimony (Sb)-Total (mg/L)	0.000107	<0.00025	<0.00010	0.0014	<0.000050
	Arsenic (As)-Total (mg/L)	0.000391	0.00079	0.00127	0.194	<0.000030
	Barium (Ba)-Total (mg/L)	0.0820	0.00400	0.0782	0.0232	<0.000050
	Beryllium (Be)-Total (mg/L)	<0.00020	<0.0010	<0.00040	<0.0040	<0.00020
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.0025	<0.0010	<0.010	<0.00050
	Boron (B)-Total (mg/L)	0.0427	0.183	0.145	1.79	<0.0010
	Cadmium (Cd)-Total (mg/L)	0.000021	<0.000085	<0.000034	<0.00034	<0.000017
	Calcium (Ca)-Total (mg/L)	61.5	3.86	127	49.2	<0.020
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.0010	<0.0010	0.016	<0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00050	<0.00020	<0.0020	<0.00010
	Copper (Cu)-Total (mg/L)	0.0504	0.0187	<0.0040	0.101	<0.00010
	Iron (Fe)-Total (mg/L)	0.012	0.040	<0.010	3.38	<0.010
	Lead (Pb)-Total (mg/L)	0.000360	0.00096	0.00040	0.0078	<0.000050
	Lithium (Li)-Total (mg/L)	<0.0050	<0.025	<0.010	0.021	<0.0050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L910042-6				
	Description					
	Sampled Date	14-JUL-10				
	Sampled Time					
	Client ID	DUPLICATE				
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	609				
	Hardness (as CaCO3) (mg/L)	264				
	pH (pH)	8.35				
	Total Suspended Solids (mg/L)	<3.0				
Leachable Anions & Nutrients	Anion Sum (meq/L)	6.94				
	Cation Sum (meq/L)	6.53				
	Cation - Anion Balance (%)	-3.0				
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	244				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	6.5				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0				
	Alkalinity, Total (as CaCO3) (mg/L)	251				
	Ammonia as N (mg/L)	<0.0050				
	Bromide (Br) (mg/L)	<0.050				
	Chloride (Cl) (mg/L)	5.71				
	Fluoride (F) (mg/L)	0.131				
	Nitrate (as N) (mg/L)	1.04				
	Nitrite (as N) (mg/L)	<0.0010				
	Total Kjeldahl Nitrogen (mg/L)	0.272				
	Total Phosphate as P (mg/L)	0.0090				
	Sulfate (SO4) (mg/L)	81.1				
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	5.49				
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030				
	Antimony (Sb)-Total (mg/L)	0.000108				
	Arsenic (As)-Total (mg/L)	0.000387				
	Barium (Ba)-Total (mg/L)	0.0812				
	Beryllium (Be)-Total (mg/L)	<0.00020				
	Bismuth (Bi)-Total (mg/L)	<0.00050				
	Boron (B)-Total (mg/L)	0.0426				
	Cadmium (Cd)-Total (mg/L)	<0.000017				
	Calcium (Ca)-Total (mg/L)	62.0				
	Chromium (Cr)-Total (mg/L)	<0.00050				
	Cobalt (Co)-Total (mg/L)	<0.00010				
	Copper (Cu)-Total (mg/L)	0.0435				
	Iron (Fe)-Total (mg/L)	0.016				
	Lead (Pb)-Total (mg/L)	0.000243				
	Lithium (Li)-Total (mg/L)	<0.0050				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L910042-1	L910042-2	L910042-3	L910042-4	L910042-5
Description					
Sampled Date	14-JUL-10	14-JUL-10	14-JUL-10	15-JUL-10	14-JUL-10
Sampled Time					
Client ID	R-1 (SURINDER MAHAL)	R-3 (CARLO ASQUINI RESIDENCE)	R-4 (AARON KILBACK RESIDENCE)	R-5 (STEVE STENGER RESIDENCE)	BLANK
Grouping / Analyte					
WATER					
Total Metals					
Magnesium (Mg)-Total (mg/L)	29.5	2.07	74.5	33.1	<0.0050
Manganese (Mn)-Total (mg/L)	0.00150	0.00037	0.106	0.0920	<0.000050
Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	0.000038	<0.000010
Molybdenum (Mo)-Total (mg/L)	0.0109	0.00941	0.0221	0.0369	<0.000050
Nickel (Ni)-Total (mg/L)	0.00054	<0.00050	0.00146	0.0046	<0.00010
Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.60	<0.30
Potassium (K)-Total (mg/L)	3.83	1.90	5.72	6.7	<0.050
Selenium (Se)-Total (mg/L)	0.00086	<0.0010	<0.00040	<0.0040	<0.00010
Silicon (Si)-Total (mg/L)	7.22	7.80	8.02	5.84	<0.050
Silver (Ag)-Total (mg/L)	0.000015	<0.000050	<0.000020	<0.00020	<0.000010
Sodium (Na)-Total (mg/L)	27.0	384	67.7	1380	0.028
Strontium (Sr)-Total (mg/L)	0.316	0.0356	1.16	8.23	0.00012
Thallium (Tl)-Total (mg/L)	<0.000050	<0.00025	<0.00010	<0.0010	<0.000050
Tin (Sn)-Total (mg/L)	<0.00010	<0.00050	<0.00020	<0.0020	<0.00010
Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.020	<0.010
Uranium (U)-Total (mg/L)	0.000818	0.00206	0.00161	0.00585	<0.000010
Vanadium (V)-Total (mg/L)	0.00141	0.00266	0.00228	0.0127	<0.000050
Zinc (Zn)-Total (mg/L)	0.0077	0.0383	0.0029	0.074	<0.0010
Dissolved Metals					
Aluminum (Al)-Dissolved (mg/L)	0.0034	<0.0050	<0.0020	<0.020	<0.0010
Antimony (Sb)-Dissolved (mg/L)	0.000108	<0.00025	<0.00010	0.0012	<0.000050
Arsenic (As)-Dissolved (mg/L)	0.000483	0.00076	0.00150	0.0659	<0.000030
Barium (Ba)-Dissolved (mg/L)	0.0814	0.00406	0.0767	0.0152	0.000191
Beryllium (Be)-Dissolved (mg/L)	<0.00020	<0.0010	<0.00040	<0.0040	<0.00020
Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.0025	<0.0010	<0.010	<0.00050
Boron (B)-Dissolved (mg/L)	0.0378	0.183	0.143	1.75	<0.0010
Cadmium (Cd)-Dissolved (mg/L)	<0.000017	<0.000085	<0.000034	<0.00034	<0.000017
Calcium (Ca)-Dissolved (mg/L)	61.0	4.02	126	47.2	0.195
Chromium (Cr)-Dissolved (mg/L)	0.00089	<0.0025	<0.0010	<0.010	<0.00010
Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00050	<0.00020	<0.0020	<0.00010
Copper (Cu)-Dissolved (mg/L)	0.0549	0.0217	0.00522	0.0024	0.00037
Iron (Fe)-Dissolved (mg/L)	0.012	0.028	<0.010	0.036	<0.010
Lead (Pb)-Dissolved (mg/L)	0.000417	0.00119	0.00039	<0.0010	<0.000050
Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.025	<0.010	0.20	<0.0050
Magnesium (Mg)-Dissolved (mg/L)	29.8	2.10	74.4	32.3	0.0305
Manganese (Mn)-Dissolved (mg/L)	0.00168	0.00055	0.105	0.0239	0.000186
Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved (mg/L)	0.0106	0.00957	0.0215	0.0390	<0.000050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L910042-6				
	Description					
	Sampled Date	14-JUL-10				
	Sampled Time					
	Client ID	DUPLICATE				
Grouping	**Analyte**					
WATER						
Total Metals	Magnesium (Mg)-Total (mg/L)	28.6				
	Manganese (Mn)-Total (mg/L)	0.00145				
	Mercury (Hg)-Total (mg/L)	<0.000010				
	Molybdenum (Mo)-Total (mg/L)	0.0107				
	Nickel (Ni)-Total (mg/L)	0.00068				
	Phosphorus (P)-Total (mg/L)	<0.30				
	Potassium (K)-Total (mg/L)	3.84				
	Selenium (Se)-Total (mg/L)	0.00072				
	Silicon (Si)-Total (mg/L)	7.06				
	Silver (Ag)-Total (mg/L)	<0.000010				
	Sodium (Na)-Total (mg/L)	26.8				
	Strontium (Sr)-Total (mg/L)	0.315				
	Thallium (Tl)-Total (mg/L)	<0.000050				
	Tin (Sn)-Total (mg/L)	<0.00010				
	Titanium (Ti)-Total (mg/L)	<0.010				
	Uranium (U)-Total (mg/L)	0.000862				
	Vanadium (V)-Total (mg/L)	0.00146				
	Zinc (Zn)-Total (mg/L)	0.0066				
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0015				
	Antimony (Sb)-Dissolved (mg/L)	0.000105				
	Arsenic (As)-Dissolved (mg/L)	0.000429				
	Barium (Ba)-Dissolved (mg/L)	0.0798				
	Beryllium (Be)-Dissolved (mg/L)	<0.00020				
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050				
	Boron (B)-Dissolved (mg/L)	0.0368				
	Cadmium (Cd)-Dissolved (mg/L)	<0.000017				
	Calcium (Ca)-Dissolved (mg/L)	59.3				
	Chromium (Cr)-Dissolved (mg/L)	0.00060				
	Cobalt (Co)-Dissolved (mg/L)	<0.00010				
	Copper (Cu)-Dissolved (mg/L)	0.0399				
	Iron (Fe)-Dissolved (mg/L)	<0.010				
	Lead (Pb)-Dissolved (mg/L)	0.000169				
	Lithium (Li)-Dissolved (mg/L)	<0.0050				
	Magnesium (Mg)-Dissolved (mg/L)	28.2				
	Manganese (Mn)-Dissolved (mg/L)	0.00129				
	Mercury (Hg)-Dissolved (mg/L)	<0.000010				
	Molybdenum (Mo)-Dissolved (mg/L)	0.0104				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L910042-1	L910042-2	L910042-3	L910042-4	L910042-5
Description					
Sampled Date	14-JUL-10	14-JUL-10	14-JUL-10	15-JUL-10	14-JUL-10
Sampled Time					
Client ID	R-1 (SURINDER MAHAL)	R-3 (CARLO ASQUINI RESIDENCE)	R-4 (AARON KILBACK RESIDENCE)	R-5 (STEVE STENGER RESIDENCE)	BLANK
Grouping / Analyte					
WATER					
Dissolved Metals					
Nickel (Ni)-Dissolved (mg/L)	0.00060	<0.00050	0.00124	<0.0020	<0.00010
Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.60	<0.30
Potassium (K)-Dissolved (mg/L)	3.85	1.97	5.70	6.6	<0.050
Selenium (Se)-Dissolved (mg/L)	0.00133	0.0016	<0.00040	<0.0040	<0.00010
Silicon (Si)-Dissolved (mg/L)	7.50	8.21	8.34	4.78	<0.050
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000050	<0.000020	<0.00020	<0.000010
Sodium (Na)-Dissolved (mg/L)	27.7	387	67.5	1380	0.087
Strontium (Sr)-Dissolved (mg/L)	0.323	0.0381	1.15	8.10	0.00433
Thallium (Tl)-Dissolved (mg/L)	<0.000050	<0.00025	<0.00010	<0.0010	<0.000050
Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00050	0.00024	<0.0020	<0.00010
Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.020	<0.010
Uranium (U)-Dissolved (mg/L)	0.000818	0.00209	0.00155	0.00587	<0.000010
Vanadium (V)-Dissolved (mg/L)	0.00144	0.00272	0.00225	<0.0040	<0.000050
Zinc (Zn)-Dissolved (mg/L)	0.0093	0.0422	0.0031	0.036	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L910042-6				
	Description					
	Sampled Date	14-JUL-10				
	Sampled Time					
	Client ID	DUPLICATE				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Nickel (Ni)-Dissolved (mg/L)	0.00057				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	3.72				
	Selenium (Se)-Dissolved (mg/L)	0.00128				
	Silicon (Si)-Dissolved (mg/L)	7.20				
	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	26.5				
	Strontium (Sr)-Dissolved (mg/L)	0.308				
	Thallium (Tl)-Dissolved (mg/L)	<0.000050				
	Tin (Sn)-Dissolved (mg/L)	0.00093				
	Titanium (Ti)-Dissolved (mg/L)	<0.010				
	Uranium (U)-Dissolved (mg/L)	0.000823				
	Vanadium (V)-Dissolved (mg/L)	0.00133				
	Zinc (Zn)-Dissolved (mg/L)	0.0058				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
DSC:AP	Damaged Sample Container: Analysis Possible - samples # R-1, R-3 - TOC bottle received broken

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.

ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.

This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

C-TOT-ORG-LOW-CL	Water	Total Organic Carbon	APHA 5310 C-Instrumental
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

F-SIE-VA	Water	Fluoride by SIE	APHA 4500-F "Fluoride"

This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al3+ is present in the sample at a concentration greater than 2.5 mg/L.

F-SIE-VA	Water	Fluoride by SIE	APHA 4500-F Fluoride

This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al3+ is present in the sample at a concentration greater than 2.5 mg/L.

FE-DIS-LOW-ICP-VA	Water	Dissolved Fe in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

FE-TOT-LOW-ICP-VA	Water	Total Fe in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-DIS-LOW-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7

Reference Information

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

IONBALANCE-VA Water Ion Balance Calculation APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA Water Dissolved Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA Water Diss. Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA Water Total Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-COL-VA Water Ammonia by Colour APHA 4500-NH3 "Nitrogen (Ammonia)"

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NH3-COL-VA Water Ammonia by Colour APHA 4500-NH3 Nitrogen (Ammonia)

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

PH-MAN-VA Water pH by Manual Meter APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

Reference Information

PH-MAN-VA	Water	pH by Manual Meter	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

TKN-COL-VA	Water	Total Kjeldahl Nitrogen by Auto. Colour	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish.

TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS LABORATORY GROUP - CALGARY, ALBERTA, CANADA
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

09-020225

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate □A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg □milligrams per kilogram based on dry weight of sample.
mg/kg wwt □milligrams per kilogram based on wet weight of sample.
mg/kg lwt □milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L □milligrams per litre.
< - Less than.
D.L. □The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A □Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS ANALYTICAL

Short Holding Time

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # 09 - 020225

Page 1 of 1

Environmental — Rush Processing

Report To		Report Format / Distribution		Service Requested: (Rush subject to availability)
Company:	New Gold - New Afton Mine.	Standard: ✓ Other (specify):		Regular (Standard Turnaround Times)) ✓
Contact:	Dennis Wilson.	Select: PDF ✓ Excel ✓ Digital ✓ Fax		Priority, Date Req'd: _____ (Surcharges apply)
Address:	4050 Trans Canada Hwy	Email 1: dennis.wilson@newgold.com.		Emergency (1 Business Day) - 100% Surcharge
	Kamloops BC V2C 2A9.	Email 2:		For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone:	250-377-2785 Fax: 250-377-2702.			Analysis Request
Invoice To	Same as Report ? (circle) Yes or No (if No, provide details)	Client / Project Information		(Indicate Filtered or Preserved, F/P)
	Copy of Invoice with Report? (circle) Yes or No	Job #:		
Company:		PO / AFE: B4964.		
Contact:		LSD:		
Address:				
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)	L910042	ALS Contact: Bryan Marks.	Sampler: Dennis Wilson.	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	pH, EC, Major ions, TSS	Total metals	Dissolved Metals	TOC	Number of Containers
	R-1 (Surinder Mahal)	07/14/10		Water	X	P	F/P	P	4
	R-3 (Carlo Asquini residence)	07/14/10			X	P	F/P	P	4
	R-4 (Aaron Kilback residence)	07/14/10			X	P	F/P	P	4
	R-5 (Steve Stenger residence)	07/15/10			X	P	F/P	P	4
	Blank	07/14/10			X	P	F/P	P	4
	Duplicate	07/14/10			X	P	F/P	P	4

Please send back coolers, bottles & extra ice bricks.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
				12:10	July 14/10	21 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY

GENF 16.01 Front

NEW GOLD INC.
ATTN: Dennis Wilson
Box 948 Stn Main
Kamloops BC V2C 5N4
Phone: 250-377-2744

Date Received: 14-SEP-10
Report Date: 27-SEP-10 18:22 (MT)
Version: FINAL

Certificate of Analysis

Lab Work Order #: L931147
Project P.O. #: B4964
Job Reference:
Legal Site Desc:
C of C Numbers: C098781

Bryan Mark
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L931147-1	L931147-2	L931147-3	L931147-4	L931147-5
Description					
Sampled Date	02-SEP-10	01-SEP-10	31-AUG-10	01-SEP-10	02-SEP-10
Sampled Time					
Client ID	RES 05	M5 202	PA2	M5 203	RES-01A
Grouping / **Analyte**					
WATER					
Physical Tests Conductivity (uS/cm)	1210	3680	8520	3720	3180
Hardness (as CaCO3) (mg/L)	16.8	1390	4010	286	160
pH (pH)	8.43	8.18	8.02	8.40	12.04
Total Suspended Solids (mg/L)	7.7	149	104	161	126
Leachable Anions & Nutrients Anion Sum (meq/L)	12.6	49.4	127	40.9	17.5
Cation Sum (meq/L)	12.0	43.5	131	40.7	19.0
Cation - Anion Balance (%)	-2.5	-6.3	1.3	-0.2	4.0
Anions and Nutrients Alkalinity, Total (as CaCO3) (mg/L)	496	318	375	393	807
Ammonia as N (mg/L)	0.177	0.0517	0.0329	<0.0050	0.502
Bromide (Br) (mg/L)	<0.50	<1.0	<2.5	<1.0	<1.0
Chloride (Cl) (mg/L)	83.3	26	70	38	27
Fluoride (F) (mg/L)	2.03	<0.40	<1.0	<0.40	<0.40
Nitrate (as N) (mg/L)	<0.050	<0.10	0.80	9.97	<0.10
Nitrite (as N) (mg/L)	<0.010	<0.020	<0.050	<0.020	<0.020
Total Kjeldahl Nitrogen (mg/L)	1.42	0.297	0.424	0.199 TKNI	2.88
Total Phosphate as P (mg/L)	0.620	0.195	0.210	0.184	0.0977
Sulfate (SO4) (mg/L)	11.5	2030	5660	1500	30
Organic / Inorganic Carbon Total Organic Carbon (mg/L)	13.4	4.21	7.19	2.13	23.6
Total Metals Aluminum (Al)-Total (mg/L)	0.352	2.68	7.37	4.96	7.80
Antimony (Sb)-Total (mg/L)	<0.00025 DLA	<0.00025 DLA	<0.0010 DLA	<0.00050 DLA	0.00441
Arsenic (As)-Total (mg/L)	0.00427 DLM	0.00195 DLM	0.0052	0.00250	0.00377 DLM
Barium (Ba)-Total (mg/L)	0.0780	0.0378	0.178	0.0555	0.203
Beryllium (Be)-Total (mg/L)	<0.0010 DLA	<0.0010 DLA	<0.0040 DLA	<0.0020 DLA	<0.0010 DLA
Bismuth (Bi)-Total (mg/L)	<0.0025 DLA	<0.0025 DLA	<0.010 DLA	<0.0050 DLA	<0.0025 DLA
Boron (B)-Total (mg/L)	1.22 DLM	0.488 DLM	0.36	0.855	0.042 DLM
Cadmium (Cd)-Total (mg/L)	<0.00045 DLM	0.000859	<0.00034 DLA	0.00026	<0.0018 DLM
Calcium (Ca)-Total (mg/L)	5.25	113	322	31.9	94.5
Chromium (Cr)-Total (mg/L)	<0.0010 DLM	0.0065 DLM	0.0680	0.0093	0.0281 DLM
Cobalt (Co)-Total (mg/L)	<0.00050 DLA	0.00243	0.0117	0.0055	0.00351
Copper (Cu)-Total (mg/L)	0.00368	<0.025 DLM	0.195	0.0237	0.0443
Iron (Fe)-Total (mg/L)	0.426	3.95	10.9	6.07	4.59
Lead (Pb)-Total (mg/L)	0.00030	0.00456	0.0036	0.0218	0.00610
Lithium (Li)-Total (mg/L)	<0.025 DLA	<0.025 DLA	0.18	<0.050 DLA	<0.025 DLA
Magnesium (Mg)-Total (mg/L)	0.992	272	834	54.2	1.52
Manganese (Mn)-Total (mg/L)	0.0352	0.158	0.539	0.247	0.0925
Mercury (Hg)-Total (mg/L)	<0.000010	0.000018	0.000266	0.000024	0.000022

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L931147-6	L931147-7	L931147-8	L931147-9	L931147-10
Description					
Sampled Date	01-SEP-10	01-SEP-10	01-SEP-10	30-AUG-10	01-SEP-10
Sampled Time					
Client ID	FIELD BLANK	PA1	M5301	P3	DUPLICATE
Grouping / **Analyte**					
WATER					
Physical Tests Conductivity (uS/cm)	28.5	2270	1690	19100	1680
Hardness (as CaCO3) (mg/L)	<0.50	76.3	389	4230	364
pH (pH)	6.24	8.39	8.16	7.91	8.19
Total Suspended Solids (mg/L)	<3.0	4200	152	37.5	147
Leachable Anions & Nutrients Anion Sum (meq/L)	0.18	22.8	18.4	278	18.4
Cation Sum (meq/L)	<0.10	22.5	17.9	266	16.6
Cation - Anion Balance (%)	-81.9	-0.8	-1.2	-2.3	-5.0
Anions and Nutrients Alkalinity, Total (as CaCO3) (mg/L)	<2.0	173	110	195	111
Ammonia as N (mg/L)	<0.0050	0.129	0.0071	4.50	<0.0050
Bromide (Br) (mg/L)	<0.050	<1.0	<1.0	<5.0	<1.0
Chloride (Cl) (mg/L)	6.52	139	12	321	13
Fluoride (F) (mg/L)	<0.020	0.95	<0.40	0.262	<0.40
Nitrate (as N) (mg/L)	<0.0050	<0.10	<0.10	<0.50	<0.10
Nitrite (as N) (mg/L)	<0.0010	<0.020	<0.020	<0.10	<0.020
Total Kjeldahl Nitrogen (mg/L)	<0.050	0.79	0.153		0.180
Total Phosphate as P (mg/L)	<0.0020	3.87	0.155	0.0290	0.182
Sulfate (SO4) (mg/L)	<0.50	740	760	12700	759
Organic / Inorganic Carbon Total Organic Carbon (mg/L)	<0.50	1.67	1.95	9.08	1.87
Total Metals Aluminum (Al)-Total (mg/L)	<0.0010	371	4.92	0.142	4.62
Antimony (Sb)-Total (mg/L)	<0.000050	<0.0025 DLA	<0.00025 DLA	<0.0025 DLA	<0.00025 DLA
Arsenic (As)-Total (mg/L)	<0.000030	0.0491 DLM	0.00324	0.0042	0.00320 DLM
Barium (Ba)-Total (mg/L)	<0.000050	3.19	0.0936	0.0067	0.0895
Beryllium (Be)-Total (mg/L)	<0.00020	<0.010 DLA	<0.0010 DLA	<0.010 DLA	<0.0010 DLA
Bismuth (Bi)-Total (mg/L)	<0.00050	<0.025 DLA	<0.0025 DLA	<0.025 DLA	<0.0025 DLA
Boron (B)-Total (mg/L)	<0.0050 DLM	1.52 DLM	0.508	0.56	0.425 DLM
Cadmium (Cd)-Total (mg/L)	<0.000017	0.00185	0.000205	<0.00085 DLA	0.000197
Calcium (Ca)-Total (mg/L)	<0.020	228	59.0	418	55.4
Chromium (Cr)-Total (mg/L)	<0.00020 DLM	0.555 DLM	0.0085	<0.010 DLM	0.0076 DLM
Cobalt (Co)-Total (mg/L)	<0.00010	0.316	0.00373	<0.0050 DLA	0.00336
Copper (Cu)-Total (mg/L)	<0.00010	0.709	0.0250	<0.050 DLA	0.0242
Iron (Fe)-Total (mg/L)	<0.010	283	5.90	1.83	5.83
Lead (Pb)-Total (mg/L)	<0.000050	0.0337	0.102	<0.0025 DLA	0.0999
Lithium (Li)-Total (mg/L)	<0.0050	<0.25 DLA	<0.025 DLA	<0.25 DLA	<0.025 DLA
Magnesium (Mg)-Total (mg/L)	<0.0050	202	63.4	782	54.8
Manganese (Mn)-Total (mg/L)	<0.000050	8.24	0.357	0.910	0.325
Mercury (Hg)-Total (mg/L)	<0.000010	0.000025	0.000053	<0.000010	0.000054

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L931147-1 Description: Sampled Date: 02-SEP-10 Sampled Time: Client ID: RES 05	L931147-2 01-SEP-10 M5 202	L931147-3 31-AUG-10 PA2	L931147-4 01-SEP-10 M5 203	L931147-5 02-SEP-10 RES-01A
WATER						
Total Metals	Molybdenum (Mo)-Total (mg/L)	0.108	0.00773	0.0189	0.00846	0.379
	Nickel (Ni)-Total (mg/L)	0.00088	0.00761	0.0523	0.0083	0.0351
	Phosphorus (P)-Total (mg/L)	0.62	<0.30	<0.90	<0.30	<0.30
	Potassium (K)-Total (mg/L)	3.98	22.9	78.0	18.9	7.78
	Selenium (Se)-Total (mg/L)	DLM <0.0050	DLM <0.0010	0.0993	0.0408	DLM <0.0010
	Silicon (Si)-Total (mg/L)	6.71	14.5	22.0	13.0	12.5
	Silver (Ag)-Total (mg/L)	DLA <0.000050	DLA <0.000050	DLA <0.00020	DLA <0.00010	0.000681
	Sodium (Na)-Total (mg/L)	273	345	1160	797	342
	Strontium (Sr)-Total (mg/L)	0.178	5.37	10.2	1.17	3.08
	Thallium (Tl)-Total (mg/L)	DLA <0.00025	DLA <0.00025	DLA <0.0010	DLA <0.00050	DLA <0.00025
	Tin (Sn)-Total (mg/L)	0.00843	DLA <0.00050	DLA <0.0020	DLA <0.0010	0.00501
	Titanium (Ti)-Total (mg/L)	<0.010	0.153	0.352	0.311	0.270
	Uranium (U)-Total (mg/L)	0.000075	0.00711	0.0311	0.00432	0.000266
	Vanadium (V)-Total (mg/L)	DLM <0.0050	DLM 0.0124	0.032	0.0181	DLM 0.0174
	Zinc (Zn)-Total (mg/L)	0.0103	DLA <0.0050	DLA <0.020	DLA <0.010	0.109
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.337	0.251	0.071	0.107	3.91
	Antimony (Sb)-Dissolved (mg/L)	DLA <0.00025	DLA <0.00025	DLA <0.0010	DLA <0.00050	0.00221
	Arsenic (As)-Dissolved (mg/L)	DLM 0.00264	DLM 0.00109	DLM <0.0010	0.00072	DLM 0.00090
	Barium (Ba)-Dissolved (mg/L)	0.0757	0.00971	0.0256	0.0221	0.156
	Beryllium (Be)-Dissolved (mg/L)	DLA <0.0010	DLA <0.0010	DLA <0.0040	DLA <0.0020	DLA <0.0010
	Bismuth (Bi)-Dissolved (mg/L)	DLA <0.0025	DLA <0.0025	DLA <0.010	DLA <0.0050	DLA <0.0025
	Boron (B)-Dissolved (mg/L)	DLM 1.18	DLM 0.479	0.32	0.886	DLM <0.025
	Cadmium (Cd)-Dissolved (mg/L)	DLM <0.00025	0.000439	DLA <0.00034	DLA <0.00017	DLM <0.0010
	Calcium (Ca)-Dissolved (mg/L)	5.17	110	296	28.8	64.1
	Chromium (Cr)-Dissolved (mg/L)	DLM <0.0025	DLM <0.0025	<0.010	DLM <0.0050	DLM <0.0010
	Cobalt (Co)-Dissolved (mg/L)	DLA <0.00050	DLA <0.00050	DLA <0.0020	DLA <0.0010	0.00119
	Copper (Cu)-Dissolved (mg/L)	0.00123	DLM <0.010	DLM <0.040	DLA <0.0010	0.0144
	Iron (Fe)-Dissolved (mg/L)	0.362	0.328	0.177	0.137	1.07
	Lead (Pb)-Dissolved (mg/L)	DLA <0.00025	0.00066	DLA <0.0010	0.00085	0.00074
	Lithium (Li)-Dissolved (mg/L)	DLA <0.025	DLA <0.025	0.16	DLA <0.050	DLA <0.025
	Magnesium (Mg)-Dissolved (mg/L)	0.941	270	793	52.1	0.068
	Manganese (Mn)-Dissolved (mg/L)	0.0336	0.0513	0.0773	0.00742	0.00052
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.0539	0.00787	0.0173	0.00792	0.386
	Nickel (Ni)-Dissolved (mg/L)	0.00071	0.00180	0.0068	DLA <0.0010	0.0227
	Phosphorus (P)-Dissolved (mg/L)	0.64	<0.30	<0.90	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	2.77	22.7	74.5	18.4	7.79

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L931147-6	L931147-7	L931147-8	L931147-9	L931147-10
Description					
Sampled Date	01-SEP-10	01-SEP-10	01-SEP-10	30-AUG-10	01-SEP-10
Sampled Time					
Client ID	FIELD BLANK	PA1	M5301	P3	DUPLICATE
Grouping **Analyte**					
WATER					
Total Metals Molybdenum (Mo)-Total (mg/L)	<0.000050	0.0192	0.0336	0.0171	0.0312
Nickel (Ni)-Total (mg/L)	<0.00010	0.627	0.00728	DLA <0.0050	0.00657
Phosphorus (P)-Total (mg/L)	<0.30	14.2	<0.30	<3.0	<0.30
Potassium (K)-Total (mg/L)	<0.050	27.5	7.28	23.0	6.61
Selenium (Se)-Total (mg/L)	<0.00010	DLM <0.010	DLM <0.0010	DLM <0.010	DLM <0.0010
Silicon (Si)-Total (mg/L)	<0.050	254	13.5	5.71	12.8
Silver (Ag)-Total (mg/L)	<0.000010	0.00089	0.000079	DLA <0.00050	DLA <0.000050
Sodium (Na)-Total (mg/L)	<0.010	520	236	4400	203
Strontium (Sr)-Total (mg/L)	<0.00010	8.27	1.84	7.12	1.74
Thallium (Tl)-Total (mg/L)	<0.000050	DLA <0.0025	DLA <0.00025	DLA <0.0025	DLA <0.00025
Tin (Sn)-Total (mg/L)	<0.00010	DLA <0.0050	0.00072	DLA <0.0050	0.00060
Titanium (Ti)-Total (mg/L)	<0.010	0.206	0.343	<0.10	0.345
Uranium (U)-Total (mg/L)	<0.000010	0.00425	0.00109	0.00057	0.00111
Vanadium (V)-Total (mg/L)	<0.000050	DLM 0.957	0.0196	DLM <0.025	DLM 0.0182
Zinc (Zn)-Total (mg/L)	<0.0010	0.954	0.0133	DLA <0.050	0.0131
Dissolved Metals Aluminum (Al)-Dissolved (mg/L)	<0.0010	DLA <0.050	0.0292	DLA <0.050	DLA 0.0973
Antimony (Sb)-Dissolved (mg/L)	<0.000050	DLA <0.0025	DLA <0.00025	DLA <0.0025	DLA <0.00025
Arsenic (As)-Dissolved (mg/L)	<0.000030	DLM 0.0064	0.00173	DLM <0.0025	DLM 0.00169
Barium (Ba)-Dissolved (mg/L)	<0.000050	0.0366	0.0150	0.0052	0.0169
Beryllium (Be)-Dissolved (mg/L)	<0.00020	DLA <0.010	DLA <0.0010	DLA <0.010	DLA <0.0010
Bismuth (Bi)-Dissolved (mg/L)	<0.00050	DLA <0.025	DLA <0.0025	DLA <0.025	DLA <0.0025
Boron (B)-Dissolved (mg/L)	<0.0010	DLM 1.50	0.508	0.56	DLM 0.432
Cadmium (Cd)-Dissolved (mg/L)	<0.000017	DLA <0.00085	0.000119	DLA <0.00085	0.000095
Calcium (Ca)-Dissolved (mg/L)	0.053	24.5	55.8	409	55.5
Chromium (Cr)-Dissolved (mg/L)	<0.00010	DLM <0.010	DLM <0.0025	DLM <0.010	DLM <0.0025
Cobalt (Co)-Dissolved (mg/L)	<0.00010	DLA <0.0050	DLA <0.00050	DLA <0.0050	DLA <0.00050
Copper (Cu)-Dissolved (mg/L)	0.00022	DLA <0.0050	DLA <0.00050	DLA <0.050	0.00136
Iron (Fe)-Dissolved (mg/L)	<0.010	0.053	0.058	<0.10	0.125
Lead (Pb)-Dissolved (mg/L)	<0.000050	DLA <0.0025	0.00246	DLA <0.0025	0.00501
Lithium (Li)-Dissolved (mg/L)	<0.0050	DLA <0.25	DLA <0.025	DLA <0.25	DLA <0.025
Magnesium (Mg)-Dissolved (mg/L)	0.0231	3.65	60.6	778	54.7
Manganese (Mn)-Dissolved (mg/L)	0.000151	0.0226	0.0927	0.896	0.0889
Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	0.0625	0.0330	0.0153	0.0329
Nickel (Ni)-Dissolved (mg/L)	<0.00010	DLA <0.0050	DLA <0.00050	DLA <0.0050	DLA <0.00050
Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<3.0	<0.30
Potassium (K)-Dissolved (mg/L)	<0.050	DLA <2.5	6.77	22.8	6.48

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L931147-1	L931147-2	L931147-3	L931147-4	L931147-5
Description					
Sampled Date	02-SEP-10	01-SEP-10	31-AUG-10	01-SEP-10	02-SEP-10
Sampled Time					
Client ID	RES 05	M5 202	PA2	M5 203	RES-01A
Grouping / **Analyte**					
WATER					
Dissolved Metals Selenium (Se)-Dissolved (mg/L)	DLM 0.0086	DLM <0.0010	0.0953	0.0396	DLM <0.0010
Silicon (Si)-Dissolved (mg/L)	6.45	8.01	6.65	4.14	2.66
Silver (Ag)-Dissolved (mg/L)	DLA <0.000050	DLA <0.000050	DLA <0.00020	DLA <0.00010	DLA <0.000050
Sodium (Na)-Dissolved (mg/L)	265	348	1120	793	346
Strontium (Sr)-Dissolved (mg/L)	0.177	5.31	9.63	1.16	2.98
Thallium (Tl)-Dissolved (mg/L)	DLA <0.00025	DLA <0.00025	DLA <0.0010	DLA <0.00050	DLA <0.00025
Tin (Sn)-Dissolved (mg/L)	0.00607	DLA <0.00050	DLA <0.0020	DLA <0.0010	0.00166
Titanium (Ti)-Dissolved (mg/L)	<0.010	0.011	<0.030	<0.010	<0.010
Uranium (U)-Dissolved (mg/L)	0.000080	0.00708	0.0294	0.00432	DLA <0.000050
Vanadium (V)-Dissolved (mg/L)	DLM <0.0050	DLM <0.0025	DLM <0.010	DLM <0.0050	DLM 0.0053
Zinc (Zn)-Dissolved (mg/L)	0.0082	DLA <0.0050	DLA <0.020	DLA <0.010	DLA <0.0050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L931147-6	L931147-7	L931147-8	L931147-9	L931147-10
	Description					
	Sampled Date	01-SEP-10	01-SEP-10	01-SEP-10	30-AUG-10	01-SEP-10
	Sampled Time					
	Client ID	FIELD BLANK	PA1	M5301	P3	DUPLICATE
Grouping	**Analyte**					
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.010 DLM	<0.0010 DLM	<0.010 DLM	<0.0010 DLM
	Silicon (Si)-Dissolved (mg/L)	<0.050	4.36	4.77	5.20	4.78
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.00050 DLA	<0.000050 DLA	<0.00050 DLA	<0.000050 DLA
	Sodium (Na)-Dissolved (mg/L)	0.299	482	229	4150	211
	Strontium (Sr)-Dissolved (mg/L)	0.00274	1.09	1.78	6.97	1.75
	Thallium (Tl)-Dissolved (mg/L)	<0.000050	<0.0025 DLA	<0.00025 DLA	<0.0025 DLA	<0.00025 DLA
	Tin (Sn)-Dissolved (mg/L)	0.00017	<0.0050 DLA	<0.00050 DLA	<0.0050 DLA	<0.00050 DLA
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.10 DLA	<0.010
	Uranium (U)-Dissolved (mg/L)	<0.000010	<0.00050 DLA	0.00104	<0.00050 DLA	0.00104
	Vanadium (V)-Dissolved (mg/L)	<0.000050	<0.025 DLM	0.0026	<0.025 DLM	<0.0025 DLM
	Zinc (Zn)-Dissolved (mg/L)	0.0040	<0.050 DLA	<0.0050 DLA	<0.050 DLA	<0.0050 DLA

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
TKNI	TKN result is likely biased low due to Nitrate interference. Nitrate-N is > 10x TKN.
DLM	Detection Limit Adjusted For Sample Matrix Effects

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrite detection is by UV absorbance and not conductivity.			
ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Specifically, the nitrate detection is by UV absorance and not conductivity.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
C-TOT-ORG-LOW-CL	Water	Total Organic Carbon	APHA 5310 C-Instrumental
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
F-SIE-VA	Water	Fluoride by SIE	APHA 4500-F "Fluoride"
This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al3+ is present in the sample at a concentration greater than 2.5 mg/L.			
F-SIE-VA	Water	Fluoride by SIE	APHA 4500-F Fluoride
This analysis is carried out using procedures adapted from APHA Method 4500-F "Fluoride". Fluoride is determined using a selective ion electrode. This method has a significant negative interference (i.e. results could be biased low) when Al3+ is present in the sample at a concentration greater than 2.5 mg/L.			
FE-DIS-LOW-ICP-VA	Water	Dissolved Fe in Water by ICPOES	EPA SW-846 3005A/6010B
This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).			
FE-TOT-LOW-ICP-VA	Water	Total Fe in Water by ICPOES	EPA SW-846 3005A/6010B
This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or			

Reference Information

microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

IONBALANCE-VA Water Ion Balance Calculation APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

MET-DIS-ICP-VA Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DIS-LOW-MS-VA Water Dissolved Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-DIS-ULTRA-MS-VA Water Diss. Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ULTRA-MS-VA Water Total Metals in Water by ICPMS (Ultra) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-F-VA Water Ammonia by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulphuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA	Water	Total Phosphate P by Color	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS LABORATORY GROUP - CALGARY, ALBERTA, CANADA
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

C098781

GLOSSARY OF REPORT TERMS

Surrogate □ A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg □ milligrams per kilogram based on dry weight of sample.
mg/kg wwt □ milligrams per kilogram based on wet weight of sample.
mg/kg lwt □ milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L □ milligrams per litre.
< - Less than.
D.L. □ The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A □ Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Laboratory Group — ANALYTICAL CHEMISTRY & TESTING

Short Holding Time

...F CUSTODY / ANALYTICAL REQUEST FORM — COC # C098781

...NADA TOLL FREE 1-800-668-9878

www.alsenviro.com

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Environmental Divisic

Rush Processing

REPORT TO:	...MAT / DISTRIBUTION	SERVICE REQUESTED
COMPANY: New Afton.	STANDARD ✓ OTHER ___	✓ REGULAR SERVICE (DEFAULT)
CONTACT: Dennis Wilson.	PDF ✓ EXCEL ✓ CUSTOM ___ FAX ___	RUSH SERVICE (2-3 DAYS)
ADDRESS: 4050 Trans Canada Hwy	EMAIL 1: dennis.wilson@newgold.com.	PRIORITY SERVICE (1 DAY or ASAP)
Kamloops. V2C 2A9	EMAIL 2:	EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS
PHONE: 250 377 2785 FAX: 250 377 2702.		ANALYSIS REQUEST
INVOICE TO: SAME AS REPORT ? (YES) / NO	INDICATE BOTTLES: FILTERED / PRESERVED (F/P) → → →	
COMPANY:	CLIENT / PROJECT INFORMATION:	
CONTACT:	JOB #:	
ADDRESS:	PO /AFE: B4964.	
	Legal Site Description:	
PHONE: FAX:	QUOTE #: Q24525.	
Lab Work Order # (lab use only): L931147	SAMPLER (Initials): D.WILSON. W. BRITTON.	

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	Major anions + Cations	Dissolved Metals	Total Metals	Total Organic Carbon	HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
	RES 05	2/9/10.		Ground water	X	F/P	P	P			
	MS 202	1/9/10.			X	F/P	P				
	PA2	31/8/10.			X	F/P	P	P			
	MS 203	1/9/10.			X	F/P	P	.			
	RES-01A	2/9/10.			X	F/P	P	.			
	FIELD Blank	1/9/10.			X	F/P	P	P			
	PA1	1/9/10			X	F/P	P	P			
	MS301	1/9/10			X	F/P	P	.			
	P3	30/8/10.			X	F/P	P	P			
	Duplicate	1/9/10.			X	F/P	P	P			

GUIDELINES / REGULATIONS	SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS
	*PA1 Dissolved metals could not be filtered in field. *TOC for MS202, MS203, RES-01A, MS301 do not have preservative.

Failure to complete all portions of this form may delay analysis. Please fill in this form *LEGIBLY*.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the reverse page of the white report copy.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:	SAMPLE CONDITION (lab use only)	
D.Wilson.	10/9/10 - 1100			TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION ? YES / NO (If no provide details)
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY: R.C	DATE & TIME: 14Sept 1030	17.2	

REFER TO BACK PAGE FOR REGIONAL LOCATIONS AND SAMPLING INFORMATION — WHITE - REPORT COPY, PINK - FILE COPY, YELLOW - CLIENT COPY — ALSEF14.00

Appendix 2.9-1
Incidental Wildlife Observation/Mortality Form

Rescan™
Engineers and Scientists

Mortality (Y/N);

Date of Sighting;

Observer;

Task being performed;

Animal species (if known);

Description of animal (size, colour, age, health, etc);

Location description;

Sketch of area where animal was observed:

Completed forms are to be submitted to Environmental Specialist.

Appendix 3.2-1

Minutes of New Afton Monitoring Board Meetings

Rescan™
Engineers and Scientists

newgold New Afton Mine Kamloops, B.C.

Meeting Minutes

Monitoring Board Meeting **Meeting No 2010-01**

Date	Start	End	Next Meeting	Next Time	Prepared By	Company
3/11/10	0935	1200	June 10th	0930	D. Wilson	New Gold

Purpose	Location	Next Location	File No:
Section 5 of the M-229 Permit obligates the Permittee to establish a Monitoring Board to provide advice to the Chief Inspector of Mines, Ministry of Energy, Mines and Petroleum Resources, on environmental management and monitoring, reclamation and closure activities of the New Afton Mine.	**Ministry of Environment Meeting Room**	Skeetchestn	0030-01501

Attended By
Doug Sweeney (MEMPR & chair),
Linda Thomas (KIB),
Mike Anderson (SIB),
Rick Adams (MoE),
Dennis Wilson (New Afton)

Non-Attendees
John Jules (SSN)
Jason Bourgeois (MoE)
Frank Bessinger (MEMPR)

Distribute Meeting Minutes to:
Ron Allum
Rick Killam
John Jules

Item	Meeting Item Description	Resp	Due Date	Status
01-1	**Introductions and Monitoring Board Outline** • Due to new membership, introduction of everyone at the meeting as well as short discussion on purpose. • DS notified group that F. Bessinger will no longer be available for the meetings due to illness. • RA notified group that J. Bourgeois is the primary MoE member for the meetings.			Info Only Info Only Info Only
01-2 01-3	**Actions and Minutes from previous meeting/s** • *Action Item 1. "Frank Besinger will clarify the question of SIB / TIB / SSN representation and John Jules' role moving forward".* LT and MA to clarify the position of J.Jules given his new position. This may lead to an amendment to the Terms of Reference for the board which can be sorted at the next meeting. • *Action Item 2/3. "Mike Anderson to follow up on the letter sent to the City of Kamloops, likely with a meeting request. Frank Besinger will talk to his Regional Director for guidance on this matter."* There has been no letter sent and no information on Frank's work. General discussion on the benefits of the plan to pipe effluent to New Afton as well as hurdles. It was generally accepted that without financial backing from city or other private users , this plan cannot go ahead. DW stated that New Gold would support the project if it became cost effective and may champion the project by engaging potential users and generating political influence. New Action RA to provide advice on how to further pursue the matter through government. • *Action Item 4. "Mike Edwards will forward his report to Dianne Ramage with a request for feedback on the minimum flows required by Fisheries."* This was not discussed at the meeting. • *Action Item 5. "Rick Adams will confirm that the Effluent Discharge permit has been sent to both bands to initiate the consultation process."* RA gave an update	LT/MA MA DS RA/JB RA/JB RA/JB	6/10/10 6/10/10 6/10/10 6/10/10	Incomplete Incomplete Incomplete Completed Incomplete Completed

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Item	Meeting Item Description	Resp	Due Date	Status
	confirming that the FN had been provided with the draft permit. FN reps confirmed acceptance but that a formal letter has not been sent. RA confirmed that formal response from chief and council was required before permit issued. New Action LT and MA are to chase up the formal response letter. • Minutes were accepted.	LT/MA	4/15 /10	Incomplete
01-4	**Update Appendix A of the Terms of Reference, List of Monitoring Board Members and Alternates** • This was covered during previous items. New Action Members to review the current charter for next meeting.	All	6/10/10	Incomplete
01-5	**Cherry Creek Monitoring Results** • DW delivered information on the results of Cherry Creek residential groundwater wells in particular with regard to Arsenic values in the area. New Action DW to provide report that was given to residents and other pertinent information to members for transparency.	DW	6/10/10	Complete
01-6	**Project Status including any minor changes** • DW delivered information on the major changes that has taken place since the previous meeting as well as planned projects for the year. New Action DW to provide concise summary with the minutes to members.	DW	6/10/10	Complete
01-7	**Environmental objectives for 2010** • DW presented the objectives and targets for the next year at New Afton for environmental performance including opportunities for synergies with FN and govt. New Action DW to call Rolf Adams at MoE for advice on Met Station. New Action DW to check all monitoring and reporting commitments are being adopted from the M-229 permit.	DW DW	6/10/10 6/10/10	Incomplete Incomplete
01-8	**Approvals update – Water, Air and Effluent Licenses** • Mainly covered in Items 2/3. • Some confusion expressed over the need for the formal response but this was cleared. Action as stated previously in minutes.			
01-9	**New Gold Health Safety Environment and Sustainability Standards** • DW provided information on the framework for the EMS that will be implemented at New Afton and the 15 HSES Standards that have been adopted by all New Gold sites from corporate. New Action DW to provide a copy of the standards to all members for review before the next meeting.	DW	6/10/10	Complete
01-10	**Other new business** • No other new business discussed. • Meeting close.			

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newgold New Afton Mine Kamloops, B.C.

Meeting Minutes

Monitoring Board Meeting — Meeting No 2010-02

Date	Start	End	Next Meeting	Next Time	Prepared By	Company
23/6/10	0935	1200	Sept 23rd, 2010	0930	D. Wilson	New Gold

Purpose	Location	Next Location	File No:
Section 5 of the M-229 Permit obligates the Permittee to establish a Monitoring Board to provide advice to the Chief Inspector of Mines, Ministry of Energy, Mines and Petroleum Resources, on environmental management and monitoring, reclamation and closure activities of the New Afton Mine.	**Stkemlupsemc Offices**	New Afton, Mesquite Room	0030-01502

Attended By
Stephen Rothman (MEMPR & chair),
Joanne Mosterd (KIB),
Mike Anderson (SIB),
Jason Bourgeois (MoE),
Dennis Wilson (New Afton)

Non-Attendees
John Jules (SSN)
Linda Thomas (KIB)

Distribute Meeting Minutes to:
Ron Allum
Rick Killam
John Jules
Linda Thomas

Item	Meeting Item Description	Resp	Due Date	Status
02-1	**Introductions and Monitoring Board Outline** • Due to new membership, introduction of everyone at the meeting as well as short discussion on purpose. • Review of the Terms of Reference to be conducted prior to the next meeting. Comments to be forwarded to DW.	 All	 26/7/10	Info Only New Action
02-2	**Actions and Minutes from previous meeting/s** • This will be addressed during the review of the Terms of Reference (above). • *"Mike Anderson to follow up on the letter sent to the City of Kamloops, likely with a meeting request.* DW stated that New Gold will support the project will seek to promote the idea to other potential users and look at the broader question of Kamloops Lake catchment strategy. The above action will be part of that work so is no longer required in the minutes. . • DW to formulate a scope for the project looking at gathering support for the idea of piping effluent for land based activity.. • *"Mike Edwards will forward his report to Dianne Ramage with a request for feedback on the minimum flows required by Fisheries."* This was not discussed at the meeting. DW told the committee membership that the two main outstanding permits have been received from the Ministry of Environment. A copy of the finalized permits have been sent to the Bands. • Minutes were accepted.	 DW JB DW	 23/9/10 23/9/10	 New Action Complete Info Only.

Item	Meeting Item Description	Resp	Due Date	Status
02-03	**Review of actions from previous meeting** • This was completed.			
02-04	**Review of Annual Reclamation Report - 2009** • DW provided the meeting participants with the report prior to the meeting but not everyone had read the document. This will carry over to the next meeting .Membership to read the document prior to next meeting.	ALL	23/9/10	New Item
02-05	**Approvals Update – Water , Air and Effluent Licenses** • As stated earlier, DW told the committee membership that the two main outstanding permits have been received from the Ministry of Environment. A copy of the finalized permits have been sent to the Bands.			
02-06	**Project Status including any minor changes** DW to provide concise summary with the minutes to members for the period March through June.	DW	1/7/10	Completed 29/6/10
02-07	**Environmental objectives for 2010** • This was not discussed at the meeting , however, a comprehensive review of the M-229 permit, the Effluent Permit and the monitoring program has been undertaken. DW to call Ralf Adams at MoE for advice on Met Station. DW to check all monitoring and reporting commitments are being adopted from the M-229 permit.	DW DW	6/10/10 6/10/10	Incomplete Completed
02-08	**Other new business** • Discussion into the use of sewerage sludge (locally sourced) for use in rehabilitation applications. DW/ MA to investigate the use of sludge for rehabilitation purposes and develop scope for project. **Meeting close.**	DW/ MA	23/9/10	New Item

newgold New Afton Mine Kamloops, B.C.

Meeting Minutes

Monitoring Board Meeting **Meeting No 2010-03**

Date	Start	End	Next Meeting	Next Time	Prepared By	Company
23/9/10	0935	1200	16/12/10	0930	D. Wilson	New Gold

Purpose	Location	Next Location	File No:
Section 5 of the M-229 Permit obligates the Permittee to establish a Monitoring Board to provide advice to the Chief Inspector of Mines, Ministry of Energy, Mines and Petroleum Resources, on environmental management and monitoring, reclamation and closure activities of the New Afton Mine.	**New Afton, Mesquite Room**	MEMPR Offices	0030-01503

Attended By
Stephen Rothman (MEMPR & chair),
Linda Thomas (KIB),
Mike Anderson (SIB),
Jason Bourgeois (MoE),
Dennis Wilson (New Afton)

Non-Attendees
John Jules (SSN)

Distribute Meeting Minutes to:
Ron Allum
Rick Killam
John Jules

Item	Meeting Item Description	Resp	Due Date	Status
03-1	**Introductions**			
03-2	**Acceptance of previous minutes**			
03-03	**Review of actions from previous meeting** • *Review of the Terms of Reference to be conducted prior to the next meeting. Comments to be forwarded to DW.* Following brief discussion regarding the role of the JIC it was agreed that an annual report shall go to the JIC annually which comprises of highlights from meetings as agreed by membership. Annual report to go to MEMPR Mine and Minerals Joint Resources Committee and SSN Joint Council DW to make changes as discussed at meeting *The comments are to be compiled and distributed for acceptance.* • Discussion into the use of sewerage sludge (locally sourced) for use in rehabilitation applications. DW/ MA to investigate the use of sludge for rehabilitation purposes and develop scope for project. • *"Mike Anderson to follow up on the letter sent to the City of Kamloops, likely with a meeting request.* DW stated that New Gold will support the project will seek to promote the idea to other potential users and look at the broader question of Kamloops Lake catchment strategy. The above action will be part of that work so is no longer required in the minutes. However, Mike Anderson may take this matter to the Joint Council of SSN. .	All DW DW/ MA MA	26/7/10 16/12/10 23/9/10 -	Complete New Action Incomplete Action on hold / not required.

Item	Meeting Item Description	Resp	Due Date	Status
	DW to formulate a scope for the project looking at gathering support for the idea.	DW	23/9/10	Complete
	• *"Mike Edwards will forward his report to Dianne Ramage with a request for feedback on the minimum flows required by Fisheries."* This was not discussed at the meeting.	JB	23/9/10	Complete
03-04	**Review of Annual Reclamation Report - 2009** • DW provided the meeting participants with the report prior to the meeting but not everyone had read the document. This will carry over to the next meeting. • DW will ensure that all Committee Members have this reportCommittee Members to read the document prior to next meeting.	ALL	16/12/10	New Item
03-05	**Project Status including any minor changes** • March – June Project status sent in June. • DW to provide concise summary with the minutes to members for the period June through September.	DW	30/9/10	New Item
03-06	**Environmental objectives for 2010** • This was discussed at the meeting with discussion concerning the groundwater monitoring program the main concern. DW reported that a review is needed to overcome sampling difficulties and to review status of permitted sites. • Discussion with regard to met station with the last data set coming from the station useless. MoE will assist with calibrating and checking the instrumentation. DW to call Rolf Adams at MoE for advice on Met Station. • Revision of the Groundwater monitoring program to take place, particular attention to be paid to sites on the north side of the property and better sampling methods. • Have the Met station repaired and calibrated so that reliable data can be retrieved. Assistance from MoE. • Relocate dust gauges to better quantify dust from construction activity with input from MoE.	DW DW DW DW	6/10/10 31/12/10 31/12/10 31/12/10	Completed New Item New Item New Item
03-07	**Other new business** • Teleconference with Dawn Mills did not occur. At this stage proposal does not fit the agenda the monitoring board agenda. **Meeting close.**			

Appendix 5.1-1
Chance Find Form

Rescan™
Engineers and Scientists

newgold New Afton Mine Kamloops, B.C.

Archaeological Chance Find Report Form

ENV-FRM-001

Date:	Survey Date May 4, 2010	Recorder's Name/Affiliation:	Wynona Britton (Skeetchestn Indian Band)

Location of chance find (Location description, UTM coordinates, depth below surface):

Location is at New Gold Mine approximately 10 km west of Kamloops and 5 km south of Kamloops lake in British Columbia.These lithic finds were approximately 264 m to the east of site# EdRd-7. Two lithic finds were located on the surface. The lithic finds are on the side of a hill overlooking the existing open pit that is approximately 400 m to the east.

Description of find:

Two small dacite material flakes. Lithics were flagged but not collected.

Method used to mark and protect find:

Recorded coordinates using a gps unit. Flagged both with pink and black special management ribbon. Took photos of each as well. Entered data collection into database for future reference.

Distributions:

☒ Environmental Department	☐ Mine General Manager	☐ Kamloops Indian Band	☒ Skeetchesten Indian Band	☐ Archaeology Branch	☐ Site Archaeologist

Sketch Map
Please find attached map 1: 5000 scale.

Photo
WPT #29:



WPT#30:



BRITISH COLUMBIA

Site EeRd-7 in relation to Surface Find May 4 2010



Legend

- Major Cities
- Transportation - Airfield (EBM)
  - Air Facility
  - Airport
  - Airstrip
  - Abandoned Airfield
  - Helipad
- Transportation - Points (TRIM)
  - Helipad
- Parks
  - National Parks
  - Provincial Parks
- CWB Wetlands
- CWB Manmade Waterbodies
- CWB Rivers
- CWB Lakes
- CWB Stream Networks

Scale: 1: 5,241

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Datum/Projection: NAD83, Albers Equal Area Conic
Created using Mapview 6.0.0 on: 24/06/10

Key Map of British Columbia



BRITISH COLUMBIA | Ministry of Energy and Mines

Province of British Columbia

Ministry of Energy and Mines

Report of Inspector of Mines

(Issued pursuant to Section 15 of the *Mines Act*)

Inspection No.:	**21705**
File:	**18040-02-02**
Mine No.:	**0300614**
Permit No.:	
Emp/Cont:	**0 / 0**
Orders H&S:	**4 RECL: 0**
Stop Work:	**0**

Inspection Report

NAME OF MINE	New Afton	LOCALITY	50.707, -120.592, 92I/10E Kamloops
OWNER/OPERATOR	New Gold Inc.	ADDRESS	Box 948, Station Main Kamloops BC V2C 5N4
MANAGER	Kurt Keskimaki	AREAS INSPECTED	Underground

Persons Contacted

MANAGEMENT	Kurt Keskimaki, Mike Gagnon
OHS COMMITTEE	
WORKERS	various

A copy has been forwarded to the Joint Occupational and Safety Committee and the union as applicable. The Mine manager shall complete the right hand column noting specific corrective actions taken by a specified date, and return a copy to the Inspector within 15 days of receiving the report. Further the manager shall post a copy to the bulletin board, to be replaced by a copy showing the manager's response. In this document, Code means Health, Safety and Reclamation Code for Mines in British Columbia.

INSPECTION ORDERS	MANAGERS RESPONSE OF ACTION TAKEN
The underground area was inspected on December 1, 2011 by John Cox, Inspector of Mines. The Inspector was accompanied by Mr. Mike Gagnon, Development Mine Captain. The Inspector met with Mr. Kurt Keskimaki, Mine Manager after the inspection. The control of dust was recognized as being a major issue by the manager, the captain and the workers. Pursuant to Section 6.24.2 of the Code, wherever practicable, water sprays or other dust suppression means and devices shall be used at every dusty place where work is carried out and where it is impractical to do so, personal protective equipment shall be supplied and worn by all persons working in that location. Dust control measures shall be instituted immediately at all active drawpoints, development headings, remuck locations, ramps, conveyor	***Dust control sprays are installed at all active drawpoints and other muck transfer locations and utilized while scoops are actively moving muck. Water mist sprays are installed on the access decline to ensure the ramp is kept dam. New Afton has a new water truck with a spray bar system that goes up the ribs as well as spraying straight down that is utilzied to wet down other areas of the mine without sprays. A second Normet Multimec carrier is on order and will be received within a month to ensure a water truck is always available to wet dusty areas. A third Multimec will be received later in the first quarter of 2012 to futher alleviate water truck availability issues. Water truck drivers have been hired and trained and are on all 4 shifts at the present time. All underground employees are trained to call channel 7, the mine dispatcher if an area is dry and dusty and needs dust control water applied. On the conveyor ramp, the construction crews have installed water spray misters and are trained to wet down dry sections of ramp. Testing of CaCl dust suppression is underway there***

John Cox
Inspector of Mines

441 Columbia Street Kamloops BC V2C 2T3
Address

Date of Inspection: 12/1/2011

Copies To

John A Cox
Signature – Inspector of Mines

Kurt Keskimaki
Signature – Manager

Dated: Dec 15 , 20 11

INSPECTION ORDERS	MANAGERS RESPONSE OF ACTION TAKEN
declines, connecting crosscuts and wherever else muck is dug up or settled dust is disturbed. Attention shall be paid to areas surrounding the intakes of fans so that dust is not picked up and transmitted elsewhere. This shall be a continuous activity on both day shift and night shift so that the airborne dust is eliminated. Where muck piles are sprayed, the walls and back shall also be wetted down. In the ramps, declines and crosscuts the wetted area shall extend at least one metre up from the sill on each wall or if applicable to where the vehicle exhaust blows against the walls.	*at the persent time. The mine has also tested canola oil, as well as several other commercial dust suppressents and continues to look for a product that is not slippery on the ramp.*
A three inch bullhose connection in the lower access to the development crusher did not have a whip check. Pursuant to Section 1.9.1 of the Code, the manager shall take all reasonable and practicable measures to ensure that the workplace is free of potentially hazardous agents and conditions which could adversely affect the health, safety, or well-being of the workers. The manager shall ensure that the company policy regarding the use and installation of whip checks is strictly adhered to.	*Whip checks were installed on the hoses with noted deficencies.*
There was a diamond drill off the main ramp. The guard was installed but was not being used. Pursuant to Section 4.4.2 of the Code, unless situated so as to prevent a person coming into accidental contact with it, every drive belt, chain, rope or pulley, sprocket, flywheel, geared wheel and every opening through which any belt, pulley or wheel operates, and every bolt, key, set screw and every part of any wheel or other revolving part that projects unevenly from the surface shall be effectively enclosed, covered, or guarded. To be remedied immediately.	*The Atlas diamond drill with the guard removed was properly guarded before drilling was continued the day of the inspection. Training with the drill crew about safe operation was completed with the crew and the owner of the company the following day.*

Date of Inspection 12/1/2011 Initials _____ (Inspector) Initials KwK (Manager)

Thursday, December 1, 2011

File: 18040-02-02
Mine No.: 0300614

Mr. Kurt Keskimaki
Mine Manager
New Afton Mine
New Gold Inc
Box 948, Station Main
Kamloops BC, V2C 5N4

Dear Mr. Keskimaki:

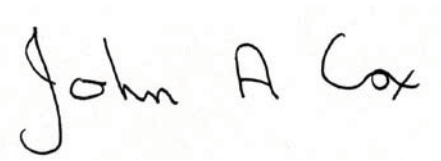
Re: Mine Inspection December 1, 2011
Property: New Afton

Enclosed are two copies of my Inspection Report for the above noted property and date.

Please have this report posted in a conspicuous place on the property accessible to the workers in accordance with Section 30(1) of the Mines Act.

As noted on page one of the report, please fill in the appropriate areas responding to the Inspector's comments, sign and date the first page, initial the subsequent page(s) and return a copy with your comments to the writer.

Yours truly,



John Cox
Inspector of Mines
Enclosures

Thursday, December 1, 2011

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Yours truly,

John A Cox

John Cox
Inspector of Mines
Enclosures

Inspection Report

NAME OF MINE	New Afton	LOCALITY	50.707, 120.592, 92I/10E Kamloops
OWNER/OPERATOR	New Gold Inc.	ADDRESS	Box 948, Station Main Kamloops BC V2C 5N4
MANAGER	Kurt Keskimaki	AREAS INSPECTED	Underground

Persons Contacted

MANAGEMENT	Kurt Keskimaki, Mike Gagnon
OHS COMMITTEE	
WORKERS	various

A copy has been forwarded to the Joint Occupational and Safety Committee and the union as applicable. The Mine manager shall complete the right hand column noting specific corrective actions taken by a specified date, and return a copy to the Inspector within 15 days of receiving the report. Further the manager shall post a copy to the bulletin board, to be replaced by a copy showing the manager's response. In this document, Code means Health, Safety and Reclamation Code for Mines in British Columbia.

INSPECTION ORDERS	MANAGERS RESPONSE OF ACTION TAKEN
The underground area was inspected on December 1, 2011 by John Cox, Inspector of Mines. The Inspector was accompanied by Mr. Mike Gagnon, Development Mine Captain. The Inspector met with Mr. Kurt Keskimaki, Mine Manager after the inspection. The control of dust was recognized as being a major issue by the manager, the captain and the workers. Pursuant to Section 6.24.2 of the Code, wherever practicable, water sprays or other dust suppression means and devices shall be used at every dusty place where work is carried out and where it is impractical to do so, personal protective equipment shall be supplied and worn by all persons working in that location. Dust control measures shall be instituted immediately at all active drawpoints, development headings, remuck locations, ramps, conveyor	***DO NOT MODIFY THIS TEXT***

declines, connecting crosscuts and wherever else muck is dug up or settled dust is disturbed. Attention shall be paid to areas surrounding the intakes of fans so that dust is not picked up and transmitted elsewhere. This shall be a continuous activity on both day shift and night shift so that the airborne dust is eliminated. Where muck piles are sprayed, the walls and back shall also be wetted down. In the ramps, declines and crosscuts the wetted area shall extend at least one metre up from the sill on each wall or if applicable to where the vehicle exhaust blows against the walls.

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Inspection Report

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OWNER/OPERATOR	New Gold Inc.	ADDRESS	Box 948, Station Main Kamloops BC V2C 5N4
MANAGER	Kurt Keskimaki	AREAS INSPECTED	Underground

Persons Contacted

MANAGEMENT	Kurt Keskimaki, Mike Gagnon
OHS COMMITTEE	
WORKERS	various

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Inspection Report

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OWNER/OPERATOR	New Gold Inc.	ADDRESS	Box 948, Station Main Kamloops BC V2C 5N4
MANAGER	Kurt Keskimaki	AREAS INSPECTED	Surface area

Persons Contacted

MANAGEMENT	Dennis Wilson
OHS COMMITTEE	
WORKERS	

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INSPECTION ORDERS	MANAGERS RESPONSE OF ACTION TAKEN
SECTION :6.24.2 General Mine Rules The Ministry of Energy and Mines has received public complaints on dust rising from the mine site. A dust mitigation plan shall be submitted within 14 days and the mine shall maintain a record of actions take to mitigate dust on the site.	

Wednesday, May 30, 2012

File: 18040-02-02
Mine No.: 0300614

Kurt Keskimaki
Mine Manager
Box 948, Station Main
Kamloops BC, V2C 5N4

Dear Sir:

Re: Mine Inspection May 28, 2012
Property: New Afton

Attached is a copy of my Inspection Report for the above noted property and date.

Please have this report posted in a conspicuous place on the property accessible to the workers in accordance with Section 30(1) of the Mines Act.

As noted on page one of the report, please fill in the appropriate areas responding to the Inspector's comments, sign and date the first page, initial the subsequent page(s) and return a copy with your comments to the writer.

Yours truly,

Stephen Rothman, P.Eng.
Inspector of Mines

Enclosures

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Yours truly,

Stephen Rothman, P.Eng.
Inspector of Mines

Enclosures

From:	Rothman, Stephen EMNG:EX
To:	Spear, Ashley EMNG:EX
Subject:	FW: Inspection Orders
Date:	Tuesday, November 20, 2012 5:17:07 PM
Attachments:	24405_Inspection_Report_Oct_16,_2012.pdf

Ash,
Could you please enter this inspection report to the corresponding number to the initial report issued and this is the response from that report.

Thanks
Steve

From: Sean Masse [mailto:Sean.Masse@newgold.com]
Sent: Monday, November 19, 2012 2:41 PM
To: Rothman, Stephen EMNG:EX
Cc: Kurt Keskimaki; Craig Lockhart
Subject: Inspection Orders

Hi Steve,

My response to your inspection orders dated November 9 did not have a signature. Kurt asked me today if I had signed it when he was away, I didn't even think to sign it.

This copy is signed.

Craig, Please have this copy posted in the mill lunchroom.

Sean Masse, P.Eng, PMP
Mine Manager
New Gold Inc.
New AftonMine
Box 948 Stn Main
Kamloops, British Columbia, Canada, V2C 5N4
T+1.250.377.2779 F+1.250.377.2701
M+1.250.819.2187

www.newgold.com
TSX/NYSE AMEX:NGD

The information in this email is privileged or confidential or both. If you are not the intended recipient, you are prohibited from using, distributing or copying this information.

Inspection Report

NAME OF MINE	New Afton	LOCALITY	50.707, 120.592, 92I/10E Kamloops
OWNER/OPERATOR	New Gold Inc.	ADDRESS	Box 948, Station Main Kamloops BC V2C 5N4
MANAGER	Kurt Keskimaki	AREAS INSPECTED	Mine Audit

Persons Contacted

MANAGEMENT

OHS COMMITTEE

WORKERS

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INSPECTION ORDERS	MANAGERS RESPONSE OF ACTION TAKEN
Pursuant to Section 3.1.4 of the Code,"No person shall render ineffective any device provided for the protection of persons". The alarm system in the mill control room has been muffled because the alarms go off so frequently. An investigation must be done to determine why the alarms go off and correct the problems or faults. The audible warning alarm must not be muffled. To be remedied immediately. Pursuant to Section8.4.2 of the Code "A vehicle used to transport explosives shall have a separate compartment for the explosives which prevents them from coming into contact with any metal that could produce a spark". The Charmak ANFO loader was transporting detonating cord and cartridged explosive cases on a steel deck. A suitable container must be installed on the ANFO loader, to transport explosives.	

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Pursuant to Section 2.1.1 of the Code, notwithstanding section 1.1.4 of the code, employees shall not be exposed to airborne concentrations of chemical agents or noise in excess of the levels specified in Tables 2-1 and 2-2, or where not specified those listed in the 1994-1995 edition of the American Conference of Governmental Industrial Hygienists' book entitled "Threshold Limit Values and Biological Exposure Indices". Referenced material shall be made available to the OHSC.	
Pursuant to Section 2.1.2 of the Code, when shifts longer than 8 hours are being worked, the time-weighted average concentration of airborne contaminants shall be based on the "concentration equivalent" (Ceq) which is derived from the following formula: Ceq = (8-hour TWA)x8 shift length in hours	

Inspection Report

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OWNER/OPERATOR	New Gold Inc.	ADDRESS	Box 948, Station Main Kamloops BC V2C 5N4
MANAGER	Kurt Keskimaki	AREAS INSPECTED	Mine Audit

Persons Contacted

MANAGEMENT

OHS COMMITTEE

WORKERS

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BRITISH COLUMBIA | Ministry of Energy and Mines

Province of British Columbia

Ministry of Energy and Mines

Report of Inspector of Mines

(Issued pursuant to Section 15 of the *Mines Act*)

Inspection No.:	**24405**
File:	**18040-02-02**
Mine No.:	**0300614**
Permit No.:	
Emp/Cont:	**0 / 0**
Orders H&S:	**6** **RECL:** **0**
Stop Work:	**0**

Inspection Report

NAME OF MINE	New Afton	LOCALITY	50.707, -120.592, 92I/10E Kamloops
OWNER/OPERATOR	New Gold Inc.	ADDRESS	Box 948, Station Main Kamloops BC V2C 5N4
MANAGER	Kurt Keskimaki	AREAS INSPECTED	Mine Audit

Persons Contacted

MANAGEMENT

OHS COMMITTEE

WORKERS

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Stephen Rothman, P.Eng.

Inspector of Mines

441 Columbia Street Kamloops BC V2C 2T3

Address

Signature – Inspector of Mines

for Kurt Keskimaki

Signature – Manager

Date of Inspection: 10/16/2012

Dated: Nov 19 , 20 12

Copies To

INSPECTION ORDERS	MANAGERS RESPONSE OF ACTION TAKEN
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Pursuant to Section 2.1.1 of the Code, notwithstanding section Levels of carbon monoxide were observed underground in excess of the levels specified in table 2-1 of the Code. Pursuant to sections 2.1.1 and 2.1.2 of the Code, employees' exposures to carbon monoxide underground shall be reduced. To be remedied immediately.	*Our understanding is that the particular high readings were in the footwall shop and in the footwall shop refuge station. The refuge station air supply was disconnected during construction in the shop, this allowed CO to accumulate in the refuge from the shop This has been remedied. We have made some upgrades to the shop ventilation as well.*
As per section 1.9.1, the manager shall take all reasonable measures to ensure the workplace is free of potential hazardous agents and conditions which could adversely affect the health or well-being of the workers, including ensuring that the number of vehicles running at the working headings does not exceed the capacity of the ventilation system to prevent elevated concentrations of carbon monoxide in the working environment. To be remedied immediately and a log shall be maintained of all vehicles underground and shall not to exceed the regulatory limits.	*New Afton has a mine dispatcher and a dispatch log that automatically calculates the ventilation required underground based on which specific equipment is running and subtracts this flow from the most recent vent survey flow in the mine. The dispatcher then manages which equipment can be operating given the available flow.*

Date of Inspection 10/16/2012 Initials _____ (Inspector) Initials _____ (Manager)

BRITISH COLUMBIA

January 8, 2013

Mr. Kurt Keskimaki
Mine Manager
New Afton Mine
Box 948, Station Main
Kamloops, BC V2C 5N4

ORCS: 18100-20
Mine: 0300614

Dear Mr. Keskimaki:

By mail and email: kurt.keskimaki@newgold.com

I regret the delay in forwarding the completed audit to you.

Thank you for your participation in the British Columbia mine health and safety audit process. The audits are designed to assist mine management in updating their policies and procedures and to continue to improve their health and safety programs while ensuring compliance with the Health, Safety and Reclamation Code for Mines in British Columbia.

The results show that you have made a good start at the health and safety management plan at your operation. Of particular concern however, is the occupational health section of the audit. Several shortcomings have been pointed out with respect to the mine ventilation, high ambient carbon monoxide issues in the conveyor ramp, refuge station and a haulage drift. High temperature levels were noted that may be adversely affecting electrical equipment in underground substations. These issues need to be addressed immediately.

The occupational monitoring program requires further development. Inspectors Caroline Nakatsuka and Carina Doyle can assist you with this.

The Ministry appreciates the efforts that have been made thus far at New Afton Mine to comply with the Health, Safety, and Reclamation Code and look forward to reviewing the improvements that will be made. We have the expertise and capability of assisting you in the development of your health and safety program and offer that to you at your request.

. . /2

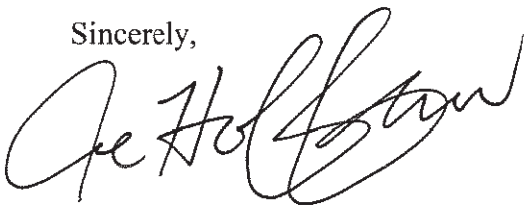
Ministry of Energy,Mines and Natural Gas

Mines and Mineral Resources Division

Mailing Address:
PO Box 9320, Stn Prov Govt
Victoria, BC V8W 9N3
Ph: 250-952-0793
Facsimile: 250-952-0491

Location:
Sixth Floor
1810 Blanshard Street
Victoria, BC V8W 9N3

Sincerely,



Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

Ec: Ms. Cheryl Pocklington, Inspector of Mines Ergonomics, Victoria, MEMNG
Mr. Rolly Thorpe, Deputy Chief Inspector of Mines Health and Safety, MEMNG
Ms. Caroline Nakatsuka, Manager of Occupational Health, Victoria, MEMNG
Mr. Steve Rothman, Senior Inspector of Mines, Kamloops, MEMNG
Mr. Terry Paterson, Inspector of Mines, Electrical, Cranbrook, MEMNG
Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MEMNG
Mr. Emmanuel Padley, Inspector of Mines, Electrical, Kamloops, MEMNG
Mr. Scott Parker, Inspector of Mines, Health and Safety, Smithers, MEMNG
Mr. Jerrold Jewsbury, Inspector of Mines, Cranbrook, MEMNG
Ms. Carina Doyle, Inspector of Mines, Occupational Health, Victoria, MEMNG

Ministry of Energy, Mines and Natural Gas

Mines and Mineral Resources Division

Mailing Address:
PO Box 9320, Stn Prov Govt
Victoria, BC V8W 9N3
Telephone: (250) 952-0793
Facsimile: (250) 952-0481

Location:
Sixth Floor
1810 Blanshard St
Victoria, BC V8W 9N3

BRITISH COLUMBIA

INITIAL HEALTH AND SAFETY AUDIT

New Afton Mine

October 16 & 17, 2012

Part One

Overview Report

PREPARED BY

MINISTRY OF ENERGY, MINES AND NATURAL GAS

MINES AND MINERAL RESOURCES DIVISION

EGM 2012 00265
Part 2
Page 24

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PREFACE

This report is a compilation of the findings from the Initial Health and Safety Audit conducted at New Afton Mine on October 16 and 17, 2012. This report represents the first of three potential steps in the audit process. The first step is this initial audit which reviewed some of the applicable parts of the Health, Safety and Reclamation Code for Mines in British Columbia (Code). The second step is a follow-up audit which will concentrate on the deficiencies noted from this initial audit. The third step, if required, will be another full audit, which will investigate compliance with all applicable parts of the Code.

This "Part One: Overview Report" discusses the methods used in the audit and summarizes the auditors' findings.

The "Part Two: Detailed Report" details the findings of the audit parts. These detailed findings will be used to conduct a follow-up audit in six months from the receipt of this report.

A progress report from the Mine Manager addressing the deficiencies from this Initial Audit is required ***two months*** from receipt of this report. The Mine Manager is required to put his responses in the "Initial Audit – Manager's Reply" sections found in the Initial Health and Safety Audit, Part Two: Detailed Report.

AUDITORS

Shown below is the list of inspectors who participated in the Initial Health and Safety Audit and the parts of the Health, Safety and Reclamation Code (HSRC) that were audited.

Phil Pascuzzi, Senior Inspector of Mines (Audit Lead)

- HSRC Part 1: Health and Safety Program, Records / General Rules

Cheryl Pocklington – Inspector of Mines, Ergonomist
Carina Doyle – Inspector of Mines, Occupational Health and Safety

- HSRC Part 2: Occupational Health

Rolly Thorpe –Deputy Chief Inspector of Mines, Health and Safety
Phil Pascuzzi, Senior Inspector of Mines

- HSRC Part 3: Personnel Safety and Emergency Preparedness

Garry MacDonald, Senior Inspector of Mines, Mechanical
Greg McLean – Senior Inspector of Mines, Mechanical

- HSRC Part 4: Building, Machinery and Equipment

Terry Paterson – Senior Inspector of Mines, Electrical

- HSRC Part 5: Electrical Power System

Rolly Thorpe –Deputy Chief Inspector of Mines, Health and Safety

- HSRC Part 8: Explosives

Steve Rothman – Senior Inspector of Mines, Health and Safety

- HSRC Part 6: Mine Design and Procedures
- HRSC Part 10: Reclamation and Closure

INTRODUCTION

Mine Health and Safety Audits are designed to assist management in developing or updating their policies and procedures, to continue to improve their health and safety programs, while also ensuring compliance with the Health, Safety and Reclamation Code for Mines in British Columbia.

METHODS

The auditors rated their respective areas by a combination of the following criteria:

- Inspections
- Employee Interviews
- Review of Procedures and Records

SCORING

The scoring is based on whether or not the section/sub-section was present, was sufficient to meet the requirements of the Health, Safety and Reclamation Code, and was being followed by the affected employees.

Each section/sub-section was scored using the following criteria:

5	All components of the section/sub-section are present, in place, being monitored and working.
4	Most components of the section/sub-section are present, minor improvements are needed, additional training is required.
3	The basics of the section/sub-section are in place, but require updating, revisions, documentation, training or procedures.
2	Parts of the section/sub-section are available, the procedure may be verbal or in draft format.
1	The section/sub-section is not present; however, the mine has made attempts to develop it or it is outdated.
0	The section/sub-section is not present at the mine and no consideration has been made for development.

The scores for each section/sub-section were tallied and summarized as a percentage. These percentages are an indication of the level of compliance with the Health, Safety and Reclamation Code.

SCORING RESULTS for New Afton Mine

ACTIVITY AUDITED		INITIAL PERCENTAGE
Part 1	Health and Safety Program	**68%**
Part 2	Occupational Health	**61%**
Part 3	Personnel Safety / Emergency Procedures	**80%**
Part 4	Mechanical	**84%**
Part 5	Electrical	**82%**
Part 6	Mine Design	**78%**
Part 8	Explosives	**87%**
Part 10	Reclamation	**72%**

AUDITORS' SUMMARY

Part One – Health and Safety Program & General Rules
Phil Pascuzzi

There are lot of positive aspects in place at the mine that demonstrate the company's willingness to put the required resources in place to support the development of a solid Health and Safety Management System. There are numerous safe work procedures and safety rules in place or very near the implementation stage. The mine management has to continue to ensure that once a rule or standard is developed, it is properly implemented. This is achieved by training employees on the standard, monitoring their behaviour to the standard and providing feedback on how well the standard is being followed.

The mines Health and Safety policy needs to be reviewed and reintroduced and used as the driver (heart) on how the rest of the health and safety management system are to be managed.

The JOHSC needs to revisit their mandate and decide what they see their role is in helping the General Manager achieve his goals for a good health and safety management system.

With the introduction of the INX data management system, the mine will have a better process of tracking key elements of the program and ensuring things are being done as they should.

Part Two – Occupational Health
Cheryl Pocklington / Carina Doyle

Site tour

- Reviewed ergo design with staff: assay lab item storage with respect to lifting, warehouse front counter;
- C-frame jumbo: noted cramped space for operator's with some visibility difficulties. Drill operation console actually articulates (handle at left side) which changes the angle of the controls to increase comfort and adjustability for workers but was stuck. Recommended this be fixed and demonstrated to drill operators;
- Other issues noted: Underground crusher cab – small area needs better suited furniture (more narrow profile chairs, cabinets) for this small space. Also foot rung on main operator's chair a hazard for tripping;
- Encourage mobile equipment seating to have independent adjustment of height and seat suspension - more effective at protecting workers from vibration and bumps in the road;
- Flocculent-mill: to reduce physical demands associated with handling 25 kg bag, workers would benefit from grating installed across the containment ledge to raise the standing surface in front of the hopper for ease of lifting bag to dump into the hopper and a ledge to place the bag on to cut it then dump in the hopper.
- High CO levels were found on the exit ramp coming back up towards the conveyor (56 ppm) and in the haulage drift just outside the refueling stage (30 ppm). There was some indication that the carbon monoxide detectors in the underground electrical rooms have been shut off or tampered with.

Document review
MSD Prevention training:
Have not yet received documentation outlining who has received MSD Prevention training as required by 1.6.9(1)(h). This training requirement is met when half the OSHC has received training that meets our requirement.
In order to assess the Mine Manager's success with preventing MSD, various incident reports were reviewed for completeness and effectiveness. This includes DO, LTI, RDI, FAI, and others.

Incident Reports:

Incomplete/inadequate investigations don't control for risk to workers:

- Lost Time Injury 2012_313
  While cladding a roof, this cladder sensed a popping sound in his back while bent over manoeuvring roof decking. Investigation identified overexertion but recs said "when in doubt ask for help". Overexertion is performing something that exceeds the body's capability. In this case, the force performed coupled with the awkward posture performed frequently at this task likely led to injury. Recommendation: focused on reviewing safe working procedure – was it adequate? This was NOT CONCLUSIVE.
- Lost Time Injury 2012_189
  Messenger cable support fell on worker's head resulting in neck soft tissue injury. Casual factors identified as incorrect method, no procedure, and lacking supervisor inspection BUT there were no action items indicated as completed or signed off. INCOMPLETE

Incomplete/inadequate investigations can also result in repeat incidents:

- Restricted Duty Injury2012_104
  Mobile equipment u/g hit pot hole, low back injury. INCONCLUSIVE corrective actions yet still signed off. What were they signing off on? Because 4 days later...
- Restricted Duty Injury2012_125
  Another mobile operator, hit pot hole, back injury. No controls recommended again, only fixation on that operator's reporting a day late. Inadequate

Further examples of missed opportunities for controlling hazards:

- Restricted Duty Injury2012_390
  Low back pain from Jackleg kicking out and pinning worker. MISSING Investigation report
- Restricted Duty Injury2012_438
  Bolter operator, operating 30T truck, back hurt. Reported next day. Recs included inspecting seat but nothing was completed, recorded and follow up was even questioned within the report with nothing done. Report therefore INCOMPLETE and risk has not been controlled.
- First Aid 2012_124
  Overexertion identified (due to weight & design of lift) but contributing factors not addressed in recs that only addressed behavioural issues such as asking for help and keeping a proper posture INADEQUATE for controlling risks to workers.

The low quality of MSD-related investigation reports and evidence of any control measures recommended and documented as implemented and effective, is directly related to the lack of training of those involved in MSD prevention and related investigations.

Part Three – Personnel Safety and Emergency Preparedness
Phil Pascuzzi / Rolly Thorpe

There are a few code requirements that need to be added to the employee training and the new hire orientation package. (They are identified in the detailed report).

Another topic around new hire orientation that should be reviewed, is the amount of information that is given in such a short period of time. This is common for most orientation programs because it is felt that new hires need to have all this information before they start.

The problem is the amount a new hire can retain after the orientation is completed. The review should look at what are the immediate needs and what information can be given later once the employment has commenced. . A follow up review with employees shortly after starting will also help indentify how much they retained.

Emergency response, mine rescue and fire fighting ability are well established. Training records are well maintained.

Gas detectors are available and maintained. An emergency evacuation procedure for surface and underground is posted and was tested last year.

Some fire extinguishers, including the deluge system in the underground fuel bay, did not have inspection tags.

The fuel cassette (tank) in the underground fuel bay had a 2" deep puddle of fuel floating on top of the tank around the fill hatch. The drip catcher for the fuel nozzle, on the wall of the fuel bay, was leaking onto the floor.

The water sump near the fuel bay requires a stop block to prevent equipment from accidently driving into the sump.

The alarm system in the mill control room was tampered with and muffled, as it goes off regularly. This is contrary to the Mine Code (Section 3.1.4): "No person shall render ineffective any device provided for the protection of the health and safety of persons".

Part Four – Building, Machinery and Equipment
Greg McLean / Garry MacDonald

As indicated by the score of 84% most of the requirements of part four are being met fairly well; however, there are some areas where improvements can be made.
One area that could benefit from additional attention is record keeping; the buried services and building drawings for the older infrastructure (Teck shop) need updating, and the annual inspection and NDT testing records for the cranes and the Alimac raise climber were either not complete or not available.
The compliance with lockout by workers was good and if the new lock-out procedures are put in place for the underground and shops, confusion between the old and new lock-out procedures can be avoided.

Going forward we will look forward to continued improvements being made to your compliance with part 4 of the code.

Part Five – Electrical
Terry Paterson

The majority of the electrical system and corresponding equipment has been designed and engineered according to the Canadian Electrical Code and is recently installed. Inspections during the construction period of this mine previously verified most of the installations as being compliant. Testing of electrical protective equipment (mobile equipment ground fault relays and portable substation grounding systems) is critical. The primary concern identified during this audit was the over temperature conditions being experienced in the Underground Substation Installations. This condition must be dealt with in a timely manner. Better exposure and training with respect to the CSA standards M421-11 (Use of Electricity In Mines) and Z462 (Electrical Worker Safety) is encouraged. Electrical SOP's and an electrical safety program needs to be developed further to protect all workers. Overall the electrical infrastructure and systems are good. Developing a comprehensive electrical practices and procedures program will go a long way in promoting worker safety.

Part Six – Mine Design and Procedures
Steve Rothman

The mine plans and designs are well executed. Geotech planning and instrumentation were of high quality. Ground control program is showing the merits of the program.
Mine operations housekeeping was not to the level it should have been for a new mine.
The shift bosses' record keeping was at a very low standard, they need to recognize these records are a Code requirement and have to be able to stand up to the test in a court of law.
The ventilation plan and execution are well done but the plan is being undermined by the lack of priority to get the vent door working, with functional vent doors the air quality should improve.

Part Eight - Explosives
Rolly Thorpe

The surface magazine is permitted, and inspected twice per day by security.

The powderman underground issues explosives to the contractor. The contractor stores some explosives in locked wooden day boxes outside the underground magazine. However, the day boxes are not protected from accidental impact by mobile equipment.

Inventory logs are well kept, in the surface and underground magazines. Magazines are kept clean. Some scrap wood and boxes of loading hose must be removed from the surface magazine.

Blaster certificates are current and kept on file in the mine office. There are several certificates marked "transport only", which were issued to nippers who handle the explosives but do not load holes or initiate blasts.

The detonator storage underground is a sea-can container. The inside of the steel doors of the container must be covered with wood or other non-sparking material.

The Charmak loading truck had detonating cord and boxed explosives transported on a steel deck. A non-sparking container is required.
It was reported that explosives (detonating cord and cartridged) are sometimes left on the loading truck between shifts and not returned to the magazine. Unused explosives must be returned to the magazine at the end of the shift.

Part Ten – Reclamation
Steve Rothman

Most of the reclamation program is a work in progress with some components completed.
The TSF, Tailings Storage facility, has an approved plan and appears to be working.
Waste management is a challenge to control, all chemicals and waste oils are not contained, some are on the pad but it was noted that a sea container was used by a contractor for oil storage and no spill containment was visible.
The surface fueling station has no containment for spillage, there are just large diesel stains on the ground from spillage.
The underground fuel bay has a container for storing the fuel nozzle but this is leaking fuel.
WHMIS training was lacking; very few employees have current WHMIS training.

CONCLUSION

The auditors were welcomed at New Afton Mine and everyone was open and cooperative with the audit team.

As can be seen in the scoring, New Afton has a good start on the road to having a good health and safety management system and compliance with the Health, Safety and Reclamation Code.

Both the workers and management have shown and expressed the desire to have a safe and productive mine and appear to be willing to work together to achieve this goal.

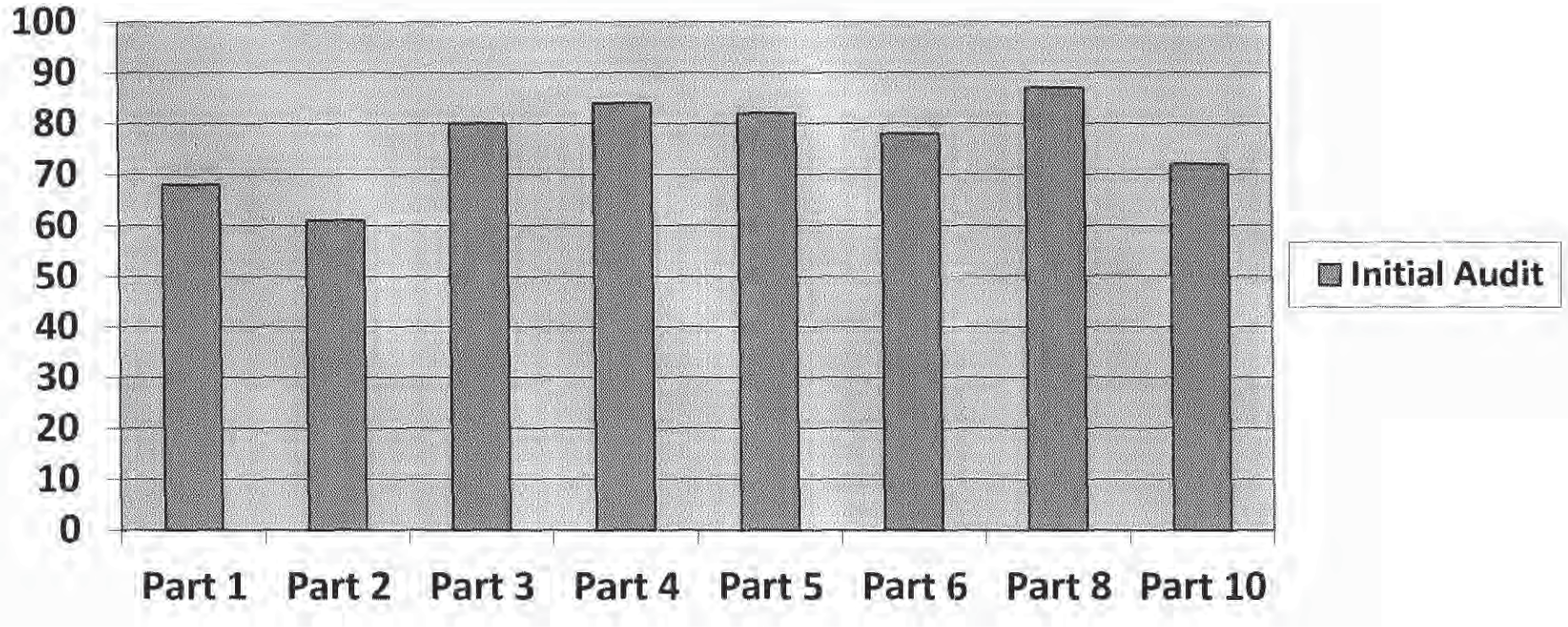
There are more standards and rules to be developed and reviewed but these are steps of continuous improvement and we encourage the mine to continue to move forward.

The Ministry sincerely appreciates the efforts that have been made thus far in compliance with the Health, Safety and Reclamation Code and look forward to the review of the improvements New Afton Mine will be making to their Health and Safety Management System in the near future.

We wish you well in the continued development of your Health and Safety program. We have the expertise and capability to assist you in this development and offer our help to you at your request.

Appendix 1- Chart of Results

New Afton Audit Oct 16 & 17, 2012



INITIAL HEALTH AND SAFETY AUDIT

New Afton Mine

October 16 & 17, 2012

Part Two

(DETAILED)

Report

DRAFT

PREPARED BY

MINISTRY OF ENERGY, MINES AND NATURAL GAS

MINES AND MINERAL RESOURCE DIVISION

Section 1.3.1 Authority to Enter a Mine:	
Subsection: 1.3.2 Posting *Is there "only authorized persons" notice posted on all road entrances to the mine?*	
Initial Audit - Inspector Comments: There are signs posted and the main access to the site is controlled by 24/7 security.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section 1.6.9 Occupational Health and Safety Managerial Responsibility:	
Subsection 1.6.9(1) Health and Safety Program: *Has the Manager developed a Mine Health and Safety program and has it been reviewed recently by the OHSC?*	

DRAFT

Initial Audit - Inspector Comments:	Score
The mine does have a Occupational Health and Safety Manual in draft form. There are also elements of the program in the safety management system, but neither of these have been reviewed by the JOHSC	3
Initial Audit - Managers Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Managers Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Managers Reply:	
Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Has the Manager developed a Mine Health and Safety Policy? Is it in Writing?*	
Initial Audit - Inspector Comments:	Score
There were two safety polices posted. One was a Corporate policy and one was a site policy. Both read the same but one was not signed. There needs to be one policy for the site and that is the one that should be psoted.	4
Initial Audit - Managers Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Does the safety policy set forth Company safety Program Objectives?*	
Initial Audit - Inspector Comments: The site policy speaks of the Management teams commitment but only in general terms.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection1.6.9 (1a) Health and Safety Program : *Does the safety policy Identify the authority/accountability or responsibility of workers and management?*	

DRAFT

Initial Audit - Inspector Comments:	Score
The policy speaks of Responsibilities and Accountabilities being transfer to employees but does not define or outline what they are.	3
Initial Audit - Managers Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Managers Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Managers Reply:	
Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Is the safety policy posted in conspicuous locations?*	
Initial Audit - Inspector Comments:	Score
One or both of the safety polices were posted throughout the site.	5
Initial Audit - Managers Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection1.6.9 (1a) Health and Safety Program : *Is it reviewed/reissued on an annual basis?*	
Initial Audit - Inspector Comments: The most recent posted policy was dated October 15, 2012 but the General Manager's signature was not on it. It was admitted that although the policy had been re-dated it had not been reviewed for quality or content.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Are workers familiar with the safety policy?*	
Initial Audit - Inspector Comments: Employees interviewed stated they were aware of a policy but were not sure what it said.	Score 2
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Is it communicated to new employees?*	
Initial Audit - Inspector Comments: The safety policy is not covered in the new hire orientation.	Score 0

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection1.6.9 (1a) Health and Safety Program : ***Is it discussed during regular staff/team/workgroup meetings?***	
Initial Audit - Inspector Comments: The records presented did not show the policy had been reviewed at any meetings.	Score 0
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1)(b) Health and Safety Program : *Have general safety rules been developed?*	
Initial Audit - Inspector Comments: Some general rules are reviewed in the new hire orientation and some are in the OHS manual,(which is in draft form and not reviewed).	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1)(b) Health and Safety Program : *Are workers familiar with general safety rules?*	
Initial Audit - Inspector Comments: The majority of the workers interviewed indicated they were aware of the general rules but felt they needed to be reviewed more often.	Score 4

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1)(c) Health and Safety Program : *Have Safe Work Procedures been developed on a departmental basis?*	
Initial Audit - Inspector Comments: Safe Operating Procedures are being developed on an ongoing basis using a Job Hazard Analysis process for each Department. Some departments are further along in this process than others.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection1.6.9 (1)(c) Health and Safety Program : *Have the safe work procedures been reviewed with all relevant workers?*	
Initial Audit - Inspector Comments: There is a employee training matrix in place that tracks which SOP's are reviewed by which employee. It was also noted that some of the SOP's are also being reviewed at crew meetings. This process needs to be expanded to capture all training.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1)(e) Health and Safety Program : *Is there a provision for regular monthly crew safety meetings?*	
Initial Audit - Inspector Comments: There are formal monthly meetings being held with minutes being kept.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1)(f) Health and Safety Program : *Are there procedures developed for accident and serious incident investigations?*	
Initial Audit - Inspector Comments: There are procedures developed in the OHS manual, which needs to be published. There has been formal accident investigation training done , but the process needs to be published and reviewed.	Score 3

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (1)(g) Health and Safety Program : *Are there procedures for monthly safety tour inspections?*	
Initial Audit - Inspector Comments: There is a procedure outlined in SOP procedure SAF-FRM-088	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.9 (2) Health and Safety Program : *Does the OHSC regularly review the mine Health and Safety program for completeness and effectiveness and submit its findings to the manager?*	
Initial Audit - Inspector Comments: In review of the minutes from the OHSC it appears that some of the safety program elements are being discussed reviewed, but the committee needs to expand their focus to more parts of the program.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section 1.6.1 Occupational Health and Safety Managerial Responsibility:	
Subsection 1.6.1 Health and Safety Committee: *Is there a health and safety committee established in accordance with section 1.6.1?*	

DRAFT

Initial Audit - Inspector Comments:	Score
There is a committee that is comprised of New Gold employees and Contractors which creates a rather lager committee which appears to have an impact on the committees ability to work on the bigger picture elements of the safety program.	3

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:
Click here to enter text.

Section 1.6.3 Inspections:

Subsection 1.6.3(1) Health and Safety Committee:

Does the committee conduct regular monthly inspections?

- *All hazard areas are identified and inspected regularly*
- *Substandard conditions are documented in writing*

Initial Audit - Inspector Comments:	Score
The records show that regular monthly inspections are being done, with minutes kept. It was noted that at the time of this audit the hazard rating that was being used previously for items found during the inspection has been dropped from the present process. The reason for this needs to be reviewed.	3

RAFT

Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 1.6.3(2) Health and Safety Committee: *Does the Committee meet after their inspection?* *Are minutes of this meeting prepared including a description of conditions found during the inspection?* *Are Action and follow-up plans are developed specifying what will be done, by whom, when?* *Are the minutes posted in a conspicuous place and filed with the Manager?*	
Initial Audit - Inspector Comments: Review of the records show that minutes of the Inspections are being kept with action items identified. These action items are put in the sites Corrective Action tracking system for implementation and monitoring.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

DRAFT

Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Section 1.6.4 Inspections:

Subsection: 1.6.4(3) Health and Safety Committee:
Are the OHSC Minutes posted in a conspicuous place and filed with the Manager?

Initial Audit - Inspector Comments: Minutes from the OHSC were observed posted throughout the site.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

DRAFT

2nd Audit Follow Up - Managers Reply: Click here to enter text.
Section 1.6.5 Accident Investigations:
Subsection: 1.6.5 Health and Safety Committee: *Does the OHSC co-chairpersons or their designate participates in investigations of medical aids and dangerous occurrences as required in 1.7.1 of the HSRC?*

Initial Audit - Inspector Comments:	Score
In review of the records, they showed that the OHSC co-chair persons or designates are involved sometimes but not on a consistent basis. There were many AI reports that did not have a safety representative signature on them.	3

Initial Audit - Managers Reply: Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply: Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply: Click here to enter text.
Section 1.6.7 Cooperation with the OHSC:

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Subsection: 1.6.7 (1,2,3) Health and Safety Committee:

Do all persons working at the mine cooperate with the OHSC by;

- *Providing facility to carry out its inspections and investigations*
- *Allowing access to all records and reports*
- *Correcting hazards as noted by the agreed date by the OHSC?*

Initial Audit - Inspector Comments:	Score
There appears to be good cooperation with the OHSC. It is worth noting that at the time of this audit there appeared to be a good working relationship between the Surface and Underground OHSC representatives.	5

Initial Audit - Managers Reply:

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Audit Follow Up – Inspector Comments:	Adjusted Score
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Audit Follow Up - Managers Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

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Subsection: 1.6.7 Health and Safety Committee:

Is there a system in place to ensure follow-up and implementation of committee recommendations?

Initial Audit - Inspector Comments:	Score
The action items identified from the OHSC are put into the site Corrective action process for tracking. The OHSC should be reviewing the status of these items at each monthly meeting to ensure action has been implemented.	4

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection: 1.6.7 Health and Safety Committee *Is the Committee involved in the development of:* • *Safety program elements* • *Program measurements* • *Safe work procedures* • *Training for workers*	
Initial Audit - Inspector Comments: Records show the OHSC has started to look at these aspects but due to the size and structure the review is a complicated process. Records also show the committee spends most of its time looking at the physical conditions of the mine and less time on the behaviours, processes and procedures that show the effectiveness of the program	Score 3

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section 1.6.8 Committee Training:	
Subsection: 1.6.8 OHSC training: *Has the OHSC received any training?*	
Initial Audit - Inspector Comments: This topic was a point of some frustration for the OHSC. It was stated that a training plan had been developed for the committee for the year but for some reason was not followed through with. The records also showed that not all OHSC representatives had accident investigation training. This topic of training for the OHSC needs to be reviewed and a commitment made to get the training done.	Score 2
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section 1.11.1 Occupational Health and Safety Managerial Responsibility:	
Subsection: 1.11.1(2) Training in the Workplace: *Is there a comprehensive orientation and safety training program for new workers, including hazard awareness and reporting, general safety rules, safe work procedures, safety and health policy, safety Committee emergency procedures, etc?* *Does this training include all Managers/Supervisors?*	
Initial Audit - Inspector Comments: There is a new hire orientation process in place at the mine. Some of the Personnel safety rules that are identified in the Health and Safety Reclamation code are not reviewed in this orientation. There were no records provided that showed that Managers or Supervisors had received any new hire orientation.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection: 1.11.1 Training in the Workplace *Are workers given task specific safety training on how to do each task safely including being informed of hazards associated with the task?*	
Initial Audit - Inspector Comments: Specific task hazard analysis is done through the use of the Job Hazard analysis process, which helps in the development of SOPs for each task. In review of the records they do not clearly show that all relevant workers get this task hazard training.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection: 1.11.2.Training in the Workplace: *Is there a recording system developed for recording all training received by workers and supervisors?*	
Initial Audit - Inspector Comments: There was, at the time of this audit, an excel spreadsheet that was being used to track employee training which was a very labour intensive system to use. There is a new system being introduced, the INX-Health Data/Incident Entry Management system which appears will make this tracking process a lot more manageable.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Part 1 – Total out of 150	**102**
Part 1 – Percentage out of 100%	**68%**

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Section 3.1 Impairment and Conduct

Subsection 3.1.1 - Impaired Persons:
Have all employees been instructed; that no persons shall enter, remain or be knowingly permitted to enter or remain in the mine if his/her ability is so impaired as to endanger his/her health or safety or that of another person.

Initial Audit - Inspector Comments:	Score
This topic is adequately addressed in the Certification Fitness for Duty form that is given and discussed during orientation. There were no records showing the all employees have signed off on this certiciate.	4

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Subsection 3.1.2 - Drugs and Liquor
Are employees instructed that they will not possess liquor, or illegal drugs in or about the mine?

Initial Audit - Inspector Comments:	Score
This is adequately addressed in the Certification Fitness for Duty form that is given and discussed during orientation	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.1.3 - Improper Conduct *Have employees been instructed to not engage in any improper conduct that might create or constitute a hazard to himself or any other person? Includes horseplay, scuffling, fighting, playing, practical jokes, or other.*	
Initial Audit - Inspector Comments: There was no evidence found showing where this topic is reviewed with employees.	Score 0
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.1.4 - Tampering with Safety Devices and Equipment *Have employees been instructed that they shall not, without cause, render ineffective any device, equipment, or material provided for the protection of the health and safety of persons employed in, on or about a mine, or the safety of the public?*	
Initial Audit - Inspector Comments: There was no evidence found showing where this topic is reviewed with employees.	Score 0
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section 3.2 General Safety Rules	
Subsection 3.2.1 - Age *Are there any persons under the age of 18 years employed at the mine?*	
Initial Audit - Inspector Comments: There was no person under the age of 18 years of age, found on site at the time of this audit.	Score 5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Subsection 3.2.2 – Tallying

1. *Is there a system in place to account for all persons on the mining property?*
    a. *Workers*
    b. *Staff*
    c. *Contractors*
2. *How is the system introduced to new persons coming onto the mine site?*

Initial Audit - Inspector Comments: Access to the site is controlled at a secure gate where electronic cards are used to track persons going on and off site. It is the responsibility of the gate persons to account for those that have not signed out at end of day and report to the respective area should someone be unaccounted for.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.2.3 – Working Alone 1. *Does a means exist for checking the well being of workers working alone and may not be able to secure assistance in the event of an injury or other misfortune?* 2. *Do the intervals between checks exceed 2.5 hours?*	
Initial Audit - Inspector Comments: There was no procedure developed at the time of this audit to address this topic.	Score 0
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.
Subsection 3.2.4 – Transportation of Persons 1. *Are there persons being transported in the box of a pickup truck or riding in a standing position?* 2. *Are there persons boarding or leaving any vehicle while that vehicle is in motion?*

Initial Audit - Inspector Comments:	Score
No observations were made of persons being transported in the box of pickup trucks or in a standing position. There is records that show this having been discussed with employees.	4

Initial Audit - Managers Reply: Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply: Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply: Click here to enter text.
Section 3.3 Working Conditions
Subsection 3.3.2 – Hazardous Work: 1. *Are there any locations in the mine where persons are working overhead?* 2. *How is employee safety being protected by not allowing them to enter into any location at a mine where persons are working overhead?*

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Initial Audit - Inspector Comments:	Score
No such procedure was presented at the time of this audit.	0
Initial Audit - Managers Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Managers Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Managers Reply:	
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Subsection 3.3.3 Hazardous Work

When persons are required to work or be near water, where drowning could be a risk:

1. *Has the Manager provided, at conspicuous locations, life-buoys equipped with heaving lines of adequate length which conform to Ministry of Transport (Canada) standards?*
2. *If the person is required to work alone at these sites or be transported across water is that person provided with and wearing a personal floatation device conforming to Canadian Government Specifications Board Standard CAN/CGSB-65.7-M88?*

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Initial Audit - Inspector Comments: There was no procedure in place at the time of this audit to address this topic. No life-buoys or flotation devices were observed in areas where drowning could be a risk.	Score 0
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up – Manager Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow up – Managers Reply: Click here to enter text.	Score
Section 3.4 Hazardous Atmosphere – Confined Spaces	
Subsection 3.4.1 Work in Confined Spaces *Are written procedures developed and implemented for work in confined spaces where irrespirable, toxic or flammable atmospheres might be encountered?*	
Initial Audit - Inspector Comments: There was a draft procedure presented at the time of this audit but it was still under revision.	Score 3

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Subsection 3.4.2 Safe work Procedures

The procedures required under section 3.4.1 shall include:

1. *The use of lifelines and safety belts wherever possible;*
2. *When lifelines and safety belts cannot be used, sufficient resources with respiratory equipment capable of performing a rescue be stationed outside the confined space;*
3. *Maintenance of an effective means of communication between persons inside and outside the confined space;*
4. *Specified time intervals for making periodic visual contact with persons inside the confined space;*
5. *Specific procedures to be followed whenever welding or burning operations are to be carried out in the confined space;*
6. *Appropriate breathing apparatus and persons trained in its use, and readily available at every confined space in which person are working; Compressed air used for breathing complying with the requirements of CSA Standard CAN-3-Z180.1M85 Series*
7. *Disconnection, blanking or blinding off pipes carrying substances that could be hazardous to the person entering the confined space;*

Initial Audit - Inspector Comments: These topics are outlined in the draft confined space procedure.	Score 3

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Subsection 3.4.3 Tests of Confined Space

Are persons without self-contained breathing apparatus instructed not to enter a confined space in which a harmful atmosphere might exist or develop until:

1. *Tests have been made to determine the nature and quantity of harmful vapours, gases, fumes, mists, dusts, and the oxygen content of the atmosphere inside the confined space and these test results recorded in a logbook kept for that purpose?*
2. *The written work procedures under section 3.4.1 have been read and understood by the person and the required emergency and rescue procedures are in place?*
3. *The confined space is being ventilated continuously by a natural or forced ventilation system?*

Initial Audit - Inspector Comments: These items are covered in the Pre-Entry Check procedure SAF-FRM-006	Score 4

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.4.4 Test of Intervals *Are tests of the atmosphere inside the confined space made at intervals during the work process to ensure that the quality of the air does not deteriorate and the test results shall be recorded as required by section 3.4.3 (1)?*	
Initial Audit - Inspector Comments: Confined space procedure requires testing at 20 minute intervals.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.
Subsection 3.4.5 Confined Space Ventilation: *Where tests made under 3.4.3 and 3.4.4 or any other test or examination indicates a harmful atmosphere or the presence of a harmful substance, is the confined space ventilated or cleaned, or both, and re-tested or re-examined to ensure that no person without self-contained breathing apparatus is allowed to enter the confined space unless:* 1. *The atmosphere or substance in the confined space is no longer considered harmful according to the acceptable standards prescribed in part 2 of the Code* 2. *The oxygen content of the atmosphere inside the confined space is not less than 18%*

Initial Audit - Inspector Comments:	Score
This requirement is outlined in the confined space procedure.	4

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
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Audit Follow Up - Managers Reply:
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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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Subsection 3.4.6 Wearing of Protective Equipment

Where tests made under 3.4.3 and 3.4.4 indicate the presence of harmful or explosive substances and it is not practical to provide a safe, respirable atmosphere

1. *Do persons entering the confined space wear self-contained breathing apparatus and personal protective equipment?*
2. *Is the concentration of flammable substances maintained below 20% of the lower explosive limit as determined by repeated testing?*
3. *Are all possible sources of ignition eliminated or controlled where flammable substances exist?*

Initial Audit - Inspector Comments:	Score
This requirement is outlined in the confined space procedure.	4

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Managers Reply:

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Section 3.6 Industrial First Aid

Subsection 3.6.1 First Aid Supplies:
Does the Manager provide and maintain first aid supplies and services as required by the WorkSafe BC?

Initial Audit - Inspector Comments:	Score
The first aid room was clean and well organized. First aid records are kept in a locked cabinet. Instruments are sterilized with bleach. Inventory of first aid supplies is done at least monthly by first aid staff and replenished as required.	5

Initial Audit - Managers Reply:

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Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Subsection 3.6.3 First Aid Supplies
How is a means of communication provided by which the services of a physician can be obtained expeditiously?

Initial Audit - Inspector Comments:	Score
A nurse or doctor, at the hospital emergency room, can be reached by phone. The hospital is less than 20 minute drive away. BC ambulance will come to the mine site or the mine ETV can transport a patient directly to the hospital.	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section 3.7 Mine Rescue

Subsection 3.7.1 Underground

Mine Emergency Response Plan:

Is there a mine rescue emergency response plan?

- *Developed*
- *Filed with the Chief Inspector*
- *Kept up to date*
- *Followed in the event of an emergency*
- *Contain all elements required in the Mine Emergency Response Plan Guidelines for the Mining Industry*

Initial Audit - Inspector Comments: An initial plan was developed February 11/10. The latest revision is dated April 10/12 and filed with the Chief and contains the required elements.	Score 5

Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.7.2 Underground Are trained mine rescue teams established, maintained and equipped at underground mines where the number of employees underground at one time is less than: 1. 50, but greater than 10, 1 team? 2. Is greater than 50, 2 teams? 3. On every shift where there are less than 20 working underground at any one time there are four persons trained in mine rescue?	
Initial Audit - Inspector Comments: There are 44 employees trained in emergency response and mine rescue.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection3.7.4 Surface at Underground Mine *At all underground mines where a surface fire can compromise people, plant, or equipment has the Manager ensured that sufficient trained personnel and equipment are available to provide fire suppression capability for the site?*	
Initial Audit - Inspector Comments: There are two fire engines and 44 employees trained in fire fighting. Team members are trained in structure-fire fighting at the fire department training facility in Kamloops. An underground fire truck and ambulance is budgeted to be purchased within the next year.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 3.7.7 Mine Rescue Team

Are the qualified members of a mine rescue team:

1. *In possession of a valid mine rescue certificate and a valid St. John "Standard" first aid certificate, or equivalent?*
2. *Free from a beard, moustache, or sideburns that could interfere with the face piece seal of any breathing apparatus?*
3. *Considered competent to act as a mine rescue team member by the person appointed as a trainer under section 3.7.9?*
4. *Medically fit for the nature of the work required?*

Initial Audit - Inspector Comments:	Score
All team members have valid mine rescue and first aid certificates. They are clean shaven as required. They have annual medicals by "Nurse Next Door" and confirmed to be medically fit to be part of the mine rescue team.	5

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Managers Reply:

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Subsection 3.7.8 Mine Rescue Records

Is there a record of all mine rescue training maintained at the mine site, and

1. *Is the logbook maintained by the qualified person appointed by the Manager, to conduct the training?*
2. *Contains the particulars of the training, including the names of those participating and the trainer?*
3. *Notes the condition of all equipment used during the training?*

Initial Audit - Inspector Comments:	Score
Records of all training are kept, who attended and what training was given. There are 4 Platoons, 4 Captains and 4 Lieutenants.	5

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Subsection 3.7.9 Mine Rescue Records

Has the Manager:

1. *Appointed a qualified person as a trainer for mine rescue team members?*
2. *Ensured that all mine rescue team members practice 8 hours during each 3 months the mine operates?*
3. *Ensured that all mine rescue personnel are not underground at any one time except for rescue work or training?*

Initial Audit - Inspector Comments:	Score
Mike Owens is the trainer. Training is done every month except July and August. All team members are not underground at the same time.	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.7.10 Type of Breathing Apparatus *Where self-contained breathing apparatus is required is it of a type approved by a recognized certification agency, and suitable for the intended work?*	
Initial Audit - Inspector Comments: There are 12 BG4s and 6 more will be acquired. There are also PSS 7000 units on surface in the fire trucks and Oxy-K units cached underground.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.7.11 Mine Plan for Rescue Purposes *Are the mine plans required under Part 6 of the Code readily available for the use of mine rescue teams?*	
Initial Audit - Inspector Comments: Mine plans are available and updated monthly by Tech. Services.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 3.7.12 Mine Plan for Rescue Purposes

Has the Manager appointed a qualified person:

1. *To be responsible for the care and maintenance of all rescue apparatus?*
2. *For the entries into a logbook to be kept at the mine recording the condition of all equipment used for mine rescue or fire fighting?*
3. *For the care of the rescue equipment storage room, and equipment caches?*

Initial Audit - Inspector Comments:	Score
There are 6 trained technicians for the BG4s and current log sheets for each machine. There is no log book for ropes and the ropes are not tagged for identification. The equipment store room is a sea-can container, which is quite congested. There appears to be much new equipment and tools but a bigger storage space would be an advantage for organizing the gear. There are plans to build a new facility.	3

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
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Audit Follow Up - Managers Reply:
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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Managers Reply:
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Subsection3.8.2 Survival Rescue Procedures

1. *Has the Manager of an underground mine established a training program in survival mine rescue, including the use of approved self-rescue apparatus, and the use of firefighting equipment in place at his mine?*
2. *Are all persons, employed at the mine or not, instructed and trained in these procedures before entering the underground mine?*

Initial Audit - Inspector Comments:	Score
During new employee orientation, training on W65 and fire extinguisher use is given. All visitors receive basic training as well.	5

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Subsection 3.8.3 Instructor Emergency Procedures

Has the Manager of the mine appointed a qualified person to instruct and establish a training program for all employees in basic emergency response, and fire fighting?

Initial Audit - Inspector Comments:	Score
During orientation, all employees receive training in the Code 1 procedure, refuge station instruction, fire extinguisher and W65 training.	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Section 3.9 Fire Fighting

Subsection 3.9.1 Fire Fighting Equipment

1. *Is firefighting equipment provided and maintained at all locations at the mine where fire may endanger life?*
2. *Unless specified otherwise in this Code, the British Columbia Fire Code 1998 and subsequent supplements and revisions shall apply in determining the level of firefighting equipment and maintenance as prescribed in subsection (1).*

Initial Audit - Inspector Comments: There fire extinguishers on most vehicles and in most areas on surface and underground. There are automatic deluge systems in the fuel bay and in the shops and conveyor transfer points. There are fire hydrants on surface in many locations, supplied by fresh water storage tanks. There are two fire trucks on surface.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Section 3.10 Underground Fire Fighting

Subsection 3.10.1 Underground Fire Fighting

1. *Is firefighting equipment provided and maintained at all underground crusher stations, electrical installations, pump stations, shaft stations, tipples, conveyors, service garages, fuelling stations, and where a fire hazard may exist?*
2. *Are a suitable number of fire extinguishers of a specified capacity provided and maintained at each stationary diesel motor, transformer substation and any splitter panel?*
3. *Is the location of the firefighting equipment required by sections 3.10 (1) and (2) such that, in the event of a fire, the direction of the mine ventilation air flow will not prevent or hamper the effective use of the equipment?*

Initial Audit - Inspector Comments: Extinguishers are found in all locations where a fire hazard may exist. However, not all fire extinguishers have tags indicating when they were last inspected (e.g.: the deluge system and hand-held extinguishers in the underground fuel station).	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.10.3 Underground Fire Fighting: *Are inspections and if necessary, testing and maintenance of all firefighting equipment carried out by a qualified person at least once a month?*	
Initial Audit - Inspector Comments: Not all fire extinguishers seen underground had date cards on them indicating when they were last checked. The fuel bay had an overhead auto discharge, nitrogen activated, dry chemical system. However, there was no tag indicating when it was last checked. It was not determined who is responsible for checking this equipment.	Score 2
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 3.10.4 Fire Fighting Plans:

1. *Is the position of all fire fighting pipe lines, hydrant valves, fire stations and fire cabinets shown on a plan drawn to scale of not less than 1:2,500 with a metric scale bar and a marked north point?*
2. *Is the plan updated at intervals not exceeding three months?*

Initial Audit - Inspector Comments:	Score
A surface plan was seen with the location of fire hydrants marked.	5

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Section 3.12 Gas Detectors

Subsection 3.12.1 Approved Detector

Is every device used for the detection of flammable or noxious gas at a surface or underground mine of a type approved for such use by a recognized testing agency?

Initial Audit - Inspector Comments:	Score
6 Altair testers were observed in the mine rescue room (LEL, O2, CO, CO2, H2S and NO2). The docking stations bump test the units each day. Acklands has a contract to service these units regularly.	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.12.2 Servicing Detectors *Has the Manager appointed a qualified person to be responsible for maintaining the appliances used for detection of flammable or noxious gases?*	
Initial Audit - Inspector Comments: Acklands has a contract to service the detectors. Marcel Syens from MSA, Vancouver has come on one occasion to service some of the units.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.12.3 Use of Appliance *Has the Manager appointed a qualified person to carry and use an appliance for the detection of flammable or noxious gas?* *Does the qualified person:* 1. *Check the appliance for damage and ensure it is in proper working order before use* 2. *Not use the appliance if found damaged or dysfunctional* 3. *Take all reasonable precautions to prevent the appliance from being damaged*	
Initial Audit - Inspector Comments: The shift bosses and mine rescue members have taken on-line, gas detector training (MSA University). This self-study course is followed up with an interview with the trainer to confirm the employee understands how to use the unit.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section 3.13 Evacuation

Subsection 3.13.1 Procedures and Instructions

Has the Manager of a mine:

1. *Prepared procedures for the safe evacuation of personnel from the mine, or part of the mine, if necessitated by an emergency?*
2. *Posted copies of the procedure in conspicuous places at the surface and underground?*
3. *Ensured that each employee receives instruction in the procedures prepared under subsection (1) and that he can recognize the emergency warning system and is familiar with the emergency escape routes from the mine?*

Initial Audit - Inspector Comments:	Score
The evacuation procedure is found in the "Code One" booklet and is posted. Instructions on the procedure are given during new employee orientation.	5

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:
Click here to enter text.

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Subsection 3.13.2 Emergency Warning System

Has the Manager developed and maintained a system acceptable to an Inspector for warning all employees, whether underground or in buildings on surface, of an emergency requiring prompt evacuation of their work places?

Initial Audit - Inspector Comments:	Score
A stench gas system is used to warn employees underground. The stench warning is activated remotely, or manually if the automatic system is down. On surface, a phone system and radio backup is used for warning employees.	5

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Subsection 3.13.3 Test of System

Is a test of the warming system required under section 3.13.2 that does not involve evacuation of key process personnel carried out at least once every 12 months on a production shift, and does the Manager unsure that key process personnel unable to evacuate are knowledgeable with the warning system, and the evacuation procedure?

Initial Audit - Inspector Comments:	Score
A surprise test of the stench warning system was done on October 12, 2011. After the test, a review was done to determine which employees smelled the stench, (if not then why?) and how long it took employees to evacuate.	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 3.13.4 Report of Test *Is a report of all emergency warning system tests, including their effectiveness, produced in a timely manner by the Manager, reviewed by the OHSC and kept on file at the mine?*	
Initial Audit - Inspector Comments: OHSC members were involved in the test of the system but there is no record of the test being discussed at an OHSC meeting.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Part 3 – Total out of 195	**156**
Part 3 – Percentage out of 100%	**80%**

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Section 4.1 Buildings - General

Subsection 4.1.1 Design and Construction

Are the buildings constructed in accordance with the British Columbia Building Code?

- *Drawing of the buildings available on site*
- *Services that are buried such as water, sewer and electrical are available in plan form*
- *The plans have been updated*
- *Work supervised by a professional engineer*

Initial Audit - Inspector Comments:	Score
The buried services and building drawings for the new infrastructure meets the requirements of the code, however the buried services and building drawings for the old Afton infrastructure is out-dated and incomplete. Click here to enter text.	3

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:
Click here to enter text.

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Subsection 4.1.4 Access to Work Areas *Are emergency exits clearly marked and designed to provide quick and unimpeded exit?*	
Initial Audit - Inspector Comments: All emergency exits provided an unimpeded exit. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.1.5 Equipment Entranceways to Buildings *Are all the vertical doors installed with a sensing device along the lower edge where applicable?*	
Initial Audit - Inspector Comments: An overhead power operated vertical door in the mill has a non-functional “bump stop” device on the lower edge of the door. The doors checked in the shop were equipped with “momentary switches” and were compliant. Click here to enter text.	Score 3

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.1.6 Storage of Materials *Are all materials stored or stacked in an appropriate manner?*	
Initial Audit - Inspector Comments: Ventilated storage cabinets in the shop were being used to store non-dangerous materials, while aerosol spray cans were being stored on work benches and tool boxes. Click here to enter text.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.1.7 – 4.1.9 Handrails and Guardrails *Are standard guardrails installed where applicable?* • *Designed and constructed properly* • *Openings, pits in floors, roof walkways or accessible work areas properly secured*	
Initial Audit - Inspector Comments: All hand railings checked met the requirements of the code. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section 4.2 Buildings – Surface	
Subsection 4.2.1 Repair Shops *Is the repair shop located in such a way for adequate drainage away from the shop?* • *Adequate parking* • *Signage adequate where applicable*	
Initial Audit - Inspector Comments: The repair shops on the surface and underground were in compliance with this part. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section 4.3 Fuel Pipelines Underground Mines

Subsection 4.3.8 Fire Protection and Control:

Every fuel storage tank shall:

1. Have a means of accurately determining the amount of fuel it contains
2. Be identified as to its contents and that it is a fire hazard area
3. Be surrounded by a dike or curb capable of containing 110% of its storage capacity

Initial Audit - Inspector Comments:	Score
The fuel tank supplying fuel to the auxiliary generator at the mill does not have signs identifying the contents of the tank; this tank does not have a fire extinguisher located at the tank. Click here to enter text.	4

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

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Section 4.4 Fixed Equipment	
Subsection 4.4.1 Fall Arresting Devices *Are there appropriate fall arrest where applicable?*	
Initial Audit - Inspector Comments: Activities requiring fall arrest were good; all workers observed were using appropriate fall arrest when needed. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.1 Fall Arresting Devices *Does all the fall arrest comply with the relevant design and performance requirements of CSA?*	
Initial Audit - Inspector Comments: All fall arresting devices were of the required type and were in good condition. Click here to enter text.	Score 5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.2 / 4.4.3 Moving Parts of Machinery *Unless situated so as to prevent a person from coming into accidental contact are all moving parts adequately guarded?*	
Initial Audit - Inspector Comments: There was a barrier gate in the jaw crusher left open and therefore left a drive for the screen deck exposed to worker contact. Other guarding appeared to meet the requirements of the code. Click here to enter text.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.3 Grinders *Are there suitable safety devices available when grinders are being used?* • *Rest Properly Adjusted* • *Eye and face protection* • *Inspected and maintained regularly* • *Proper exhaust system (other than hand-held)*	
Initial Audit - Inspector Comments: One hand grinder without a guard and two bench grinder that needed to have the rest adjusted were found, these grinders were taken out of service when they were found. Click here to enter text.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.7 Welding and Burning Equipment *Is there safety procedure developed by the mine for the safe transportation or use of torches or welding equipment?* • *Use of fastened safe caps* • *Stored in upright and secured position* • *Stored in well ventilated area*	
Initial Audit - Inspector Comments: Compressed gas cylinder storage and use was good in general, however there were some improperly stored cylinders in the jaw crusher area. Click here to enter text.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.9 Lifting Devices *All lifting devices shall be designed, constructed and installed in accordance with recognized standards and good engineering practices:* • *Maximum load marked on structure* • *Are the safety devices checked and tested regularly* • *Maintenance and inspection recorded*	
Initial Audit - Inspector Comments: Several lifting devices were found in the mill, shop, and underground that will not displaying their rated loads. Click here to enter text.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 4.4.10 Install Fire Protection

Is there suitable type and size of fire extinguisher provided at all fire hazard areas?

- *Fire suppression system (sprinklers, foam, etc.)*
- *On underground fixed equipment containing more than 10L flammable fluids*
- *On surface in buildings and structures adjacent to opening and underground mine*

Initial Audit - Inspector Comments:	Score
The fuel tank for the auxiliary generator at the mill does not have a fire extinguisher. Click here to enter text.	4

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

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Subsection 4.4.11 Boilers and Engines Near Underground Workings: *Is there any part of a steam boiler or stationary internal combustion engine installed within 30m of any part of the collar of a shaft or openings to underground workings*	
Initial Audit - Inspector Comments: No such steam boilers or stationary engines were observed near any portals. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.12 Engine Exhausts: *Is the exhaust of an internal combustion engine temporarily or permanently installed within or outside a building prevented from re-entering the building?*	
Initial Audit - Inspector Comments: No engines found had exhausts that could enter a building. Click here to enter text.	Score 5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.13 Fans for Supplying Underground Ventilation: *Are all fans supplying ventilating air to underground workings and structures:* • *Containing fans constructed of non-combustible material?* • *Provide a means for reversing the direction of air flow?* • *Procedure for reversing only by the mine's authorization?*	
Initial Audit - Inspector Comments: The fans checked appeared to meet the requirements of this section of the code. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Subsection 4.4.16 Conveyor Belts

Are all conveyors provided with a walkway or other acceptable access for maintenance and inspection?

- *Pull cords to stop conveyors in an emergency*
- *Conveyors; are they re-set manually*
- *Start up warning device*
- *Delay of 10 seconds*
- *Head, tail drives, tension pulleys guarded*
- *Conveyors longer than 15m (inside building or enclosed) belt slip detection*
- *Policy and procedure for clean-up around conveyors*

Initial Audit - Inspector Comments: Guarding, pull-cording, start-up horns and procedures appear to meet the requirements of the code. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.17 & 4.4.18 Steam and Compressor Plant Operation: *Has the Manager developed a procedure for the operation of compressor plants?* • *Does it conform to the safety regulation* • *Temperature shutdown devices (exceeds 30kw)* • *Carbon monoxide monitoring (supply air U/G)* • *Is the monitor tested monthly and recorded*	
Initial Audit - Inspector Comments: All devices checked appeared to meet the requirements of the code. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.4.20 Portable Ladders *Are all portable ladders meeting the CSA Standard CAN Z11 M81?*	
Initial Audit - Inspector Comments: Portable ladder compliance was good; all portable ladders checked were good. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.
Subsection 4.4.21 Construction of Portable Ladders *Are all the portable wooden ladders that are constructed at the mine meeting the requirements of HSR Code?* 1. *Side rails 38x39mm* 2. *Cleats (rungs) 21x89mm* 3. *If nail is a filler block use between cleats* 4. *Width between cleats 500mm* 5. *Material used of #2 grade*

Initial Audit - Inspector Comments:	Score
Portable ladder construction appeared to meet the requirements of the code. Click here to enter text.	5

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:
Click here to enter text.

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4.6 Mobile Equipment – Underground Mine

Subsection 4.6.1 Diesel Equipment Underground:

Does the Manager have written procedures for the operation of diesel-powered equipment underground?

- *Fuel used meet the CAN/CGSB Standard(is a copy of the fuel specification at the mine.*
- *Is equipment left running when not personally being attendant?*
- *Has a cool down period been established by the OHSC when vehicles are parked.*
- *Is the master switches turned off when the operator leaves the vehicle?*

Initial Audit - Inspector Comments:	Score
Most of the requirements of this section were good: however several pieces of underground mobile equipment were observed being shut down with no cool down period. Click here to enter text.	4

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:
Click here to enter text.

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4.7 Trackless Diesel Powered Equipment

Subsection 4.7.1 Trackless Diesel Powered Equipment:
Do the self-propelled underground vehicles comply with the requirements of CAN/CSA M424.3-90?

Initial Audit - Inspector Comments:	Score
All pieces of underground equipment checked, met the requirements of this section. Click here to enter text.	5

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

CSA M424.1 – 88 Trackless Diesel Powered Equipment
Does the company have copies of the underground diesel certification numbers on file?
CSA M424.2-90

Initial Audit - Inspector Comments:	Score
All equipment checked met the requirements of this section. Click here to enter text.	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
CSA M424.1 – 88 Trackless Diesel Powered Equipment *Are the maintenance records up to date on the underground diesel equipment?* *CSA M424.2-90*	
Initial Audit - Inspector Comments: All equipment records checked met the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

4.8 Flammable Materials

Subsection 4.8.1 & 4.8.3 General Requirements:

Are there any flammable materials stored within 30m of a mine portal, shaft or other mine openings?

- *Flammables flashpoint of less the 52 degrees Celsius (need copy of fuel spec.)*
- *Method of transportation*
- *Storage underground (containers etc;)*
- *Amount of supply underground (per day oil and grease)*
- *Flammable materials shall be storage in an area approved by the mine Manager*

Initial Audit - Inspector Comments: Some compressed gas cylinders were found at the Alimak shafts were stored closer than 30m to the shaft. Click here to enter text.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

4.9 Mobile Equipment

Subsection 4.9.1 Back-up Alarm

Is all the equipment in excess of 7,000kg gross vehicle weight equipped with a back alarm?

Initial Audit - Inspector Comments: All equipment checked had functional/suitable back-up alarms. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 4.9.2 Transmission Interlock *Does all equipment with fluid drive transmission have an interlocking system to prevent the unit from being started and put in motion?*	
Initial Audit - Inspector Comments: All equipment checked had functional transmission interlock devices. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.3 Fire Extinguisher *Is all the equipment carrying at least one fire extinguisher of adequate size and proper type?*	
Initial Audit - Inspector Comments: Several pick-up trucks were found that did not have a suitable fire extinguisher provided. Click here to enter text.	Score 3

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.4 Vehicle Requirements *All rubber tired mobile equipment over 7000 kg gross vehicle weight shall have a minimum of two wheel chocks which shall be used whenever necessary.*	
Initial Audit - Inspector Comments: A scissor lift truck was found underground that did not have the required wheel chocks on the machine. Overall compliance with wheel chocks was good. Click here to enter text.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection4.9.4 Vehicle Requirements *Does the equipment have the appropriate safety devices:* • *Firmly secured seat (as well as passenger)* • *Seat belts* • *Clearance lights & Reflectors* • *Windshield* • *Mirrors*	
Initial Audit - Inspector Comments: One scoop underground was found that had a side window missing. Click here to enter text.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.5 Vehicle Requirements *Does a vehicle, other than a vehicle used directly for production in an operation open pit:* *Shall have in addition to the equipment required for highway driving, be equipped with:* • *a whip antenna that is fitted with a flag and lamp high enough to be visible to the drivers of all production vehicles or* • *a flashing light mounted above the cab of the vehicle?*	
Initial Audit - Inspector Comments: All personal carriers checked met the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.6 Fire Suppression for Underground Mines *All mobile equipment capable of containing more than 25L of flammable fluids and used in underground mines shall be fitted with a manually activated multi-nozzle fire suppression system. Is the activation of the system possible from each side of the machine and at the operators cab?* *Does the activation of the system shut the engine down?*	
Initial Audit - Inspector Comments: All machines checked had a suitable fire suppression system. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 4.9.7 *Are vehicles that are regularly or primarily used as personnel carriers suitable for the intended purpose?*	
Initial Audit - Inspector Comments: The seat belts on some personal carriers were non-functional and need to be repaired. Click here to enter text.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.9 *Does the name plate visible to the operator showing manufacturer, serial number, maximum rated load. Load grade decal?*	
Initial Audit - Inspector Comments: All machines checked met the requirements of this section. Click here to enter text.	Score 5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.11 / 4.9.12 Rollover Protective Modifications *Does all the equipment have ROPS that is required in accordance with the HSR Code?* • *ROPS permanently marked* • *Seat belts* • *Properly labelled*	
Initial Audit - Inspector Comments: All ROPS/FOPS checked met the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.14 tires and Rims *Does the Manager have a tire and rim procedure developed?*	
Initial Audit - Inspector Comments: This operation is using the Fountain Tire procedure. This procedure meets the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 4.9.15 *Are trucks with dump boxes being equipped with a permanently attached device for securing or locking the box in a raised position, or carrying suitable equipment on board for this purpose?*	
Initial Audit - Inspector Comments: All vehicles checked had the required devices on the vehicle. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score Choose an item.
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.17 Parking Brake *Are all vehicles equipped with a proper activating park brake?*	
Initial Audit - Inspector Comments: All vehicles checked had a suitable functional parking brake. Click here to enter text.	Score 5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.19 *Trucks having a manufacturer's rated gross vehicle weight in excess of 45,000 kg shall be subjected to downgrade braking tests such that at least once a year 50% of the fleet is tested, and every truck in the fleet is tested at intervals not exceeding 3 years. Is this testing up to date?*	
Initial Audit - Inspector Comments: There is no documentation available for the annual brake testing on the haulage trucks in use on the surface projects. Click here to enter text.	Score 0
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.9.20 Auxiliary Steering *Do all vehicles, which require auxiliary steering, meet the provision of the HRS Code? Stored energy devices depressurize when engine is shut down.*	
Initial Audit - Inspector Comments: All vehicles checked met the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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4.11 Lock-Out Procedures

Subsection 4.11.1 Lock-Out Procedures

Has the mine developed a lockout procedure, which includes all the provisions as decided in this part of the Code?

- *Tagging procedures*
- *Power disconnects*
- *Provision for draining stored energy*
- *Appropriate lock-outs (mobile equipment, etc.)*
- *Use of a watchman*

Initial Audit - Inspector Comments:	Score
There are two lock-out procedures in use at this mine, a new one in the mill and the old one on the used for the rest of the mine. In the shop area, it was observed that a worker was using a departmental lock as a personal protection lock; persons other than the worker had keys to this lock. Click here to enter text.	3

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

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2nd Audit Follow Up - Managers Reply:

Click here to enter text.

4.12 Lifting Devices – General

Subsection 4.12 Manually-Operated Hoists and Winches

Is there a suitable inspection and maintenance program in place?

- *NDT inspection*
- *Safety checks*
- *Logbooks where applicable*

Initial Audit - Inspector Comments:	Score
The annual inspection and NDT records were requested for these devices, but no documents were provided. Mine officials assured me that these tests had taken place.	2

Initial Audit - Managers Reply:

Audit Follow Up – Inspector Comments:	Adjusted Score

Audit Follow Up - Managers Reply:

2nd Audit Follow Up - Inspector Comments:	Adjusted Score

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4.13 Raise climbers

Subsection 4.13 raise climbers

Are the following in place for raise climbers

- *NDT inspection*
- *Safety checks by mechanics and operators*
- *Logbooks up to date*
- *Identification plate*
- *Brakes*
- *Emergency switch*
- *Communication device*
- *Fire extinguisher*
- *Emergency escape procedures in place*

Initial Audit - Inspector Comments:	Score
The annual inspection and NDT records were not complete for the entire rail assembly; all other requirements for this section appear to have been met.	4

Initial Audit - Managers Reply:

Audit Follow Up – Inspector Comments:	Adjusted Score

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Audit Follow Up - Managers Reply:	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score

2nd Audit Follow Up - Managers Reply:	
Click here to enter text.	
4.14 Temporary Work Platforms	
Subsection4.14.1 *Is there scaffolding or temporary work platforms being used, are they being constructed and maintained in accordance with WCB Occupational Health and Safety Regulation 13?*	
Initial Audit - Inspector Comments: Scaffolding observed in use was properly set up and secure. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

4.18 Miscellaneous Hoisting Equipment

Subsection 4.18.6

Log book; defects noted, maintenance and repairs noted, supervisor has examined, dated and signed at least weekly by to verify that log book is being used. Is log book in place and current?

Initial Audit - Inspector Comments: Worker daily entries were not consistent and the supervisor weekly sign-off were not done every week, this was observed in the shop area. Click here to enter text.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.18.7 *Are the name, model, and serial number assigned by the manufacturer clearly visible and legible on every crane, hoist, and derrick?*	
Initial Audit - Inspector Comments: All of these devices checked met the requirements of the code. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 4.18.8

- A permanent, clearly visible, and legible sign shall be affixed to each crane, derrick, and hoist showing the safe working load.
- The safe working load shall be marked on the load block and superstructure of hoisting equipment.
- Is this signage in place and visible?

Initial Audit - Inspector Comments:	Score
All lifting devices checked met the requirements of this section. Click here to enter text.	5

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Subsection 4.18.10 Controls

Are all the controls of the cranes, derrick, or hoist clearly marked to show its functions?

Initial Audit - Inspector Comments:	Score
All crane controllers checked met the requirements of this section. Click here to enter text.	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 4.18.10 Controls *Are there signs on the crane structure, visible to an operator, clearly indicating the direction of the hook, bridge, and trolley motions, compatible with those marked on the controls?*	
Initial Audit - Inspector Comments: Many cranes in all areas of the mine do not have this control depiction. Click here to enter text.	Score 2
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

4.20 Rigging

Subsection 4.20 Use of Riggings and Fittings
Are all the rigging and fittings used and assembled properly?

Initial Audit - Inspector Comments: Several lifting jigs and bins were found that did not display their rated load, some of these devices may not have been certified by an engineer (looked homemade). Click here to enter text.	Score 2
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Managers Reply: Click here to enter text.	
4.21 Slings	
Subsection 4.21 Requirements *Are all the slings marked with the safe working load, have the manufacturer's identification, not damaged and in good working condition?*	
Initial Audit - Inspector Comments: Several fiber webbing slings were found that had sufficient damage to them that they should be taken out of service. These slings were removed from service at the time they were found. Click here to enter text.	Score 3
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Part 4 – Total out of 260	**218**
Part 4 – Percentage out of 100%	84%

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Section 5.1.1 / 5.2.1 / 3.2.1 Application of Electrical Rules

Subsection 5.1.1 / 5.2.1 / 3.2.1 Codes and Standards

- *The Manager shall develop a plan, approved by a registered electrical engineer, for the use of electrical energy at any mine, and the plan shall be forwarded to the Chief Inspector prior to introduction of electricity to the mine. A plan shall also be required for any increase in capacity of an existing installation by more than 500KVA.*
- *The plan referred to shall show the area's at the mine where the energy is to be transmitted and used, including schematic drawings.*
- *Is there a copy of CSA M421-00 "Electricity in Mines" on the mining property?*

Initial Audit - Inspector Comments	Score
This mine has an electrical system that has been developed by utilizing some existing infrastructure, updating and installation of new equipment. Although not all drawings were reviewed during this audit there are sufficient and up to date electrical plans available. Most if not all the plans have been developed by professional engineers. Copies of M421-11 are available, however some workers interviewed were not aware of this CSA standard and how it applies to mining.	4

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

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Click here to enter text.	

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2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Section 5.2.1 Notices and Information

Subsection 5.2.1 & 3.2.2 of M421-00 Notices and Information

All Mines:

- *Only authorized persons shall work on or be in charge of electrical equipment or systems.*
- *Only authorized persons undertake installation of and repairs, extensions, or changes to electrical equipment or systems.*
- *Have practices and procedures been developed, implemented and updated as needed to ensure employees are properly trained in electrical safe practices?*

Initial Audit - Inspector Comments:	Score
This operation has a well defined electrical department. Interviews with the maintenance superintendent, electrical general foreman and supervisors along with electrical workers were conducted. It is clear that only authorized and qualified workers are in charge of the electrical system and only these people undertake installation and repairs to the equipment and systems. There is no formal electrical safety program in place at the time of the audit. The plan as I understand is in draft and will contain practices and procedures when complete. Click here to enter text.	3

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section 5.4.1 Isolating Switchgear	
Subsection 5.4.1 (1) (2) & 3.2.6 of M421-00 Isolating Underground Workings *Is the electrical switchgear installed?* • *Each circuit shall have a provision for locking and tagging of the disconnection means* • *Operate by a qualified person* • *Easily accessible for repairs or operation* • *Fixed in a vertical position* • *Recessed from haulage ways and protected from physical damage* • *Located where water cannot accumulate*	
Initial Audit - Inspector Comments: During the audit electrical switch gear installation was inspected all over the mine including surface and underground. The vast majority of the switchgear is new or reconditioned and is installed as required by the code. The only deficiency noted was the ventilation fan installations in the mill had disconnects mounted horizontally, high above any access point to workers without the use of a ladder. Click here to enter text.	Score 4

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section 5.5.1 / 5.5.3 Trailing Cable Use and Repair	
Subsection 5.5.1, 5.5.2 & 4.6.3 of M421-00 Protective Equipment and Defective Cables • *Whenever persons are handling energized trailing cables suitable protective equipment is being utilized* • *Damaged cables are inspected by qualified persons before they are returned to service* • *All permanent repairs to damaged trailing cables shall be made by qualified persons who shall examine and test the cables before they are allowed to go back into service* • *Trailing cables shall be routed to avoid damage and be kept visible by being mounted on suitable markers at regular intervals throughout the cable route. Cable couplers shall be suitably supported off the ground* • *Suitable strain relief shall be provided at the connection of the cables to machines*	
Initial Audit - Inspector Comments: The trailing cables used at this mine are primarily for mobile equipment underground. All the cables inspected appear to be repaired properly. Cables underground are primarily routed high on the back to prevent damage. Cables on the surface primarily are marked and mounted on cable stands. Strain relief protection at this mine in the underground workings should be reviewed. Additional strain relief could be utilized at some of the jumbo and Drill switchgear attachments as well as the mobile equipment. Click here to enter text.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Section 5.6.1 Submersible Pumps

Subsection 5.6.1 Ground Fault Protection

- *All submersible pumps supplied by portable training cable shall be provided with ground fault protection to limit ground fault current to a maximum of 25 amps and automatically isolate the supply in the event of a fault*
- *Submersible pumps operating at voltages in excess of 300 volts shall, (after Jan. 1, 2001) be supplied by shielded portable power cable and have ground fault protection and ground check monitoring*

Initial Audit - Inspector Comments: The inspector did not review a great number of submersible pumps during this audit but those that were looked at did not reveal any deficiencies. Click here to enter text.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Section 5.7.1 / 5.7.2 Supply Systems for Mobile Electrical Equipment

Subsection 5.7.1 / 5.7.2 & 3.5.5, 3.5.6 of M421-00 System Testing and Record of Testing

- *Supply systems for mobile electrical equipment shall be tested before being put into service and at least once a year thereafter in order to prove the effectiveness of the ground fault tripping and the ground conductor monitoring circuits*
- *A record of the tests shall be kept at the mine and shall be available for examination*
- *The supply shall be grounded through a neutral grounding device that limits the ground-fault voltage to 100 volts or less and de-energizes in less than 1's if ground fault current exceeds 20% of the prospective ground fault current*
- *The ground conductor monitoring shall de-energize the supply in less than 0.5's if the ground check conductor opens, the ground return conductor opens, or the ground check conductor shorts to ground*

Initial Audit - Inspector Comments	Score
Documentation has been developed and maintained showing the regular testing of the supply systems for mobile equipment. All the installations inspected during this audit were fed from a supply that was grounded through a neutral grounding resistor. It could not be easily determined whether the NGR would limit the current as required or whether the monitoring of the of the supply would de-energize in the prescribed time, but the installed looked at appear to have the proper setting on the protective relays. Click here to enter text.	4

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section M421-00 Testing and Calibration of Protective Devices	
Subsection 3.5.4 of M421-00 Testing and calibration of Protective Devices • *Except for fuses, each protective device for an installation operating at a voltage in excess of 750 volts shall be tested to confirm that the device prevents the equipment from being operated in excess of its rating* • *These tests shall be performed before initial use and after every three years of use, and the result shall be recorded in a record book*	
Initial Audit - Inspector Comments All the protective relays looked at during this audit appear to be tested in accordance with 3.5.4. Click here to enter text.	Score 5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section M421-00 Movable Equipment

Subsection 4.6.1, 4.6.2 of M421-00

- *Movable Switch Houses*
  a. *Disconnecting means shall be manually operated three phase ganged visi-blade type. It shall be suitably rated, installed at the point of power entry and key interlocked with the circuit breaker or interrupter*
  b. *The circuit breaker shall be complete with devices necessary to provide overcurrent and ground fault protection*
  c. *Control devices requiring adjustment or reset shall not be located inside the high voltage section of the switch house enclosure*
- *Movable Substations*
  a. *The substation supporting structure must be suitable for moving over rough terrain, or shall be fitted with adequate lifting attachments to allow lifting onto other transport*
  b. *Power transformers shall be of the totally enclosed type or shall be enclosed within a substantial chain link fence. Warning signs must be posted at the entrance to the transformer enclosure with the words "DANGER: HIGH VOLTAGE"*
  c. *Protection of interconnecting cables to 2 or more movable structures must be protected by a circuit breaker and the cables must not exceed 5m in length*
  d. *The neutral grounding device shall be mounted as close as practical to the transformer neutral.*

Initial Audit - Inspector Comments:	Score
Substations were reviewed extensively during this audit and it is to be noted that stationary substations will be include in this section. Portable substations underground looked at during this audit did not reveal any deficiencies. The permanent substations at various locations on the surface will require more signage *"DANGER: HIGH VOLTAGE" posted on the fence.* Click here to enter text.	4

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Subsection 4.6.2.2 & 4.6.2.3 of M421-00 Station Ground Electrodes and Resistances:

- Each Movable Substation shall be grounded to a station ground electrode that meets the requirements of Rules 36-302 (1), (2), and (3) of CSA Standard C22.1
- The station ground electrode shall be designed and installed to prevent the transfer of potentials in excess of 100 volts from the station ground electrode to any connected mobile electrical equipment. The resistance of the station ground electrode shall be measured and the ground-fault protection tested after installation or relocation of the substation

Initial Audit - Inspector Comments: The electrical system feeding the underground movable substations includes a separate grounding conductor carried to the surface. There is additional grounding installed at the substation locations underground.	Score 4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Subsection M421-00 Electrical Equipment Rooms

Subsection 4.2 M421-00 Electrical Equipment Rooms

- *Electrical equipment rooms must ensure the best practical protection against fire propagation, water and dust ingression and corrosive atmospheres*
- *They shall be sufficiently ventilated to maintain equipment at safe temperatures*
- *Lighting levels must be sufficient to enable all equipment to be easily distinguished and all instruments and labels to be easily read*
- *An emergency lighting system shall be provided*
- *A fire extinguishing device shall be provided at each electrical equipment room or vault*

Initial Audit - Inspector Comments:	Score
A significant number of electrical equipment rooms were looked at during this audit both on the surface and the underground. As most of the equipment rooms are new very few deficiencies were noted on the surface. The primary concern with the underground equipment rooms was the excessive heat developing at the main transformer distribution locations. Temperatures were noted at 4 locations with ambient being in the range of 95-115 degrees Fahrenheit. This over temperature condition must be addressed immediately. Click here to enter text.	3

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection M421-00 Quick Connect Cable Couplers	
Subsection 3.4.4 M421-00 **3.4.4.1** *A quick-connect coupler used to join portable power cables or a cable and a flange-mount receptacle, operating at a voltage in excess of 300 V, shall have* *(a) a mechanical fastening arrangement, to join the coupler, with a tensile strength greater than that of the portable power cable;* *(b) strain-relief devices suitable for the intended portable power cable;* *(c) a means to prevent the ingress of moisture;* *(d) a means to mechanically lock the coupler, where the circuit voltage exceeds 750 V;* *(e) a pin arrangement such that* *(i) the ground conductor makes before and breaks after the phase conductors; and* *(ii) the ground-check circuit makes after and breaks before the phase conductors; and* *(f) ground-fault protection and ground-conductor monitoring at the source of supply.* **3.4.4.2** *Notwithstanding Clause 3.4.4.1, if a disconnect switch is mechanically or electrically interlocked with a receptacle for a portable-power-cable plug, and if quick-connect couplers are not used downstream, ground-fault protection and ground-conductor monitoring shall not be required.*	
Initial Audit - Inspector Comments: This operation primarily uses UEE type couplers. These couplers are either mechanically or electrically interlocked. During this audit no deficiencies were noted with respect to the use of couplers. Click here to enter text.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section M421-00 **5.4.1 General**	
Subsection: *Switchboards and switchgear shall* *a) be protected against physical damage;* *b) be guarded in such a manner that access by unauthorized persons can be prevented, if there are exposed live parts;* *c) be separated from an explosives storage area by at least 15 m when measured along mine workings;* *d) have clearances around them to permit safe access for inspection, maintenance, and repairs;* *e) be installed on a fire-resistant foundation; and* *f) be in such a location as to minimize the spread of fire.*	
Initial Audit - Inspector Comments: Switchboards and other electrical equipment inspected during this audit were in compliance with this subsection. Parking of mobile equipment in front of portable substations underground should be discouraged as several no post barriers were noted as being " bumped into" during the inspection. Click here to enter text.	Score 4

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section M421-00 Conveyor Systems

4.4.3 Conveyor systems

4.4.3.1

An electrically driven conveyor shall have the following:
(a) pull-cords (see Clause 4.4.3.2) for stopping the conveyor at accessible locations along the conveyor. The pull-cords shall be within easy reach of persons at such locations;
(b) when the conveyor is started automatically by remote control, or when a portion or portions of the conveyor are not visible from the operator's position, a start-up warning device; and
(c) head, tail, drive, deflection, and tension pulleys guarded at any pinch point that is or can become accessible.

4.4.3.2

A pull-cord required by Clause 4.4.3.1 shall
(a) operate a manual-reset-type switch that stops the conveyor;
(b) be designed and arranged so that it operates the associated switching device and generates the emergency stop signal when
(i) the pull-cord is pulled in any direction;
(ii) a perpendicular pulling force of less than 200 N is applied to the pull-cord; and
(iii) a perpendicular deflection of the pull-cord of less than 400 mm occurs;
(c) be able to withstand, without breaking, a tension force ten times greater than is necessary to generate the emergency stop signal; and
(d) incorporate a visual indicator to show which device has been operated where more than one switching device is necessary.

Initial Audit - Inspector Comments:	Score
Conveyor systems were reviewed and inspected during this audit both on the surface and underground portions of this mine. All new installations are compliant with this section of the code with respect to installation of safety devices. The only area of concern was the varying degrees of tightness of the pull cords. Please note the requirements of this section in 4.4.3.2 (b) (ii) and (iii). Seasonal adjustment may be required to meet the criteria defined in this section. Click here to enter text.	4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section M421-00 Grounding

Subsection 5.6

5.6.1 Grounding Circuit

The grounding circuit from underground to surface shall consist of at least one copper conductor interconnected and bonded with metallic parts of the electrical system, unless equally effective means are provided.

5.6.2 Inspection

The grounding network shall be inspected periodically for continuity and assessed for adequate capacity.

Initial Audit - Inspector Comments:	Score
The separate grounding circuit from surface to underground was inspected at numerous locations and no deficiencies were noted. As discussed with electrical supervision a conscious effort is required to review and make visual inspections to this system on a continual basis to ensure it's integrity and meet the requirement of 5.6.2. Click here to enter text.	4

Initial Audit - Managers Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:
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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Managers Reply:
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Section M421-00 Ground Fault Protection and Ground Fault Monitoring

DRAFT

Subsection 3.5

3.5.5 Ground-Fault Protection

Where ground-fault protection is used, the supply shall be

a) grounded through a neutral-grounding device that limits ground-fault voltage to 100 V or less; and

b) de-energized in less than 1 s if ground-fault current exceeds 20% of the prospective ground-fault current (see Appendix A).

3.5.6 Ground-Conductor Monitoring

Where ground-conductor monitoring is used, the supply shall be de-energized by a fail-safe circuit in less than 0.5 s, and a de-energized supply shall not become energized if

a) the ground-check conductor opens;

b) the ground-return conductor opens; or

c) the ground-check conductor shorts to ground.

A ground-conductor monitoring system shall have an open-circuit voltage of less than 100 V and shall continuously indicate ground-circuit continuity.

3.6 Grounding

3.6.1 Circuit-Opening Devices in Grounding Conductors

A circuit-opening device shall be permitted in the neutral-to-ground connection on any star-connected generator whenever two or more generators are required to be operated in parallel. Procedures for opening and closing these devices shall be instituted to ensure operator safety.

3.6.2 Neutral-Grounding Devices

A neutral-grounding device shall be

a) continuously rated, except when ground-fault tripping is provided;

b) monitored so as to de-energize the supply in less than 60 s if the neutral-grounding device opens; and

c) *connected as close as practical to the supply neutral.*

3.6.3 Ground-Fault Indication

3.6.3.1

A device required by Rule 10-106 (2) of CSA Standard C22.1 shall be provided with

a) short-circuit protection; and

b) disconnecting means such as a general-use switch.

A ground fault shall be investigated and removed without delay.

3.6.3.2.

Where an audible or visible alarm is used to indicate a ground fault, such alarm shall continue signallingto indicate the fault until the fault is cleared.

Initial Audit - Inspector Comments:	Score
There is extensive use of ground fault protection and monitoring taking place at this operation both underground and on surface. All the equipment has been recently installed and all installations inspected met the requirements of this section.	5
Initial Audit - Managers Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
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Audit Follow Up - Managers Reply:	
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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Managers Reply:	
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Section M421-00 Travelling Cranes

Subsection 3.4

3.4.6.1

Electric overhead travelling cranes shall meet the requirements of CSA Standard B167.

3.4.6.2

Each crane shall be equipped with

a) an upper-limit switch that prevents the crane block from reaching its upper limit of travel; and

b) a lower-limit switch if operation of the crane requires the hook to leave sight of the operator at its lower limit of travel.

3.4.6.3

A circuit breaker or load-break switch for interrupting the power supply to the crane shall be provided in the cab.

3.4.6.4

Each service crane shall be provided with a form of dead-man control.

Initial Audit - Inspector Comments:	Score
The surface cranes that this inspector reviewed were in compliance with this section with respect to electrical requirements. Click here to enter text.	5

Initial Audit - Managers Reply:
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Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:
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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Managers Reply:

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Section M421-00 Overhead Supply Lines

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Subsection 3.3

3.3.6.1

Electrical supply lines shall be installed in accordance with CSA Standard CAN/CSA-C22.3 No. 1 or the applicable standard of the jurisdiction.

3.3.6.2

Overhead supply line clearances referred to in CSA Standard CAN/CSA-C22.3 No. 1 require additional clearances as noted in Clauses 4.3.1.1 and 4.3.1.2 of that Standard (see Clause B2 of this Standard).

3.3.6.3

Notwithstanding the requirements of Table 2 and Clause 4.3.1.1 of CSA Standard CAN/CSA-C22.3 No. 1, minimum vertical clearances in Table 3 of this Standard shall be increased where haulage vehicles are frequently used (see Clause B1 of this Standard). Minimum vertical clearances shall be increased by

a) the amount by which the combined vehicle and load height exceeds 4.15 m;
b) the amount of snow pack; and
c) the amount by which banked shoulders, crests, or road maintenance increases road elevation.

3.3.6.4

Vertical clearances specified in Clause 3.3.6.3 do not provide for the travelling of cranes, shovels, drills, and other oversized equipment having unusual dimensions. Clauses 3.3.6.5 and 3.3.6.6 relate to the movement of this special equipment underneath or alongside energized supply lines but are not intended as a procedure for working in the vicinity of energized supply lines.

3.3.6.5

When special equipment is moved, and where the equipment will encroach on the minimum clearances listed in Table 4, the supply lines shall be isolated and grounded. When the movement is under the supervision of qualified personnel, the clearances in Table 3 shall be permitted.

3.3.6.6

Personnel involved in the movement of special equipment in the vicinity of energized overhead supply lines shall minimize the electric-shock hazard in the event of accidental contact by

a) operating the equipment from a position on the equipment that is not in direct contact with earth;
b) having all grounds persons/safety watchers maintain a safe stand-off distance from the equipment;
c) using only prearranged visual signals or radio communications. Hard-wired communication systems shall not be used between the equipment and persons on the ground; and
d) *ensuring only persons required for the move are directly involved.*

Initial Audit - Inspector Comments:	Score
The electrical distribution overhead lines at this operation have primarily been installed by a qualified contractor. The assumption is and cannot be disputed by visual observation is that the overhead supply lines have been installed to meet the requirements of the code. The notwithstanding clauses defined in 3.3.6.3 through to 3.3.6.6 cannot be emphasized enough as there have been far too many occurrences of equipment coming into contact with high voltage lines at various other mining operations in the province in the last few years.	4
Initial Audit - Managers Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
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Audit Follow Up - Managers Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Managers Reply:	
Click here to enter text.	

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Section M421-00 Work on Live Equipment	
Subsection 3.2 **3.2.5.1** *With the exception of utility work and work on electric furnaces and plating tanks, repairs or alterations shall not be carried out on live equipment.* **3.2.5.2** *Notwithstanding Clause 3.2.5.1, if adjustments, tests, or calibrations are performed while equipment is live, all necessary precautions shall be taken to ensure that the work can be done safely.* **3.2.8 Notices to Workers** *Where a hazard exists from inadvertent access to or interference with electrical apparatus, durable noticesigns of sufficient size shall be effectively posted that* *a) prohibit unauthorized personnel from handling or interfering with electrical apparatus;* *b) warn of danger and indicate the highest voltage in use;* *c) provide instructions for communication with the supervisor of the electrical equipment;* *d) advise of the procedure to be followed in case of electrical fire; and* *e) contain directions for the procedure to be followed to rescue persons in contact with live electrical conductors, and for the resuscitation of persons from the effects of electrical shock.* *The requirements of Items (c), (d), and (e) are not obligatory where adequate mine emergency procedures are in place.* **Z462 Workplace Electrical Safety** **4.1.2 Purpose** *The practices and procedures specified in this Standard are intended to provide for the safeguarding ofworkers relative to electrical hazards in the workplace.*	
Initial Audit - Inspector Comments:	Score

In discussion with management and workers during this audit it is apparent that the practice of working on live electrical equipment is discouraged. That being said there is not any formal training or a formal Workplace Electrical Safety program developed and implemented at this mine. There is a plan in place to provide training and a draft program is being developed.	2
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section M421-00 Wiring Methods - Underground

Subsection 5.2

5.2.1 Conductors

Conductors, cables, or portable power cables supplying power to fixed equipment at voltages-to-ground in excess of 150 V shall be protected by armour, conduit, or other similar mechanical means or by suitable location.

5.2.2.2

Portable power cables shall meet the requirements for FT5 rating as specified in CSA Standard C22.2 No. 0.3.

5.2.2.3

Mine power cables without armour jackets, installed after January 1, 2001, shall meet the requirements for FT5 rating as specified in CSA Standard C22.2 No. 0.3.

Initial Audit - Inspector Comments:	Score
It is difficult if not impossible to determine if every piece of cable is in compliance but there was ample evidence that most of the cabling used underground at this mine is in compliance. Click here to enter text.	4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	**Adjusted Score**
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	**Adjusted Score**

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2nd Audit Follow Up - Managers Reply:

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Section M421-00 Installation of Transformers and Capacitors

Subsection 5.3:

5.3.1 Surface Transformers — Flash Point Less than 275 degree C

A transformer containing a liquid having a flash point less than 275 degree C, and installed on the surface in the vicinity of the escapeway or entrance to an underground mine

- *a) shall be located at least 15 m from a headframe, shaft house, portal house, adit, or combustible building attached to such a structure;*
- *b) shall be mounted on a non-combustible pad designed so as to contain the liquid from the largest transformer and prevent spill from seeping into and entering the mine, shaft house, portal house, adit, headframe, or other building; and*
- c) *may be located beside a fireproof building that is attached to the headframe, shaft house, adit, or portal house if there are no openings in the part of the building adjacent to the transformer through which smoke or heat can enter the building.*

5.3.2 Underground Transformers — General

A transformer installed in an underground mine shall

- *a) be protected against physical damage;*
- *b) be guarded in such a manner that access by unauthorized persons can be prevented, if there are energized exposed parts;*
- *c) be separated from an explosives storage area as follows:*
  - *i. when the transformer is over 5 kV•A, by a distance of at least 15 m of undisturbed rock or a distance of at least 60 m of open space; or*
  - *ii. when the transformer is 5 kV•A or less, by a distance of at least 15 m of open space;*
- *d) be rated for the ambient temperature;*
- *e) have clearances around it to permit safe access for inspection, maintenance, and repairs;*
- *f) be mounted on a fireproof foundation and in such a location as to minimize the spread of fire;*
- *g) not be used where flooding is likely to occur; and*
- h) *be provided with an enclosure that meets the requirements of Rule 2-400 of CSA Standard C22.1.*

Initial Audit - Inspector Comments:	Score

All the transformers inspected at this mine both on the surface and underground were compliant with this section. Of note this inspector is not able to confirm that the underground transformers are rated for the high ambient temperatures that are being experienced at some locations. Click here to enter text.	4
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section M421-00 **Installation of Storage Batteries**

Subsection:

5.5.1 Location

Stationary-type storage batteries whose aggregate capacity is 5 kW at the 8 h discharge rate shall be located in storage-battery rooms or in areas with equivalent enclosures.

5.5.2 Installation

Storage-battery and battery-charging areas shall comply with the following:

a) they shall be located so as to prevent damage by mobile equipment;
b) they shall be ventilated by an adequate amount of fresh air to ensure the diffusion of hazardous gases that are produced;
c) battery-charging stations shall be equipped with adequate fire-fighting apparatus suitable for fighting Class C fires;
d) no open flame is permitted, except as defined in Item (g);
e) smoking shall be prohibited;
f) electrical apparatus shall be enclosed in an approved enclosure or otherwise located to ensure that no possibility for ignition exists; and
g) battery repairs may be undertaken after all due precautions to ensure the dissipation of flammable gases have been taken. Battery charging shall be discontinued for the duration of the time taken to effect the repair.

5.5.3 Disposal

The electrolyte of storage batteries shall be removed and neutralized before the batteries are scrapped or stored for salvage.

Initial Audit - Inspector Comments:	Score
The unit substation batteries were not reviewed properly during this audit. An internal audit of these installations should be undertaken to ensure proper ventilation is provided. No other deficiencies were noted by this inspector.	4

Initial Audit - Managers Reply:

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Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Section M421-00 **Trackless Mobile Electrical Equipment**

Subsection5.10.2

5.10.2.1

Clause 5.10.2 applies to the source of power, isolation, ground-fault protection, ground-wire monitoring, portable power cable, multiphase bus system, slip rings, and take-up reel.

5.10.2.2

A transformer supplying power to mobile electrical equipment shall

a) have a minimum kV•A rating of 25% of the maximum kV•A rating of the mobile electrical equipment; and

b) be supplied by load-break isolating devices for the primary supply to the transformer and by a secondary circuit supplying power to the mobile electrical equipment.

5.10.2.3

Portable power cables used to supply ac power to mobile electrical equipment shall

a) meet the requirements of CSA Standard CAN/CSA-C22.2 No. 96;

b) meet the requirements of Table 12A of CSA Standard C22.1 for the rated load current of the mobile electrical equipment. Voltage drop shall not exceed the design criteria for the system;

c) have cable-entry connectors and conductor terminations that will not be adversely affected by normal operation of the mobile electrical equipment;

d) have cable-entry connectors that prevent the entry of water, dust, and other environmental conditions to junction boxes and switch boxes;

e) be suspended or made secure when installed outside the radius of operation of the mobile equipment;

f) when spliced, have electrical and mechanical characteristics equivalent to that of the cable; and

g) when spliced, be subjected to an insulation voltage test equal to the rating of the cable.

Initial Audit - Inspector Comments:	Score
Only two pieces of mobile equipment were inspected during this audit due to time constraints. Neither of these two installations revealed any deficiencies.	5

Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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5.10.2.5 continured

Electrical equipment installed on the vehicle shall meet the following requirements:

a) all enclosures shall meet the Type-4 requirements of CSA Standard CAN/CSA-C22.2 No. 94;
b) each motor or group of motors shall have separate disconnecting means, overload protection, andground-fault protection. Acceptable specialized drives shall be exempt;
c) all motors shall be of the totally enclosed type;
d) all high-voltage and low-voltage ac wiring and terminations shall be clearly identified, separated by suitable barriers from automotive circuits and terminals, and have a flame-test rating of FT2 as specified in CSA Standard C22.2 No. 0.3; and
e) high-voltage or low-voltage ac supply shall not be used to power or drive any automotive electrical device such as lights, battery-charging circuits, gauges, horns, warning devices, solenoids, or radio control equipment.

REMOVING THIS COVER".

5.10.2.5

Electrical equipment installed on the vehicle shall meet the following requirements:

a) all enclosures shall meet the Type-4 requirements of CSA Standard CAN/CSA-C22.2 No. 94;
b) each motor or group of motors shall have separate disconnecting means, overload protection, and ground-fault protection. Acceptable specialized drives shall be exempt;
c) all motors shall be of the totally enclosed type;
d) all high-voltage and low-voltage ac wiring and terminations shall be clearly identified, separated by suitable barriers from automotive circuits and terminals, and have a flame-test rating of FT2 as specified in CSA Standard C22.2 No. 0.3; and
e) *high-voltage or low-voltage ac supply shall not be used to power or drive any automotive electrical device such as lights, battery-charging circuits, gauges, horns, warning devices, solenoids, or radio control equipment.*

Initial Audit - Inspector Comments:	Score
Only two pieces of mobile equipment were inspected during this audit due to time constraints. Neither of these two installations revealed any deficiencies.	5

Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score Choose an item.
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Part 4 – Total out of 115	**94**
Part 4 – Percentage out of 100%	**82%**

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6.1 Work System Approval	
Subsection 6.1.1 Who is responsible for Ventilation *Has the manager appointed a qualified person to be responsible for all aspects of ventilation in the mine?*	
Initial Audit - Inspector Comments:	Score

DRAFT

Yes, Ahsan Chaudry Mining Engineer EIT. Click here to enter text.	5

Section 6.3 Manager - Underground

Subsection 6.3.1(2) Escape Plan

Is there an escape route plan for each level or working area showing the main routes of egress from the active workings, sites of all underground refuge stations, and ventilation as required in section 6.3.2(5)?

Initial Audit - Inspector Comments:	Score
Yes dated Sept 2012 Click here to enter text.	5

Subsection 6.3.1(1) Escape Plan

Are they posted in a conspicuous place accessible to all persons working underground?

Initial Audit - Inspector Comments:	Score
Yes, Click here to enter text.	4

Subsection 6.3.2(1) General

Are the following available for inspection:

- *An accurate and up-to-date copy of the plan of the underground workings?*

Initial Audit - Inspector Comments:	Score
	5

DRAF

Yes, Oct 1, 2012 presentation Oct,16, 2012 to Audit team Click here to enter text.	

Subsection 6.3.2(2) Escape

Are the following available for inspection:

- *A copy of the current emergency and rescue plan required by 6.3.1(2)*

Initial Audit - Inspector Comments:	Score
Yes, Reviewed Click here to enter text.	4

Subsection 6.3.2(3)

Are the following available for inspection:

- *A separate underground plan of every level showing all workings, including shafts, tunnels, diamond drill holes, dams, bulkheads, electrical substations, explosives storage, shop areas, permanent seals and stoppings,*

Initial Audit - Inspector Comments:	Score
Yes, Very detailed, drill holes on drive layout. Complete on many layers. Click here to enter text.	4

Subsection 6.3.2(4)

Are the following available for inspection:

- *Vertical mine sections at suitable intervals and azimuths, showing all shafts, tunnels, drifts, sloped roadways, rooms, stopes, diamond drill holes and the location of the top of the bedrock, surface of, and type of, the overburden and the bottom and surface of any known body of water or watercourse or material likely to flow,*

Initial Audit - Inspector Comments:	Score

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Daily with cave information from TDR and seismic data. Click here to enter text.	4
Subsection 6.3.2(5) *Are the following available for inspection:* • *A ventilation plan showing the normal direction and volume of the main air currents and the location of permanent fans, ventilation doors, fire doors, stoppings and connections with adjacent mines, and*	
Initial Audit - Inspector Comments: Yes ,information is on the drawings Click here to enter text.	Score 4
6.3. Manager – Underground	
Subsection 6.3.3 Shiftboss Plans *Does the shiftboss have current development plans for the assigned area of responsibility indicating the size, dip and length of all development headings?*	
Initial Audit - Inspector Comments: Yes, on daily sheets provided by engineering. Click here to enter text.	Score 4
Subsection 6.3.3(1) Shiftboss Plans *Do they indicate adjacent or disused workings?*	
Initial Audit - Inspector Comments:	Score

DRAFT

Yes, Show old caved area, new development and new cave area. Click here to enter text.	4
Subsection 6.3.3(2) Shiftboss Plans *Are drill holes that are within 8m of a heading indicated on the map?*	
Initial Audit - Inspector Comments: Yes, Map inspected Click here to enter text.	Score 4
Subsection 6.3.3(3) Shiftboss Plans *Are the drill holes that extend into mine workings clearly marked?*	
Initial Audit - Inspector Comments: Yes, 10 M radius marked in maps Click here to enter text.	Score 4
Subsection 6.3.3(4) Shiftboss Plans *Are the collars of these drill holes whether on surface or underground located and plugged as required?*	

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Initial Audit - Inspector Comments:	Score
Protocol is to plug but many historic surface holes not grouted. Click here to enter text.	3

Subsection 6.3.5 Effective Ground Support
Has the manager ensured that an effective ground support system has been properly installed and maintained?

Initial Audit - Inspector Comments:	Score
Yes, been audited by Michael Cullen P. Eng MEMNG consultant. Click here to enter text.	4

Subsection 6.3.5 Qualified Person Qualified Person
Is there a ground control plan developed by a qualified person?

Initial Audit - Inspector Comments:	Score
Yes, Andy Davies, Al Chan, Cory Click here to enter text.	5

Subsection 6.3.5 Quality Control
Is there a quality control program in place to ensure that the ground control program or ground support systems are installed and maintained according to the directions of a qualified person?.

Initial Audit - Inspector Comments:	Score
Check surveys on Convergence in cave area, plus surface measurements. Click here to enter text.	4

DRAFT

6.4 Mine Shift Bosss – General Rules

Subsection 6.4.1(1)(2)

Does a certified shiftboss inspect all active headings at least twice per shift?

Initial Audit - Inspector Comments:	Score
Yes but record keeping needs improvement, could not track what heading had been inspected. Click here to enter text.	2

Subsection 6.4.1(1)(2) Shiftboss

- *Do the shiftbosses have current tickets?*
- *Are the first aid and transportation endorsements current?*

Initial Audit - Inspector Comments:	Score
Yes, Reviewed Click here to enter text.	4

Subsection 6.4.2 & 3 Log Book

Is there a shift log recording the activities in each heading that is signed by the examining shiftboss and countersigned by the corresponding shiftboss?

Initial Audit - Inspector Comments:	Score

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Yes Click here to enter text.	4

6.8 Mine Plans

Subsection 6.8.1(1) Duty to Keep Plans - Surface

Are updated accurate mine plans prepared in accordance with the Code and good engineering practice as follows:

A surface plan showing the

- *claims, licences or leases on which mining is being carried out, and*
- *all lakes, watercourses,*
- *naturally unstable ground, such as peat bogs or sloughs,*
- *main roads,*
- *railways,*
- *power transmission lines,*
- *buildings,*
- *shaft openings, adits,*
- *surface workings,*
- *diamond drill holes collared on the surface,*
- *dumps,*
- *dams, tailings ponds and their overflow channels,*
- *topographic contours, and*
- *any abandoned, adjacent or historical workings.*

Initial Audit - Inspector Comments:	Score

Yes, in place Jane McCaw has this document Click here to enter text.	4

Subsection 6.8.3 Failure to Post Plans:

Is the traffic control plan prepared and available, showing:

- *Maximum allowable speeds for the vehicles in use*
- *Rules for passing, "STOP" and "Yield Rules"*
- *Priority rules for various vehicles*
- *Rules for the night operation*
- *Maximum operating grades, emergency run-off protection, shoulder barriers*
- *Other information to ensure the safe operation of all types of vehicles in the minesite including but not limited to, single lane traffic areas, X-over areas*

Initial Audit - Inspector Comments:	Score
Yes in place for pit access. Click here to enter text.	4

6.10. Dumps

Subsection 6.10.1(4) Dumping at Open Holes

Has the manager required a qualified person to ensure:

(4) where material is to be dumped from a vehicle into a bin, raise, or other opening, provide and maintain a barrier of sufficient size and strength and anchored sufficiently to prevent the vehicle from inadvertently entering the bin, raise, or opening,

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Initial Audit - Inspector Comments:	Score
Yes, a design is in place and designed to take the heaviest vehicle underground. Designed by Core Engineering . Click here to enter text.	5

Subsection 6.10.1(5) Dumping Prohibited

Has the manager required a qualified person to ensure:

(5)where dumping is prohibited or hazardous, prevent dumping by placing across the entrance a barrier sufficient to prevent access and a sign that reads "No entry for dumping purposes,"

Initial Audit - Inspector Comments:	Score
No barrier or sign was noted Click here to enter text.	2

6.12 Mine Openings

Subsection 6.12.1 Two Exits

Prior to production has the mine provided a second exit?

Initial Audit - Inspector Comments:	Score
Yes, The access decline and the conveyor decline Click here to enter text.	5

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Subsection 6.12.2 Distance between Exits

An auxiliary exit shall not at any point be less than 30 m from the main entrance to underground workings of the mine and shall be separated by solid strata. Is this so?

Initial Audit - Inspector Comments:	Score
Yes Click here to enter text.	5

Subsection 6.12.4 Ease of Travel

Does the auxiliary exit afford easy passage and is it provided with good and substantial ladders from the deepest working to the surface, or with hoisting apparatus, which shall constantly be available for use?

Initial Audit - Inspector Comments:	Score
All ramps at present time, Click here to enter text.	5

Subsection 6.12.5 New Mine

Where an underground mine is being developed, have the shafts and raise openings to the surface been provided with a substantial collar secured to the bedrock, comprised of concrete or other material that will perform in the same manner as concrete and is not expected to deteriorate?

Initial Audit - Inspector Comments:	Score
Yes, Concrete collars on all Vent Raises Click here to enter text.	5

6.13 Refuge Stations

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Subsection 6.13.1 Location

Where a workplace in an underground mine is more than 300 m from a mine portal or from a shaft station which is used to access that workplace, has the manager provided and maintained, in a suitable location for that workplace, a refuge station in accordance withsection 6.13.3?

Initial Audit - Inspector Comments:	Score
Yes, all well equipped Click here to enter text.	5

Subsection 6.13.3 Construction and Equipping

Is the underground refuge station

1) *clearly identified, constructed of non-combustible material, and of sufficient size to accommodate all*
2) *persons working in the vicinity,*
3) *equipped with a supply of air, a supply of water, a means of communicating with the surface, a means of sealing to prevent entry of gas, and first aid equipment,*
4) *equipped with a plan of the mine clearly showing all emergency exits, and*
5) *located*
    a. *100 metres from explosives magazines,*
    b. *100 metres from flammable materials storage, and*
6) *(c) constructed or located in such a manner to prevent inadvertent entrance or damage by vehicles, or*

Initial Audit - Inspector Comments:	Score
Yes locations are meeting requirements and meet and exceed requirements. Mine designed a independent means of supplying air, water and communications to the main refuge station. This is a first in BC Click here to enter text.	5

6.16 Underground Mobile Equipment

Subsection 6.16.1 Clearances

- *Where any mobile equipment is operating, has a minimum clearance of 2 m in excess of the maximum width of the vehicle been maintained? The vehicle shall be fitted with an approved roll-over-protective structure ROPS or falling object protection structure (FOPS).*
- *Has a minimum clearance of 300 mm above the ROPS or FOPS been maintained?*

Initial Audit - Inspector Comments:	Score
In some areas of the exploration decline, the clearance is not here but safety bays were developed during construction. Click here to enter text.	5

6.17 Safety Stations

Subsection 6.17.1 Safety Stations

Where the Inspector has allowed a reduction in the clearances in 6.15.2 and 6.16.1,do the safety stations meet the following criteria?

1) *be plainly marked,*
2) *be clean and free of obstructions,*
3) *be cut as close to perpendicular as is practical to the haulage way, and*
4) *if made after 1990, be at least*
    a. *1 m in depth, in addition to the clearance between the vehicle and the wall,*
    b. *the height of the roadway or 2 m whichever is least, and*
    c. *1.5 m in width?*

Initial Audit - Inspector Comments:	Score
Yes throughout the access decline and the conveyor decline, some housekeeping is required as garbage is accumulating is some. Click here to enter text.	3

6.19 Equipment Operation - General

Subsection 6.19.1 Operators Responsibility

Are the operators:

1. *using their seatbelts*
2. *driving with their lights on*
3. *where required, is the vehicle flashing light on at all times or does it have a flag equipped whip antenna light?*

Initial Audit - Inspector Comments:	Score
Yes good compliance Click here to enter text.	4

Subsection 6.19.2 Log Book to be Maintained

Has the manager provided and maintained an effective logbook system for each unit of mobile equipment over 7000 kg gross vehicle weight where

(a) the vehicle operator notes the operating condition prior to operating of the vehicle

(b) note any unsafe conditions, and

(c) a qualified person making repairs, notes any repairs made and if the vehicle is safe to operate?

Initial Audit - Inspector Comments:	Score
Operator compliance 90% Mechanic compliance 50 % Mechanical dept need more training on Log books Click here to enter text.	3

Subsection 6.19.3 Examination of Equipment

Does the operator do a pre-op check?

Initial Audit - Inspector Comments:	Score
	4

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Yes , several noted Click here to enter text.	
Subsection 6.19.4 Signing Logbook *Does every notation made in the logbook, maintenance record, and every other record relating to the condition of the equipment show the time and date of the entry and the name of the person who made the entry?*	
Initial Audit - Inspector Comments: Needs improvement Click here to enter text.	Score 2.5
6.24 General Mine Rules	
Subsection 6.24.2 Water Sprays *Wherever practicable, are water sprays or other dust suppression means and devices being used at every dusty place where work is carried out and where it is impractical to do so, is personal protective equipment supplied and worn by all persons working in that location?*	
Initial Audit - Inspector Comments: Yes, system need review and ongoing maintenance Click here to enter text.	Score 2.5
Subsection 6.24.3 Drilling Dry *Are powered rock drills being used in a mine without a water jet or other device capable of suppressing dust?*	
Initial Audit - Inspector Comments:	Score

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None observed Click here to enter text.	5

6.25 General - Underground Rules

Subsection 6.25.1(1) Scaling

Before any work is begun in an underground mine do the workers check their workplaces for hazardous or dangerous conditions and make it safe before continuing?

Initial Audit - Inspector Comments:	Score
Yes Click here to enter text.	4

Subsection 6.25.2 Travel Ways

Are all work places, travel ways and other areas that may be frequented by mine personnel regularly inspected and maintained by check scaling as conditions warrant and re-supported asmay be prudent and that adequate tools and supplies are provided?

Initial Audit - Inspector Comments:	Score
Yes Click here to enter text.	3

Subsection 6.25.3 Overhead Holes

Where persons are working in any location which is below and open to a haulage or travel way on the level above, is the workplace securely covered or otherwise closed off from the haulage or travel way?

Initial Audit - Inspector Comments:	Score

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Yes Click here to enter text.	5
Subsection 6.25.3 Cover Holes *Are the tops of every millhole, manway, sump, drain hole or other opening covered or otherwise adequately protected to prevent inadvertent access?*	
Initial Audit - Inspector Comments: Sump next to Fueling bay needs bumper block Click here to enter text.	Score 3
Subsection 6.25.3 Working a Manway *Where manways are being repaired or in active use, are they closed offand are warning signs posted at all entrances?*	
Initial Audit - Inspector Comments: Manway between conveyor transfer CTC 3 -4 needs warning signage Click here to enter text.	Score 3
Subsection 6.25.4 Work Near Abandoned Areas *If required does the manager have an approved work procedure for work that is to be carried out within 30 m of abandoned or old workings, or any accumulation of water or unconsolidated material, or any other substance that may flow?*	
Initial Audit - Inspector Comments: In progress with the cave and the break through to the pit. Click here to enter text.	Score 3

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Subsection 6.25.5 Check Breakthroughs

No connection between mine workings shall be made through to until a thorough examination of the workings toward which the active heading is advancing has been made and has shown that the work can proceed in a safe manner. Where required, is there a procedure is in place?

Initial Audit - Inspector Comments:	Score
Yes, procedure in place Click here to enter text.	5

Subsection 6.25.6 Jumbo Drills

Are the drills stopped prior to persons proceeding beyond the front of the drill controls of an underground jumbo drill?

Initial Audit - Inspector Comments:	Score
Yes, procedure in place Click here to enter text.	4

6.26 Rock Passes

Subsection 6.26.1 No Water

Has the Chief Inspector approved an operating procedure to introduce water into an ore or waste pass, a loading pocket, coal silo, hopper, storage bin or a completed large diameter borehole for any purpose?

Initial Audit - Inspector Comments:	Score
No procedure as this is not done Click here to enter text.	5

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Subsection 6.26.1 No Water
Is the operating procedure being followed?

Initial Audit - Inspector Comments:	Score
Yes Click here to enter text.	5

Subsection 6.26.2 Procedure to Remove Water
Has the manager provided a plan for the safe removal of water or saturated Material from any ore or waste pass that contains water or saturated material that will flow?

Initial Audit - Inspector Comments:	Score
Yes, procedure in place for mucking bored raises Click here to enter text.	4

Subsection 6.27.4 Guardrail
Where a stairway ends in direct proximity to dangerous traffic or other hazards, have detour guardrails been installed?

Initial Audit - Inspector Comments:	Score
Yes, on conveyor transfer points Click here to enter text.	4

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6.30 Flammable Waste and Scrap - Underground

Subsection 6.30.1 Scrap Removal

Is the waste, including waste timber, being removed from the underground mine on a regular basis and is not being piled up nor permitted to decay in the mine?

Initial Audit - Inspector Comments:	Score
No, there is waste material collecting underground, housekeeping needs to be improved Click here to enter text.	2

Subsection 6.30.2 Flammable Scrap

In an underground mine,, is the flammable refuse being

1) deposited in covered, fire-resistant containers, and
2) removed at least weekly from the mine?

Initial Audit - Inspector Comments:	Score
No covered fire resistant containers were noted Click here to enter text.	2

6.31 Sulphide Dust

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Subsection 6.31.1 Sulphide Dust

In any underground mine where the sulphur content of the ore is high and a sulphide dust explosion has occurred, has the manager implemented an approved scheme for minimizing the danger from a sulphide dust explosion that includes

1) *provision for ensuring that all persons are removed to a place of safety prior to blasting, taking into consideration the mine layout and the ventilation circuits, and if necessary, removed to the surface of the mine,*
2) *provision for ensuring that all accessible headings, raises, and other workplaces within 30 m of a blasting site are washed down to remove dust prior to blasting,and*
3) *any other measures that could reduce the risk of a dust explosion or lessen the consequences if one should occur.*

Initial Audit - Inspector Comments:	Score
Very little sulphides in the mine, ore very discriminated. Click here to enter text.	5

6.33 Ventilation Standard

Subsection 6.33.1 Ventilation Standard

Is the return air from all working places, whenever practicable, routed directly to the return airway?

Initial Audit - Inspector Comments:	Score
Partially now and when VR 7 is complete air quality will improve. Click here to enter text.	3

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6.35 Underground Mine Heating

Subsection 6.35.1 Mine Air Heaters

Has an Inspector given written permission for the mine to install the furnaces or devices for heating mine air?

Initial Audit - Inspector Comments:	Score
Yes, G MacDonald has given permission. Click here to enter text.	5

6.36 Auxiliary Ventilation

Subsection 6.36.1 Auxiliary Ventilation

Has the manager ensured that all workings that are removed from the main ventilation circuit have an adequate supply of ventilating air?

Initial Audit - Inspector Comments:	Score
Yes aux ventilation in place Click here to enter text.	3

Subsection 6.36.2 Manager's Rules

Where auxiliary ventilation systems are necessary, has the manager of the underground mine prepared rules and procedures for the installation and use of auxiliary ventilation systems and, in the case of a coal mine, for the degassing of headings. Is a copy of this procedure posted at a conspicuous location at the mine?

Initial Audit - Inspector Comments:	Score
Rules and procedures were not noted to be posted. Click here to enter text.	1

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Subsection 6.36.4 Exhaust from a Compressor

Is compressed air being used for ventilation other than clearing blast fumes and smoke since the exhaust from any compressed air machine shall not be considered as ventilation

Initial Audit - Inspector Comments:	Score
No. Click here to enter text.	5

6.37 Ventilation Monitoring

Subsection 3.37.1 Air Measurements

Has the manager of the underground mine ensured that the measurements of the quantity of air flowing are taken at the main fan, in all airways, and at all major ventilation splits at intervals not exceeding three months?

Initial Audit - Inspector Comments:	Score
Air measurements are taken weekly Click here to enter text.	5

Subsection 3.37.2 Diesel Equipment Ventilation

In a mine or part of a mine in which diesel equipment is operating underground

(1) are measurements of the quantity of air flowing being taken at intervals not exceeding once a week,

Initial Audit - Inspector Comments:	Score
Shifters take gas reading daily and record in shift log. Click here to enter text.	3

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Subsection6.37.2 Diesel Equipment Ventilation

(1) are tests being made at least once a shift, in the general body of the air, on the exhaust side of the operating diesel equipment, for nitrogen dioxide or oxides of nitrogen and other gases specified by an inspector,

Initial Audit - Inspector Comments:	Score
Shifters take gas reading daily and record in shift log. Click here to enter text.	3

Subsection6.37.3 Recording

Are the measurements required to be taken under sections 6.37.2(1) and 6.37.2(2) being recorded in a book kept for that purpose?

Initial Audit - Inspector Comments:	Score
Records are kept in the shift log. Click here to enter text.	3

6.38 Doors and Regulators

Subsection6.38.1 Door Closing

Do the doors used for regulating or controlling ventilation close automatically and are they provided with a suitable device for opening or closing them?

Initial Audit - Inspector Comments:	Score

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Yes in place on doors that are in operation and will be installed on future doors Click here to enter text.	4

6.40 Unventilated Workings

Subsection 6.40.1 Prevention of Access

Where any part of the underground mine that is not being ventilated has the manager ensured that these parts

1) *are effectively barricaded to prevent inadvertent entry*
2) *are posted with signs warning that entry is prohibited,*

Initial Audit - Inspector Comments:	Score
Yes, Barricades were noted Click here to enter text.	3

Subsection 6.40.1 Ventilation

Where any part of the underground mine that is not being ventilated has the manager ensured that these parts:

1) *have been examined by a qualified person for the following prior to anyone entering or being permitted to enter these parts*
   a) *oxygen deficiency,*
   b) *t he presence of toxic or noxious gases, fumes, mists, vapours, or dust, and*
   c) *any other dangerous condition.*

Initial Audit - Inspector Comments:	Score
Yes by shift boss Click here to enter text.	3

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Part 6 – Total out of 320	**249**
Part 6 – Percentage out of 100%	**78%**

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Section 8.1 Magazines

Subsection 8.1.1 (1) Permit Required

Has the Manager applied for and received an Explosives Storage and Use Permit from the Inspector before a magazine was put into service, or modified, or before carrying out any maintenance work including the installation of lighting or heating?

Initial Audit - Inspector Comments:	Score
The permit for the surface explosives magazine is: #BC-1081; mine #0300614, expires May 25, 2016. Detonators are not stored on surface.	5

Initial Audit - Managers Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Managers Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Managers Reply:

Click here to enter text.

Subsection 8.1.1 (2) Permit Required

Has the Manager ensured that the magazine meets the current regulations and standards of the Explosives Act (Canada)?
Note: The new standards were established by NRCAN and upgrades must be completed by May 31, 2006?

Initial Audit - Inspector Comments:	Score
The magazine is a standard steel construction magazine. Mine security check the magazine twice per day for tampering and photograph the magazine each inspection.	5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.4 Flammable Material *Is there flammable material stored in a magazine, or nearer to a magazine than the distance required in NRC Explosives Branch "Blasting Explosives and Detonators Storage, Possession, Transportation, Destruction and Sale (8 meters)?*	
Initial Audit - Inspector Comments: The outside of the magazine was free of flammable material. Inside the magazine there was some scrap lumber and a few cases of loading hose which should be removed.	Score 1
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.5 Magazine Signs *Are the proper signs required in the Code in place?*	
Initial Audit - Inspector Comments: Proper warning signs were mounted on the fence surrounding the magazine compound.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 8.1.6 (1) Magazine Rules *Is there an authorized person in charge of the magazine, who inspects it on a weekly basis?*	
Initial Audit - Inspector Comments: Authorized persons check the magazine at least twice per week. Security inspect the magazine compound and around the magazine twice per day.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.6 (2) Magazine Rules *Is the magazine kept locked as required in the Code?*	
Initial Audit - Inspector Comments: The magazine is kept locked, as required. The mag. keys are kept in a lock box or locked desk in the office.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.6 (3) *Magazine Rules* *Is there an up-to-date inventory kept in a logbook with every entry signed by the authorized person in charge?*	
Initial Audit - Inspector Comments: The magazine inventory is current and signed by an authorized person.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 8.1.6 (4) Magazine Rules *Is the magazine clean, dry and free from grit?*	
Initial Audit - Inspector Comments: The magazine is clean and dry.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.6 (7) Magazine Rules *Is there any exposed iron or steel?*	
Initial Audit - Inspector Comments: There is no exposed iron or steel.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

DRAFT

Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.6 (8) Magazine Rules *Is the stock rotated, with the oldest stock being utilized first?*	
Initial Audit - Inspector Comments: Stock is rotated regularly. There was a minimum of product in the surface magazine at the time of inspection.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 8.1.7 Posting Rules *Are the rules for magazine operation and maintenance posted inside every magazine?*	
Initial Audit - Inspector Comments: The magazine rules are posted inside. In surface and underground magazines.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.8 Storage of Detonators *Are the rules regarding detonators being met?*	
Initial Audit - Inspector Comments: Detonators are stored underground, in a sea-can container. The inside of the steel doors of the underground detonator storage are not covered with wood.	Score 1
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.9 No Smoking *Any sign of smoking while handling explosives?*	
Initial Audit - Inspector Comments: There were no signs of smoking near explosives.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

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Subsection 8.1.10 (1) Underground Explosive Storage *In an underground mine, other than a coal mine, does any magazine established for the storage of more than a 24 hour supply of explosives, have the written approval of the Inspector?*	
Initial Audit - Inspector Comments: The inspector has given his approval of the underground magazine.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.10 (2) Underground Explosive Storage *Are explosive storage boxes, holding not more than a 24 hour supply, clearly marked "Explosives?"* *Is there a current record of every magazine and explosive storage area?*	
Initial Audit - Inspector Comments: The contractor's boxes are marked "explosives". There is presently only one underground storage area.	Score 5

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Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Subsection 8.1.10 (3) (a-d) Underground Explosive Storage *In an underground mine are magazine, explosive container, or explosive storage areas:* *a. Located at least 60 meters from a shaft, hoist room, main access ramp, refuge station, transformer vault or a fuel storage or fuel transfer area?* *b. Located so that there is no possibility of a vehicle colliding with a storage container?* *c. Located so that in case of fire in the mine the explosives are not likely to become overheated?* *d. Conspicuously marked by "Explosives" sign or signs?*	
Initial Audit - Inspector Comments: The contractor's explosives boxes are not protected from accidental vehicle impact. The explosives storage is located an appropriate distance from mine infrastructure. It was reported that explosives are sometimes left on the loading truck between shifts. Unused explosives should be returned to the magazine or day box.	Score 1

DRAFT

Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section 8.2 Blasting Certificates	
Subsection 8.2.1 through 8.2.7 Blasting Certificates *Are all persons, conducting blasts, certified as per sections 8.2.1 – 8.2.7 of the HSRC?*	
Initial Audit - Inspector Comments: Blasting certificates are current.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

DRAFT

Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Section 8.3 Use, Care and Handling of Explosives

Subsection 8.3.2 (1) (2) (3) (4) Identification of Explosives

Do all explosives have plainly marked or printed on the exterior of every original package:

1. *The name and place of business of the manufacturer and the date of its manufacture?*
2. *The type and strength of the explosive, and the dimensions of the cartridge?*
3. *The UN Classification number and the dangerous goods classification?*
4. *When full cases of detonators, detonating cords, and boosters are received, the inner cartons are immediately marked with the magazine license number?*

Initial Audit - Inspector Comments: Explosives cases are properly marked. Cases are not opened on surface.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

DRAFT

Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	

Section 8.7 Drilling Near Explosives

Subsection 8.7.1 (1) Misfires

Is the use of equipment restricted within this 8 meter distance except as provide in section 8.7.1, or under a procedure approved by the Inspector 8.8.1. (1) (2)?

Initial Audit - Inspector Comments: There is a procedure, approved by an inspector, for pre-loading production blastholes, which allows equipment to work within 8 m of a loaded hole. Misholes are washed or blown out to neutralize them.	Score 5
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

DRAFT

2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Section 8.8. Misfires	
Subsection 8.8.1 (1) Surface Misfires *Are misfired hole on the surface shall be clearly marked off for a distance of 8 meters around the collar of the hole and equipment restricted?*	
Initial Audit - Inspector Comments: N/A	Score
Initial Audit - Managers Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Managers Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Managers Reply: Click here to enter text.	
Part 8 – Total out of 95	**83**
Part 8 – Percentage out of 100%	**87%**

DRAFT

DRAFT

Section 10.1 Mine Plan and Reclamation Program Information

Subsection 10.1.2 Producing Mines

Does the mine have a permit authorizing the work from the Chief Inspector?
Does it include information on the following:

- *Surface or underground development or production for coal and mineral mines, or major modification of existing producing coal and mineral mines of the buildings available on site*
- *Underground exploration requiring excavation, large pilot projects, bulk samples, trial cargos, test shipments*
- *Has work proceeded without the Chief Inspector granting a permit or authorization?*

Initial Audit - Inspector Comments:	Score
Yes permits are in place M229 and TSF M229A Click here to enter text.	5

Subsection 10.1.4 Mine Plans

Does the mine have a plan that has the relevant information as requested by the Code?

- *Baseline information*

Initial Audit - Inspector Comments:	Score
All information is in the permit application document and the application Click here to enter text.	5

DRAFT

Subsection 10.1.4 Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (3) (f)?

- *Designs and details for dumps, open pits, impoundments, underground workings including areas that may be affected by subsidence, stockpiles, processing facilities, water management structures, water storage and /or water treatment facilities, haulage roads, road construction and significant transportation or utilities infrastructure, compatible with environmental protection, reclamation and mine closure?*

Initial Audit - Inspector Comments:	Score
As builds are available for structures and reclamation report is due at year end.	4

Subsection 10.1.4 Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (3) (g)?

- Designs for material handling and waste disposal procedures

Initial Audit - Inspector Comments:	Score
Waste disposal is handled by a contractor and dealt with off site. GFL waste oil, BFI waste for recycling. Storage of chemicals needs improvement, RheoTEC tank sitting in the yard with product still it exposed to the potential of being hit by a vehicle in winter conditions, also a tank of DELVO Stabilizer in the same condition. Waste oil storage area needs to be covered so it doesn't fill with water and float the hydrocarbons into the environment. Diesel fuel surface fueling station has diesel spilled on the ground and needs to have all contaminated soil removed and a system installed so it doesn't reoccur. Click here to enter text.	2

DRAFT

Subsection 10.1.4 (3h) Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (3) (h)?

- *Salvaging and stockpiling of surface soils and overburden materials*

Initial Audit - Inspector Comments:	Score
The mine has stockpiled 170,000 m3 of topsoil and 300,000 m3 of till Click here to enter text.	4

Subsection: 10.1.4 (3i) Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (3) (i)?

- *Source, use and water balance for any water required in the operation*

Initial Audit - Inspector Comments:	Score
Fresh water comes from Kamloops Lake permit 139m3/min average is 124 m3 / min Water balance is not complete due to 3 different water balances and discussions on the water volume trapped in the tailings Click here to enter text.	2

DRAFT

Subsection10.1.4 (3j) Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (3) (j)?

- *Overall site water balance*

Initial Audit - Inspector Comments:	Score
Still work in progress Click here to enter text.	3

Subsection10.1.4 (4b) Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (4) (b)?

Plan for environmental Protection that includes:

- *Erosion control and sediment retention*

Initial Audit - Inspector Comments:	Score
Yes, but some erosion channels need to be improved before water leaves the property Click here to enter text.	3

DRAFT

Subsection10.1.4 (6) Mine Plans

Does the mine plan have operational reclamation plans for the next five years that shows the progressive development of structures?

Initial Audit - Inspector Comments:	Score
Work in progress due from consultant December 2012. Click here to enter text.	2

Subsection: 10.1.5 Design Standards

Are the impoundments, water management facilities and dams designed in accordance with the criteria provided in the Canadian Dam Association, Dam Safety Guidelines?

Initial Audit - Inspector Comments:	Score
Yes, audit by Geologic, Monte Christie still not complete Click here to enter text.	2

DRAFT

Subsection 10.1.6 Design Standards *Are the dumps designed in accordance with the Interim Guidelines of the British Columbia Mine Waste Rock Pile Research Committee?*	
Initial Audit - Inspector Comments: Present dump is in pit and will be effected by the cave. Click here to enter text.	Score 4
Subsection 10.1.7 Design Standards *Are the dumps designed so as to allow for re-contouring such that final reclamation is consistent with the approved end land use?*	
Initial Audit - Inspector Comments: Not required as they are in pit Click here to enter text.	Score 4

DRAFT

Subsection 10.1.8 Design Standards

Are the Tailings impoundments, water management facilities, dams and waste dumps designed by a professional engineer?

Initial Audit - Inspector Comments:	Score
Yes Scott Elfen PE and stamped by Harry H. Kim P.eng Click here to enter text.	4

Subsection 10.1.9 Design Standards

Are there plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage which shall be prepared in accordance with the Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia?

Initial Audit - Inspector Comments:	Score
Using MLARD program as laid out in permit and full data base on NG computer system. Click here to enter text.	4

DRAFT

Subsection 10.1.11

Has the Owner, Agent or Manager notified the Chief Inspector in writing of any intention to depart from the mine plan and reclamation program authorized under sections 10.1.1 or 10.2.1 of the Code to any substantial degree?

Has the Manager received the written authorization of the Chief Inspector prior to implementing the proposed changes?

Initial Audit - Inspector Comments:	Score
No Changes at this time. Click here to enter text.	4

DRAFT

Section 10.5 Operations

Subsection 10.5.1 Operations

Did the operation of tailings or water management facility commence prior to an "as-built" report prepared by a professional engineer certifying that the facility was designed and constructed according to section 10.1.5 of this Code being submitted to the Chief Inspector and a permit to operate the facility was received?

Initial Audit - Inspector Comments:	Score
Yes ,Reviewed by George Warnock P. Eng. MEMNG and signed off Click here to enter text.	5

DRAFT

Subsection 10.5.2 Operations

Does the mine have an Operation, Maintenance and Surveillance (OMS) manual?

Was this manual prepared and provided to an Inspector and to all employees involved in the operation of major dam or major impoundment, prior to commissioning?

- *Is the manual revised regularly during operations, decommissioning and closure of the structure?*

Initial Audit - Inspector Comments:	Score
Yes, In place Click here to enter text.	5

Subsection 10.5.3 Operations

Has the Manager submitted an annual dam safety inspection report prepared by a professional engineer on the operation, maintenance and surveillance of the tailings and water management facilities and associated dams to the Chief Inspector?

Initial Audit - Inspector Comments:	Score
Not Due until March 31, 2013 Click here to enter text.	3

DRAFT

	Score
Part 10 – Total out of 90	**65**
Part 10 – Percentage out of 100%	**72%**

DRAFT

We believe that one of the most important aspects of your operation is to provide a safe and healthy work environment for all employees. To help us evaluate this goal, we asked your employees the following questions.

Y = YES, N = NO, NS = Not Sure

Company: New Afton

DRAFT

1) Does Management visibly demonstrate an interest in the safety and health of their employees?

   Percentage of those interviewed: Y = 97% / N=1% / NS= 2%

2) Does your supervisor show interest in the health and safety of the employees on your crew?

   Percentage of those interviewed: Y = 100% / N / NS

3) Are identified health and safety concerns or hazards addressed and or corrected in a timely manner.

   Percentage of those interviewed: Y = 95% / N = 1% / NS =4%

4) Have the Company health and safety rules and procedures been clearly explained to you.

   Percentage of those interviewed: Y = 98% / N / NS = 2%

5) Are all workplace accidents and/or near misses reported?

   Percentage of those interviewed: Y = 95% / N = 1% / NS = 4%

6) Does your supervisor conduct effective monthly safety meetings?

   Percentage of those interviewed: Y = 100% / N / NS

7) Have you been given enough training and information to do your job safely?

Percentage of those interviewed: Y = 98% / N = 2% / NS

8) Is positive feedback is given to increase health and safety awareness.

Percentage of those interviewed: Y = 99% / N / NS = 1%

9) Do you know what to do in case of an emergency (i.e. fire, injury, chemical spill, etc.).

Percentage of those interviewed: Y = 100% / N / NS

10) Do you have opportunities to provide input into the health and safety program?

Percentage of those interviewed: Y = 99% / N / NS = 1%

11) Are Health and Safety inspections of your work area conducted monthly?

Percentage of those interviewed: Y = 98% / N / NS = 2%

12) Is the Occupational Health and Safety Committee an active and effective group?

Percentage of those interviewed: Y = 95% / N = 1% / NS = 4%

13) Are all new employees given adequate safety orientation?

Percentage of those interviewed: Y = 98% / N / NS = 2%

14) Do you report every workplace injury or illness to your supervisor regardless of severity?

Percentage of those interviewed: Y = 98% / N = 1% / NS = 1%

DRAFT

15) Are safety rules sometimes disregard in order to get the job done?

Percentage of those interviewed: Y = 1% / N = 97% / NS = 2%

16) Is it possible to achieve a "Zero Accident Culture?"

Percentage of those interviewed: Y = 96% / N = 2% / NS = 2%

	Question #1	Question #2
	Provide one positive aspect of the Mines Health and Safety program?	If you could improve one thing in the Mines Health and Safety program what would it be?
	The Joint Occupational Health and Safety Committee	Continue with the positive feedback to all employees
	Concerns are always dealt with	Have Bi –Weekly meeting because of shift rotations
	Safety concerns are dealt with ASAP	More frequent meetings
	Refuge stations for emergencies	Ventilation needs to be checked in all aspects and areas of the mine on a regular basis
	It forces the company not to ignore health and safety. Routine checking of work.	Send out questionnaires periodically to get a feel for how the workplaces are doing.
	Access to all PPE necessary to complete the job safety	Better dust control underground and ventilation
	Open communications at daily meetings	Better availability of jack stands and booms support.

DRAFT

	Provide one positive aspect of the Mines Health and Safety program?	If you could improve one thing in the Mines Health and Safety program what would it be?
	Third party objective view by someone other than corporate looking at things	Clarity from M.H.S to work (sometimes middleman are misinformed or unsure)

DRAFT

FW: New Afton Variance ventilation response

Thursday, November 29, 2012
1:13 PM

Subject	**FW: New Afton Variance ventilation response**
From	Hoffman, Al EMNG:EX
To	Junck, Carrera EMNG:EX
Sent	Tuesday, November 27, 2012 6:21 PM
Attachments	 2010120910 4434

From: Brody, Margo X EMPR:EX
Sent: Thursday, December 9, 2010 10:50 AM
To: 'Kurt.keskimaki@newgold.com'
Cc: Hoffman, Al EMPR:EX; Thorpe, Rolly EMPR:EX; Booth, Richard EMPR:EX; McLean, Greg EMPR:EX; Rothman, Stephen EMPR:EX; Cox, John EMPR:EX; Padley, Emmanuel EMPR:EX; MacDonald, Garry EMPR:EX; Nakatsuka, Caroline M EMPR:EX; Paterson, Terry J EMPR:EX
Subject: FW: New Afton Variance ventilation response

Hello Mr. Keskimaki,

In the PDF attachment, is the response to your application variance regarding ventilation flows at the New Afton Mine.
Please let me know if you are unable to open the attachment. The paper copy is in today's mail to you.

Subject: New Afton Variance ventilation response

Margo Brody
Administrative Assistant to the Chief Inspector of Mines
Ministry of Natural Resource Operations
6th Floor, 1810 Blanshard Street Victoria BC V8W-9N3
Tel: 250 952-0793 Fax: 250-952-0491
Email: mailto:Margo.Brody@gov.bc.ca Margo.Brody@gov.bc.ca

TEAMWORK CURIOSITY PASSION SERVICE COURAGE ACCOUNTABILITY
I N T E G R I T Y
P Think about the environment before printing.

The ventilation must also take into account the heat generated from electrical transformers, switchgear and motors that are adding energy (heat) to the air. There is also a requirement for adequate ventilation to ensure dispersal of entrained respirable dust, the maintenance of acceptable heat stress and to ensure that blasting gases are cleared.

Adequate ventilation is far more that the compliance with the CANMET diesel requirement.

Sincerely,

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

Ec:
Mr. Richard Booth, A/Deputy Chief Inspector of Mines Health and Safety, MNRO
Mr. Rolly Thorpe, A/Deputy Chief Inspector of Mines Health and Safety, MNRO
Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MNRO
Mr. Steve Rothman, Senior Inspector of Mines, MNRO, Kamloops
Mr. John Cox, Inspector of Mines, Health and Safety, Kamloops, MNRO
Mr. Emanuel Padley, Inspector of Mines Electrical, Kamloops, MNRO
Mr. Garry MacDonald, Inspector of Mines, Mechanical, MNRO
Ms. Caroline Nakatsuka, Manager of Occupational Health, MNRO
Mr. Terry Paterson, Inspector of Mines Electrical, Cranbrook, MNRO

Ministry of
Natural Resource
Operations

Mailing Address:
PO Box 9320, Stn Prov Govt
Victoria, BC V8W 9N3
Telephone: (250) 952-0793
Facsimile: (250) 952-0481

Location:
Sixth Floor
1810 Blanshard St
Victoria, BC Canada

BRITISH COLUMBIA
The Best Place on Earth

December 9, 2010

Mr. Kurt Keskimaki
Mine Manager
New Afton New Gold Inc.
Suite 3110 - 666 Burrard Street
Vancouver, BC V6C 2X8

Mine: 0300614
ORCS: 14675-20

Dear Mr. Keskimaki:

Sent: by mail and email: kurt.keskimaki@newgold.com

Re: Variance Request to allow CANMET prescribed ventilation flows at the New Afton Mine

I have read your letters of December 7, 2010 requesting a variance to allow CANMET prescribed ventilation flows at the New Afton Mine: your request for this variance is denied.

The Health Safety and Reclamation Code for Mines in British Columbia (Code) 4.7.1(2) states that approved equipment shall comply with CSA M421-2. CANMET approves diesel engines for compliance with this requirement and as part of that approval, provides the minimum volumetric flow rate of air required for that vehicle to safely operate and includes the operator. If more than one vehicle may be in a drift or mine roadway then of course the volumetric flow rates are the sum of all the diesel requirements in that particular drift or mine roadway.

The CSA standard also states that the in circumstances where unusually low amounts of diesel particulates are emitted from the machine, it may be that the concentration of one or more of the gaseous emissions will exceed the ACGIH-TLV. In such cases, sufficient air shall be provided to ensure that the concentrations of each toxic constituent, taken separately, do not exceed the ACGIH-TLV or other appropriate limit at its maximum rate of generation.

The Code 4.6.1 requires that 0.6 cubic meters per second of ventilating air per kilowatt of diesel power is provided by mechanical means where any piece of diesel equipment is operating. This requirement was adopted to ensure adequate air for the diesel equipment and to ensure that there is adequate ventilation for other equipment that may be operating in the vicinity.

/2

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Victoria, BC V8W 9N3
Ph: 250-952-0793
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Unfiled Notes Page 2

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Unfiled Notes Page 2

FW: Physiokinetic Adjusted TLVs at New Afton

Thursday, November 29, 2012
1:13 PM

Subject	**FW: Physiokinetic Adjusted TLVs at New Afton**
From	Hoffman, Al EMNG:EX
To	Junck, Carrera EMNG:EX
Sent	Tuesday, November 27, 2012 6:09 PM

Here is one for the New Afton file and CO

From: Doyle, Carina EMNG:EX
Sent: Wednesday, October 24, 2012 6:50 PM
To: 'Sean Masse'
Cc: 'Kurt Keskimaki'; 'Kevin Mihalicz'; Hoffman, Al EMNG:EX; Nakatsuka, Caroline M EMNG:EX; Rothman, Stephen EMNG:EX
Subject: RE: Physiokinetic Adjusted TLVs at New Afton

Sean,

Thank you for your email. We have discussed your email and recognize we have made an error in approving this without a variance as a method has already been outlined in the Code. I agree that this is a recognized method of adjusting TLV's for shifts longer than 8 hours. Section 2.1.2 of the code specifies that mines in BC should use the following equation:

Shifts Longer Than 8 Hours

2.1.2 When shifts longer than 8 hours are being worked, the time-weighted average concentration of airborne contaminants shall be based on the "concentration equivalent" (Ceq) which is derived from the following formula:

$$Ceq = \frac{\text{(8-hour TWA)x8}}{\text{shift length in hours}}$$

The Ministry would be happy to consider an application for a variance to this section. Please submit a variance request signed by the mine manager, the OHSC and the local union representative. If this is not received at the time of the submission, the Chief Inspector is obligated to wait 30 days for input from all stakeholders. Please include in your application the values you indent to use for the half-life of contaminants in the body (i.e. the values for NH3, NOx, or any other contaminants of concern on site).

The ultimate objective is to reduce exposures to the lowest amount possible, as these thresholds are not discrete cut offs between safe and unsafe levels.

Regards,

Carina Doyle
Inspector of Mines, Occupational Health

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250 952 0668 | Cell: 250 812 5171 | Fax: 250 952 0491
Email: Carina.Doyle@gov.bc.ca | Website: www.em.gov.bc.ca

From: Sean Masse [mailto:Sean.Masse@newgold.com]
Sent: Tuesday, October 23, 2012 5:33 PM
To: Doyle, Carina EMNG:EX; Rothman, Stephen EMNG:EX
Cc: Kurt Keskimaki; Kevin Mihalicz
Subject: Physiokinetic Adjusted TLVs at New Afton

Hello,

I had sent an email about adjusting TLVs to Steve last week. Apparently Kevin discussed it with Steve and Steve asked for an email outlining the approach.

We were reviewing our TLVs a few weeks back to gain consistency with several different presentations we use. We were working through the ACGIH material on adjusted TLVs. I was interested in an approach for our common gases that takes into account the physiological effect of the particular gas. I knew this existed but hadn't researched it before.

The gases we deal with at New Afton:

- NOx are both irritants to mucous membranes and can cause edema and fluid in the lungs with large exposures
- NH3 again an irritant that can cause fluid in the lungs with large exposures
- CO an oxygen substitute on hemoglobin that has very well documented affinity and half life

$$Fp = \frac{\left(1-e^{-kt_{1\alpha}}\right)\left(1-e^{-k(t_{1\alpha}+t_{2\alpha})m}\right)\left(1-e^{-kT_s}\right)\left(1-e^{-k(t_{1s}+t_{2s})}\right)}{\left(1-e^{-kt_{1s}}\right)\left(1-e^{-k(t_{1s}+t_{2s})m}\right)\left(1-e^{-kT_n}\right)\left(1-e^{-k(t_{1n}+t_{2n})}\right)}$$

This equation is described on the documentation sheet in the attached workbook

It is a complicated equation but I did find a spreadsheet published by McMaster university on the topic. My approach was as follows for our main gases:

Given these understandings of the gases we decided to leave the irritants with the MoM calculation for adjusted TLV, this seemed to be conservative and allows for a factor of safety, given the more variable effect of these gases.

For CO we found a conservative half-life of the CO equilibrium in the body of 4-5 hours. We chose to use 5 hours.

Using the calculator from McMaster and a half-life of 5 hours we come up with an adjustment factor (Fp) of .86, therefore our adjusted TLV would be TLV'=0.86*25ppmCO=21.5ppm

My understanding from Kevin is that this is agreeable to Steve and that this email would constitute our submittal and backup to this effect.

Sean Masse, P.Eng, PMP
Mine Manager
New Gold Inc.
New AftonMine
Box 948 Stn Main
Kamloops, British Columbia, Canada, V2C 5N4
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www.newgold.com
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Sent	Tuesday, November 27, 2012 6:09 PM

Here is one for the New Afton file and CO

From: Doyle, Carina EMNG:EX
Sent: Wednesday, October 24, 2012 6:50 PM
To: 'Sean Masse'
Cc: 'Kurt Keskimaki'; 'Kevin Mihalicz'; Hoffman, Al EMNG:EX; Nakatsuka, Caroline M EMNG:EX; Rothman, Stephen EMNG:EX
Subject: RE: Physiokinetic Adjusted TLVs at New Afton

Sean,

Thank you for your email. We have discussed your email and recognize we have made an error in approving this without a variance as a method has already been outlined in the Code. I agree that this is a recognized method of adjusting TLV's for shifts longer than 8 hours. Section 2.1.2 of the code specifies that mines in BC should use the following equation:

Shifts Longer Than 8 Hours

2.1.2 When shifts longer than 8 hours are being worked, the time-weighted average concentration of airborne contaminants shall be based on the "concentration equivalent" (Ceq) which is derived from the following formula:

$$Ceq = \frac{(8\text{-hour TWA}) \times 8}{\text{shift length in hours}}$$

The Ministry would be happy to consider an application for a variance to this section. Please submit a variance request signed by the mine manager, the OHSC and the local union representative. If this is not received at the time of the submission, the Chief Inspector is obligated to wait 30 days for input from all stakeholders. Please include in your application the values you indent to use for the half-life of contaminants in the body (i.e. the values for NH3, NOx, or any other contaminants of concern on site).

The ultimate objective is to reduce exposures to the lowest amount possible, as these thresholds are not discrete cut offs between safe and unsafe levels.

Regards,

Carina Doyle
Inspector of Mines, Occupational Health

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250 952 0668 | Cell: 250 812 5171 | Fax: 250 952 0491
Email: Carina.Doyle@gov.bc.ca | Website: www.em.gov.bc.ca

From: Sean Masse [mailto:Sean.Masse@newgold.com]
Sent: Tuesday, October 23, 2012 5:33 PM
To: Doyle, Carina EMNG:EX; Rothman, Stephen EMNG:EX
Cc: Kurt Keskimaki; Kevin Mihalicz
Subject: Physiokinetic Adjusted TLVs at New Afton

Hello,

I had sent an email about adjusting TLVs to Steve last week. Apparently Kevin discussed it with Steve and Steve asked for an email outlining the approach.

We were reviewing our TLVs a few weeks back to gain consistency with several different presentations we use. We were working through the ACGIH material on adjusted TLVs. I was interested in an approach for our common gases that takes into account the physiological effect of the particular gas. I knew this existed but hadn't researched it before.

The gases we deal with at New Afton:

- NOx are both irritants to mucous membranes and can cause edema and fluid in the lungs with large exposures
- NH3 again an irritant that can cause fluid in the lungs with large exposures
- CO an oxygen substitute on hemoglobin that has very well documented affinity and half life

$$Fp = \frac{\left(1-e^{-kt_{1\alpha}}\right)\left(1-e^{-k(t_{1\alpha}+t_{2\alpha})m}\right)\left(1-e^{-kT_s}\right)\left(1-e^{-k(t_{1s}+t_{2s})}\right)}{\left(1-e^{-kt_{1s}}\right)\left(1-e^{-k(t_{1s}+t_{2s})m}\right)\left(1-e^{-kT_n}\right)\left(1-e^{-k(t_{1n}+t_{2n})}\right)}$$

This equation is described on the documentation sheet in the attached workbook

It is a complicated equation but I did find a spreadsheet published by McMaster university on the topic. My approach was as follows for our main gases:

Given these understandings of the gases we decided to leave the irritants with the MoM calculation for adjusted TLV, this seemed to be conservative and allows for a factor of safety, given the more variable effect of these gases.

For CO we found a conservative half-life of the CO equilibrium in the body of 4-5 hours. We chose to use 5 hours.

Using the calculator from McMaster and a half-life of 5 hours we come up with an adjustment factor (Fp) of .86, therefore our adjusted TLV would be TLV'=0.86*25ppmCO=21.5ppm

My understanding from Kevin is that this is agreeable to Steve and that this email would constitute our submittal and backup to this effect.

Sean Masse, P.Eng, PMP
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New Gold Inc.
New AftonMine
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Kamloops, British Columbia, Canada, V2C 5N4
T +1.250.377.2779 **F** +1.250.377.2701
M +1.250.819.2187

www.newgold.com
TSX/NYSE AMEX:NGD

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MEL - IPR 110168 New Afton 2012.02.18 2313

Thursday, November 29, 2012
1:11 PM

Subject	**MEL - IPR 110168 New Afton 2012.02.18 2313**
From	Cox, John EMNG:EX
To	Nakatsuka, Caroline M EMNG:EX
Sent	Sunday, February 19, 2012 1:23 PM
Attachments	IPR 110168 MEPIF 110168

Hi Caroline,

Attached are the IPR and the Primary Info sheet for the accident that happened at New Afton last night.
As of noon today the patient is still in emergency at RIH.

Have a Good One

John

John Cox
Inspector of Mines
South Central Region
Ministry of Energy and Mines
Mines and Mineral Resources Division
2nd Floor, 441 Columbia Street,
Kamloops, BC V2C 2T3
Phone : 250 371 3915
Cell: 250-320-8758
email: john.cox@gov.bc.ca

BRITISH COLUMBIA

Initial Phone Report IPR 110168

MINE EMERGENCY REPORT

Caller : CARY
Organization : BCAS
Primary No : 250-374-4411
Alt No :
Alt No :
Subject : BACK INJURY
Incident Area : KAMLOOPS
Location : NEW GOLD MINE 4050 WEST TCH

Time Logged :2012-02-18 23:06
Incident Date Time :2012-02-18 23:00
PEP by Duty Officer :IAN

PEP Region :CTL

Details :
Advised there has been an injury reported at the underground at the mine site, BCAS responding to the first aid room and will receive the injured miner from mine first aid staff there hand off to BCAS there

Notifications:
23:09 left message for on call Mine Inspector on emergency phone
23:13 briefed on call Mine Inspector Caroline Nakasuka - advised she is not on call and to call the emergency number directly
23:13 briefed BC Mine Inspector John Cox
23:15 emailed Mine Emergency DIST list

This report printed on: 2012-02-18 at 23:17:50

Emergency Coordination Center
Phone 1-800-663-3456
Fax (250) 952-4872

MINE EMERGENCY PRIMARY INFORMATION

Date 2012.02.18	Time of call 2313	Date of incident: 2012.02.18	Time of incident 2215+/-
Name of Inspector receiving call: John Cox			
Call received from: Ian Foss ECC		Call originated from: BC Ambulance	
Calls related to mining, please continue below.	***Calls NOT related to mining, STOP form completion and summarize here: (add notes where appropriate)***		
Mine Name: New Afton		Mine Type (if known): Underground	
Lat/Long: Kamloops		On minesite? *circle* Y / N	
Location at the mine: Ramp			
Mine activity: *circle* exploration operating maintenance abandoned unknown		Emergency number at gate contacted? *circle* Y /N / Not Posted	
Emergency calls related to mining, please continue below.	***NON Emergency calls RELATED to mining, STOP form completion and summarize here: (add notes where appropriate)*** **A miner was taking a garbage box down the ramp using an IT (Integrated Tool carrier) loader. He went over a "pot hole" or bump. It appears initially that the seat was not as it should have been and he suffered a back injury. The mine rescue team had him packaged up by the time the mine ambulance got to him. Upon reaching surface the patient was transferred to a BC ambulance and taken to RIH in Kamloops.**		
# persons at risk, underground		# persons at risk, surface	
Record INJURED / WITNESSES / MISSING on next page			
Summary of the nature of the incident *what happened & severity*:			
Any other risk factors *circle those applicable, list others*: abandoned mine, water, ditch/depression, confined spaces, hazardous materials, unstable ground, ground heating			
Who has been contacted and what is their response status? *circle/list those appropriate and comment*: PEP, Mine Rescue Team, Fire, Ambulance, Police, Coroner, Mine Management			
Who is in Command?		Has the accident scene been secured?	

circle	Yes / No
Weather conditions:	

Attach additional documentation as necessary

MINE EMERGENCY PRIMARY INFORMATION (Cont'd)

PERSONS AFFECTED: INJURED / WITNESSES / MISSING

(Complete additional page if required)

#	Name	Address & Phone *(if known)*	Affiliation and medical concerns	Age	M/F	Injured Witness or Missing	MR trained Y/N	Tim fou 240

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circle	Yes / No
Weather conditions:	

Attach additional documentation as necessary

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(Complete additional page if required)

#	Name	Address & Phone *(if known)*	Affiliation and medical concerns	Age	M/F	Injured Witness or Missing	MR trained Y/N	Time found 2400hr

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Ministry of Mines Update

May 4, 2011

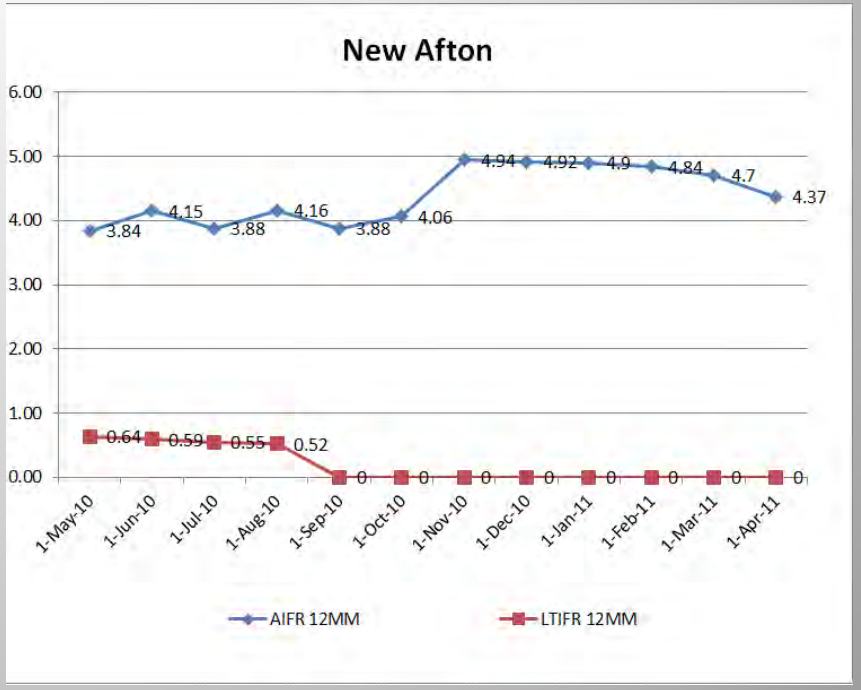


Manpower & Hours

- 279+ Employees: 122 mining, 34 mechanics, 99 office & support= 167,075 hours YTD 2011
- 223+ Contractors: 43 Acres, 43 Cementation, 29 Thyssen, 71 Construction Contractors, 37 Independent Contractors = 170,955 hours YTD 2011
- NG - 7 days on/7 days off rotation – 11 hour shifts
- Contractors – 28/14, 20/10, and regular weekly hours
- Third miner trainer group commenced this month.
- Recruiting continues in Mine Ops, Tech Services, Maint, and Mill Operations

YTD Safety Statistics

	Apr 2011	YTD	YTD 2010
Lost Time	0	0	0
Disabling Injury	0	4	2
Medical Treatment	0	2	1
First Aid	6	26	7
Hazards	6	16	0
5pt Card Hazards Reported		35	0
Near Miss	9	34	8
Property Damage	11	47	16
Process Loss	3	7	N/A
LTIFR	0	0	0
AIFR	0	3.55	4.68



2009		2010		12MMA	
AIFR	LTIFR	AIFR	LTIFR	AIFR	LTIFR
3.17	1.27	4.92	0.00	4.37	0.00

Mine Rescue – Emergency Response

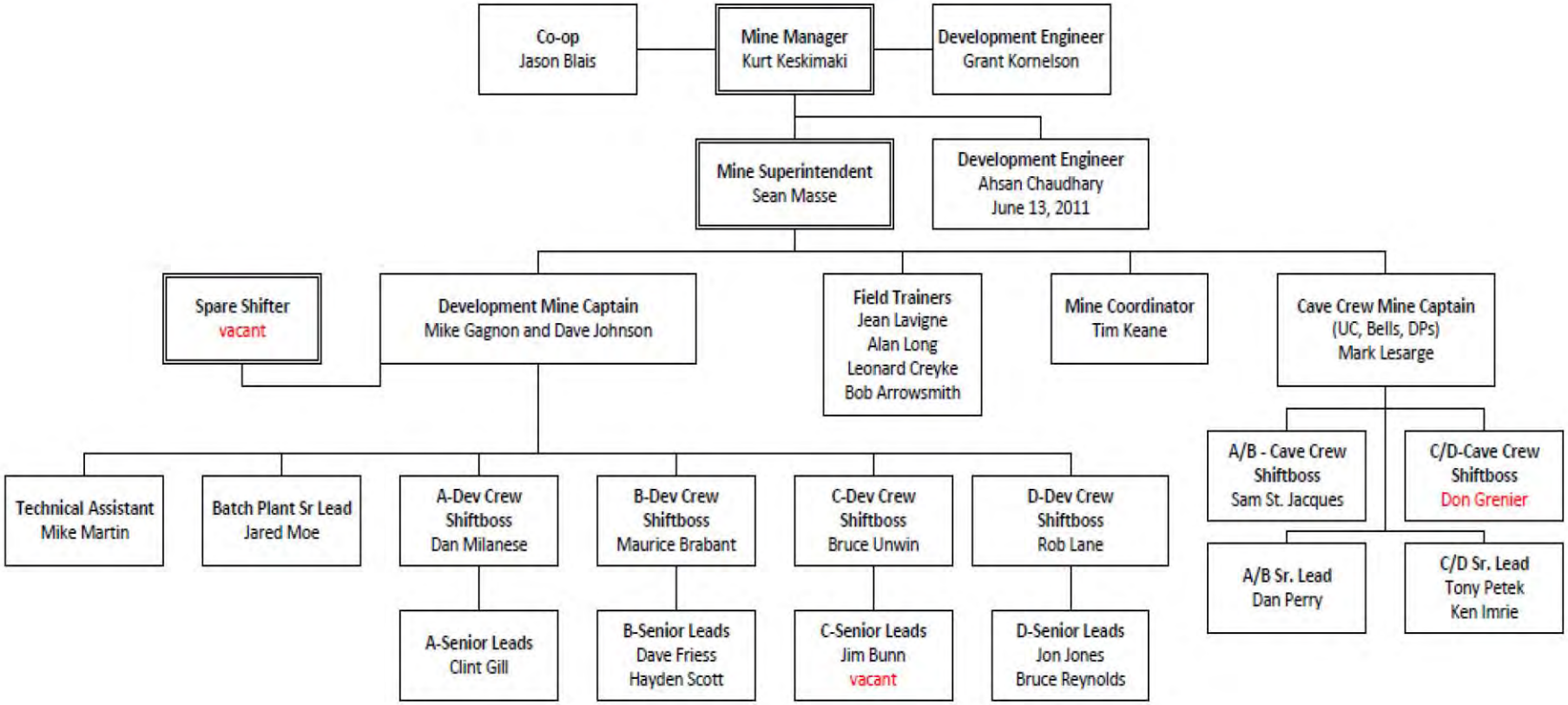
- Hired a new Fire & Mine Rescue Chief (Mike Owens)
- Currently 28 active MR members
- Primary First Aid response remains with SAVI (WPA)
- 50% of workforce has SJA first aid certification
- In process of procuring a Fire Engine & equipment
- Water truck used as surface fire response vehicle
- 4 – 20 person portable refuge stations, 1 - 10 person
- Permanent refuge location (60 person) nearing completion
- Training for BC Mine Rescue competition in Revelstoke
- Mine rescue course to increase active numbers

Achievements & Opportunities - YTD

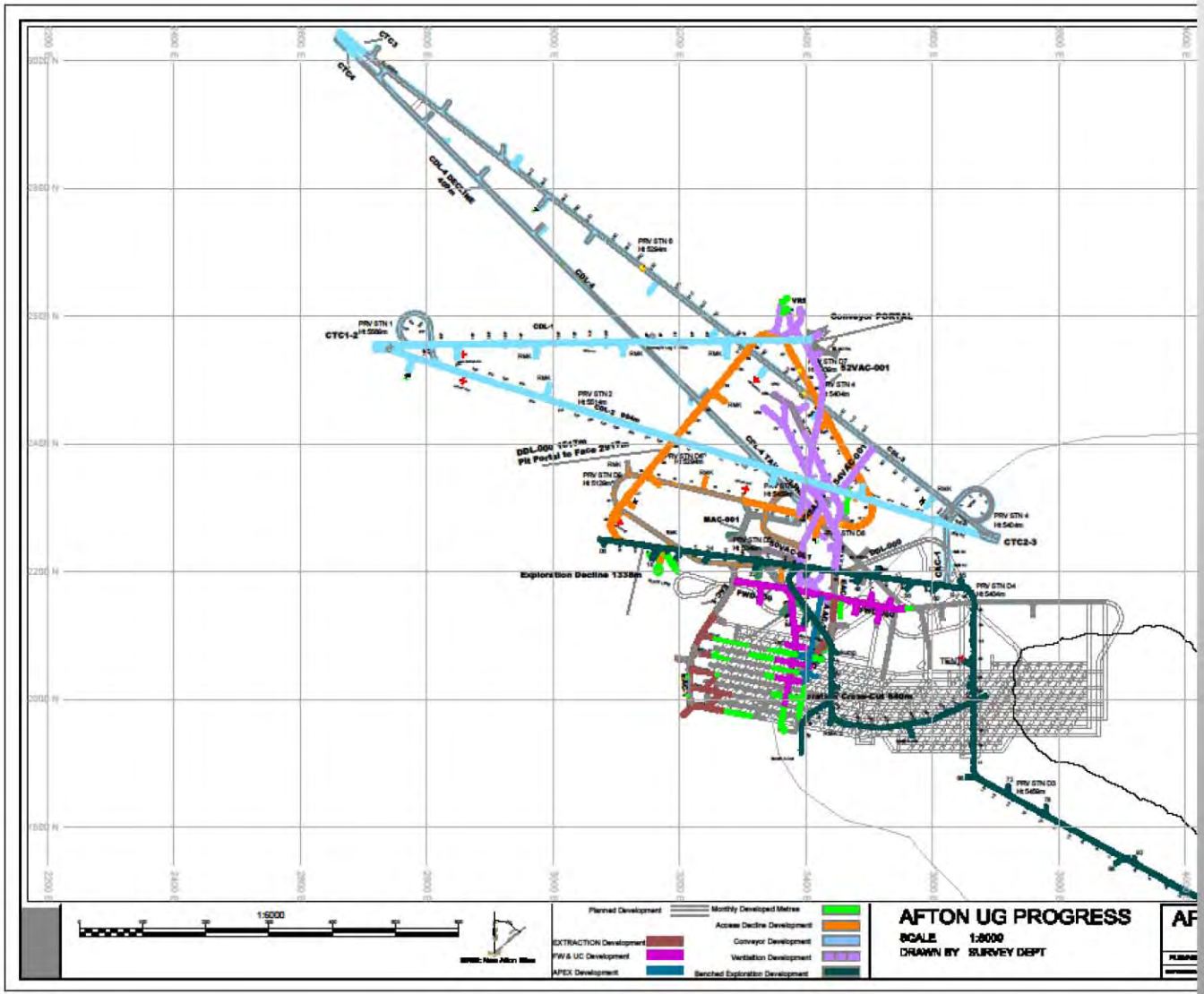
- Reached 1,000,000+ man-hours with no LTI's!
- Miner Training program – working well
- YTD training hours - +5000 hours of total training hours, Mine survival refresher, fire suppression, MSD body mechanics, orientations, equipment training, explosives
- Industrial hygiene monitoring – baseline study June/July
- Surface fire fighting training once new gear arrives
- Improvement in near miss & hazard reporting by 50%
- Quality of incident reports & timely corrective action closeouts
- Internal safety audit & ICS training
- Mill operator training program
- Continue to reinforce the basics…JHA's, 5-point safety, incident reporting, inspections…

newgold New Afton Mine Kamloops, B.C.

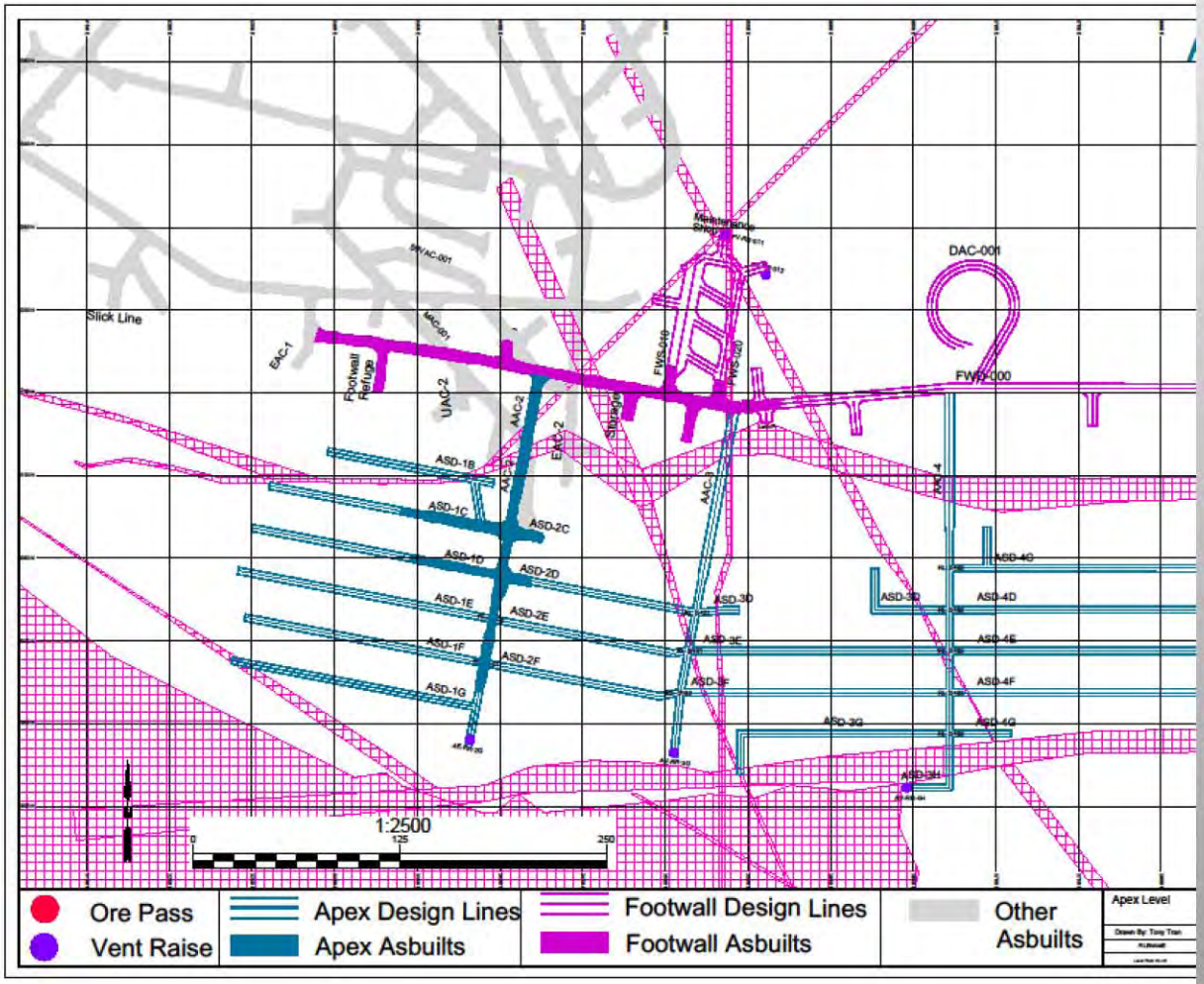
Mine Ops Department 2011



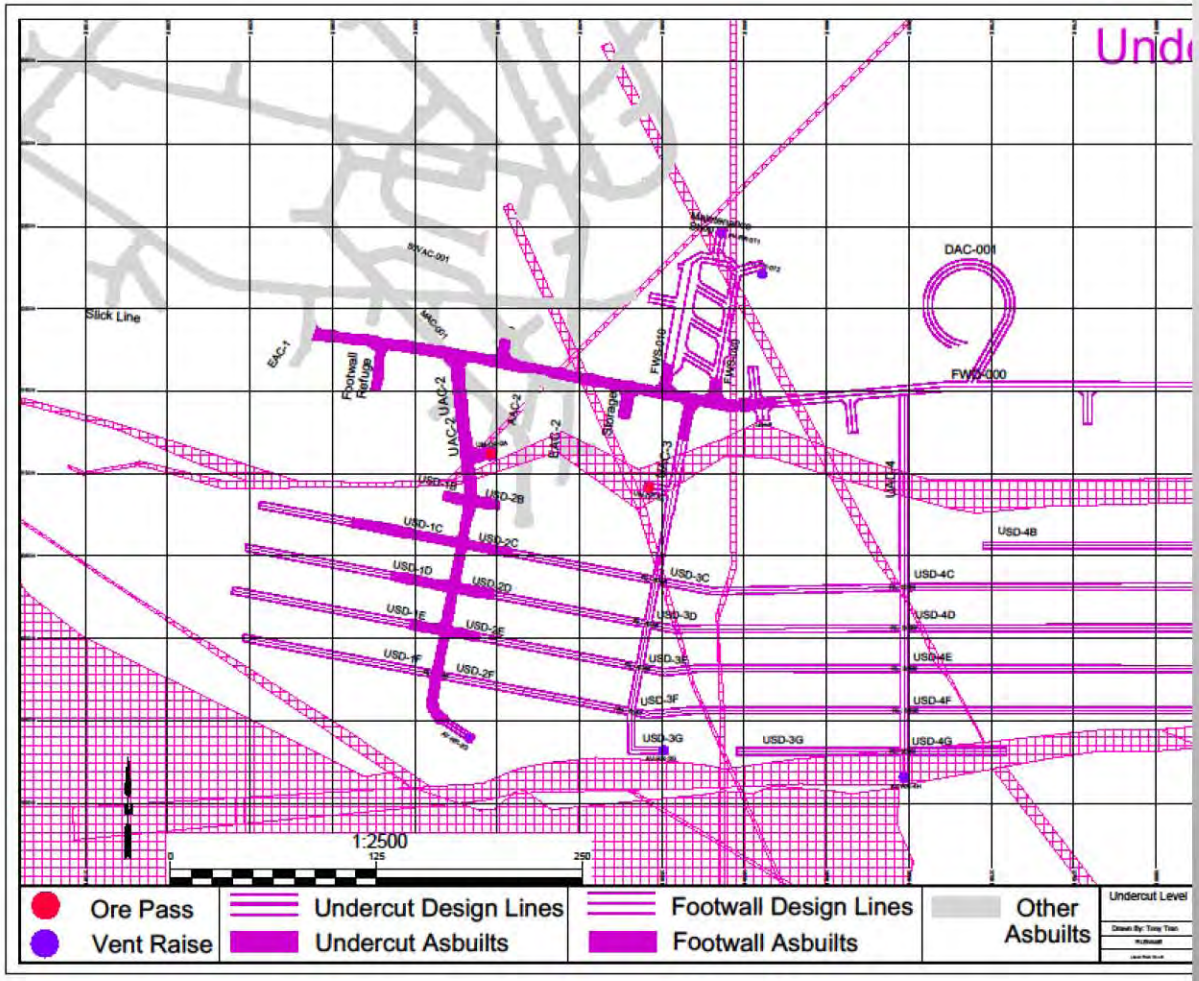
New Afton Underground Progress Through April 2011



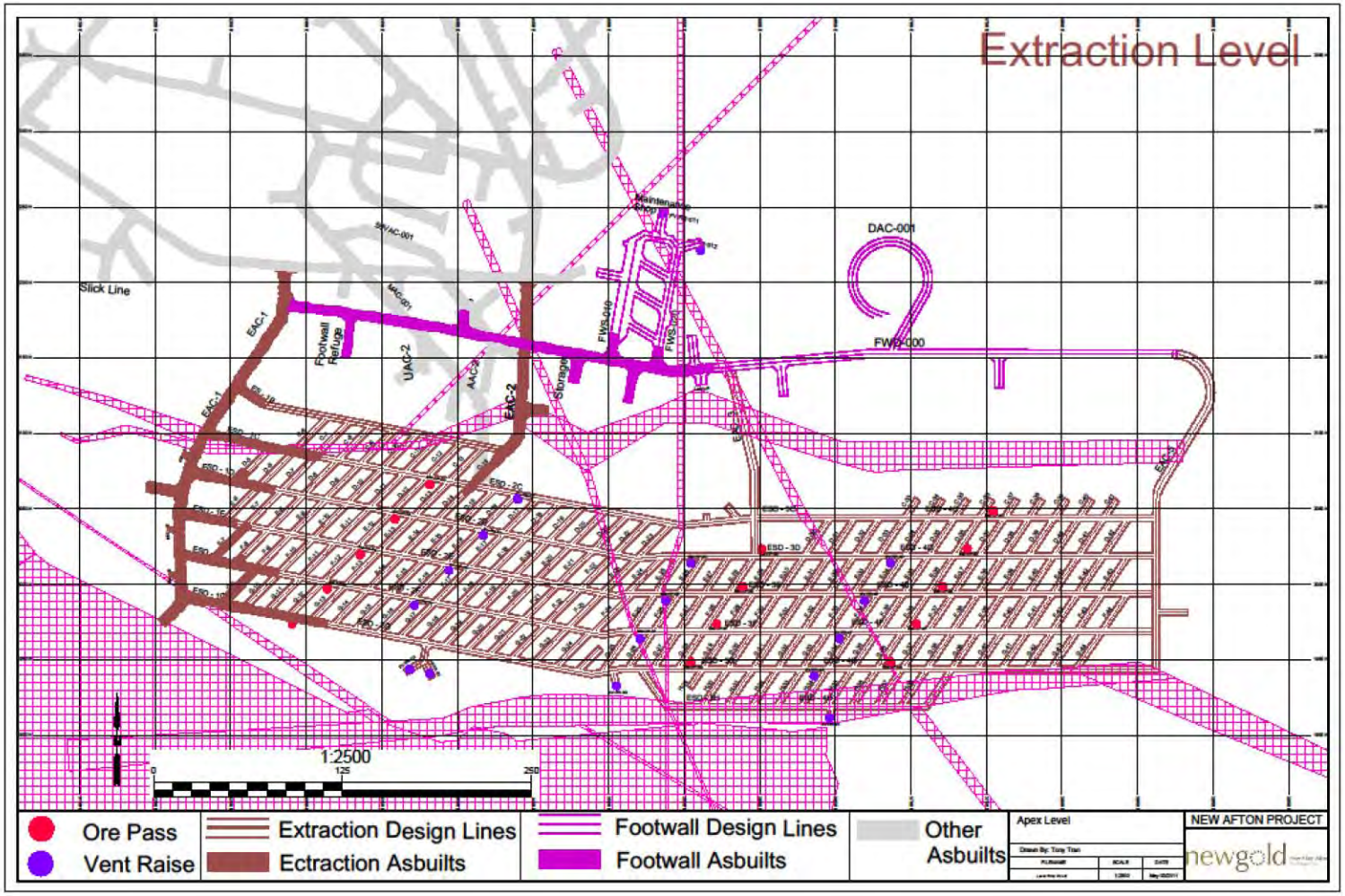
Apex Level Progress Through April 2011



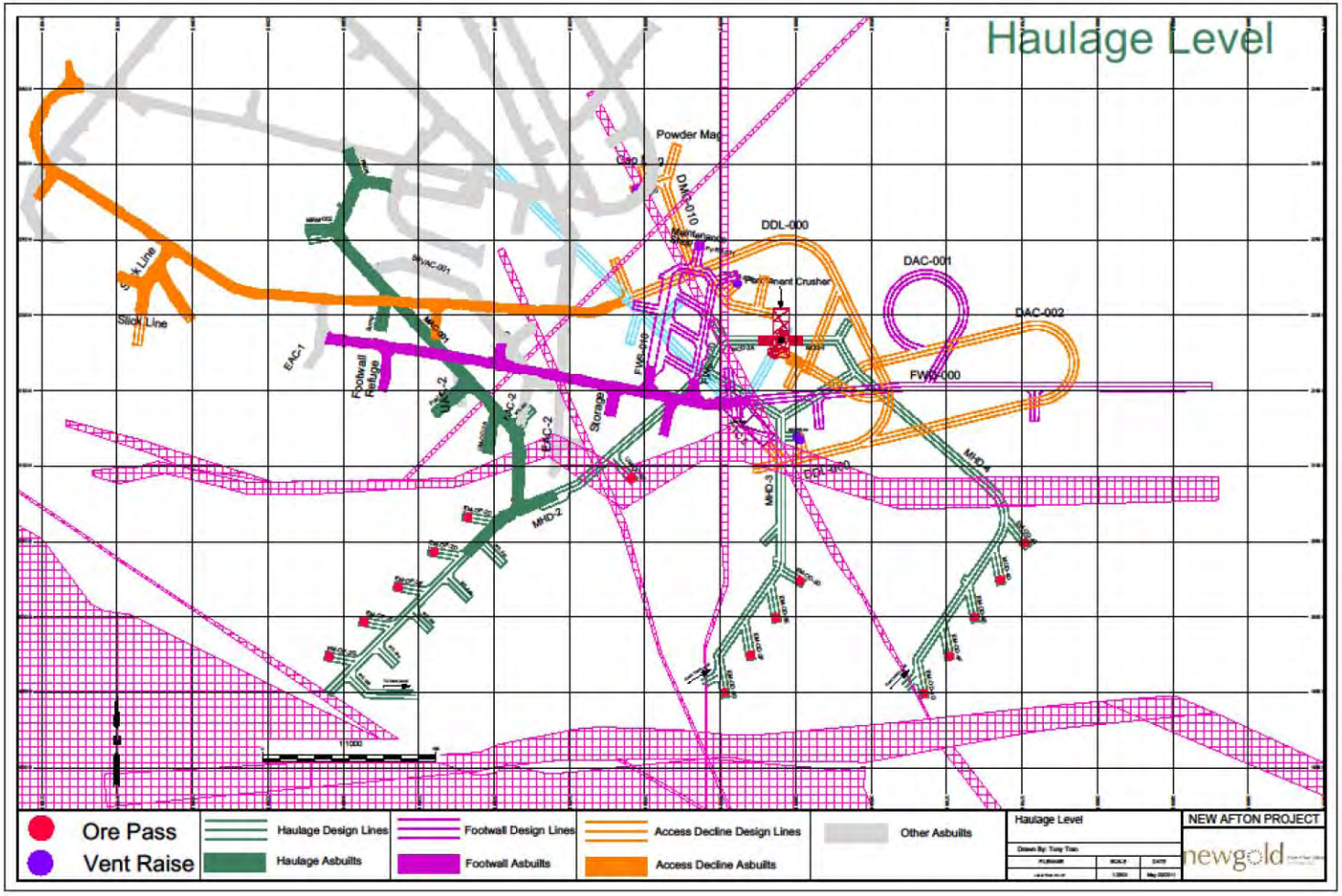
Undercut Level Progress Through April 2011



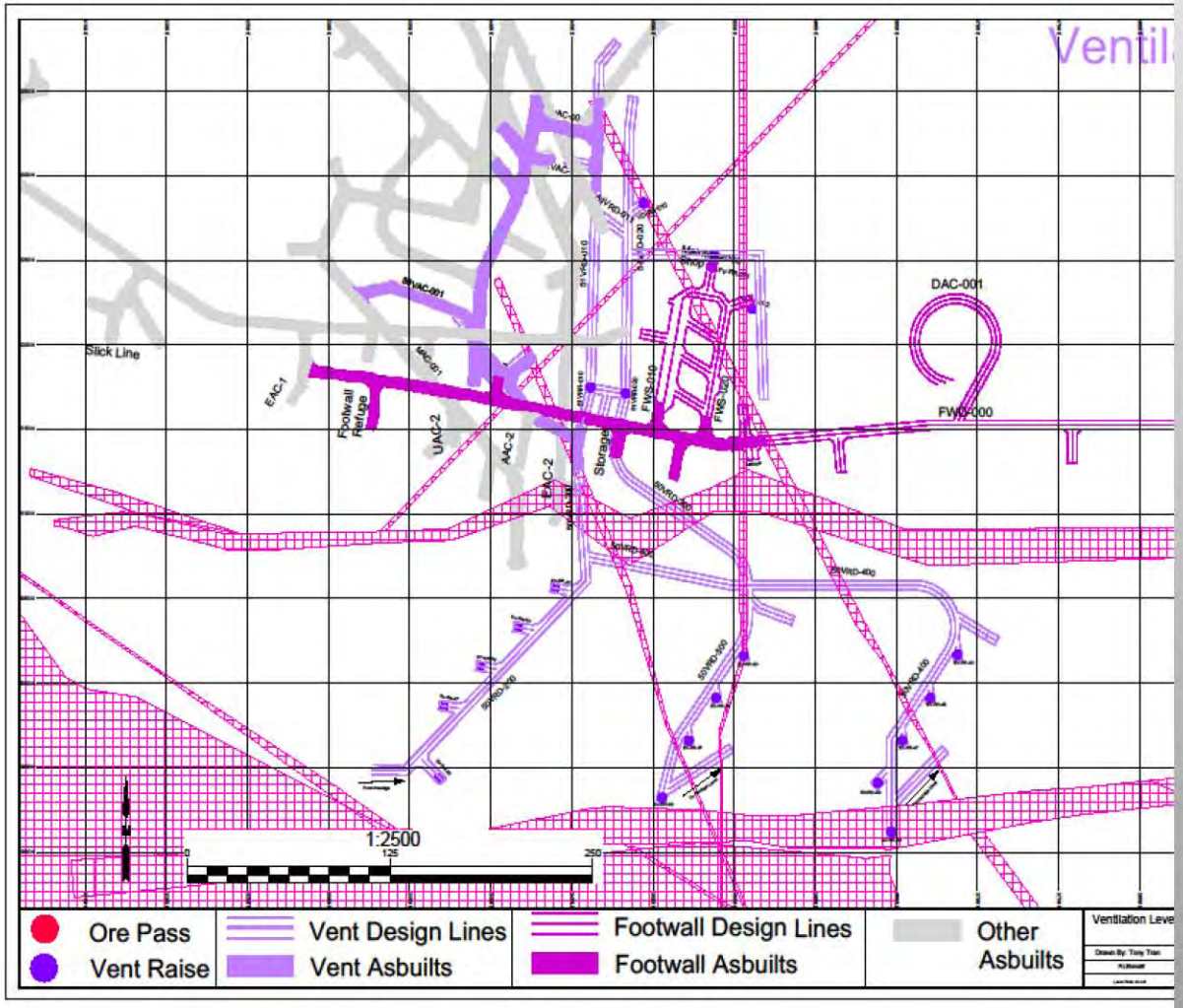
Extraction Level Progress Through April 2011



Haulage Level Progress Through April 2011



Ventilation Level Progress Through April 2011



CONSTRUCTION:

Safety - There were two near miss incidents and one minor property damage incident. The incidents were reviewed with the contractors, underlying and direct causes determined and positive correction actions agreed upon. Weekly Stats; 0 Hot Work permits were issued and logged this period – 63 to date - site manpower Friday – 157 – total safety-hours worked this period – 9254 - total year to date – 222,869 – project to date – 232,123 - Site orientations this period – 25 – to date – 426.

NG Surface - Sterling 15 t crane was in use underground and Sterling, Surface and the RKMS cranes on surface. Lack of crane operators continues to be a concern. Surface equipment continued all week on the Waste Transfer Area. The Pit – to – Surface Ore haul caught up this period. TRU began training operations.

BCH, EMPAC and NG continued with Main Sub commissioning process. 'Power On' Date moved ahead to 03May'11 to accommodate due diligence checking measures decided upon by contractors and management.

Harrison continued underground 15 kV cabling work on ERU 4 and ERU 3 as well as assisting Cutler Hammer in the commissioning of the 15kV switchgear. Lighting and instrumentation cable tray installation took place in CTC 1 / 2. Harrison surface activities brought the completion of the Main Substation to over 98%. The replacement of a 30kVA service transformer was completed. Commissioning by Wismer – Rawlings remained underway at period's end due to the due diligence activities noted above. The VR 6 fan was successfully commissioned. Work on Exhaust Raise Area centered around installing conduits in the E-House slab. The portal 'Load – Break' cabinet was installed.

Plowe – Contractor continued to mobilize materials to site for the o/h line to the Tailings Storage Facility (TSF).

First Nations – 1/ SIB delivered aggregates and supplied haul trucks to Acres for backfilling jobs around the site.
2/ KIB – CSC Electric - Tradesmen continued work on Mill Area temporary power, cable installation for the STP and grounding in the Concentrate Thickener Area. A temporary generator and construction panels were installed in the TSF mobilization area. C & L Holdings continued the Pit-to-Surface ore haul on a seven day per week basis this period.

RKMS – Work continued in the structural / mechanical work in the Reclaim Chamber. Solid progress was made on the Reclaim Stacking Tower. Contractor began mobilizing for its Mill Structural Steel and Mechanical contract.

Acres – 1/ Work began on the base preparation for the VR 5 Raise Bore pad. The Spillway crossing was brought to 92% completion. The earthmoving fleet continued on to the tailings line corridor placing subgrade fills and the filling of the Surface ore storage area. Topsoil removal in the TSF began.

2/ Mill compressor bases and thickener columns were concreted as was the Blower Area slab. Base preparation for the tailings pumps went well.

Cementation – 1/ Return and Training idlers were installed along with lateral bracing of conveyor trays in Leg 1. Leg 3 pipe brackets and sump installation proceeded well. Hanging of Leg 3 conveyor trays continued bringing to total to 156 out of 207. CTC's 3 and 4 base preparation continued with the pouring of lean concrete and the sump in CTC 3. CTC 2/3 saw the mechanical installation of the 20t capacity crane and internal structural steel. Mechanical installation of conveyor drive components was initiated.

Chinook - Scaffolding services carried on for surface and underground work. A major step was the erection of the Rougher Flotation Area scaffold in support of the Flotation Tanks installation work to begin shortly.

ERU 3



CTC 2/3



CTC 2/3



Cell columns and excavating Tailings pump FDN



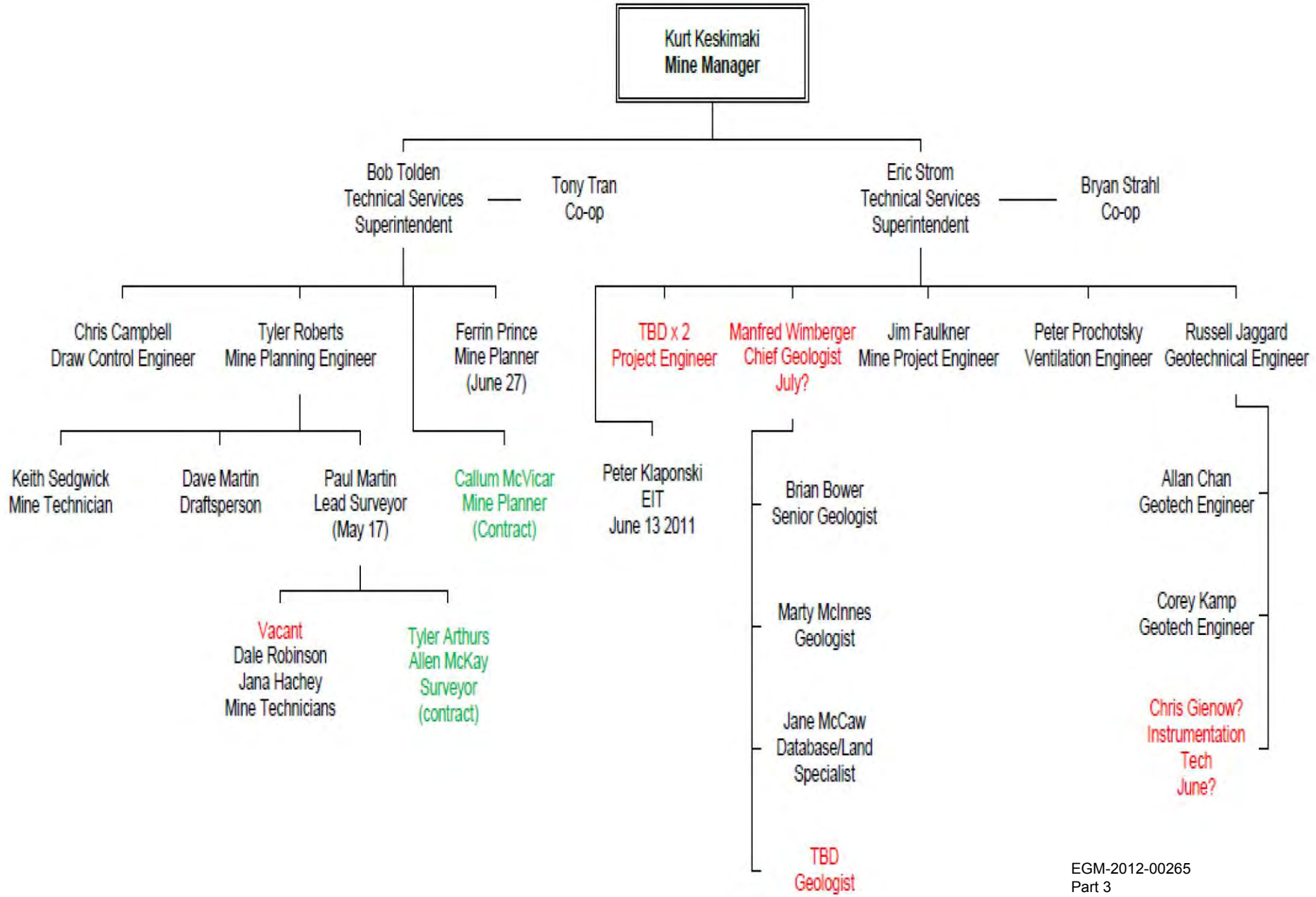
Spill way



Tailing Impoundment Drainage

- We will be commissioning a third party peer review of the raw data looking at our hydrogeological model. The review will also comment on any deficiencies and gaps in our knowledge to date.”

Technical Services



Operational Activities of special interest

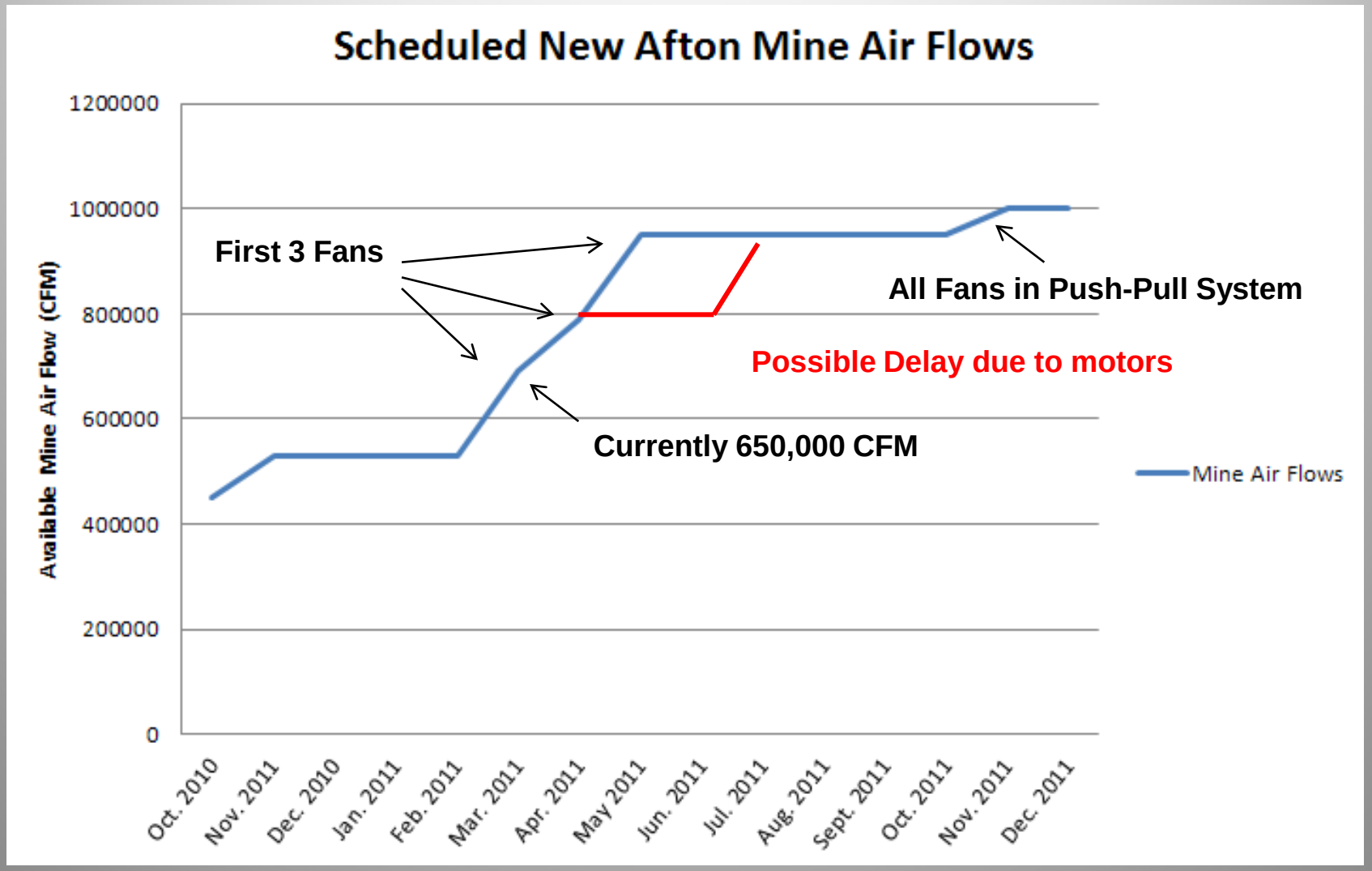
PERMANENT FAN INSTALLATION

VR6 Permanent Fan

- Operating at 780 rpm, 90% motor load
- Providing 400,000 CFM
- Mine Total: 650,000 CFM



PERMANENT FAN INSTALLATION



PERMANENT FAN INSTALLATION

SCHEDULE

- VR6 fan operational April 28, 2011
- VR3 fan scheduled start up May 10, 2011
- VR4 fan installed third – at a later date
    - Delayed due to motor availability

Hauling of material out of the pit

- Hauling of ore material out of the pit has gone well with no incidents
- Seasonal changes to the pit road have not adversely affected hauling
- To date 42,000 tonnes transported to surface stockpile



Seasonal Challenges, spring run off and melt



Ore transition in the pit

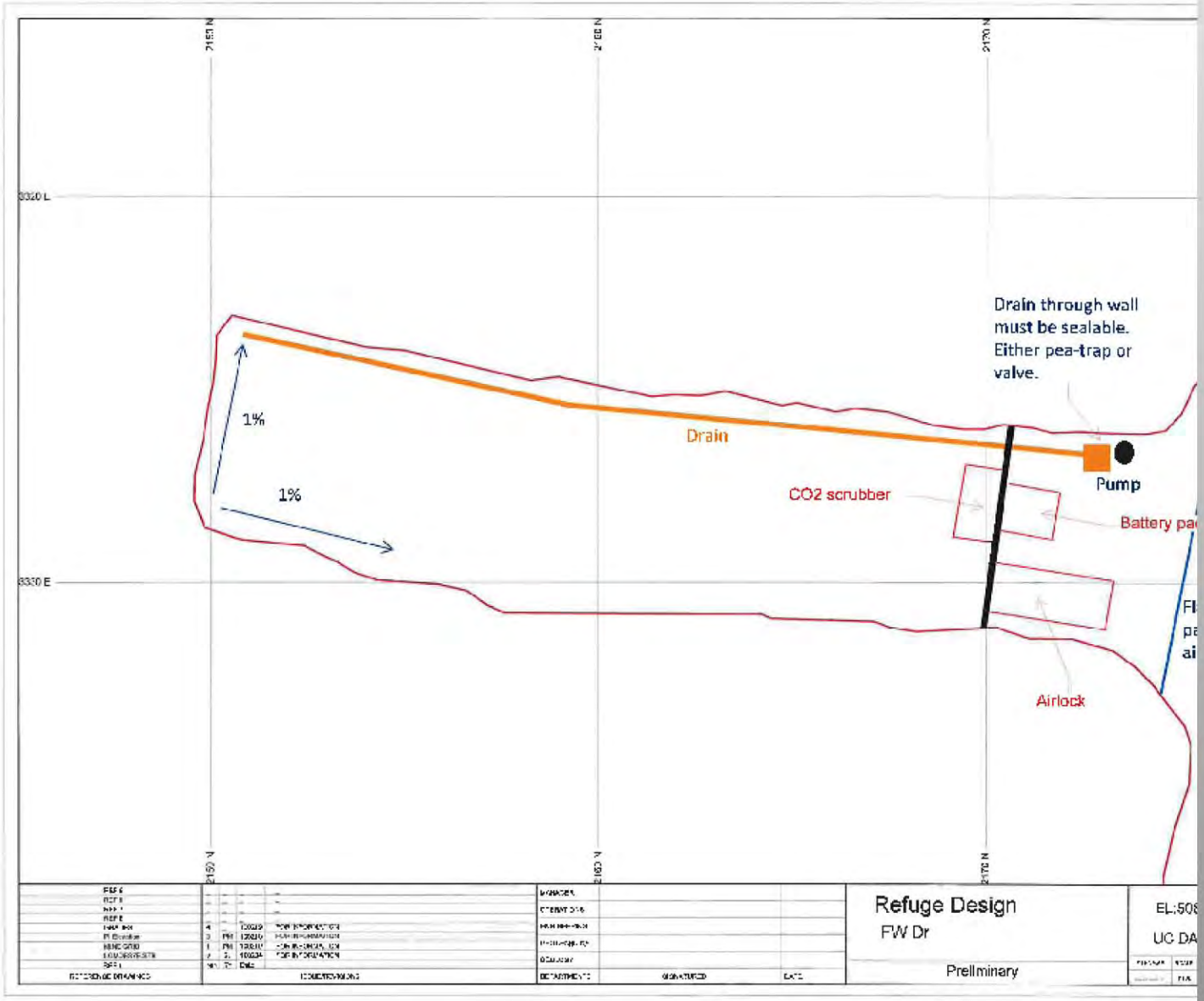


Projects currently Underway

P117 – Underground Refuge Chamber

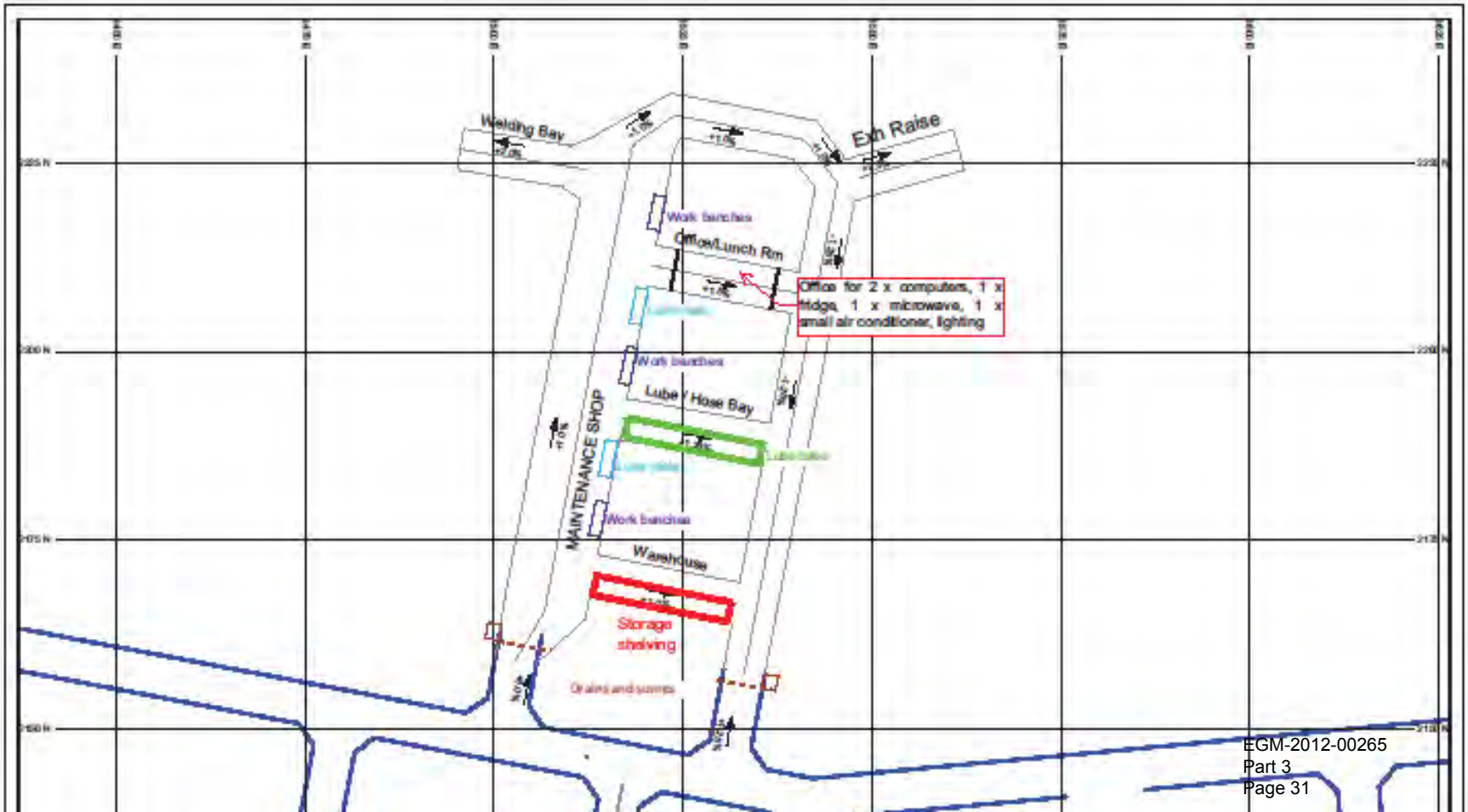
- Excavation Complete
- Concrete floor poured
- Airlock, CO_2 Scrubber and battery pack in construction – Due on site early May
- Communications, air and water supply direct from surface designed
- To be fitted out as permanent cribroom
- Due for completion in mid June

P117 – Underground Refuge Chamber



P115 – Underground Workshop

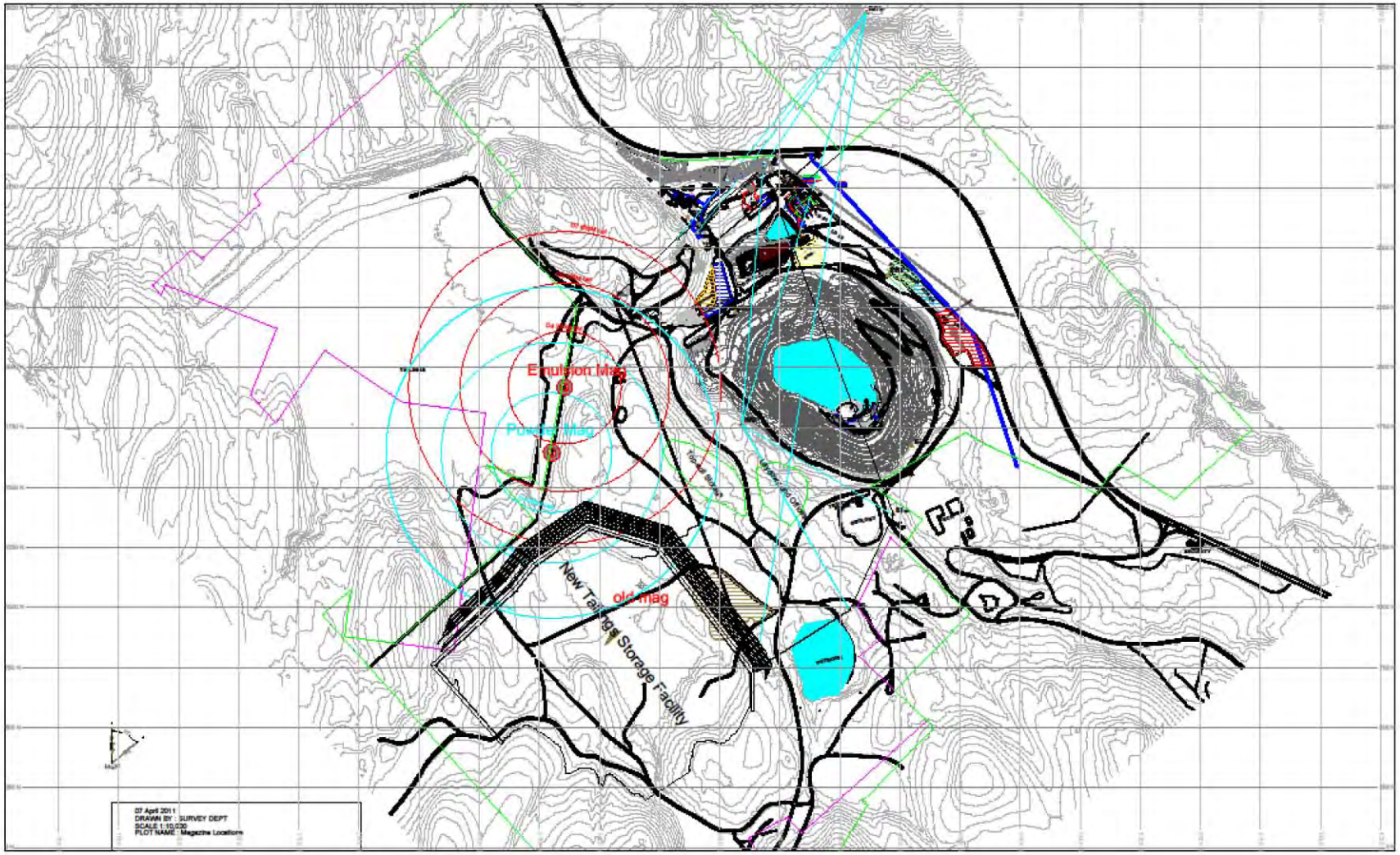
- Excavation Underway



P145 – Surface magazines

- Current magazine to be relocated as it is in the tailings dam footprint
- Additional magazine required for Orica's "Satellite site" – 25,000kg of emulsion
- Locations for New Gold's Powder Magazine and Orica's Emulsion Magazine selected
- Location approval in Progress
- All quantity/distances (Q/D) satisfied

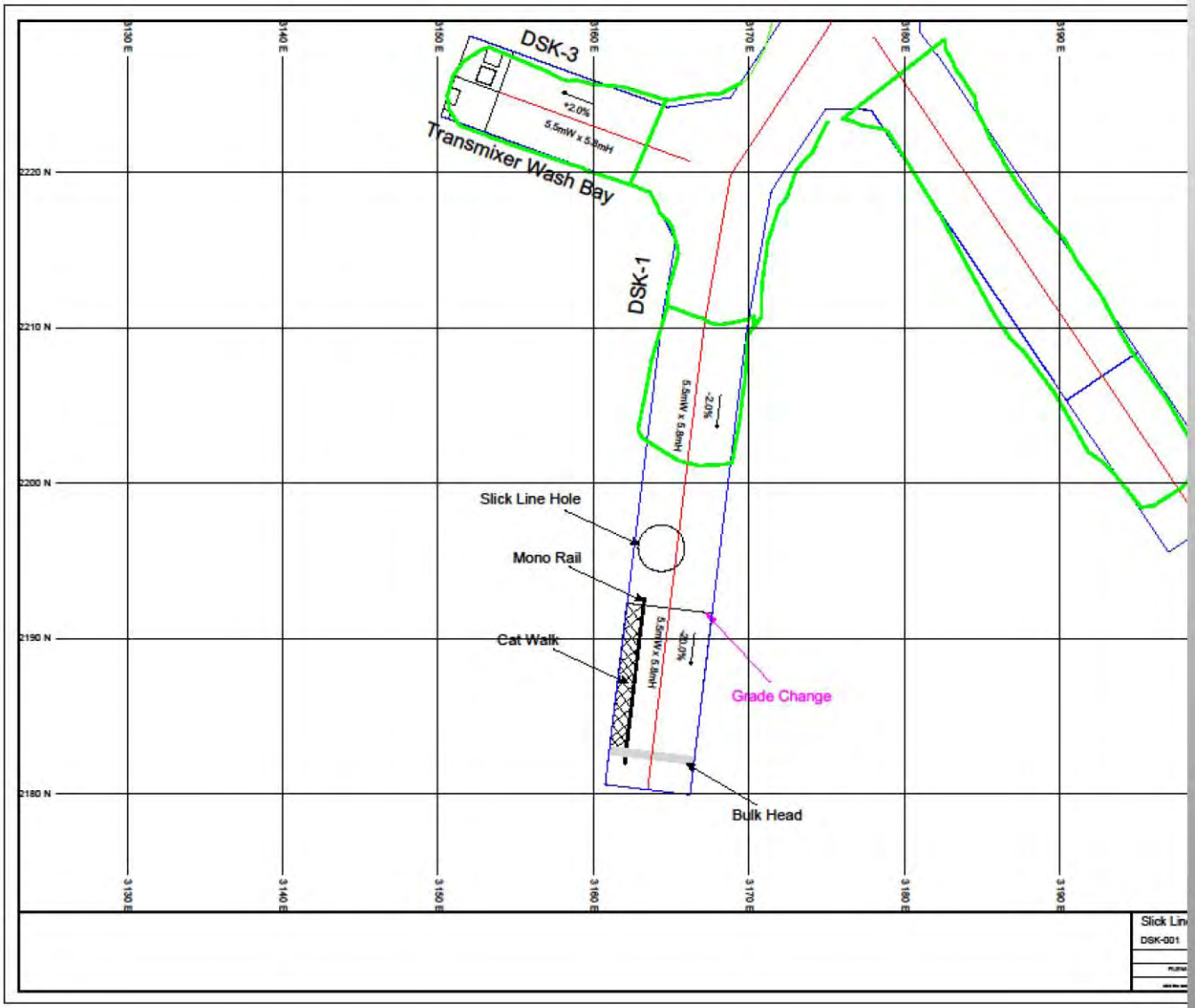
P145 – Surface magazine



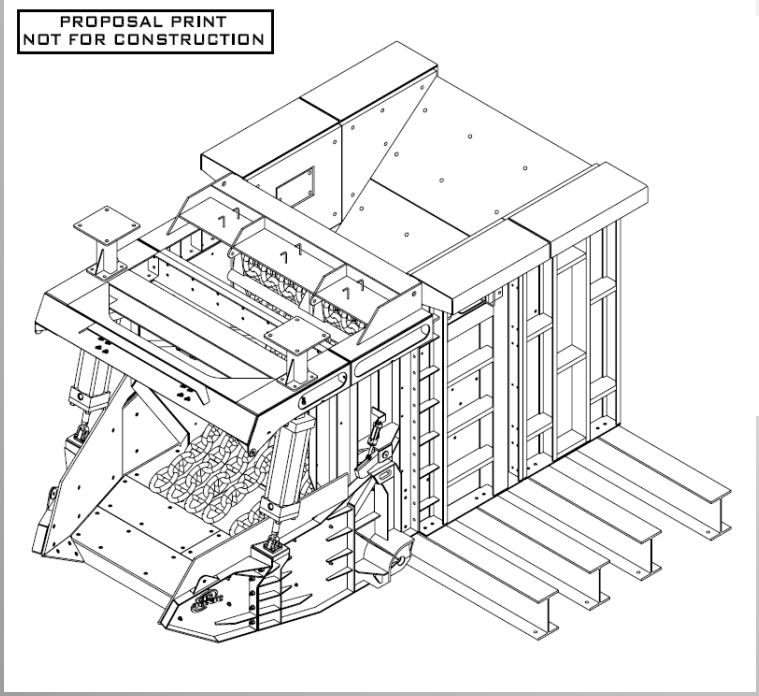
P116 – Surface to underground slickline

- For direct delivery of shotcrete to underground
- 600m vertical hole to be drilled
- Contract driller due on site end of April
- Underground excavation in progress
- Surface and underground handling system in final design phase

P116 – Surface to underground slickline



P136 – Truck chutes in haulage level



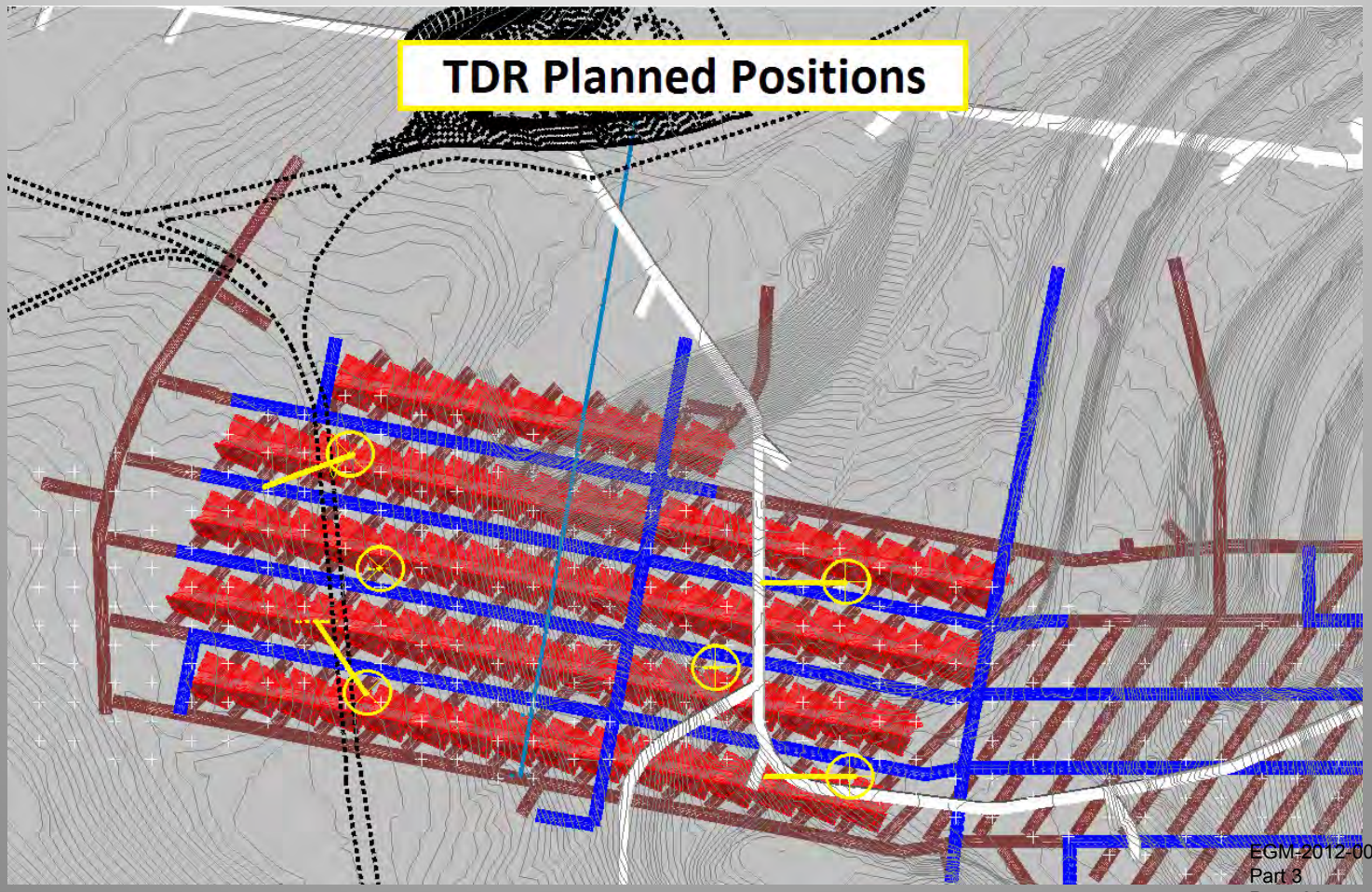
- A study is being conducted on the economic feasibility of truck chutes for the haulage level
- Designs submitted by potential supplier
- Pneumatic operation
- Equipment simulations being run and evaluated
- No specific reference in BCHSRC 2008

P106 – Underground dewatering system

- A study is being conducted into the feasibility of a method to thicken fines from sumps to a manageable consistency
- Objective is to introduce them to the ore handling system (crusher and conveyors)
- System and suppliers are being identified by Engineering consultant

P142 – Convergence Monitoring

- TDR : Time Domain Reflectrometry



P110 – Open Pit Dewatering and mud compaction

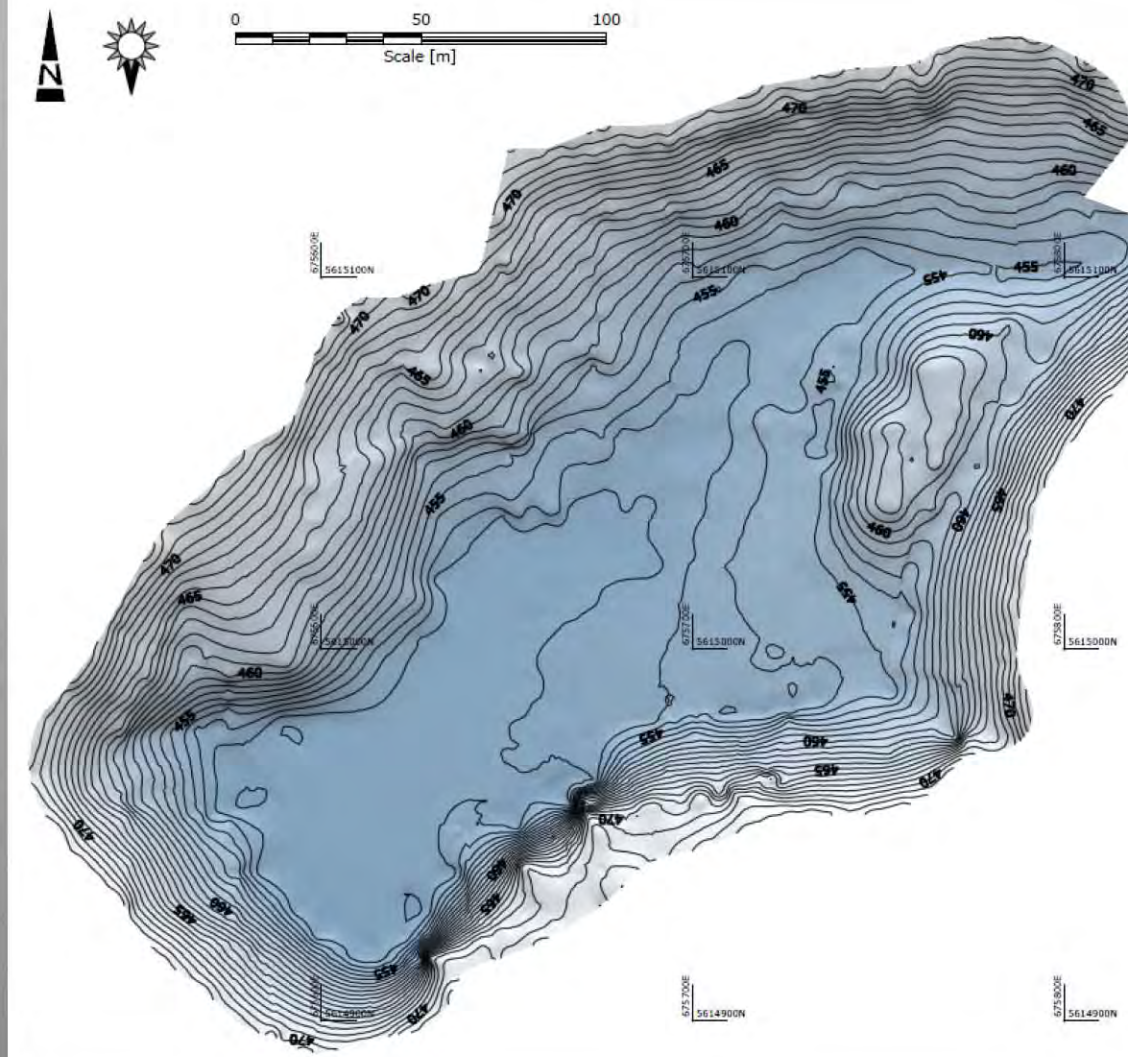
- Bathymetry survey



P110 – Open Pit Dewatering and mud compaction

- Open Pit Bathymetry geophysical survey work initiated
- Depth of water 25m - 27m (maximum depth)
- Depth of silts 10m - 15m

Pit Bathymetry initial results (draft)



DRAFT
FOR DISCUSSION ONLY

Legend:

- Bathymetry Contour, Major (Golder, 2011)
- Bathymetry Contour, Minor (Golder, 2011)

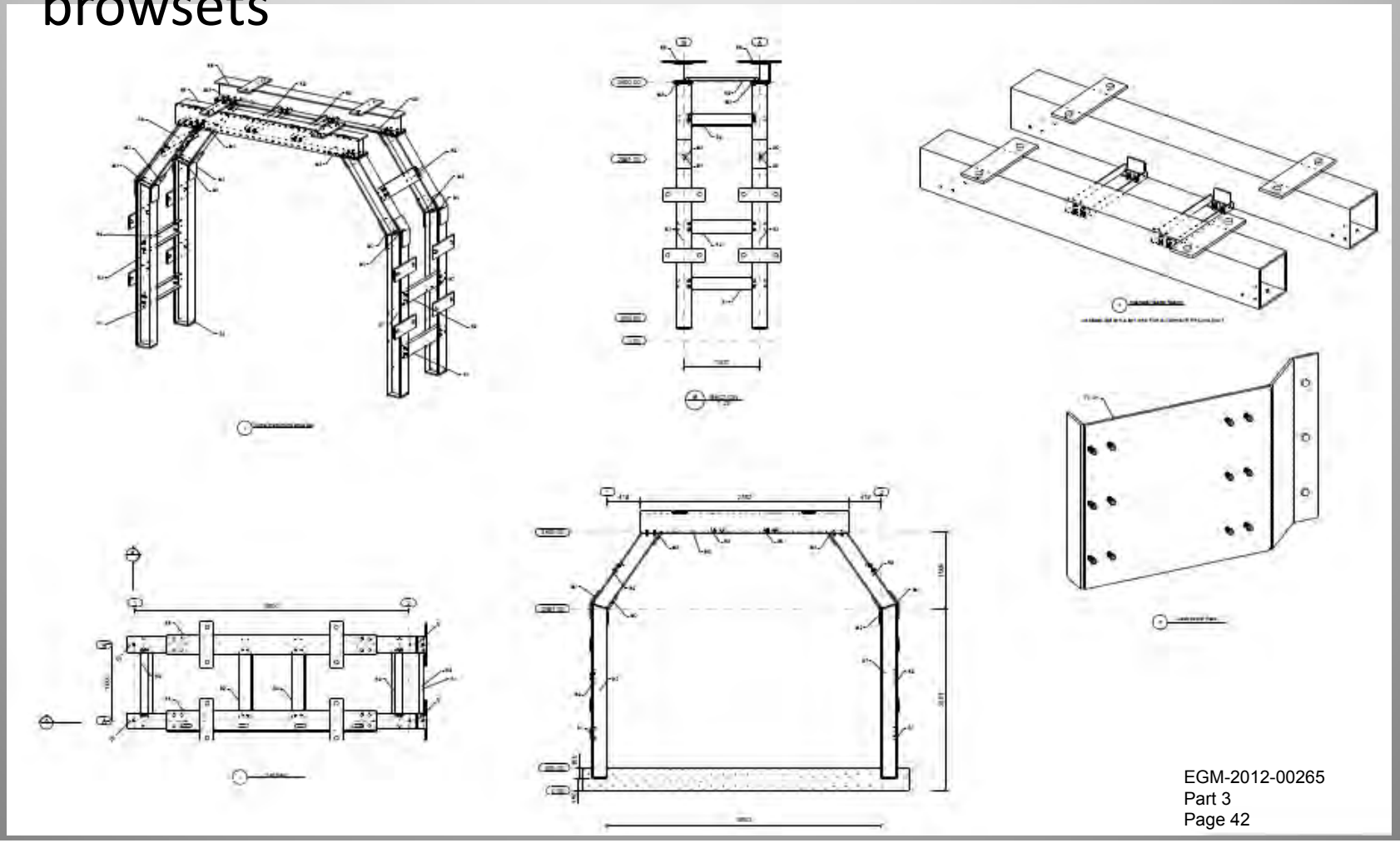
Notes:

1. Contours are interpolated from line-based data and geological surfaces may vary significantly in areas of sparse or no data.
2. Depth estimates use an average velocity in water of 1500 m/sec.
3. Bathymetry instrumentation: Datasonic Bubble Pulser
4. Navigation instrumentation: Trimble AG132 Differential GPS
5. All elevation data is in metres above sea level [m.a.s.l.].
6. Horizontal datum: WGS-84, UTM Zone 10N
7. Note that depths below water level are to nearest reflectors which may not be directly below measurement location. Actual depths may vary, especially on steep slope reflectors.
8. An image has been added behind the contours, with shading illumination from the north, and coloured by depth.

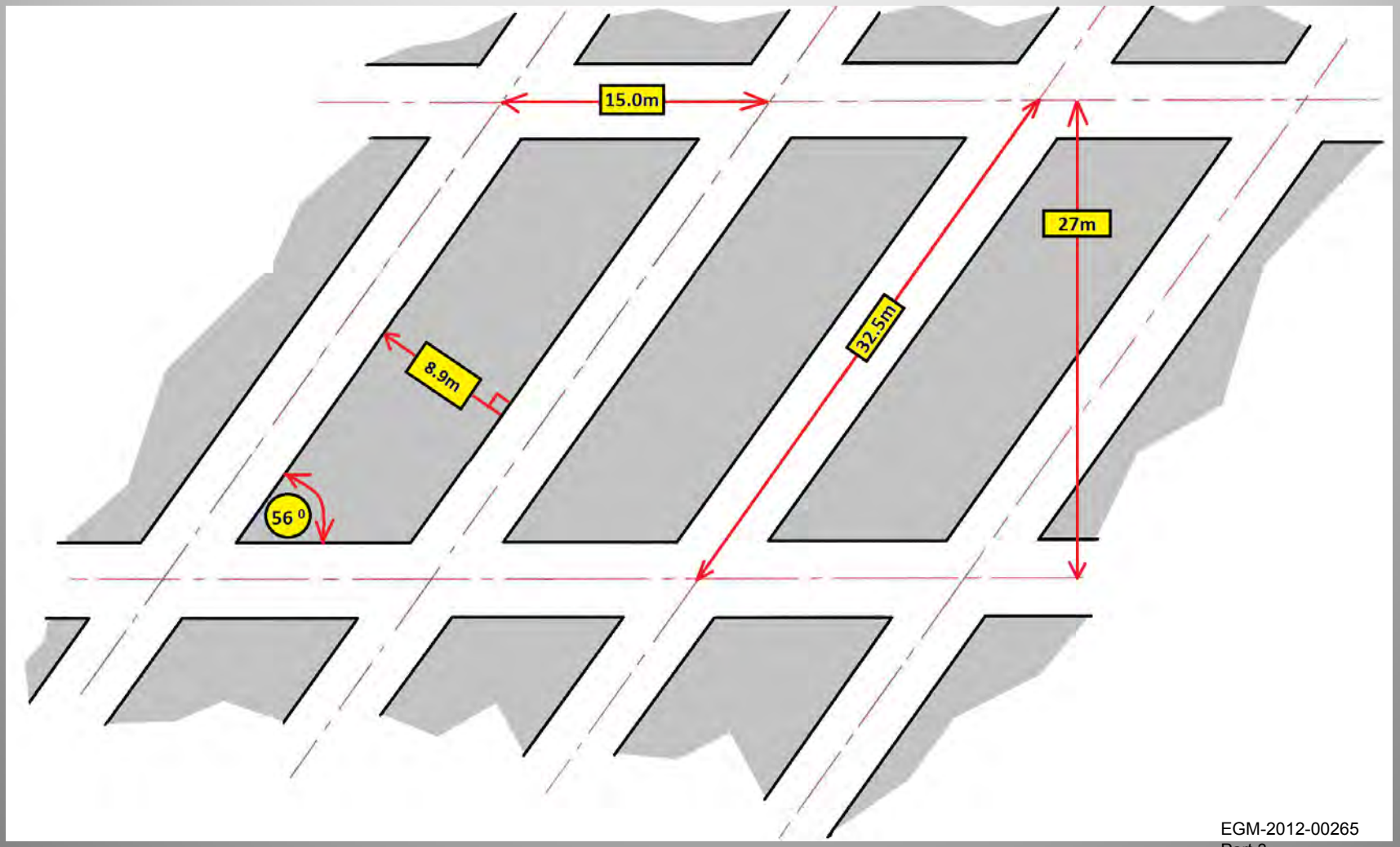
PROJECT	NewGold Old Afton Pit Kamloops, BC
TITLE	BATHYMETRY

P113 – Drawpoint design - Sets

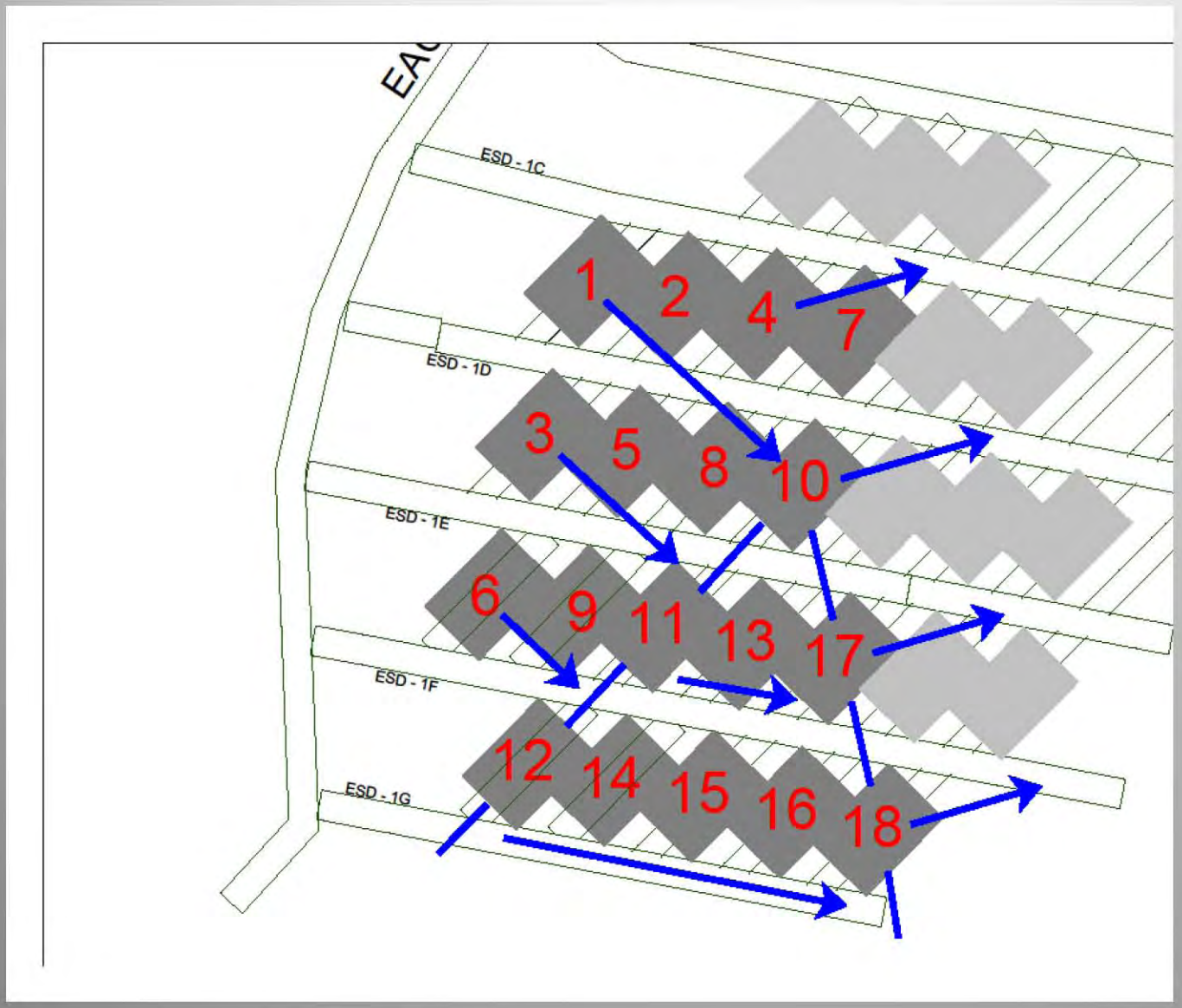
- Drawbell brow support – Set design for “Stiff browsets”



- Drawpoint sizing and pillar design



Initial Draw-Bell Location Change



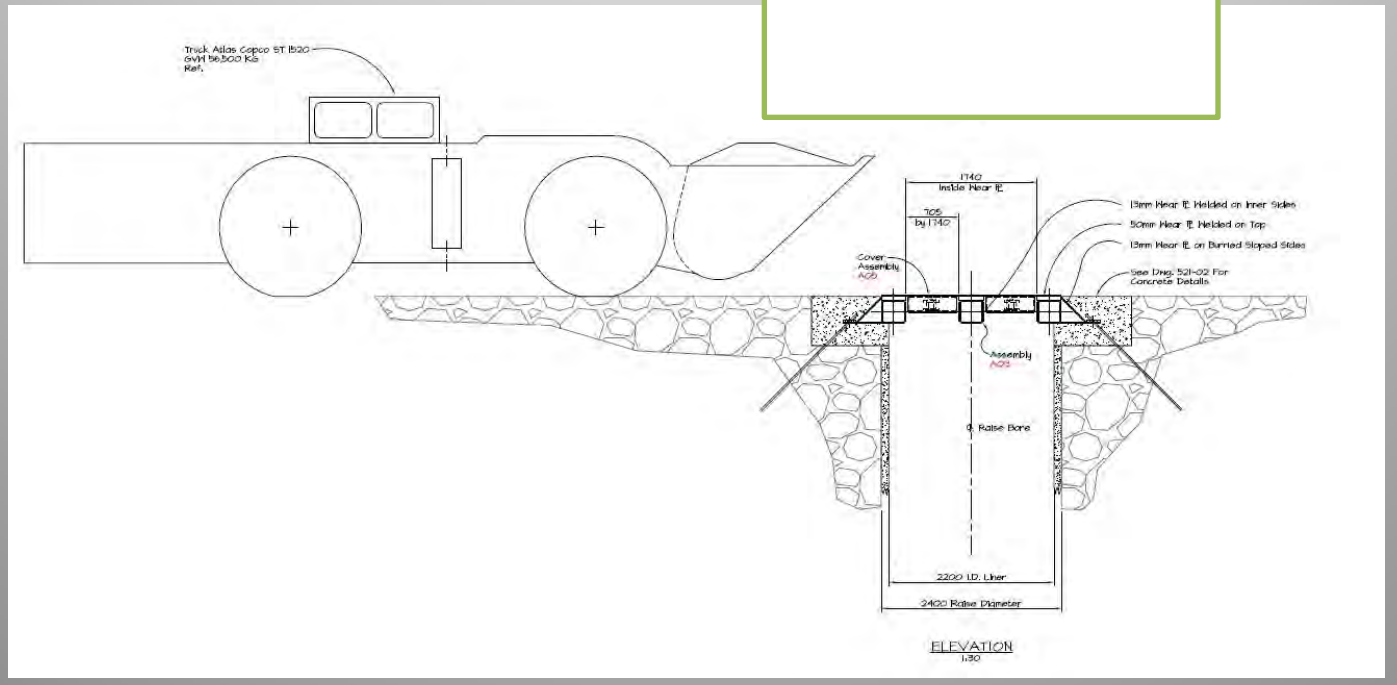
P114 - EXTRACTION LEVEL GRIZZLIES

Personnel Access Strategy – No access to open hole

- Scoop operator never has to leave cab to uncover or cover open hole
- Scoop operator turns on strobe and closes gate while mucking (no access to strike drive)
- If other activities need to continue while mucking (ex.secondary breaking)
    - Scoop operator must be notified prior to passing through gate
    - Personnel must be educated on the dangers of an open hole
- Once mucking complete, grizzly must be covered immediately for ventilation and safety

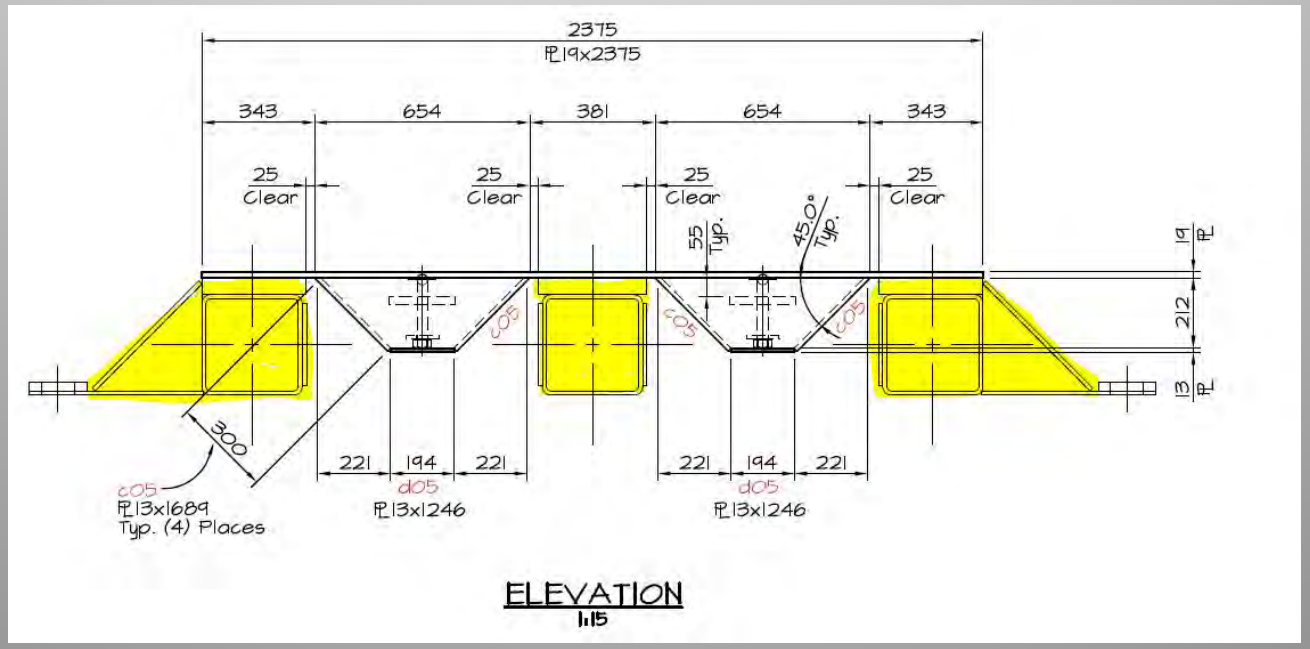
P114 - EXTRACTION LEVEL GRIZZLIES

- 0.7m by 1.7m openings (2.5ft by 6ft)
- All exposed surfaces wear plated for durability
- Designed to withstand a fully loaded 9yd scoop driving overtop



P114 - EXTRACTION LEVEL GRIZZLIES

- Each grizzly has it's own vent cover
- Lifted off and placed by scoop operator without leaving cab
- Designed to withstand a fully loaded 9yd scoop driving overtop



ELEVATION
1:15

New Equipment

Equipment Received to Apr 30

- 2 – Sandvik DS310 Rockbolters, 1 diesel and electric
- 2 – Sandvik DD420 Jumbos
- 1 – Normet Utimec 1500 Transmixer
- 1 – Sandvik DL420 Longhole C-Frame
- 1 – CAT TH407 Zoom Boom
- 1 – CAT R1600G Scoop
- Orica CEBS computerized central blasting system

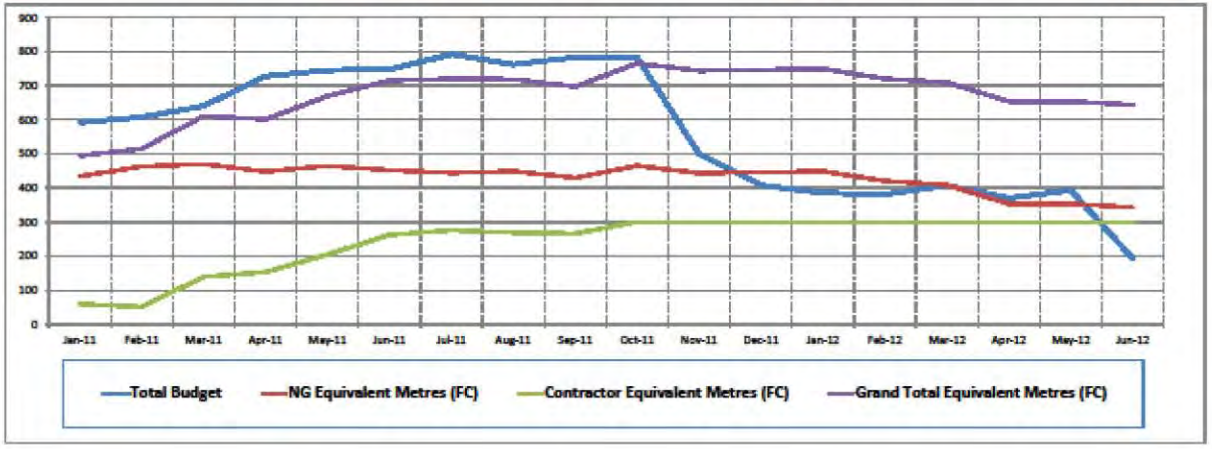
Equipment to come 2011

- 1 - Scoop Mounted rockbreaker
- 4 – Mantrip Tractors
- 1 – Normet 6050 Spraymec (7110 Spraymec to be traded in)
- 1 – Schwing concrete pump
- 1 – Sandvik DS310 Rockbolter
- 1 – Sandvik DL420 Cablebolt Longholer
- 1 – Sandvik DL420 Longhole C-Frame
- 5 – CAT R1600G Scoops
- 1 – MacLean Blockholer
- 1 – Dedicated 20 Man Carrier
- 1 – CAT Compactor
- 1 – Dust Suppression Cassette
- 2 – 8’ wide Multimec Decks
- 1 – Orica/Minecat Emulsion Loading system complete with emulsion totes
- 1 – Replacement ready mix truck
- 1 – Replacement Toyota
- Enclosed cabs for the AC1520 Scoops
- Replace the bucket elevator at the batch plant with a conveyor

Forecast Development

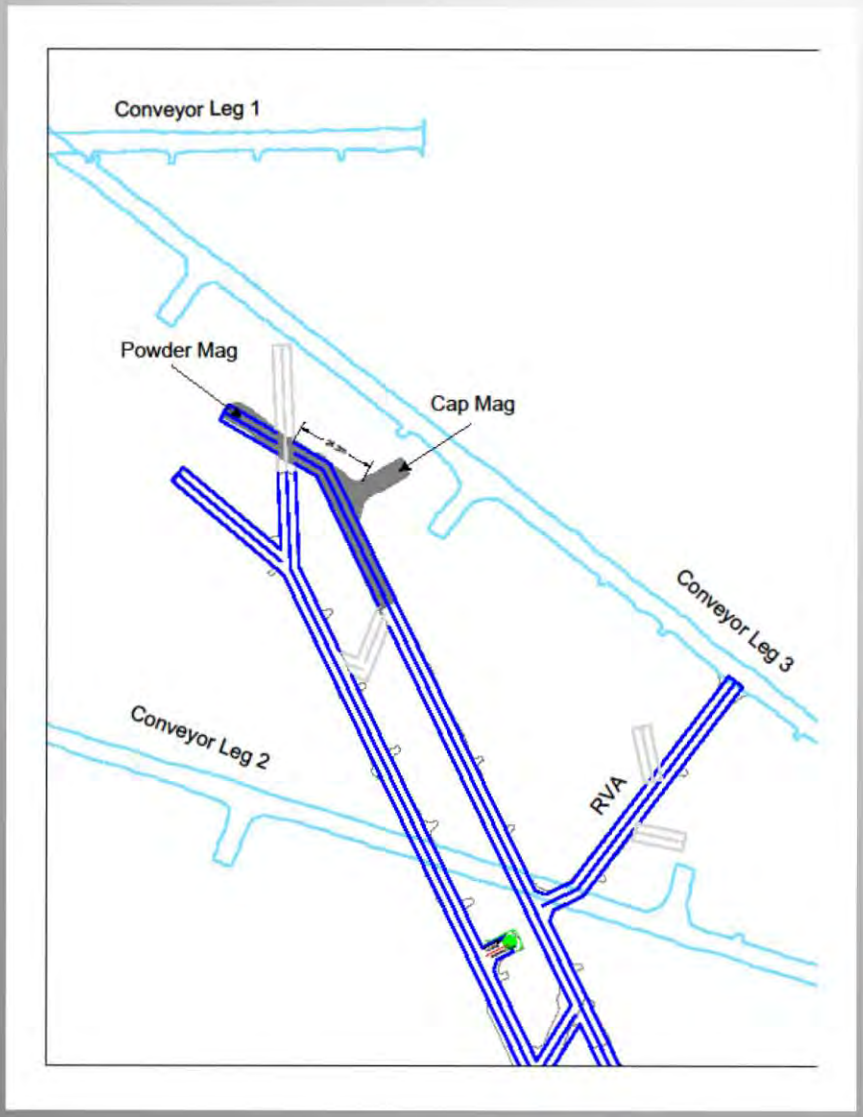
RE-Forecast April 19, 2011

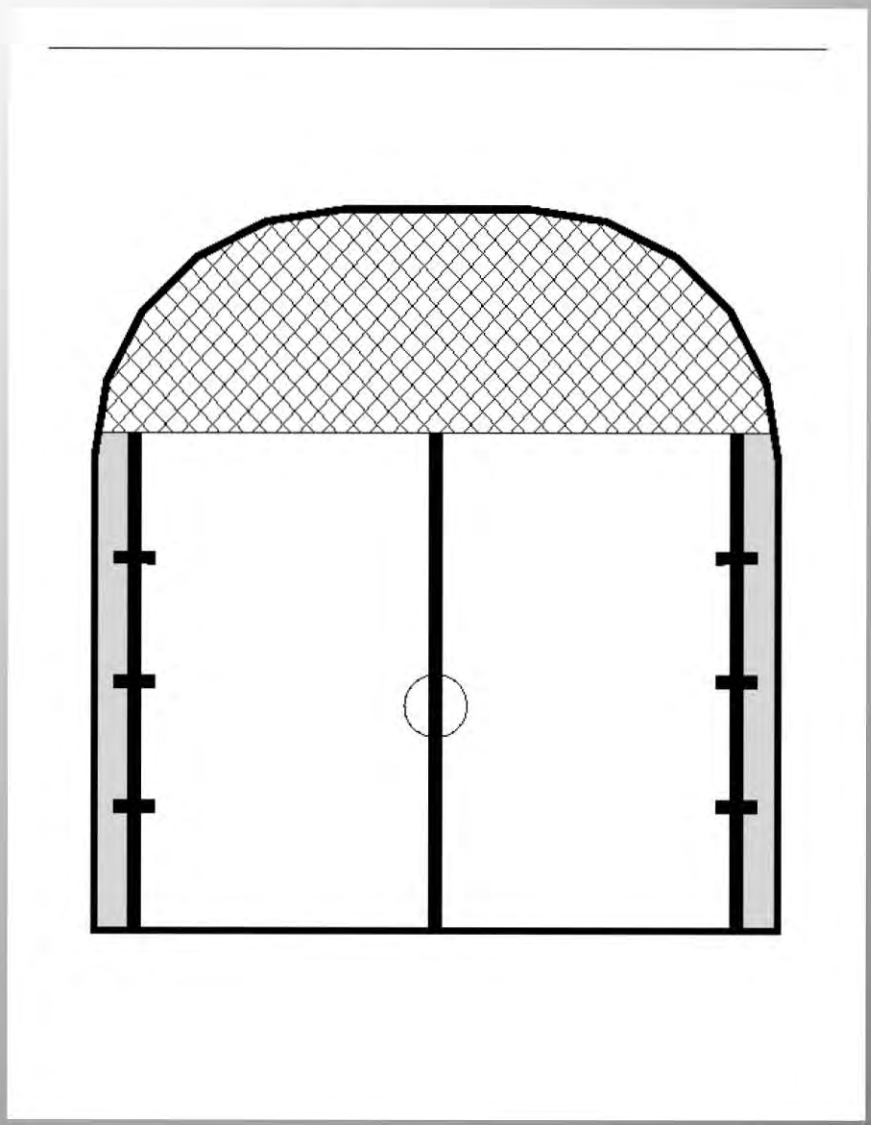
	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Year	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	6 Month	18 Mos
Total Large LGm	447	400	303	360	371	363	391	391	407	364	71	70	3,938	76	71	76	74	76	64	438	4,376
Total Smal SMm	76	207	337	330	336	328	334	332	329	332	303	306	3,549	309	309	331	296	317	130	1,692	0
Total Bulk Budget Eqm	68	0	0	37	38	57	66	38	47	86	126	33	596	0	0	0	0	0	0	0	707
Total Budget	591	607	640	727	745	748	792	761	783	782	500	408	8,082	385	381	408	370	393	195	2,130	10,212
Metres Per Day	19	22	21	24	24	25	26	25	26	25	17	14	22	12	13	13.1	12.3	12.7	6	12	19
NewGold Large	309	222	225	130	133	97	79	84	70	93	96	101	1,639	97	95	83	0	0	0	275	1,914
NewGold Small	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	5,822
NewGold Bulk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NG Equivalent Metres (FC)	434	463	470	448	464	452	444	449	430	465	444	446	5,408	449	420	409	353	353	343	2,327	7,735
Metres Per Day	14	17	15	15	15	15	14	14	14	15	15	15	15	14	14	13.2	11.8	11.4	11.4	13	14
										25	12										
Contractor Large	0	29	70	118	164	223	237	269	227	224	226	281	2,068	249	232	251	276	300	300	1,608	3,677
Contractor Small	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contractor Bulk	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Contractor Equivalent Metres (FC)	60	52	140	153	205	262	276	269	266	300	300	300	2,584	300	300	300	300	300	300	1,800	4,384
Metres Per Day	2	2	5	5	7	9	9	9	9	10	10	10	7	10	10	10	10	10	10	10	8
Total Large-Act/Forecast	309	251	295	248	297	320	316	353	297	317	322	382	3,707	346	327	334	276	300	300	1,883	5,590
Total Small-Act/Forecast	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	0
Total-Bulk-Act/Forecast	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Grand Total Equivalent Metres (FC)	494	515	610	601	669	714	720	718	696	765	743	746	7,992	749	720	709	653	653	643	4,127	12,119
Metres Per Day	16	18	20	20	22	24	23	23	23	25	25	25	22	24	25	23	22	21	21	23	22
Forecast (-) Budget													-90							1,997	1,907



April 19 2011 Qtr FC Final.xlsx

Temporary Underground Mag Move





Ministry of Mines Update

May 4, 2011

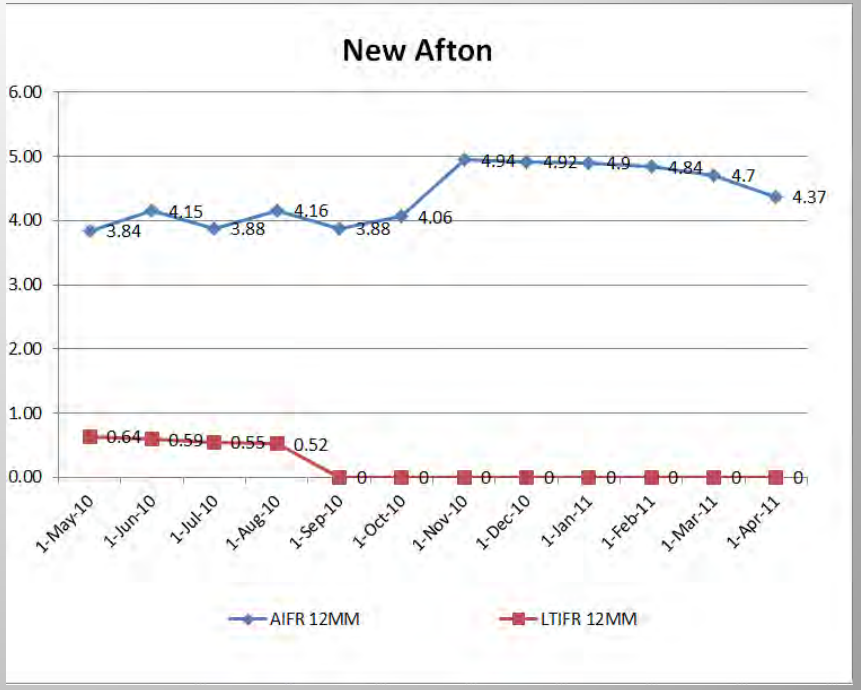


Manpower & Hours

- 279+ Employees: 122 mining, 34 mechanics, 99 office & support= 167,075 hours YTD 2011
- 223+ Contractors: 43 Acres, 43 Cementation, 29 Thyssen, 71 Construction Contractors, 37 Independent Contractors = 170,955 hours YTD 2011
- NG - 7 days on/7 days off rotation – 11 hour shifts
- Contractors – 28/14, 20/10, and regular weekly hours
- Third miner trainer group commenced this month.
- Recruiting continues in Mine Ops, Tech Services, Maint, and Mill Operations

YTD Safety Statistics

	Apr 2011	YTD	YTD 2010
Lost Time	0	0	0
Disabling Injury	0	4	2
Medical Treatment	0	2	1
First Aid	6	26	7
Hazards	6	16	0
5pt Card Hazards Reported		35	0
Near Miss	9	34	8
Property Damage	11	47	16
Process Loss	3	7	N/A
LTIFR	0	0	0
AIFR	0	3.55	4.68



2009		2010		12MMA	
AIFR	LTIFR	AIFR	LTIFR	AIFR	LTIFR
3.17	1.27	4.92	0.00	4.37	0.00

Mine Rescue – Emergency Response

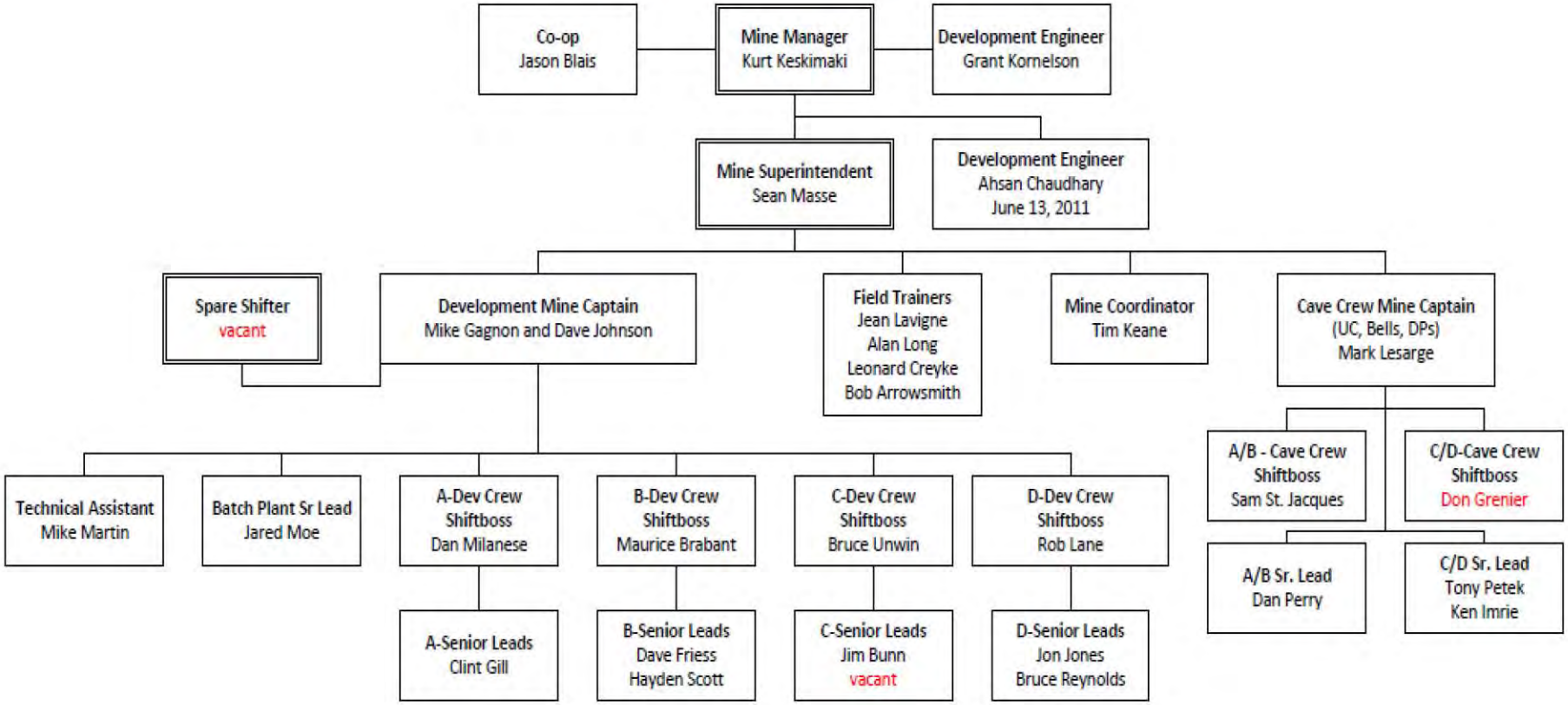
- Hired a new Fire & Mine Rescue Chief (Mike Owens)
- Currently 28 active MR members
- Primary First Aid response remains with SAVI (WPA)
- 50% of workforce has SJA first aid certification
- In process of procuring a Fire Engine & equipment
- Water truck used as surface fire response vehicle
- 4 – 20 person portable refuge stations, 1 - 10 person
- Permanent refuge location (60 person) nearing completion
- Training for BC Mine Rescue competition in Revelstoke
- Mine rescue course to increase active numbers

Achievements & Opportunities - YTD

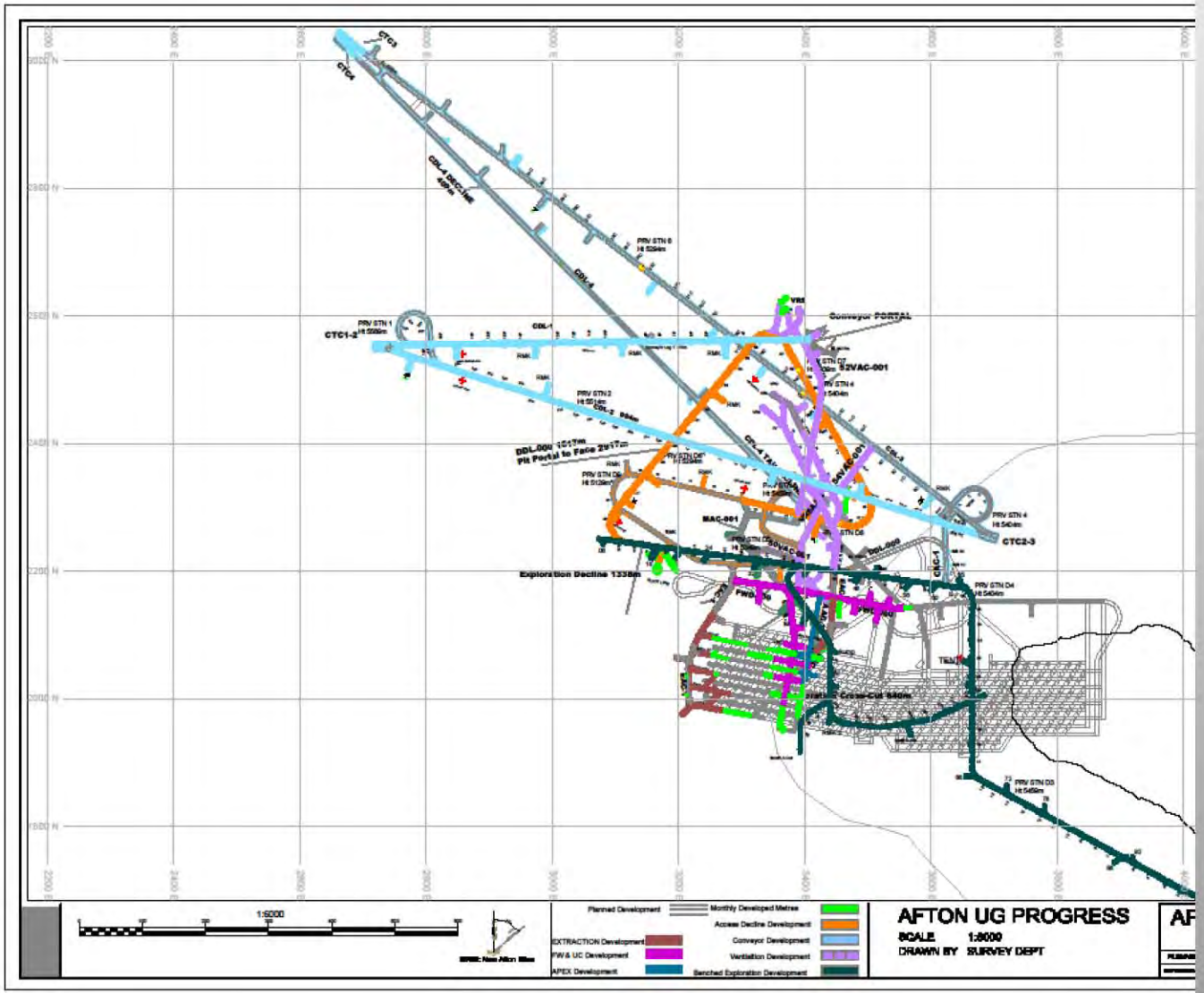
- Reached 1,000,000+ man-hours with no LTI's!
- Miner Training program – working well
- YTD training hours - +5000 hours of total training hours, Mine survival refresher, fire suppression, MSD body mechanics, orientations, equipment training, explosives
- Industrial hygiene monitoring – baseline study June/July
- Surface fire fighting training once new gear arrives
- Improvement in near miss & hazard reporting by 50%
- Quality of incident reports & timely corrective action closeouts
- Internal safety audit & ICS training
- Mill operator training program
- Continue to reinforce the basics…JHA's, 5-point safety, incident reporting, inspections…

newgold New Afton Mine Kamloops, B.C.

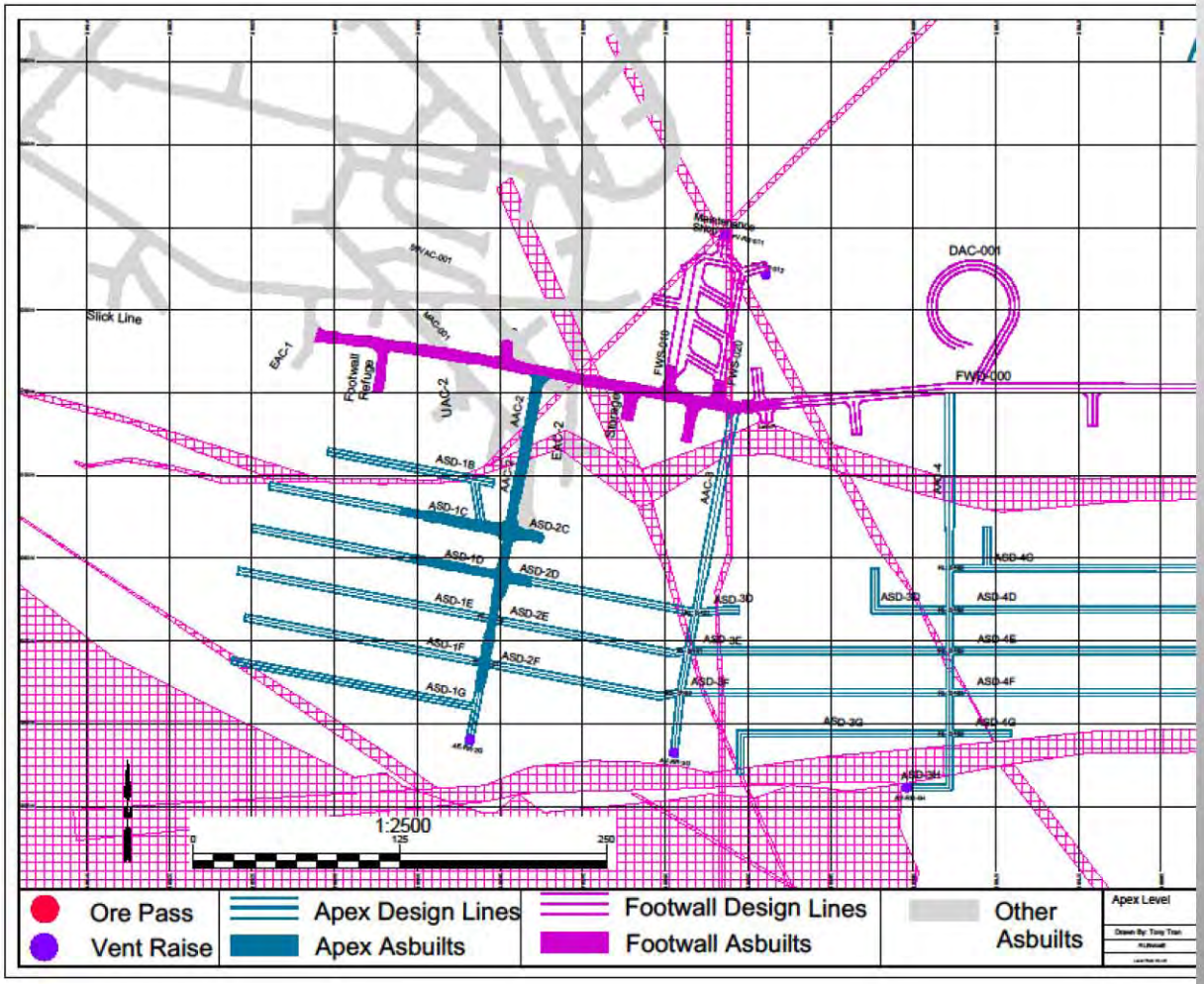
Mine Ops Department 2011



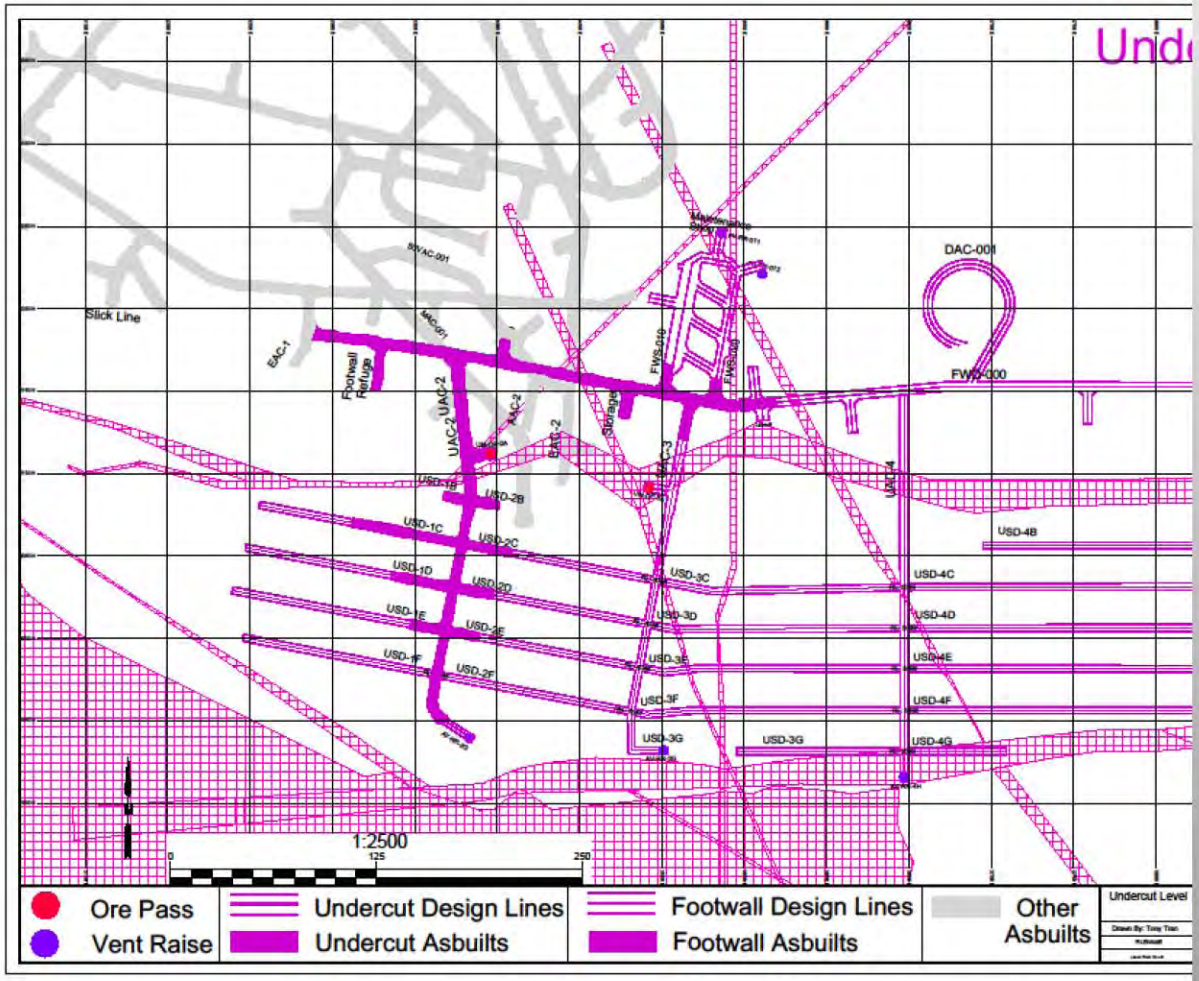
New Afton Underground Progress Through April 2011



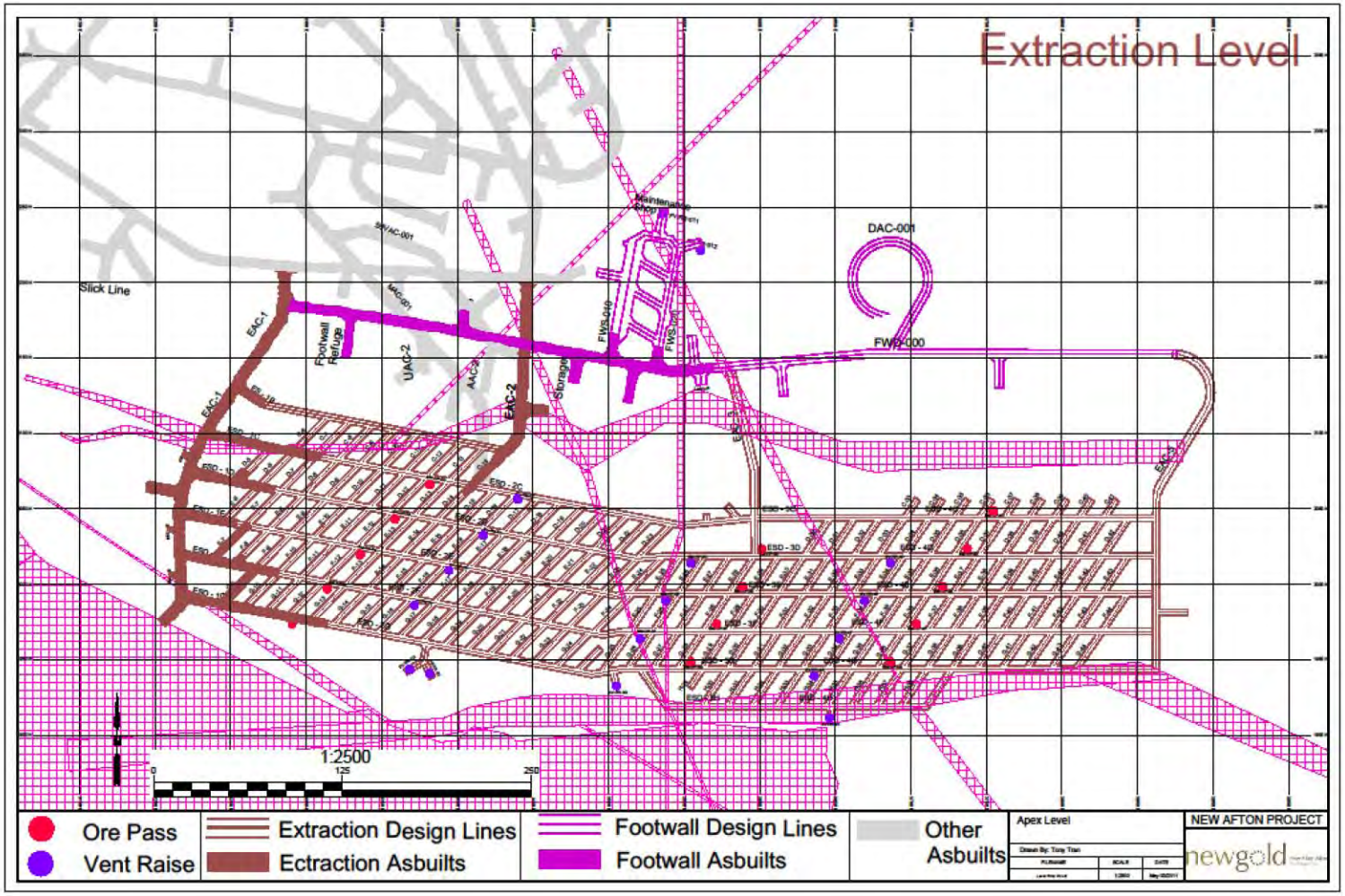
Apex Level Progress Through April 2011



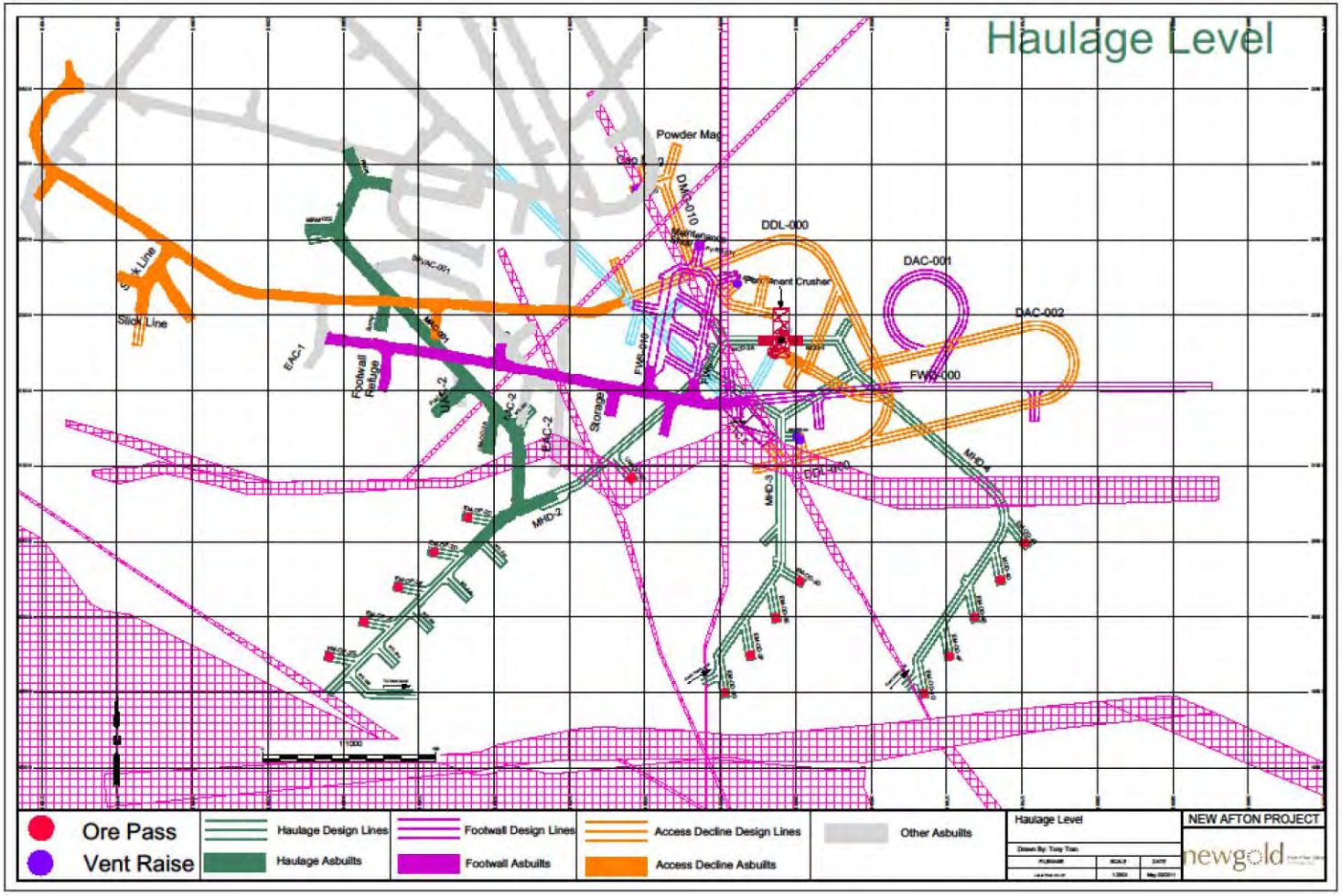
Undercut Level Progress Through April 2011



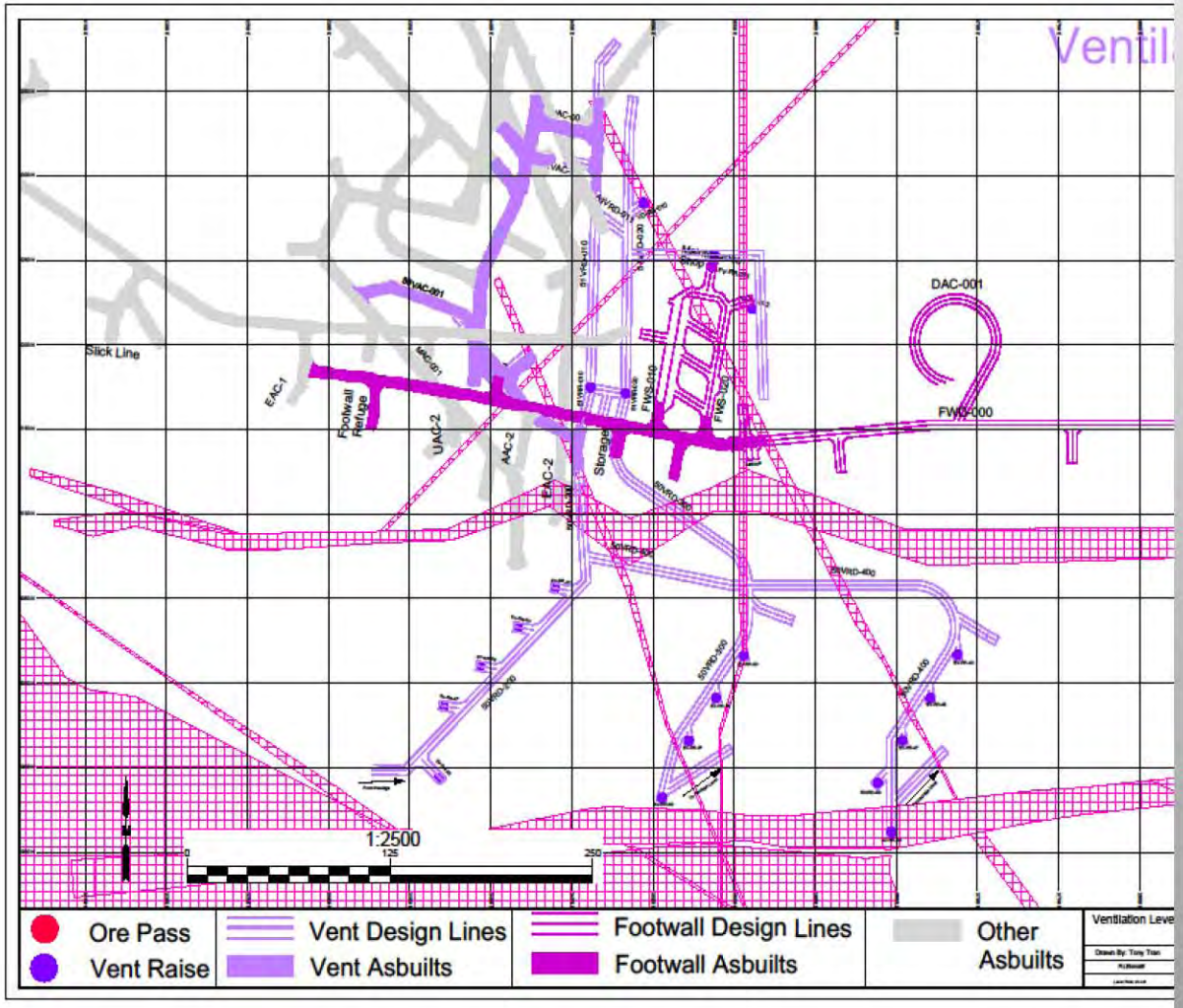
Extraction Level Progress Through April 2011



Haulage Level Progress Through April 2011



Ventilation Level Progress Through April 2011



CONSTRUCTION:

Safety - There were two near miss incidents and one minor property damage incident. The incidents were reviewed with the contractors, underlying and direct causes determined and positive correction actions agreed upon. Weekly Stats; 0 Hot Work permits were issued and logged this period – 63 to date - site manpower Friday – 157 – total safety-hours worked this period – 9254 - total year to date – 222,869 – project to date – 232,123 - Site orientations this period – 25 – to date – 426.

NG Surface - Sterling 15 t crane was in use underground and Sterling, Surface and the RKMS cranes on surface. Lack of crane operators continues to be a concern. Surface equipment continued all week on the Waste Transfer Area. The Pit – to – Surface Ore haul caught up this period. TRU began training operations.

BCH, EMPAC and NG continued with Main Sub commissioning process. 'Power On' Date moved ahead to 03May'11 to accommodate due diligence checking measures decided upon by contractors and management.

Harrison continued underground 15 kV cabling work on ERU 4 and ERU 3 as well as assisting Cutler Hammer in the commissioning of the 15kV switchgear. Lighting and instrumentation cable tray installation took place in CTC 1 / 2. Harrison surface activities brought the completion of the Main Substation to over 98%. The replacement of a 30kVA service transformer was completed. Commissioning by Wismer – Rawlings remained underway at period's end due to the due diligence activities noted above. The VR 6 fan was successfully commissioned. Work on Exhaust Raise Area centered around installing conduits in the E-House slab. The portal 'Load – Break' cabinet was installed.

Plowe – Contractor continued to mobilize materials to site for the o/h line to the Tailings Storage Facility (TSF).

First Nations – 1/ SIB delivered aggregates and supplied haul trucks to Acres for backfilling jobs around the site.
2/ KIB – CSC Electric - Tradesmen continued work on Mill Area temporary power, cable installation for the STP and grounding in the Concentrate Thickener Area. A temporary generator and construction panels were installed in the TSF mobilization area. C & L Holdings continued the Pit-to-Surface ore haul on a seven day per week basis this period.

RKMS – Work continued in the structural / mechanical work in the Reclaim Chamber. Solid progress was made on the Reclaim Stacking Tower. Contractor began mobilizing for its Mill Structural Steel and Mechanical contract.

Acres – 1/ Work began on the base preparation for the VR 5 Raise Bore pad. The Spillway crossing was brought to 92% completion. The earthmoving fleet continued on to the tailings line corridor placing subgrade fills and the filling of the Surface ore storage area. Topsoil removal in the TSF began.

2/ Mill compressor bases and thickener columns were concreted as was the Blower Area slab. Base preparation for the tailings pumps went well.

Cementation – 1/ Return and Training idlers were installed along with lateral bracing of conveyor trays in Leg 1. Leg 3 pipe brackets and sump installation proceeded well. Hanging of Leg 3 conveyor trays continued bringing to total to 156 out of 207. CTC's 3 and 4 base preparation continued with the pouring of lean concrete and the sump in CTC 3. CTC 2/3 saw the mechanical installation of the 20t capacity crane and internal structural steel. Mechanical installation of conveyor drive components was initiated.

Chinook - Scaffolding services carried on for surface and underground work. A major step was the erection of the Rougher Flotation Area scaffold in support of the Flotation Tanks installation work to begin shortly.

ERU 3



CTC 2/3



CTC 2/3



Cell columns and excavating Tailings pump FDN



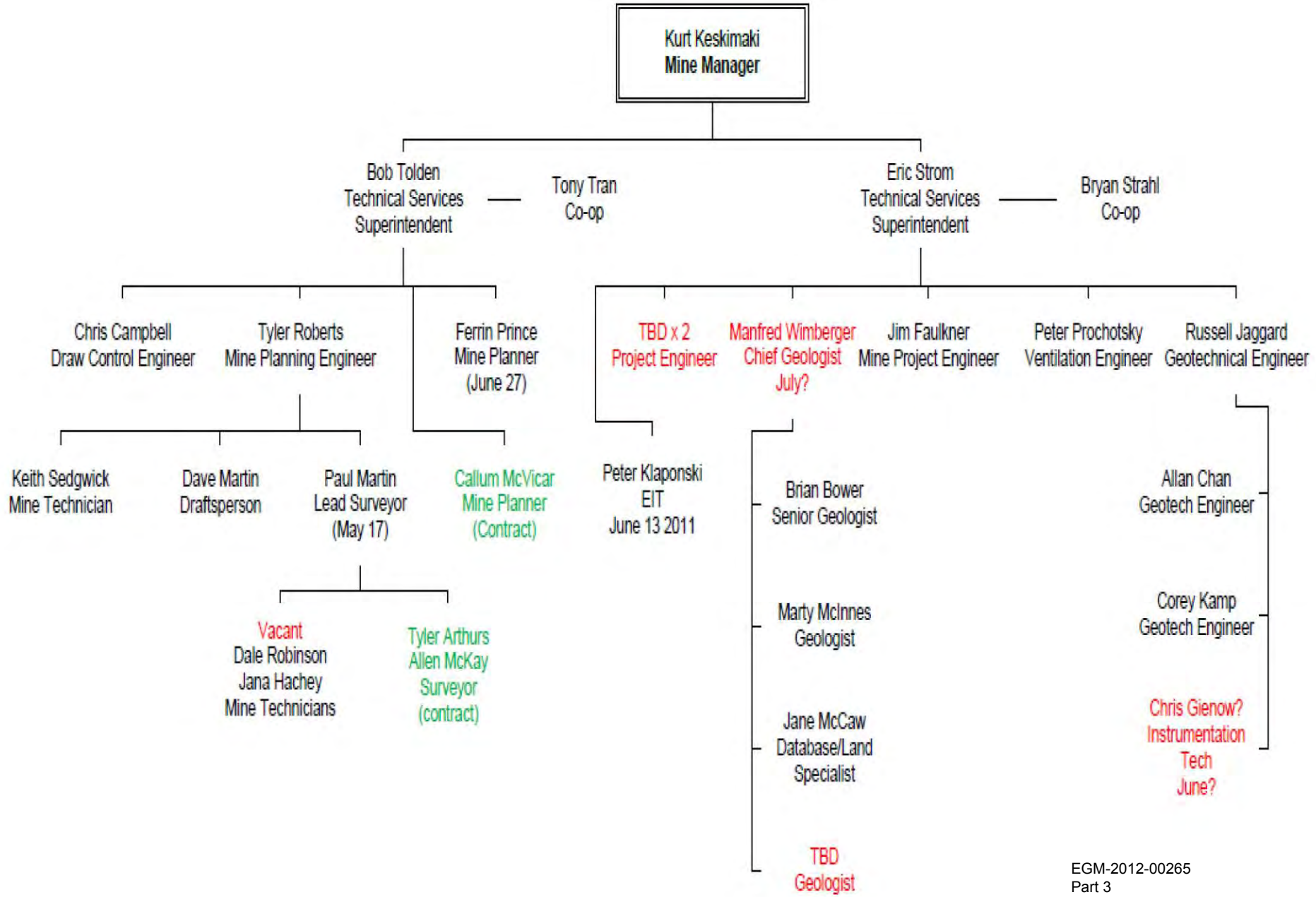
Spill way



Tailing Impoundment Drainage

- We will be commissioning a third party peer review of the raw data looking at our hydrogeological model. The review will also comment on any deficiencies and gaps in our knowledge to date.”

Technical Services



Operational Activities of special interest

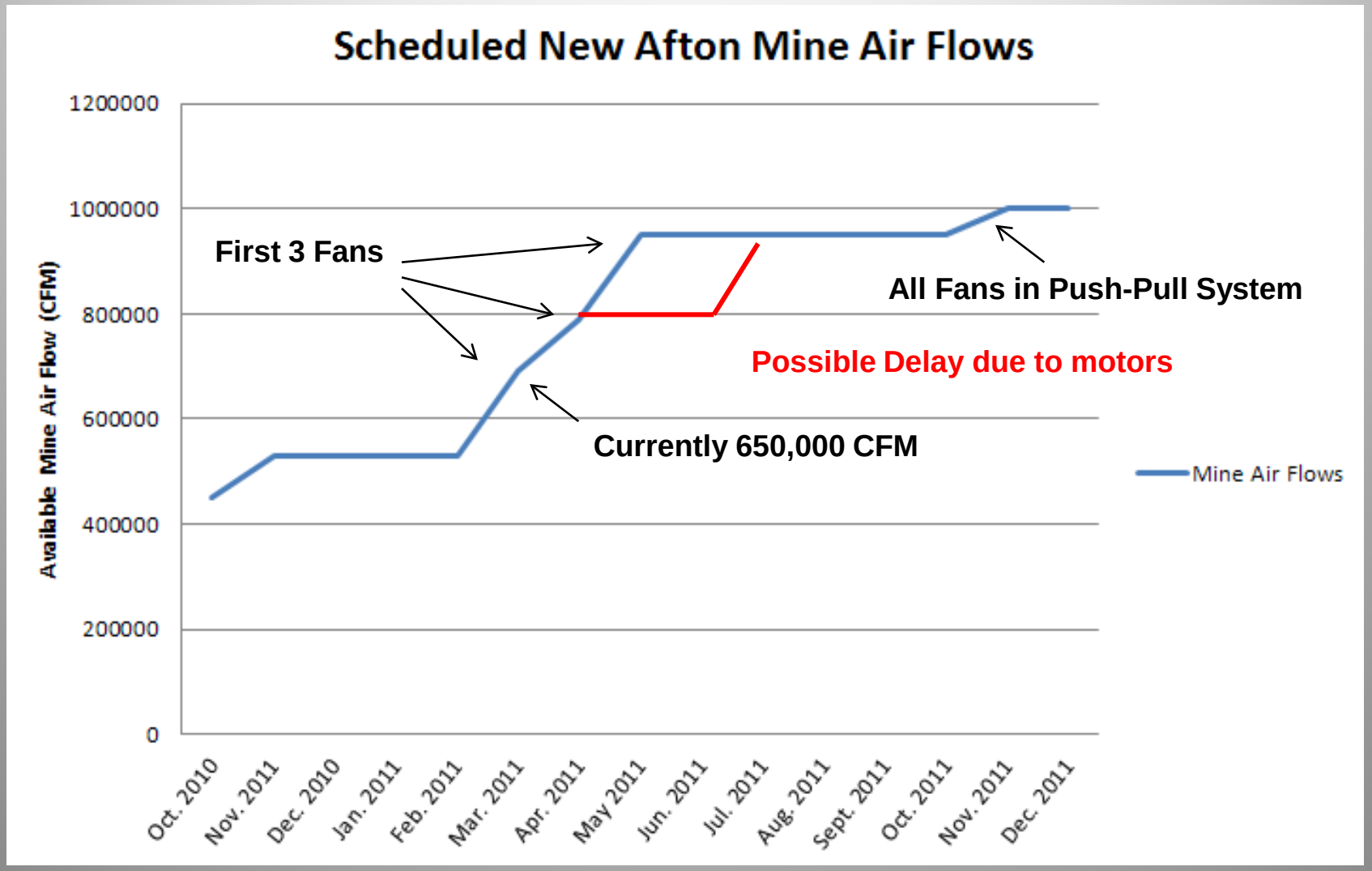
PERMANENT FAN INSTALLATION

VR6 Permanent Fan

- Operating at 780 rpm, 90% motor load
- Providing 400,000 CFM
- Mine Total: 650,000 CFM



PERMANENT FAN INSTALLATION



PERMANENT FAN INSTALLATION

SCHEDULE

- VR6 fan operational April 28, 2011
- VR3 fan scheduled start up May 10, 2011
- VR4 fan installed third – at a later date
    - Delayed due to motor availability

Hauling of material out of the pit

- Hauling of ore material out of the pit has gone well with no incidents
- Seasonal changes to the pit road have not adversely affected hauling
- To date 42,000 tonnes transported to surface stockpile



Seasonal Challenges, spring run off and melt



Ore transition in the pit

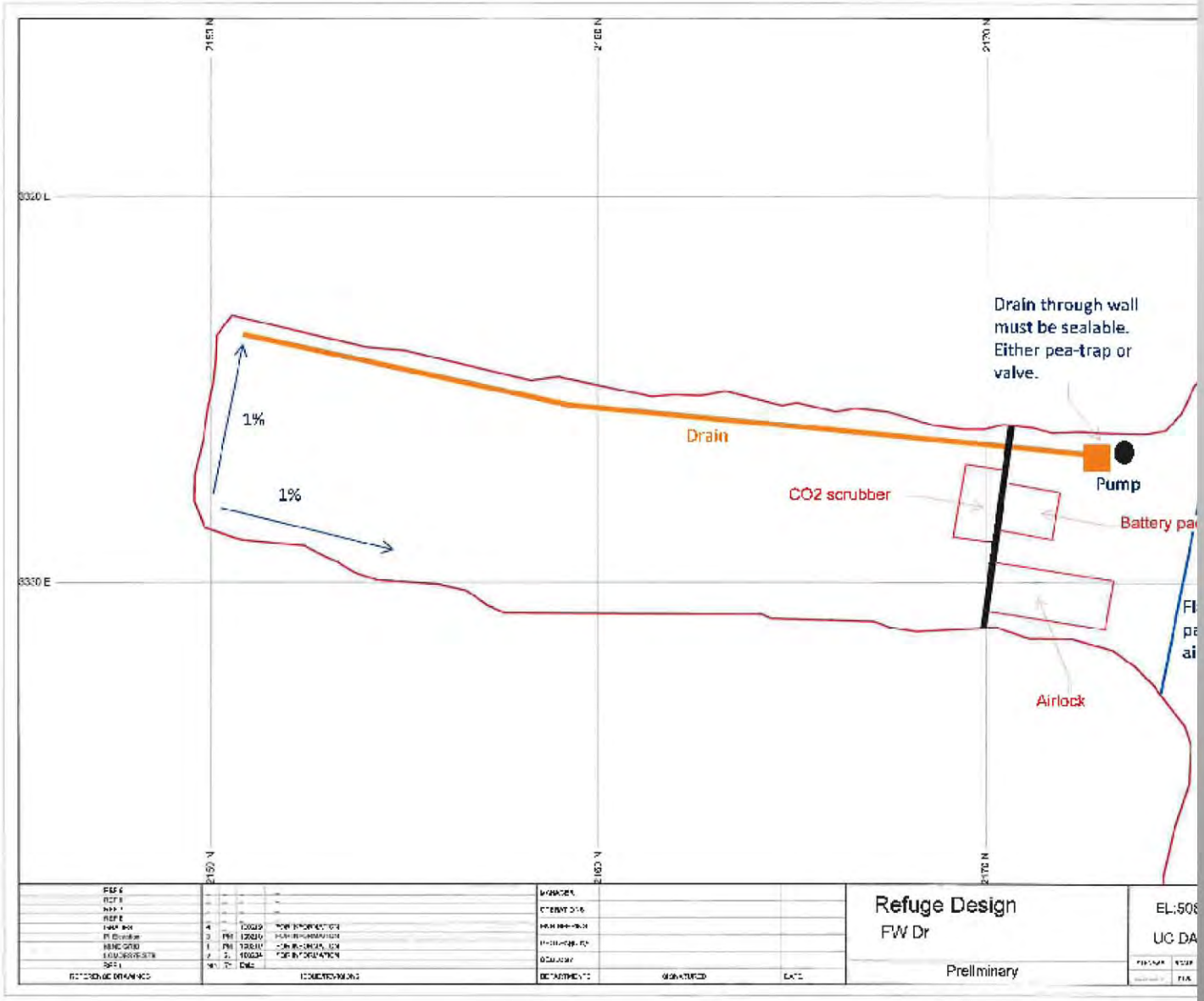


Projects currently Underway

P117 – Underground Refuge Chamber

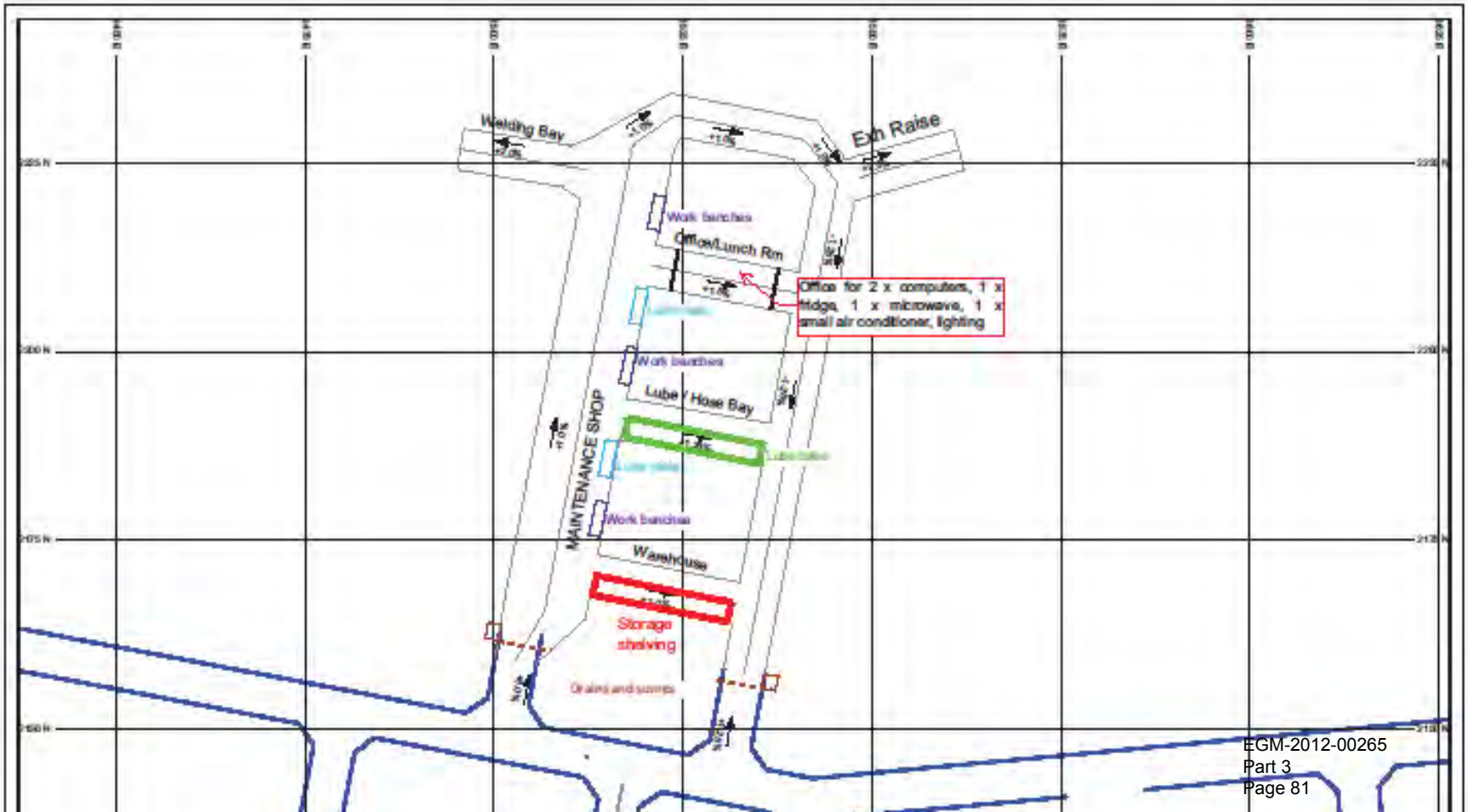
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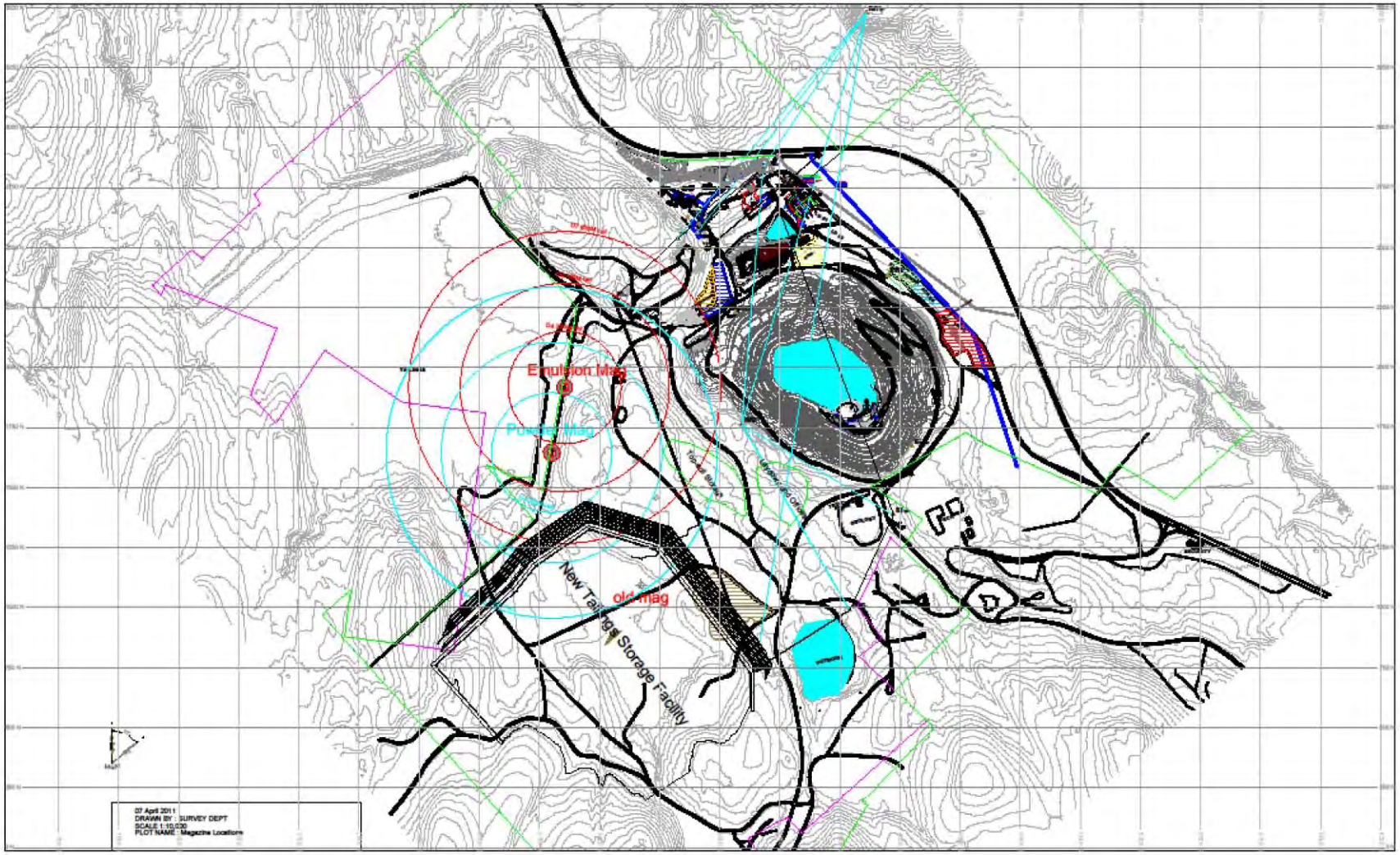
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- Location approval in Progress
- All quantity/distances (Q/D) satisfied

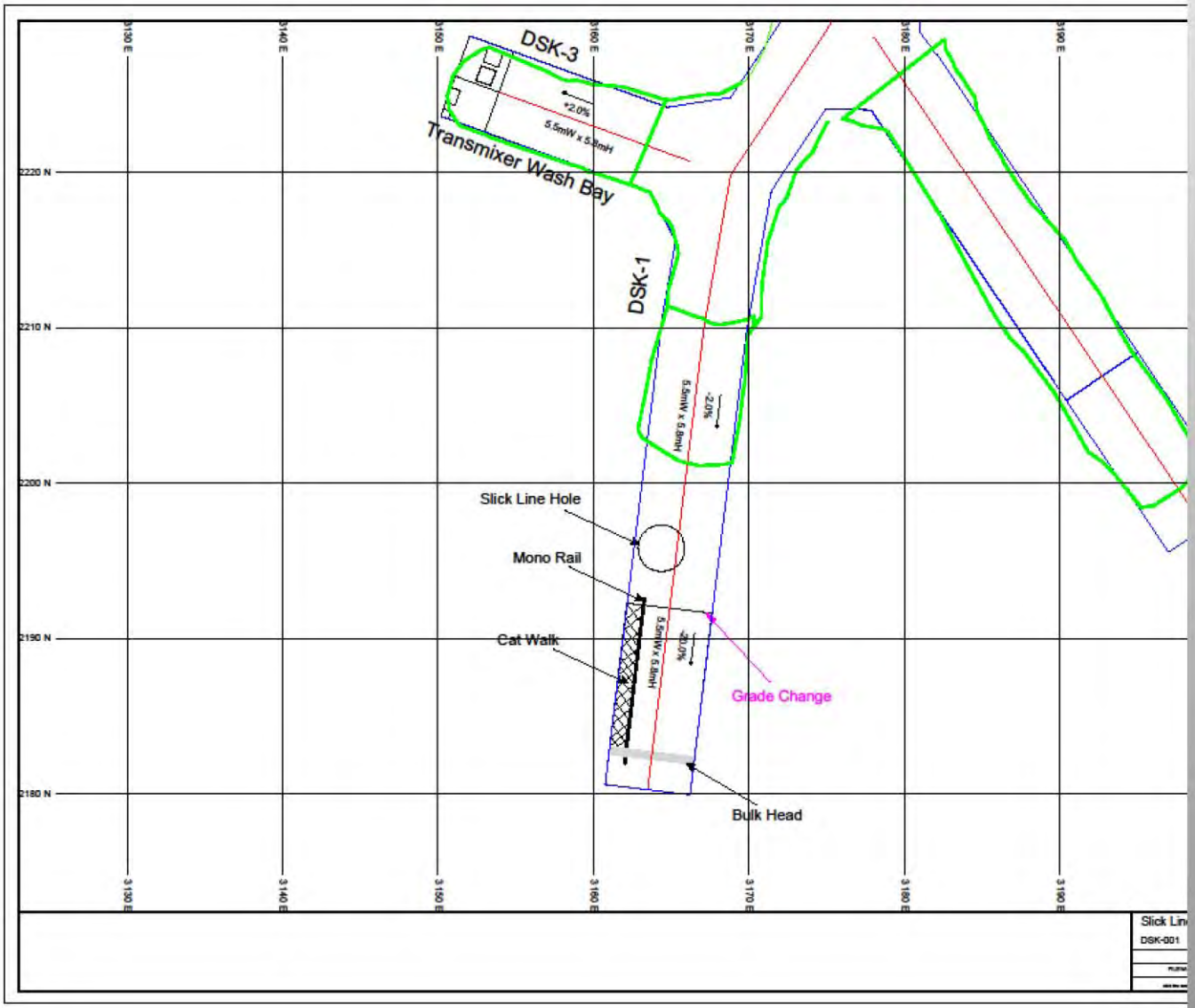
P145 – Surface magazine



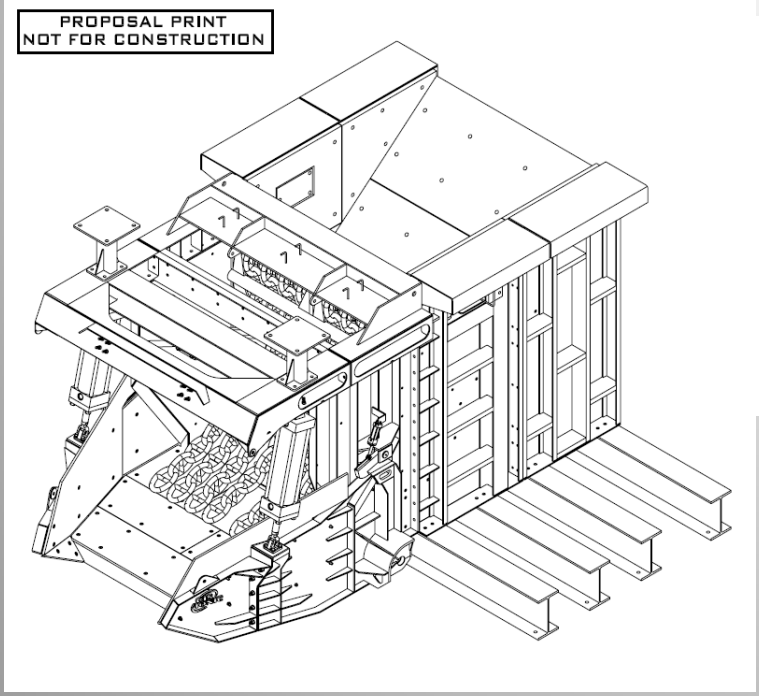
P116 – Surface to underground slickline

- For direct delivery of shotcrete to underground
- 600m vertical hole to be drilled
- Contract driller due on site end of April
- Underground excavation in progress
- Surface and underground handling system in final design phase

P116 – Surface to underground slickline



P136 – Truck chutes in haulage level



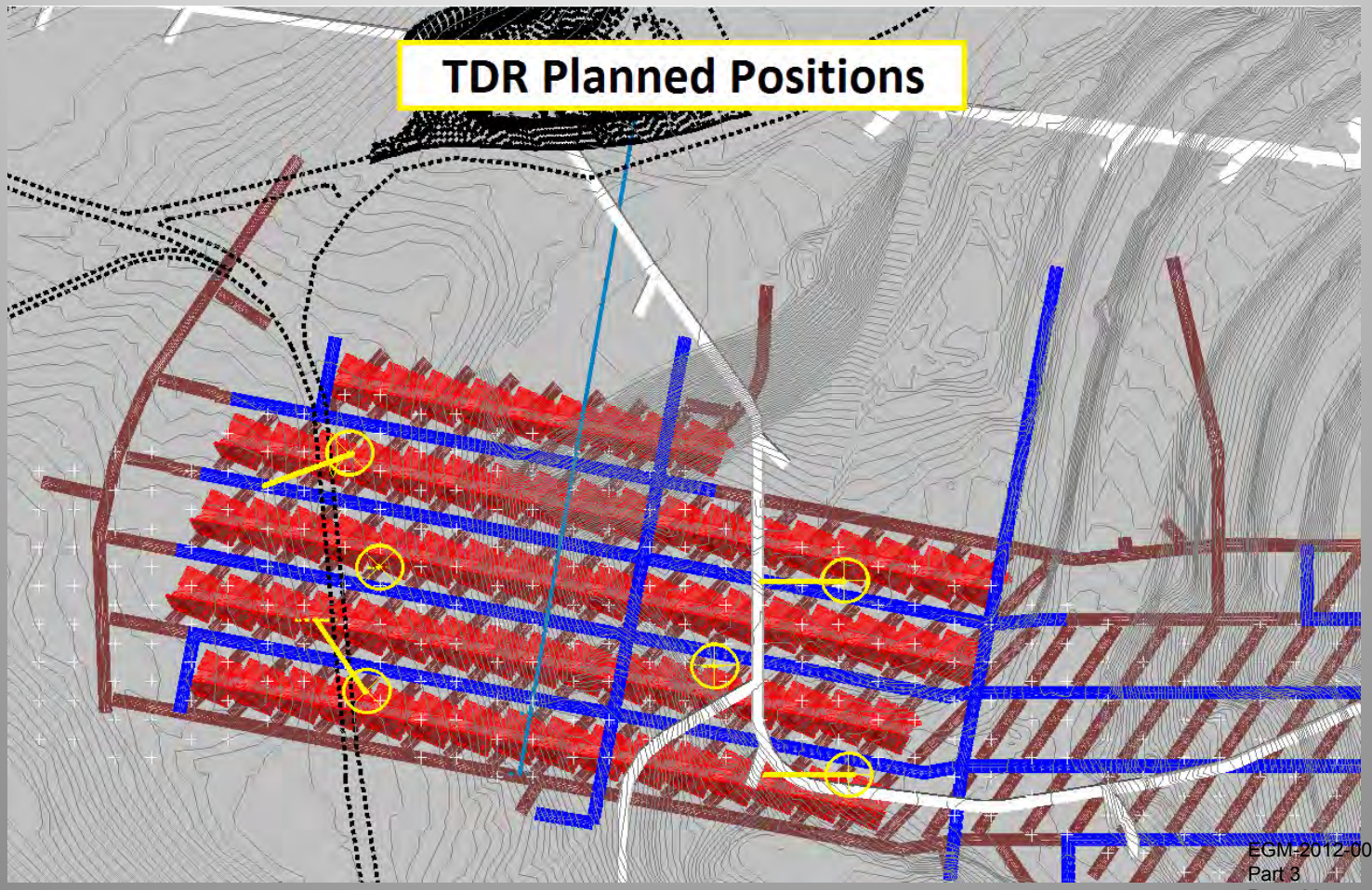
- A study is being conducted on the economic feasibility of truck chutes for the haulage level
- Designs submitted by potential supplier
- Pneumatic operation
- Equipment simulations being run and evaluated
- No specific reference in BCHSRC 2008

P106 – Underground dewatering system

- A study is being conducted into the feasibility of a method to thicken fines from sumps to a manageable consistency
- Objective is to introduce them to the ore handling system (crusher and conveyors)
- System and suppliers are being identified by Engineering consultant

P142 – Convergence Monitoring

- TDR : Time Domain Reflectrometry



P110 – Open Pit Dewatering and mud compaction

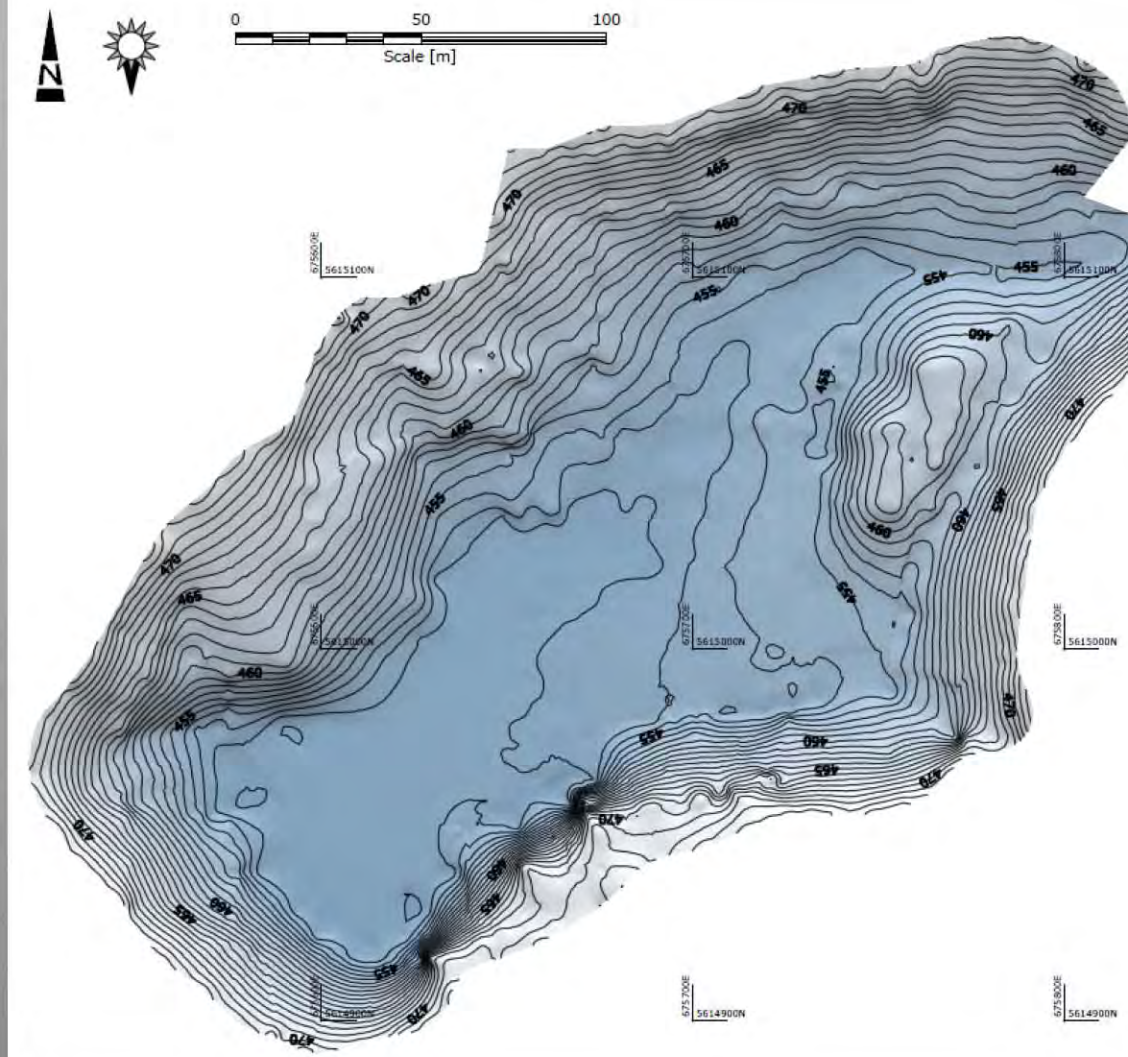
- Bathymetry survey



P110 – Open Pit Dewatering and mud compaction

- Open Pit Bathymetry geophysical survey work initiated
- Depth of water 25m - 27m (maximum depth)
- Depth of silts 10m - 15m

Pit Bathymetry initial results (draft)



DRAFT
FOR DISCUSSION ONLY

Legend:

- Bathymetry Contour, Major (Golder, 2011)
- Bathymetry Contour, Minor (Golder, 2011)

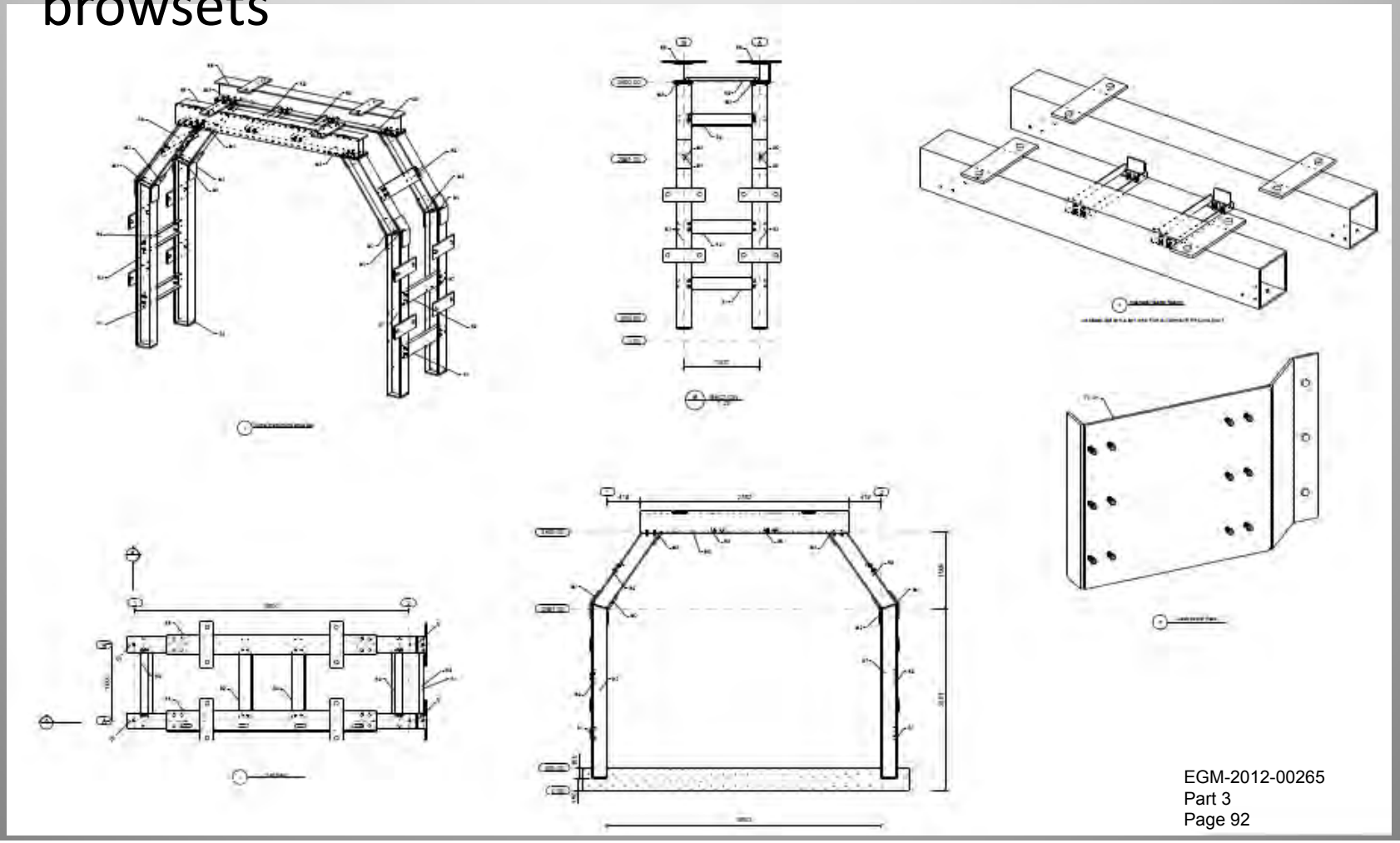
Notes:

1. Contours are interpolated from line-based data and geological surfaces may vary significantly in areas of sparse or no data.
2. Depth estimates use an average velocity in water of 1500 m/sec.
3. Bathymetry instrumentation: Datasonic Bubble Pulser
4. Navigation instrumentation: Trimble AG132 Differential GPS
5. All elevation data is in metres above sea level [m.a.s.l.].
6. Horizontal datum: WGS-84, UTM Zone 10N
7. Note that depths below water level are to nearest reflectors which may not be directly below measurement location. Actual depths may vary, especially on steep slope reflectors.
8. An image has been added behind the contours, with shading illumination from the north, and coloured by depth.

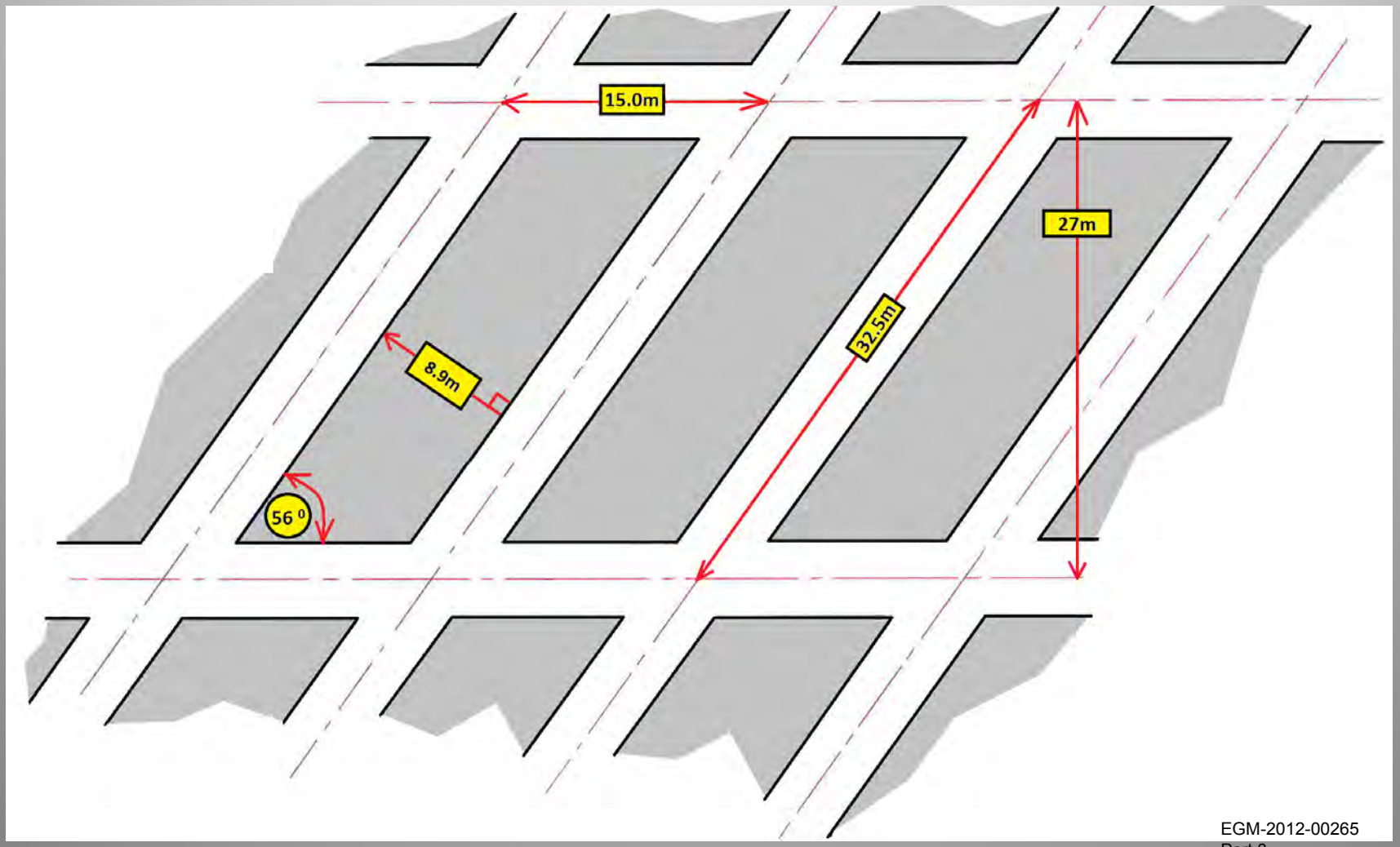
PROJECT	NewGold Old Afton Pit Kamloops, BC
TITLE	BATHYMETRY

P113 – Drawpoint design - Sets

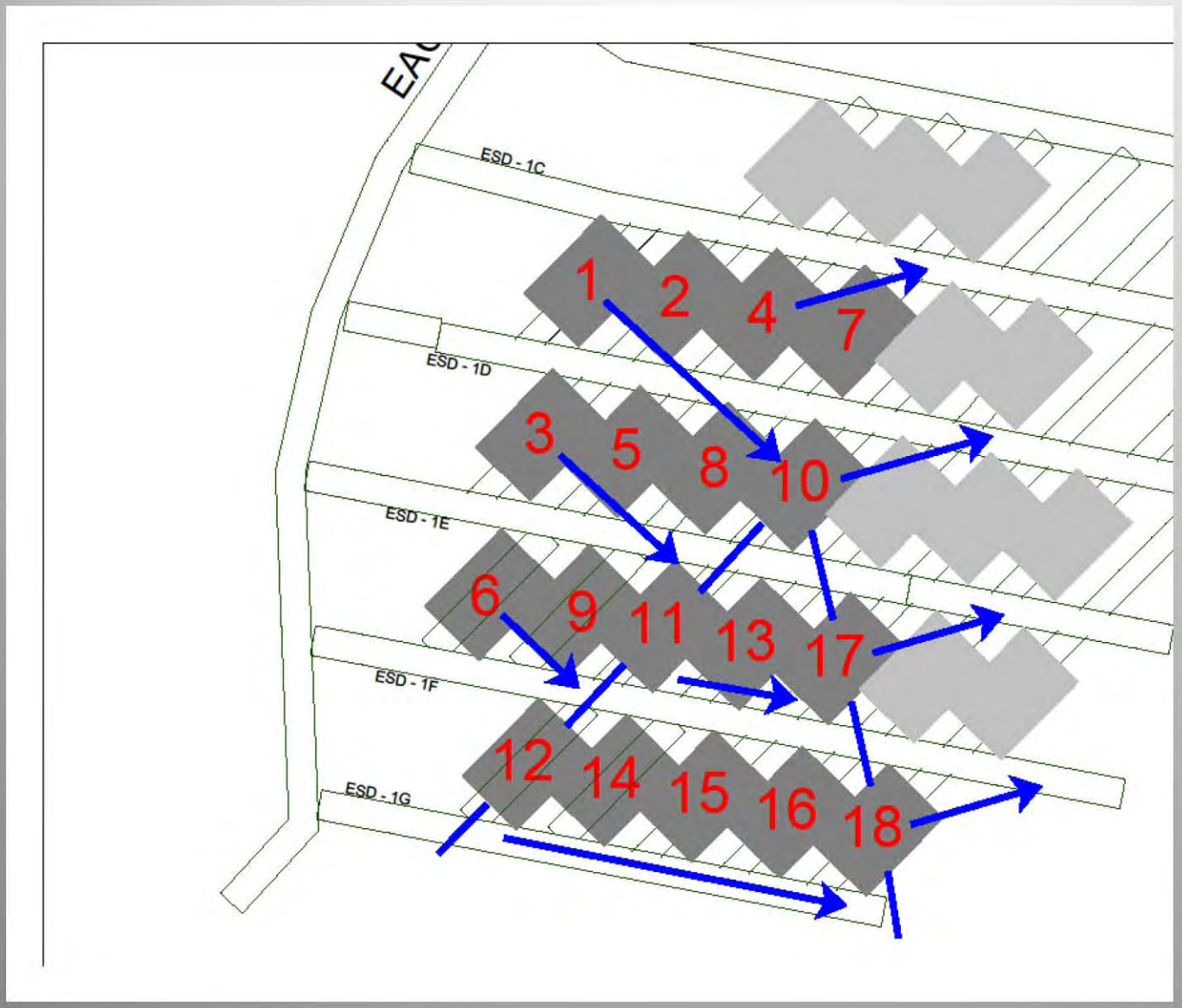
- Drawbell brow support – Set design for “Stiff browsets”



- Drawpoint sizing and pillar design



Initial Draw-Bell Location Change



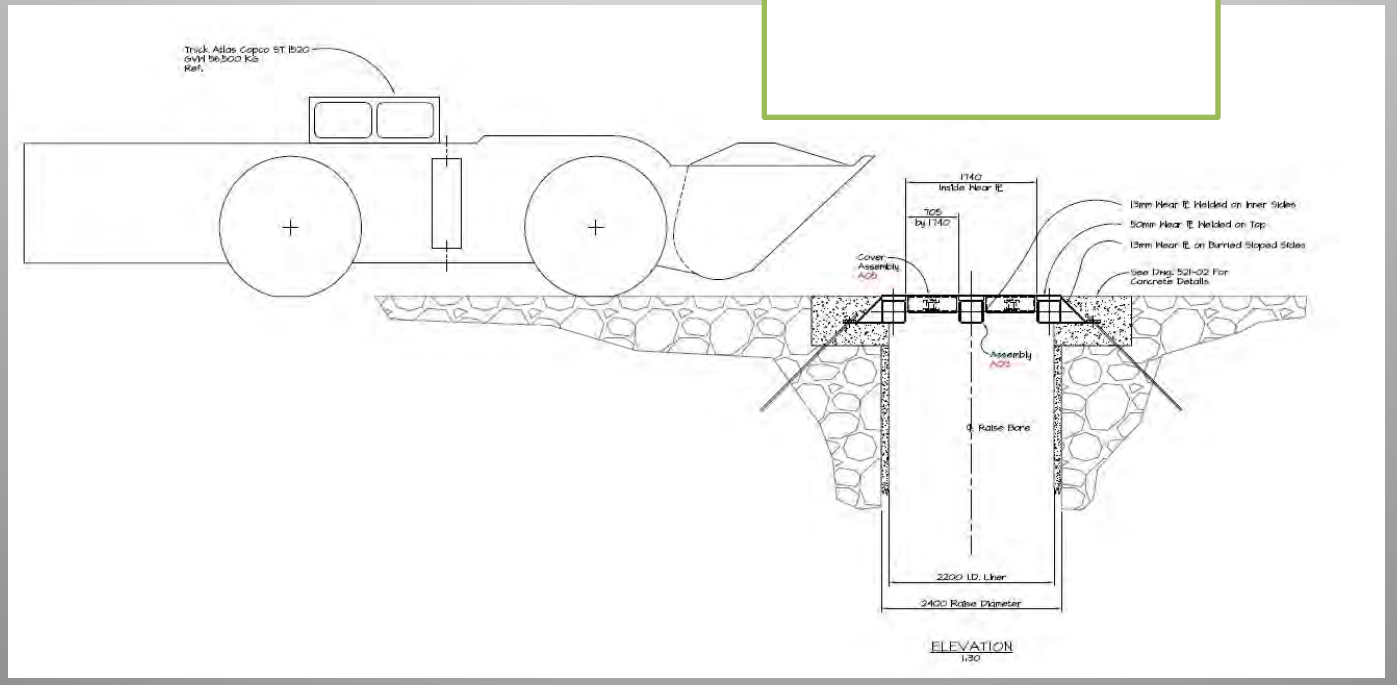
P114 - EXTRACTION LEVEL GRIZZLIES

Personnel Access Strategy – No access to open hole

- Scoop operator never has to leave cab to uncover or cover open hole
- Scoop operator turns on strobe and closes gate while mucking (no access to strike drive)
- If other activities need to continue while mucking (ex.secondary breaking)
    - Scoop operator must be notified prior to passing through gate
    - Personnel must be educated on the dangers of an open hole
- Once mucking complete, grizzly must be covered immediately for ventilation and safety

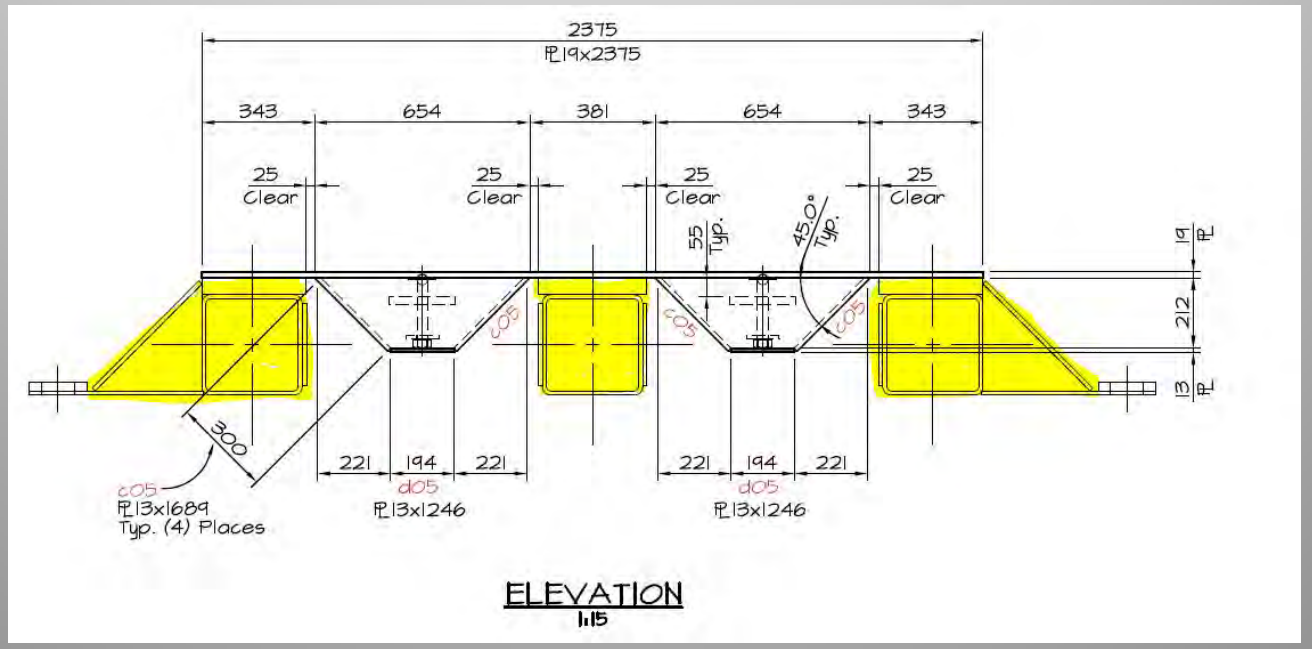
P114 - EXTRACTION LEVEL GRIZZLIES

- 0.7m by 1.7m openings (2.5ft by 6ft)
- All exposed surfaces wear plated for durability
- Designed to withstand a fully loaded 9yd scoop driving overtop



P114 - EXTRACTION LEVEL GRIZZLIES

- Each grizzly has it's own vent cover
- Lifted off and placed by scoop operator without leaving cab
- Designed to withstand a fully loaded 9yd scoop driving overtop



ELEVATION
1:15

New Equipment

Equipment Received to Apr 30

- 2 – Sandvik DS310 Rockbolters, 1 diesel and electric
- 2 – Sandvik DD420 Jumbos
- 1 – Normet Utimec 1500 Transmixer
- 1 – Sandvik DL420 Longhole C-Frame
- 1 – CAT TH407 Zoom Boom
- 1 – CAT R1600G Scoop
- Orica CEBS computerized central blasting system

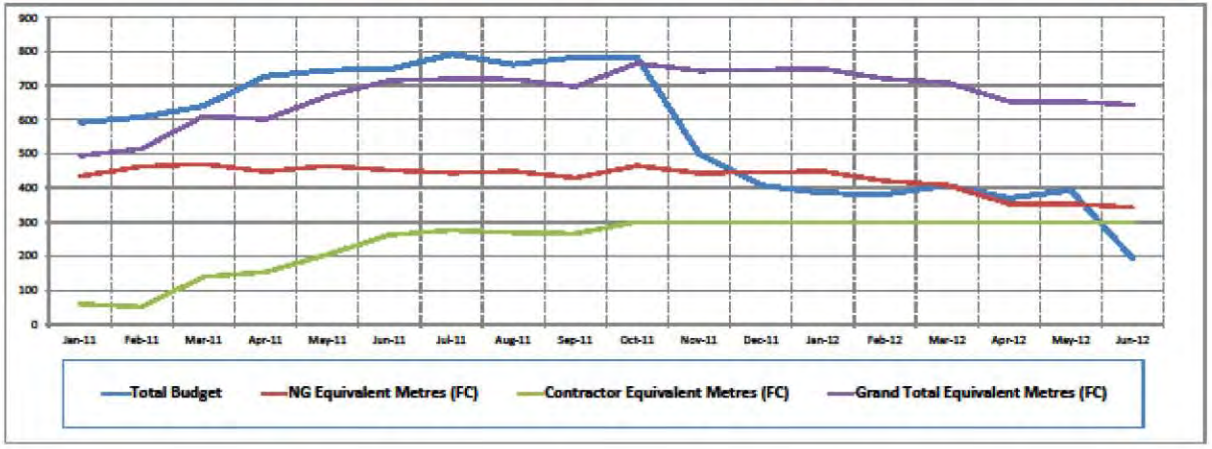
Equipment to come 2011

- 1 - Scoop Mounted rockbreaker
- 4 – Mantrip Tractors
- 1 – Normet 6050 Spraymec (7110 Spraymec to be traded in)
- 1 – Schwing concrete pump
- 1 – Sandvik DS310 Rockbolter
- 1 – Sandvik DL420 Cablebolt Longholer
- 1 – Sandvik DL420 Longhole C-Frame
- 5 – CAT R1600G Scoops
- 1 – MacLean Blockholer
- 1 – Dedicated 20 Man Carrier
- 1 – CAT Compactor
- 1 – Dust Suppression Cassette
- 2 – 8’ wide Multimec Decks
- 1 – Orica/Minecat Emulsion Loading system complete with emulsion totes
- 1 – Replacement ready mix truck
- 1 – Replacement Toyota
- Enclosed cabs for the AC1520 Scoops
- Replace the bucket elevator at the batch plant with a conveyor

Forecast Development

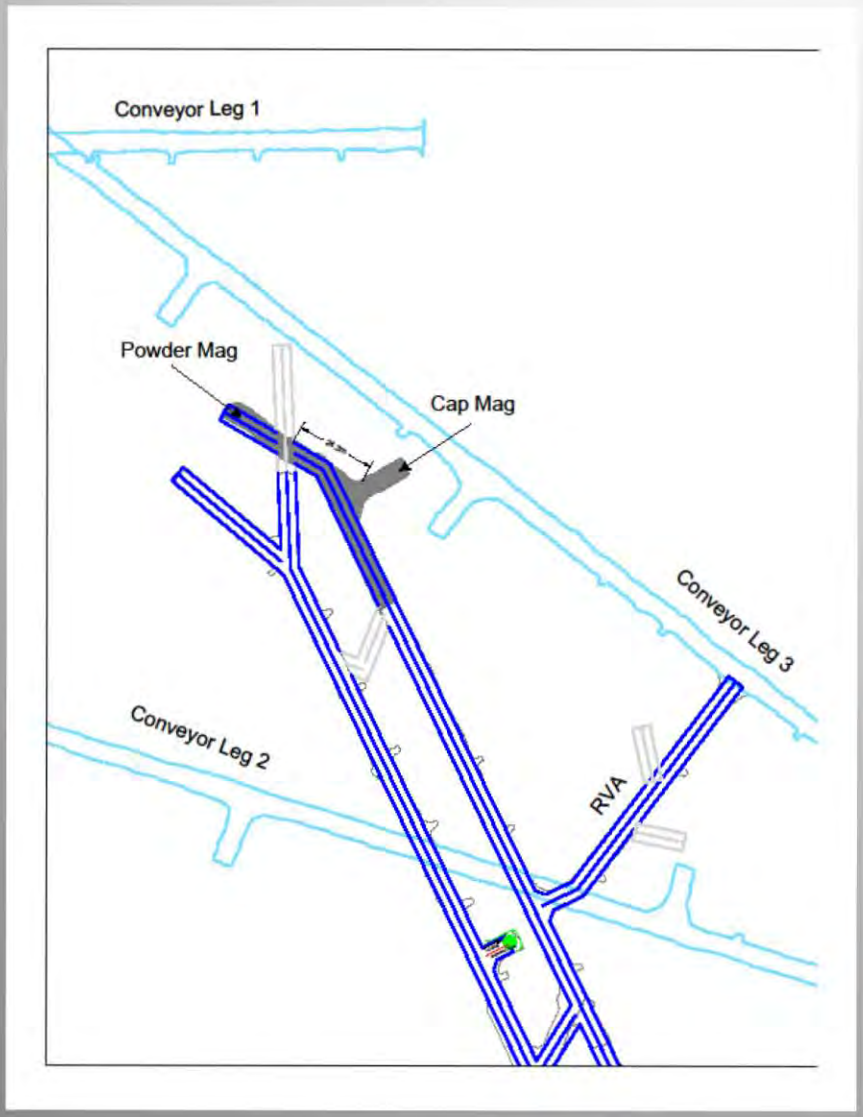
RE-Forecast April 19, 2011

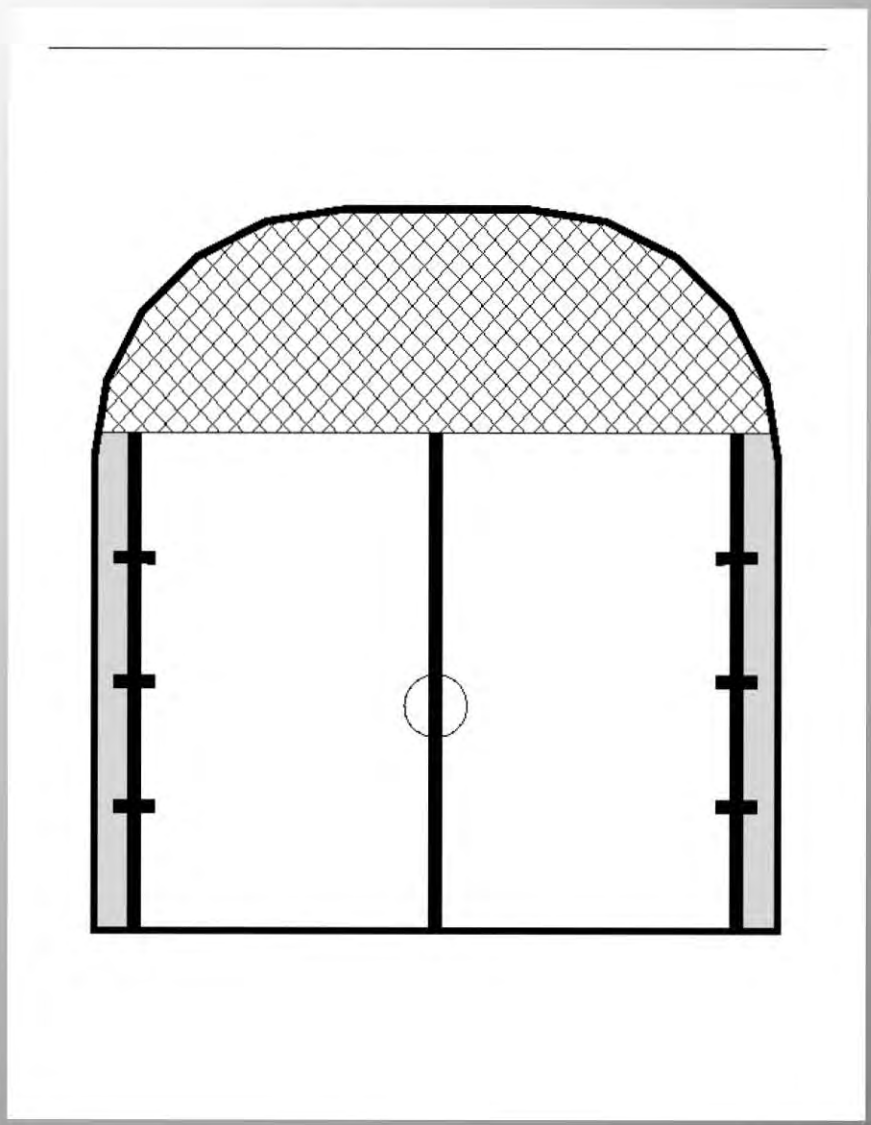
	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Year	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	6 Month	18 Mos
Total Large LGm	447	400	303	360	371	363	391	391	407	364	71	70	3,938	76	71	76	74	76	64	438	4,376
Total Smal SMm	76	207	337	330	336	328	334	332	329	332	303	306	3,549	309	309	331	296	317	130	1,692	0
Total Bulk Budget Eqm	68	0	0	37	38	57	66	38	47	86	126	33	596	0	0	0	0	0	0	0	707
Total Budget	591	607	640	727	745	748	792	761	783	782	500	408	8,082	385	381	408	370	393	195	2,130	10,212
Metres Per Day	19	22	21	24	24	25	26	25	26	25	17	14	22	12	13	13.1	12.3	12.7	6	12	19
NewGold Large	309	222	225	130	133	97	79	84	70	93	96	101	1,639	97	95	83	0	0	0	275	1,914
NewGold Small	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	5,822
NewGold Bulk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NG Equivalent Metres (FC)	434	463	470	448	464	452	444	449	430	465	444	446	5,408	449	420	409	353	353	343	2,327	7,735
Metres Per Day	14	17	15	15	15	15	14	14	14	15	15	15	15	14	14	13.2	11.8	11.4	11.4	13	14
										25	12										
Contractor Large	0	29	70	118	164	223	237	269	227	224	226	281	2,068	249	232	251	276	300	300	1,608	3,677
Contractor Small	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contractor Bulk	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Contractor Equivalent Metres (FC)	60	52	140	153	205	262	276	269	266	300	300	300	2,584	300	300	300	300	300	300	1,800	4,384
Metres Per Day	2	2	5	5	7	9	9	9	9	10	10	10	7	10	10	10	10	10	10	10	8
Total Large-Act/Forecast	309	251	295	248	297	320	316	353	297	317	322	382	3,707	346	327	334	276	300	300	1,883	5,590
Total Small-Act/Forecast	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	0
Total-Bulk-Act/Forecast	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Grand Total Equivalent Metres (FC)	494	515	610	601	669	714	720	718	696	765	743	746	7,992	749	720	709	653	653	643	4,127	12,119
Metres Per Day	16	18	20	20	22	24	23	23	23	25	25	25	22	24	25	23	22	21	21	23	22
Forecast (-) Budget													-90							1,997	1,907



April 19 2011 Qtr FC Final.xlsx

Temporary Underground Mag Move







Ministry of Mines Update

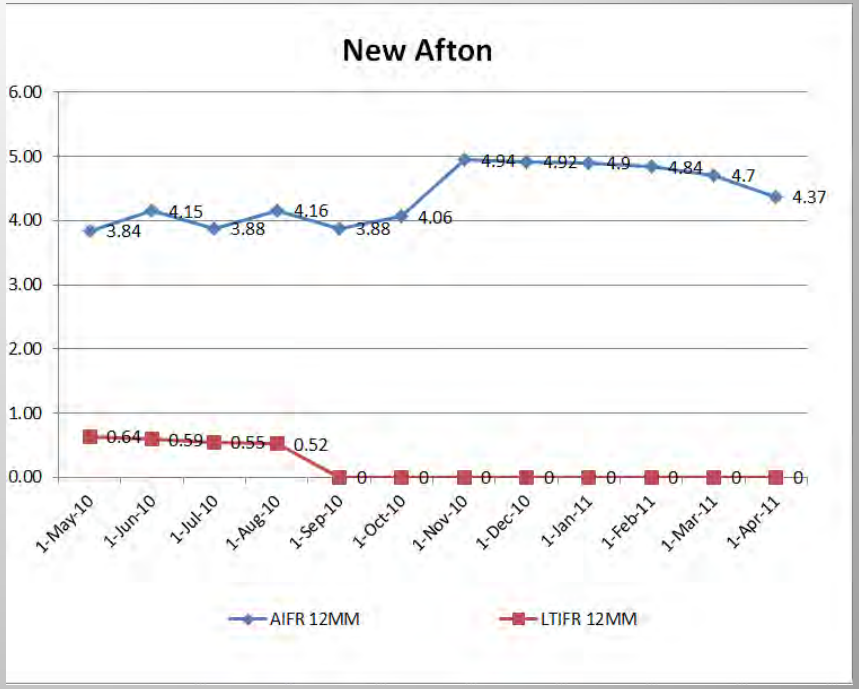
May 4, 2011

Manpower & Hours

- 279+ Employees: 122 mining, 34 mechanics, 99 office & support= 167,075 hours YTD 2011
- 223+ Contractors: 43 Acres, 43 Cementation, 29 Thyssen, 71 Construction Contractors, 37 Independent Contractors = 170,955 hours YTD 2011
- NG - 7 days on/7 days off rotation – 11 hour shifts
- Contractors – 28/14, 20/10, and regular weekly hours
- Third miner trainer group commenced this month.
- Recruiting continues in Mine Ops, Tech Services, Maint, and Mill Operations

YTD Safety Statistics

	Apr 2011	YTD	YTD 2010
Lost Time	0	0	0
Disabling Injury	0	4	2
Medical Treatment	0	2	1
First Aid	6	26	7
Hazards	6	16	0
5pt Card Hazards Reported		35	0
Near Miss	9	34	8
Property Damage	11	47	16
Process Loss	3	7	N/A
LTIFR	0	0	0
AIFR	0	3.55	4.68



2009		2010		12MMA	
AIFR	LTIFR	AIFR	LTIFR	AIFR	LTIFR
3.17	1.27	4.92	0.00	4.37	0.00

Mine Rescue – Emergency Response

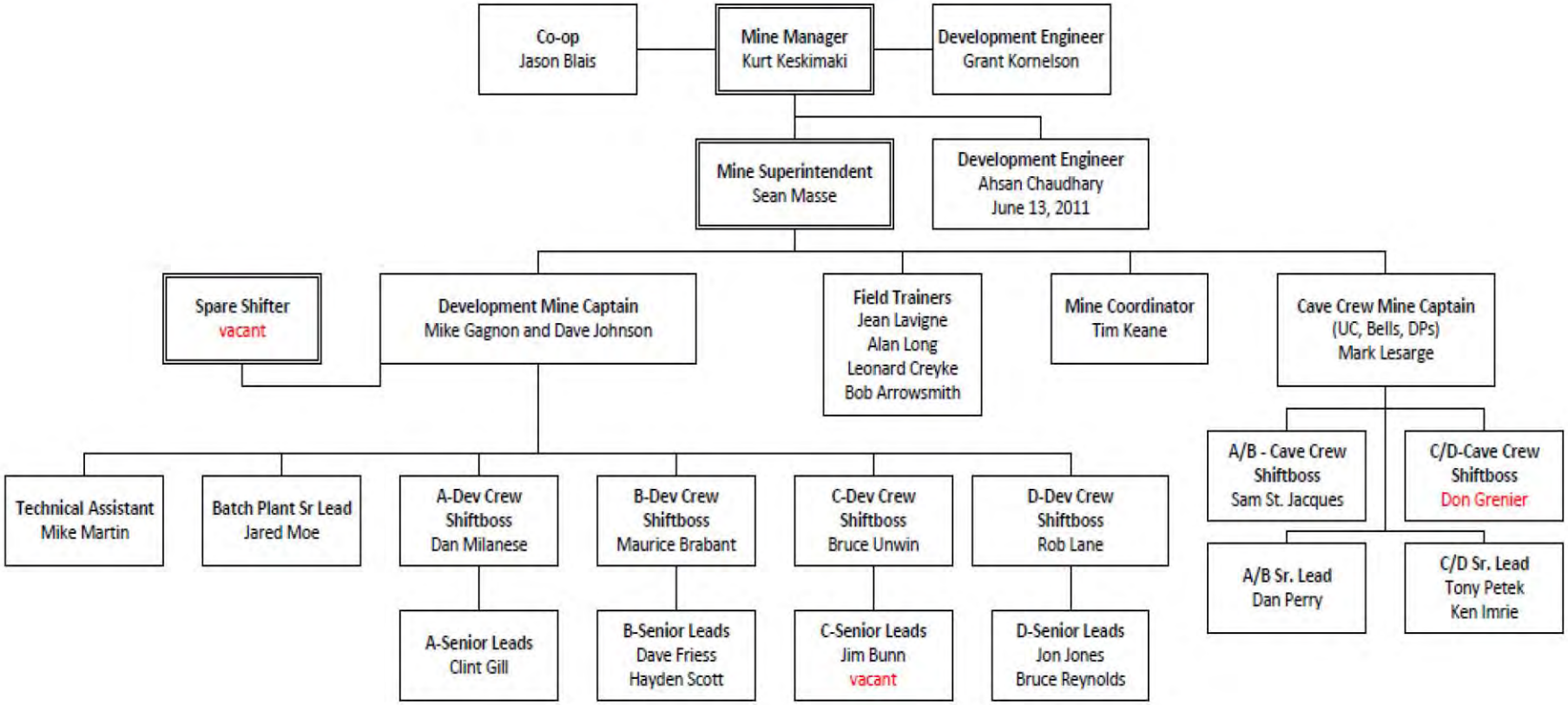
- Hired a new Fire & Mine Rescue Chief (Mike Owens)
- Currently 28 active MR members
- Primary First Aid response remains with SAVI (WPA)
- 50% of workforce has SJA first aid certification
- In process of procuring a Fire Engine & equipment
- Water truck used as surface fire response vehicle
- 4 – 20 person portable refuge stations, 1 - 10 person
- Permanent refuge location (60 person) nearing completion
- Training for BC Mine Rescue competition in Revelstoke
- Mine rescue course to increase active numbers

Achievements & Opportunities - YTD

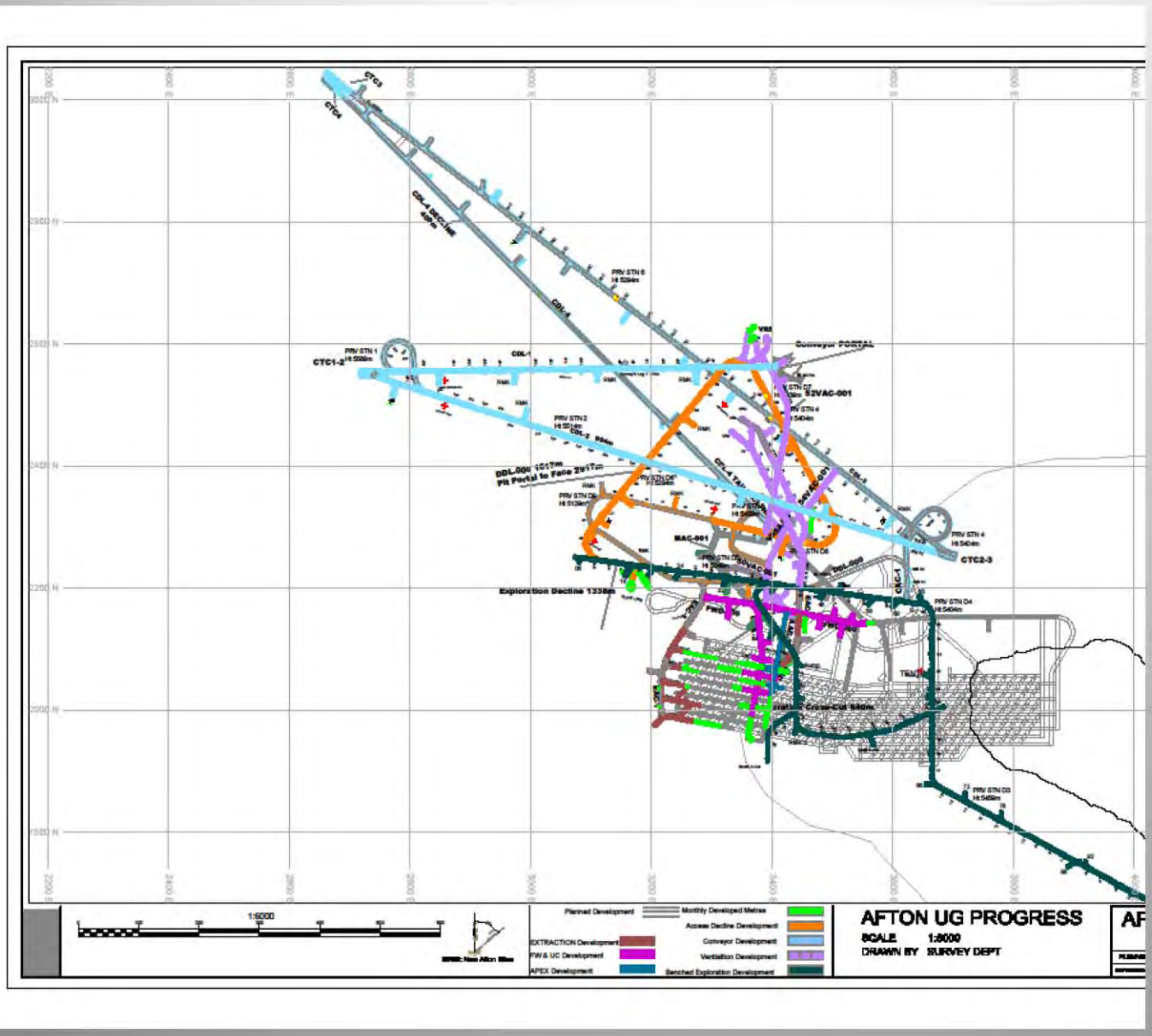
- Reached 1,000,000+ man-hours with no LTI's!
- Miner Training program – working well
- YTD training hours - +5000 hours of total training hours, Mine survival refresher, fire suppression, MSD body mechanics, orientations, equipment training, explosives
- Industrial hygiene monitoring – baseline study June/July
- Surface fire fighting training once new gear arrives
- Improvement in near miss & hazard reporting by 50%
- Quality of incident reports & timely corrective action closeouts
- Internal safety audit & ICS training
- Mill operator training program
- Continue to reinforce the basics…JHA's, 5-point safety, incident reporting, inspections…

newgold New Afton Mine Kamloops, B.C.

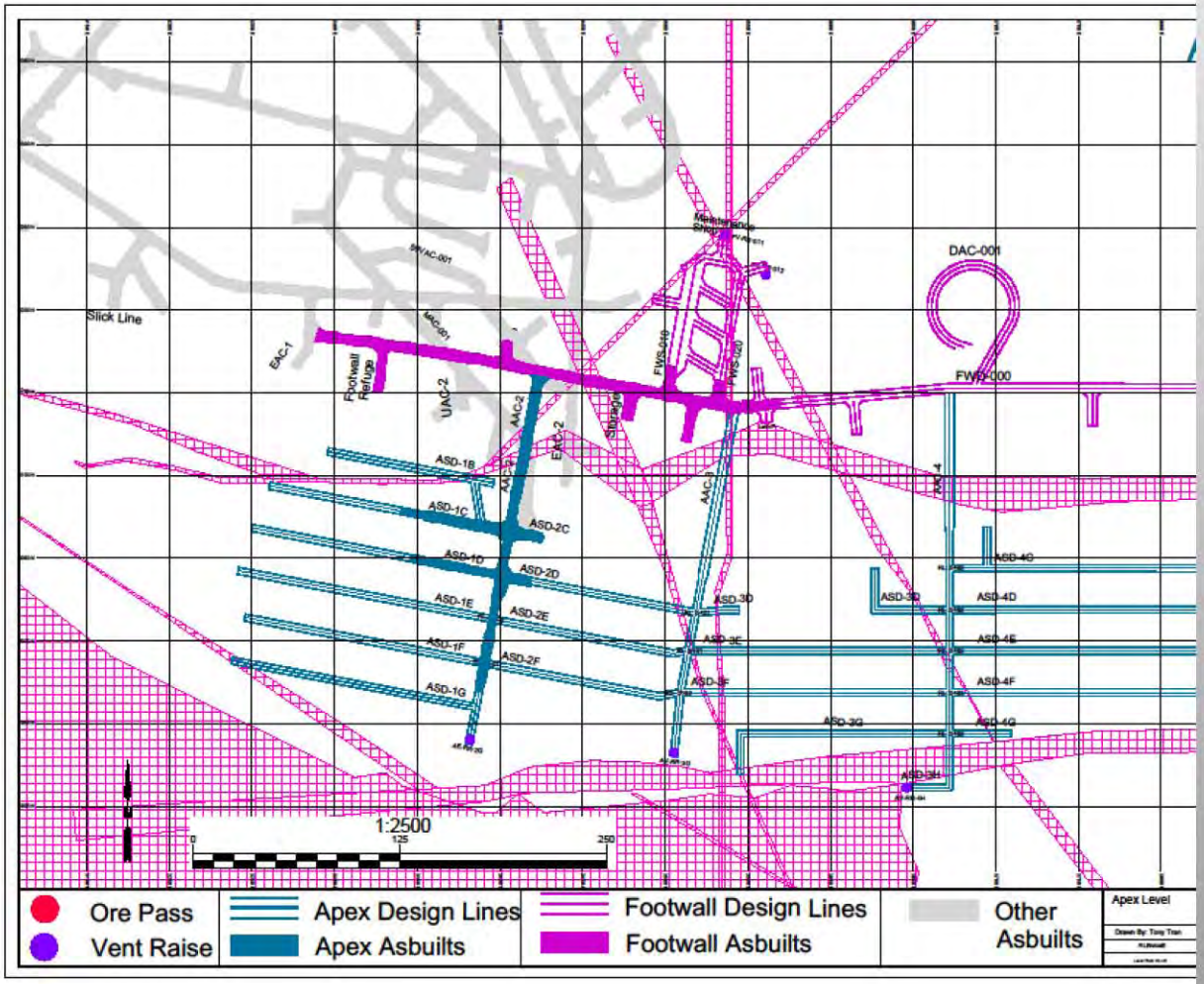
Mine Ops Department 2011



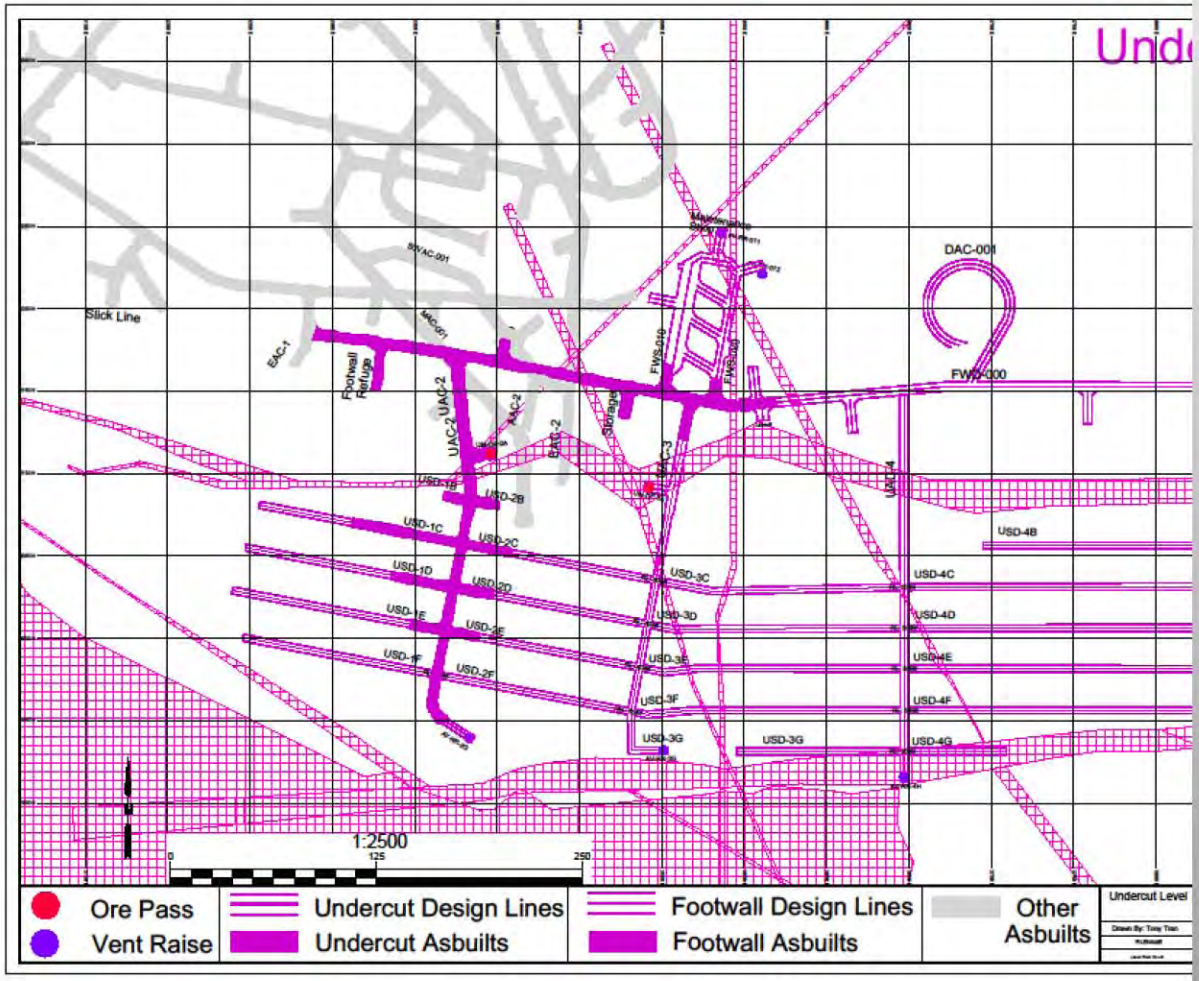
New Afton Underground Progress Through April 2011



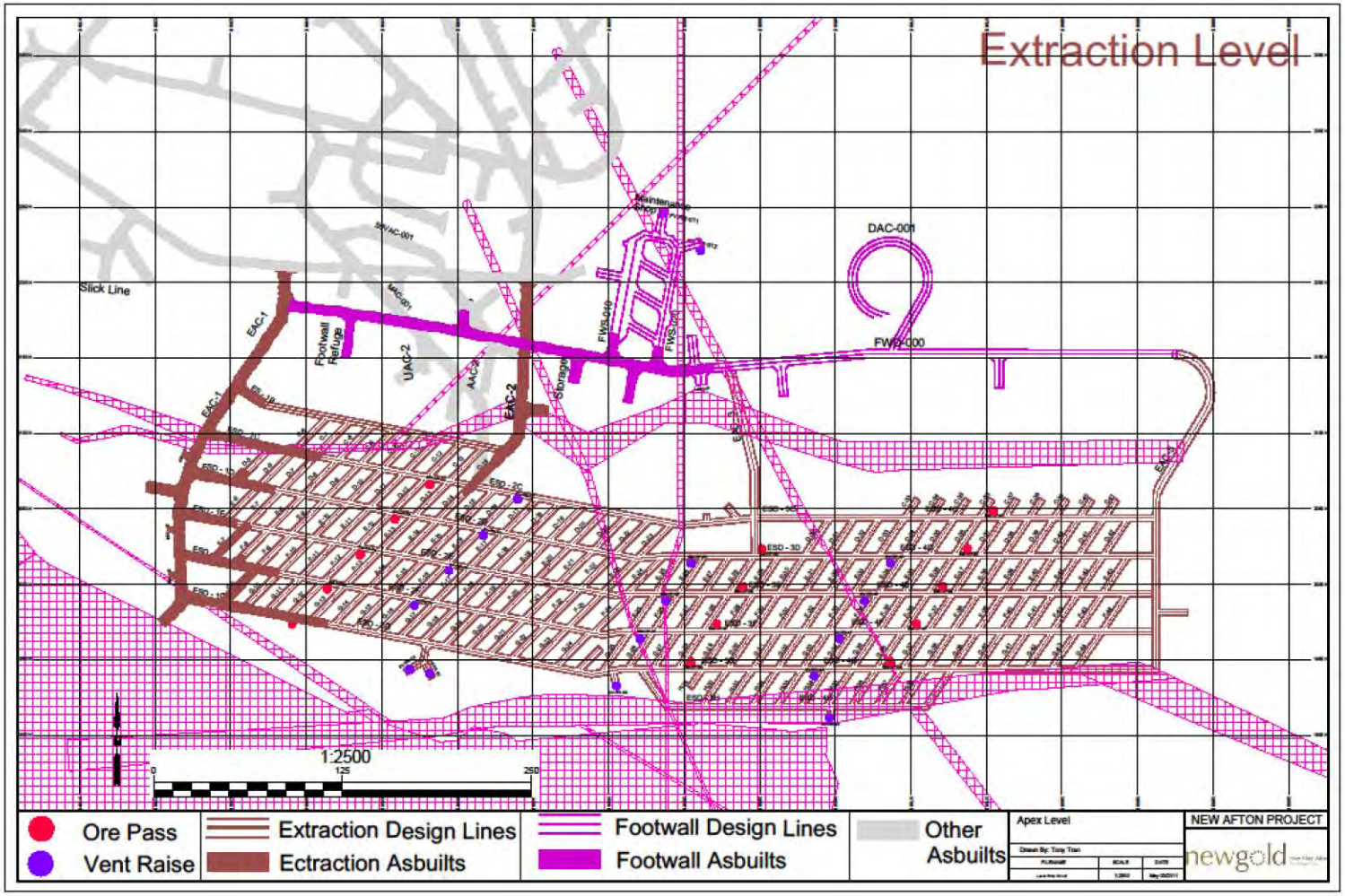
Apex Level Progress Through April 2011



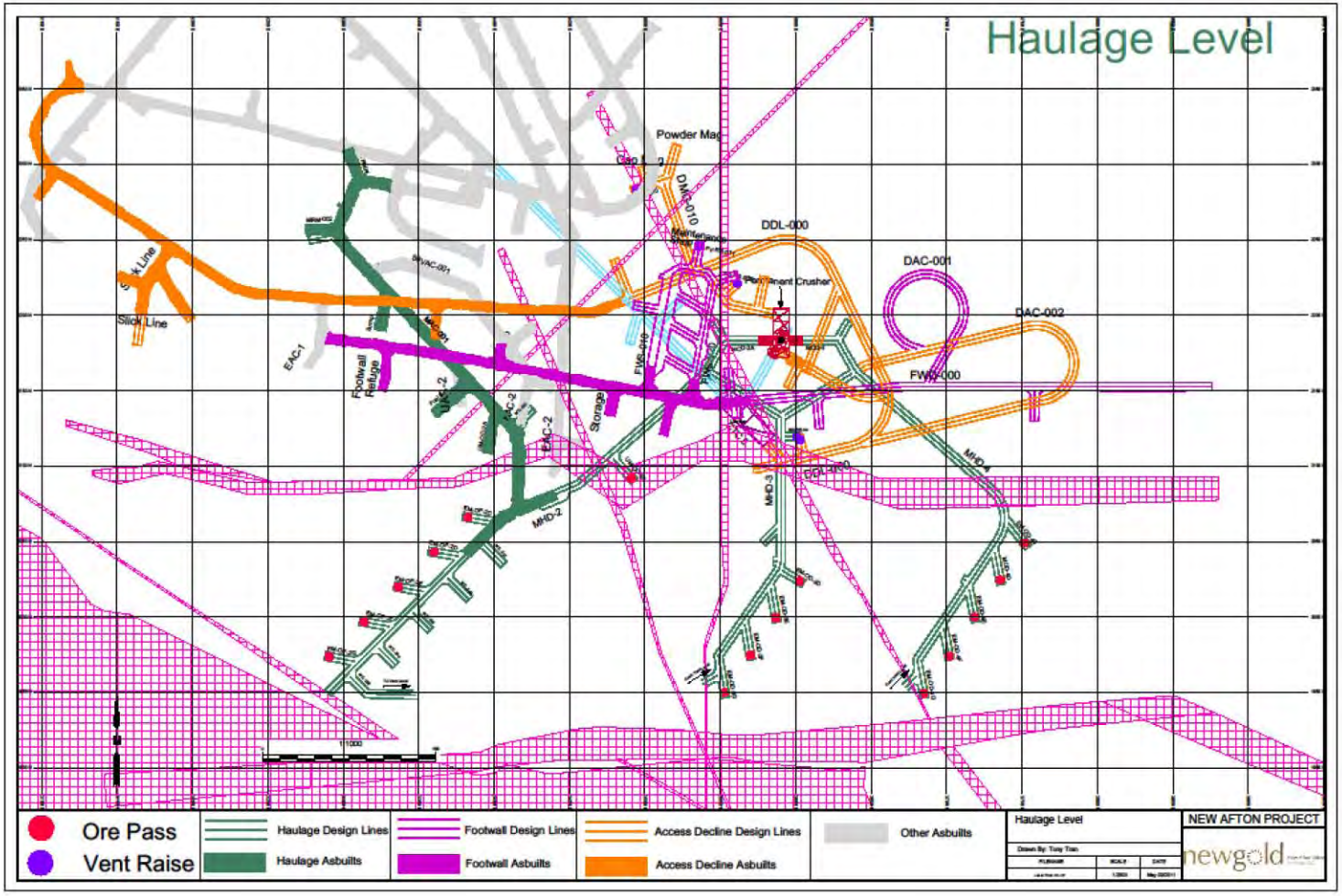
Undercut Level Progress Through April 2011



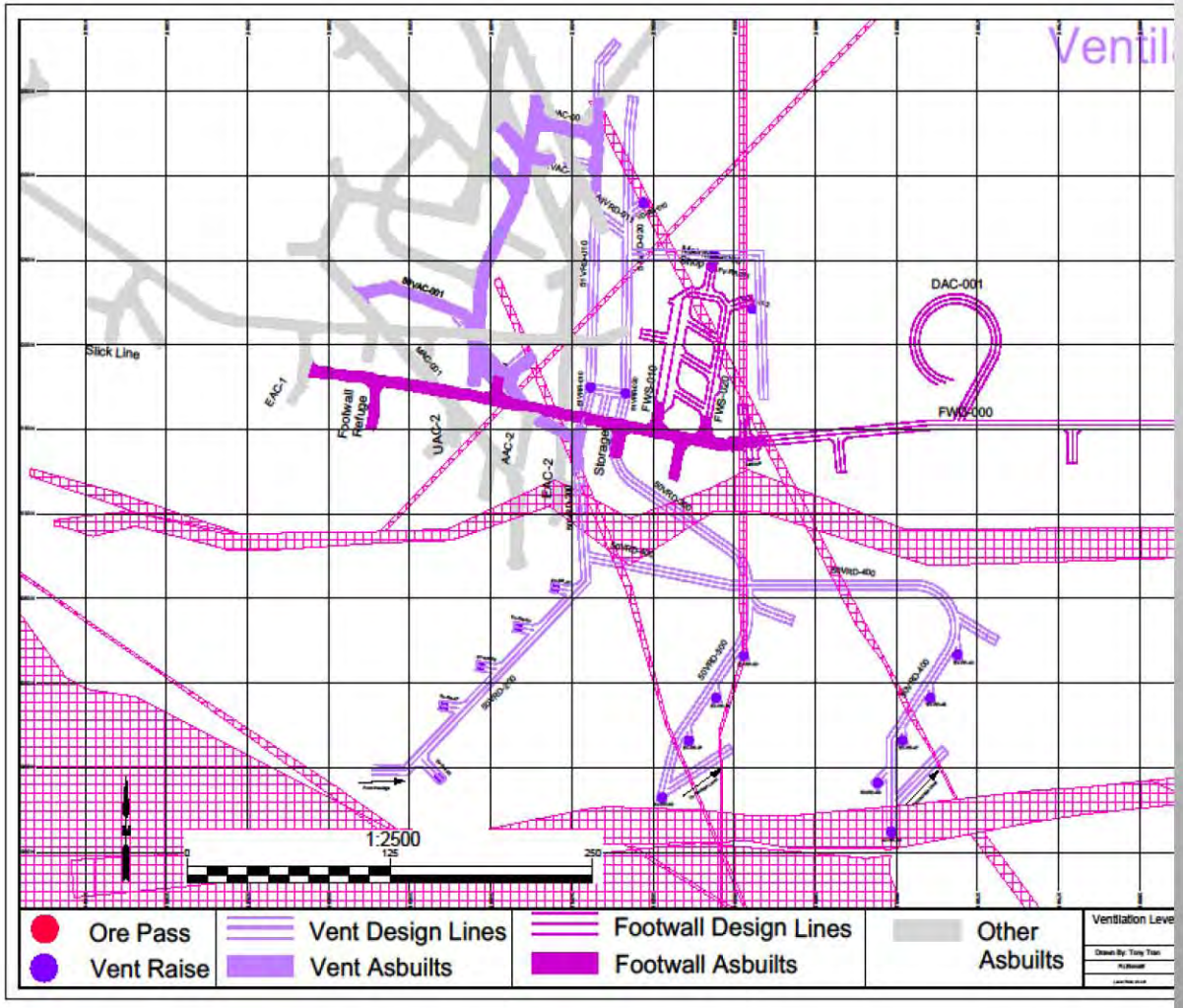
Extraction Level Progress Through April 2011



Haulage Level Progress Through April 2011



Ventilation Level Progress Through April 2011



CONSTRUCTION:

Safety - There were two near miss incidents and one minor property damage incident. The incidents were reviewed with the contractors, underlying and direct causes determined and positive correction actions agreed upon. Weekly Stats; 0 Hot Work permits were issued and logged this period – 63 to date - site manpower Friday – 157 – total safety-hours worked this period – 9254 - total year to date – 222,869 – project to date – 232,123 - Site orientations this period – 25 – to date – 426.

NG Surface - Sterling 15 t crane was in use underground and Sterling, Surface and the RKMS cranes on surface. Lack of crane operators continues to be a concern. Surface equipment continued all week on the Waste Transfer Area. The Pit – to – Surface Ore haul caught up this period. TRU began training operations.

BCH, EMPAC and NG continued with Main Sub commissioning process. 'Power On' Date moved ahead to 03May'11 to accommodate due diligence checking measures decided upon by contractors and management.

Harrison continued underground 15 kV cabling work on ERU 4 and ERU 3 as well as assisting Cutler Hammer in the commissioning of the 15kV switchgear. Lighting and instrumentation cable tray installation took place in CTC 1 / 2. Harrison surface activities brought the completion of the Main Substation to over 98%. The replacement of a 30kVA service transformer was completed. Commissioning by Wismer – Rawlings remained underway at period's end due to the due diligence activities noted above. The VR 6 fan was successfully commissioned. Work on Exhaust Raise Area centered around installing conduits in the E-House slab. The portal 'Load – Break' cabinet was installed.

Plowe – Contractor continued to mobilize materials to site for the o/h line to the Tailings Storage Facility (TSF).

First Nations – 1/ SIB delivered aggregates and supplied haul trucks to Acres for backfilling jobs around the site.
2/ KIB – CSC Electric - Tradesmen continued work on Mill Area temporary power, cable installation for the STP and grounding in the Concentrate Thickener Area. A temporary generator and construction panels were installed in the TSF mobilization area. C & L Holdings continued the Pit-to-Surface ore haul on a seven day per week basis this period.

RKMS – Work continued in the structural / mechanical work in the Reclaim Chamber. Solid progress was made on the Reclaim Stacking Tower. Contractor began mobilizing for its Mill Structural Steel and Mechanical contract.

Acres – 1/ Work began on the base preparation for the VR 5 Raise Bore pad. The Spillway crossing was brought to 92% completion. The earthmoving fleet continued on to the tailings line corridor placing subgrade fills and the filling of the Surface ore storage area. Topsoil removal in the TSF began.

2/ Mill compressor bases and thickener columns were concreted as was the Blower Area slab. Base preparation for the tailings pumps went well.

Cementation – 1/ Return and Training idlers were installed along with lateral bracing of conveyor trays in Leg 1. Leg 3 pipe brackets and sump installation proceeded well. Hanging of Leg 3 conveyor trays continued bringing to total to 156 out of 207. CTC's 3 and 4 base preparation continued with the pouring of lean concrete and the sump in CTC 3. CTC 2/3 saw the mechanical installation of the 20t capacity crane and internal structural steel. Mechanical installation of conveyor drive components was initiated.

Chinook - Scaffolding services carried on for surface and underground work. A major step was the erection of the Rougher Flotation Area scaffold in support of the Flotation Tanks installation work to begin shortly.

ERU 3



CTC 2/3



CTC 2/3



Cell columns and excavating Tailings pump FDN



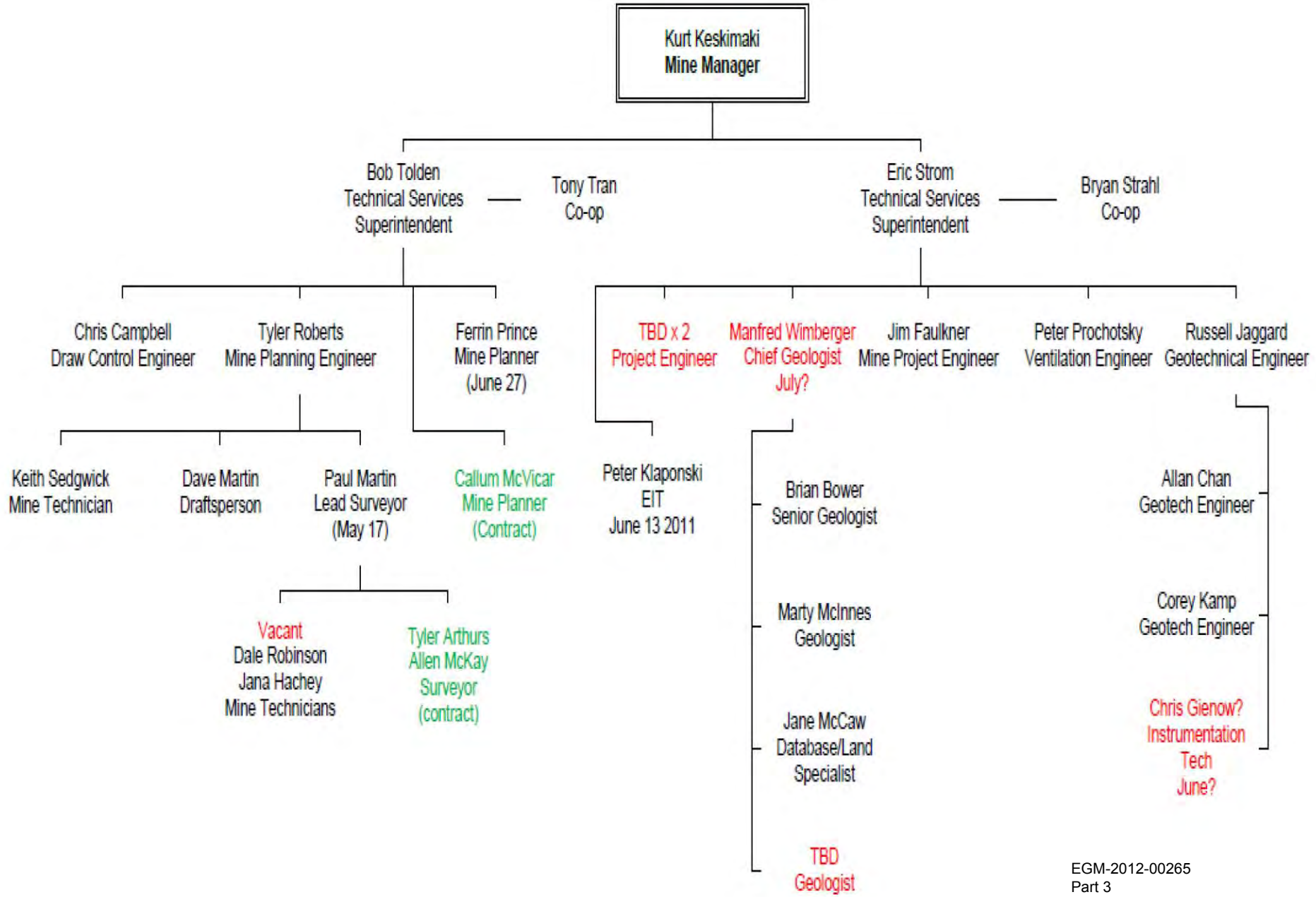
Spill way



Tailing Impoundment Drainage

- We will be commissioning a third party peer review of the raw data looking at our hydrogeological model. The review will also comment on any deficiencies and gaps in our knowledge to date.”

Technical Services



Operational Activities of special interest

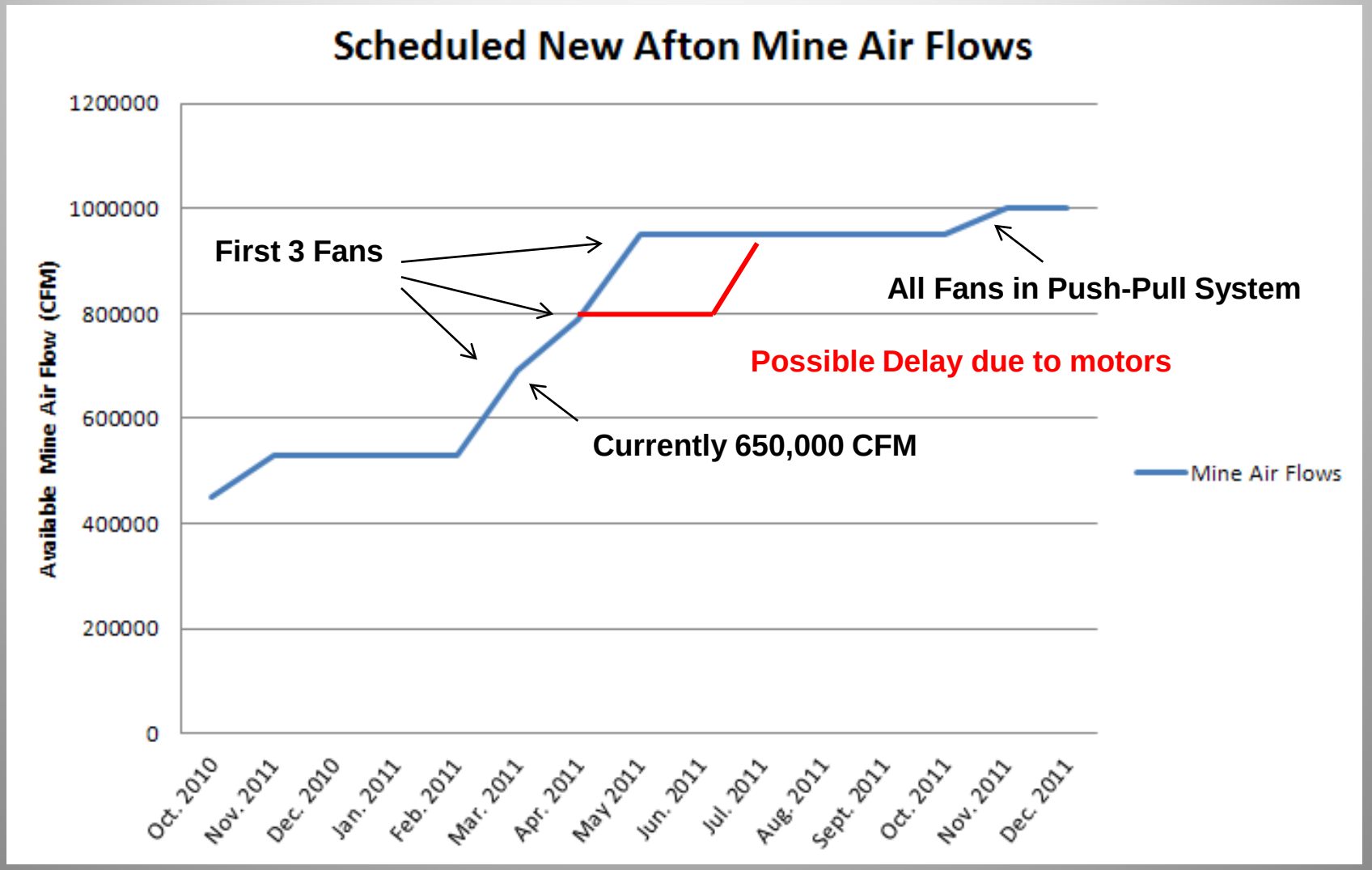
PERMANENT FAN INSTALLATION

VR6 Permanent Fan

- Operating at 780 rpm, 90% motor load
- Providing 400,000 CFM
- Mine Total: 650,000 CFM



PERMANENT FAN INSTALLATION



PERMANENT FAN INSTALLATION

SCHEDULE

- VR6 fan operational April 28, 2011
- VR3 fan scheduled start up May 10, 2011
- VR4 fan installed third – at a later date
    - Delayed due to motor availability

Hauling of material out of the pit

- Hauling of ore material out of the pit has gone well with no incidents
- Seasonal changes to the pit road have not adversely affected hauling
- To date 42,000 tonnes transported to surface stockpile



Seasonal Challenges, spring run off and melt



Ore transition in the pit

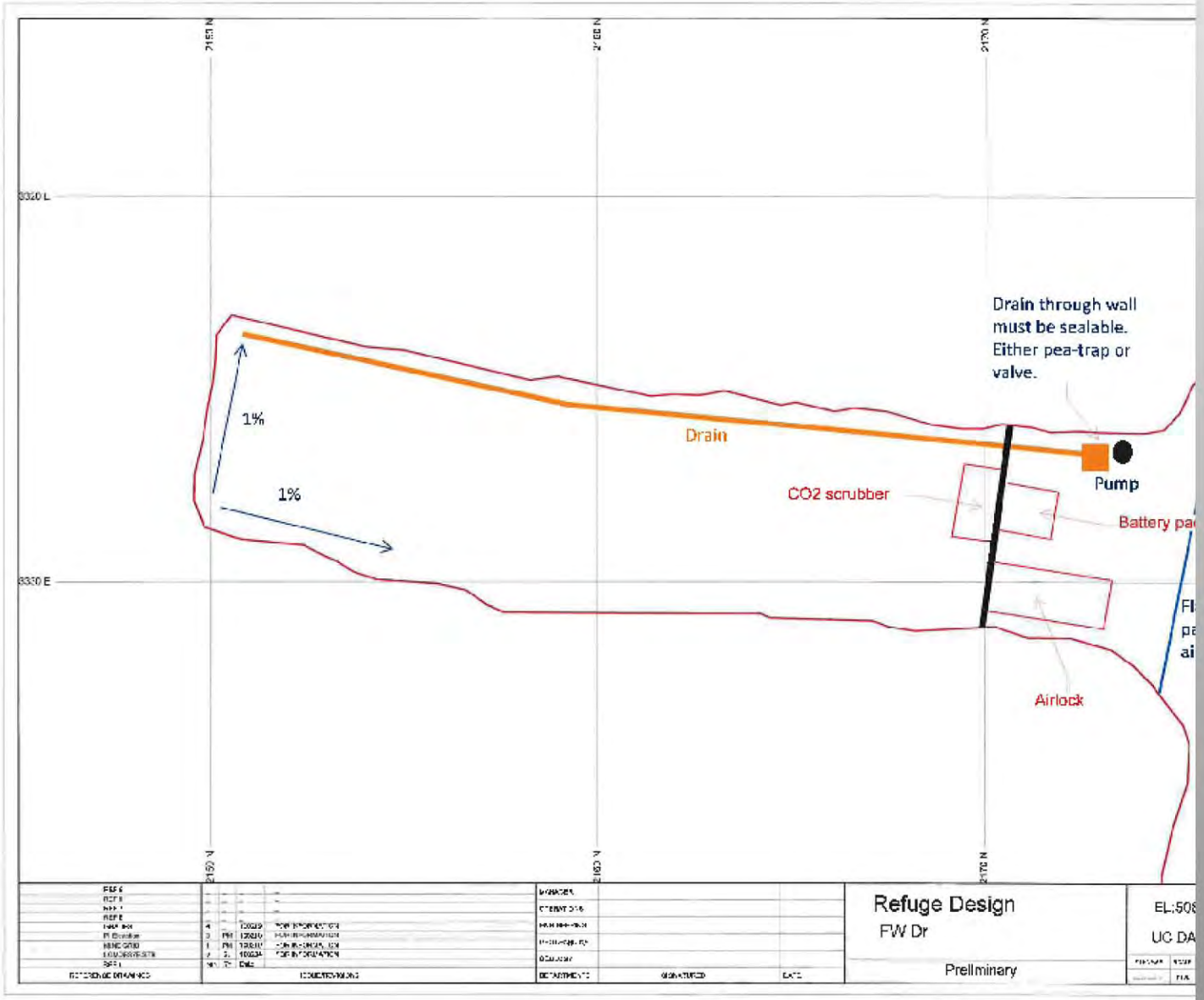


Projects currently Underway

P117 – Underground Refuge Chamber

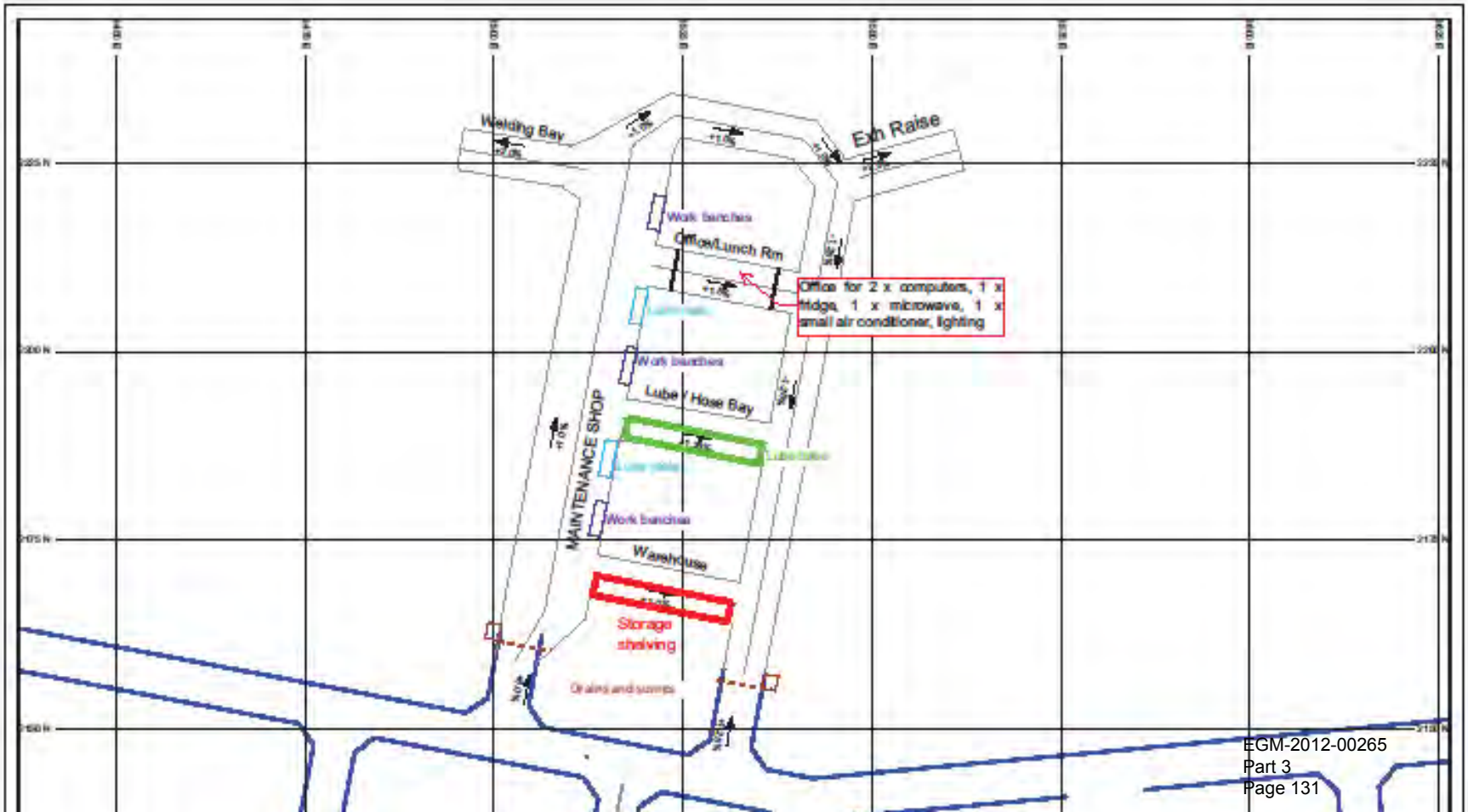
- Excavation Complete
- Concrete floor poured
- Airlock, CO_2 Scrubber and battery pack in construction – Due on site early May
- Communications, air and water supply direct from surface designed
- To be fitted out as permanent cribroom
- Due for completion in mid June

P117 – Underground Refuge Chamber



P115 – Underground Workshop

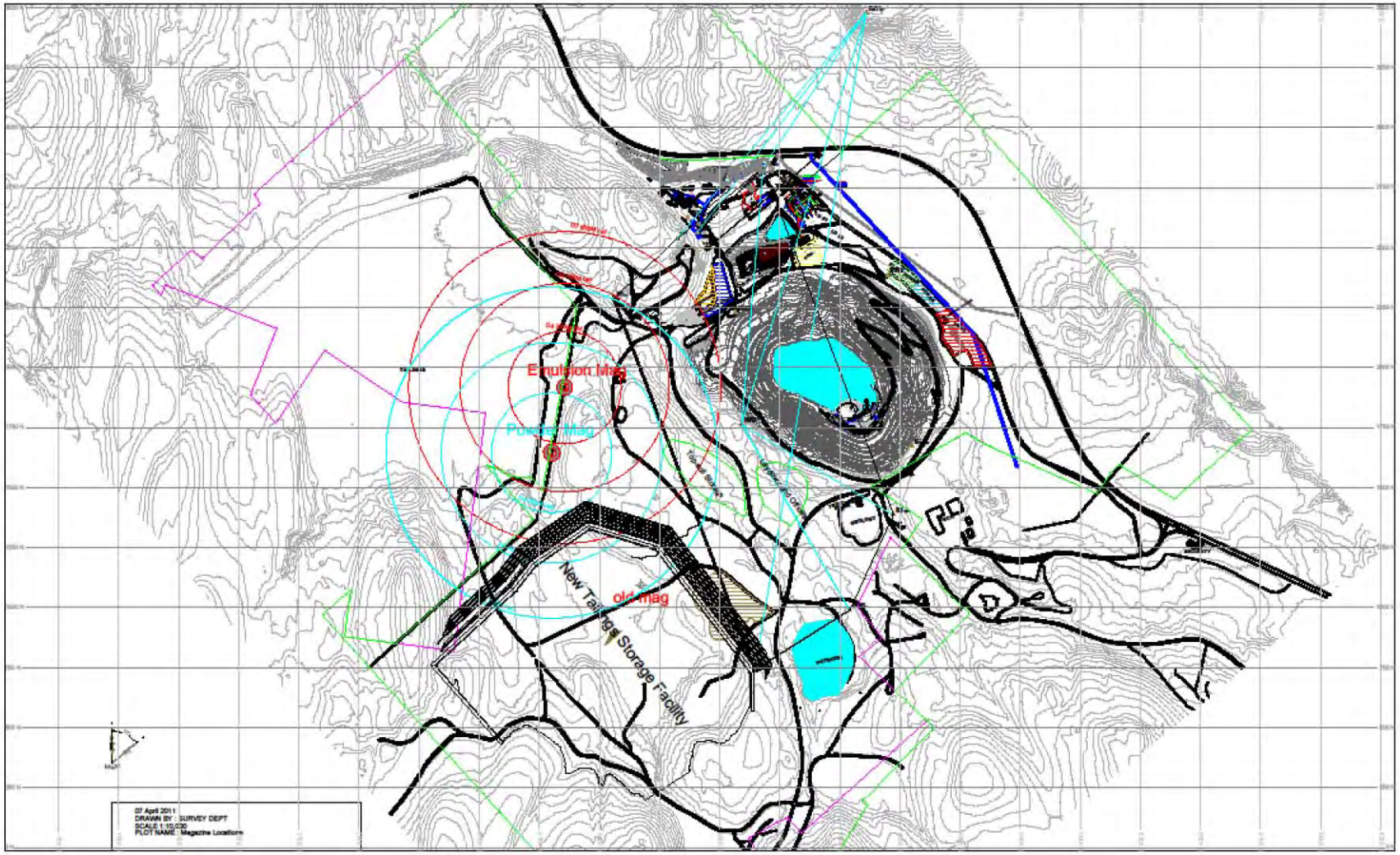
- Excavation Underway



P145 – Surface magazines

- Current magazine to be relocated as it is in the tailings dam footprint
- Additional magazine required for Orica's "Satellite site" – 25,000kg of emulsion
- Locations for New Gold's Powder Magazine and Orica's Emulsion Magazine selected
- Location approval in Progress
- All quantity/distances (Q/D) satisfied

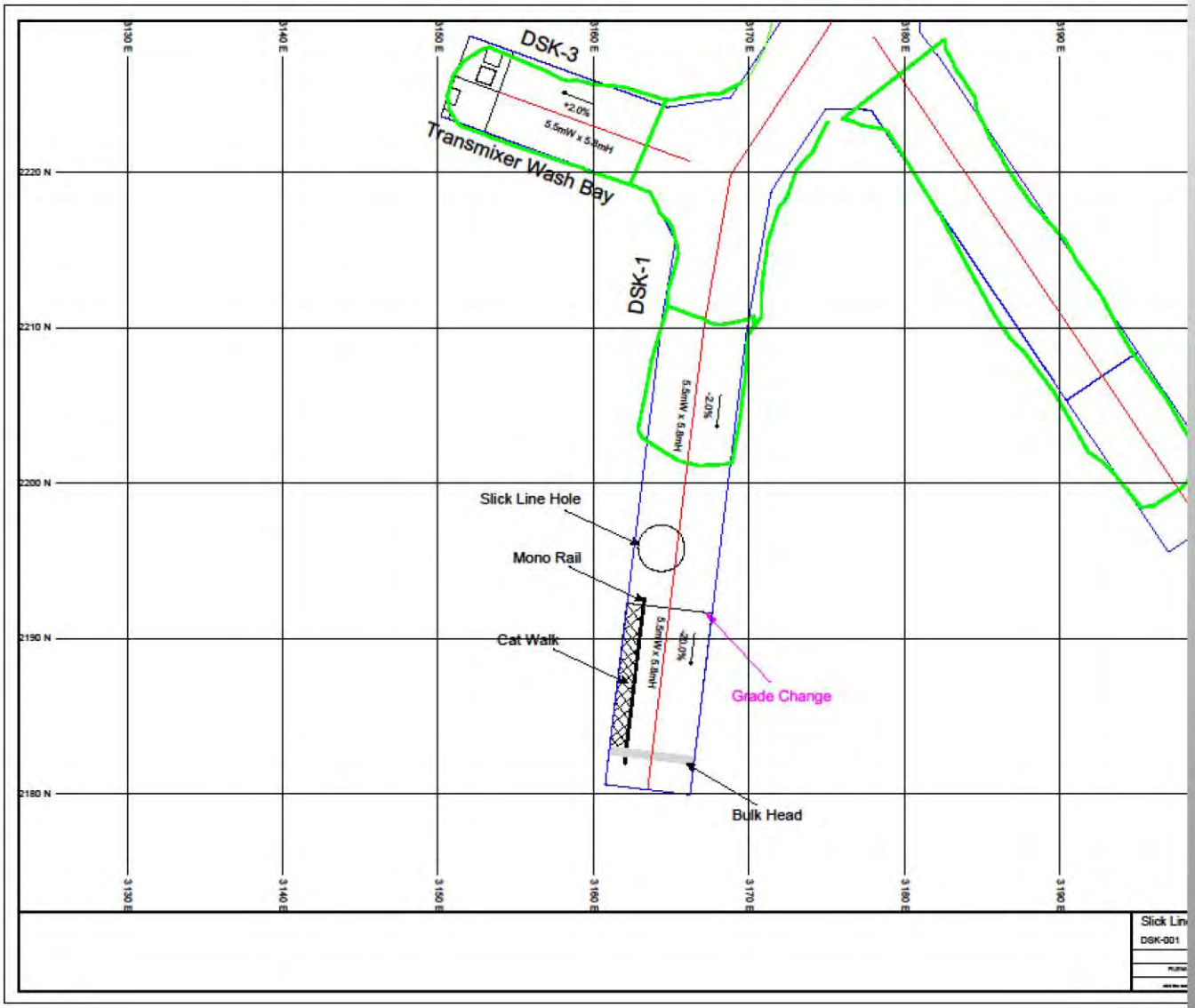
P145 – Surface magazine



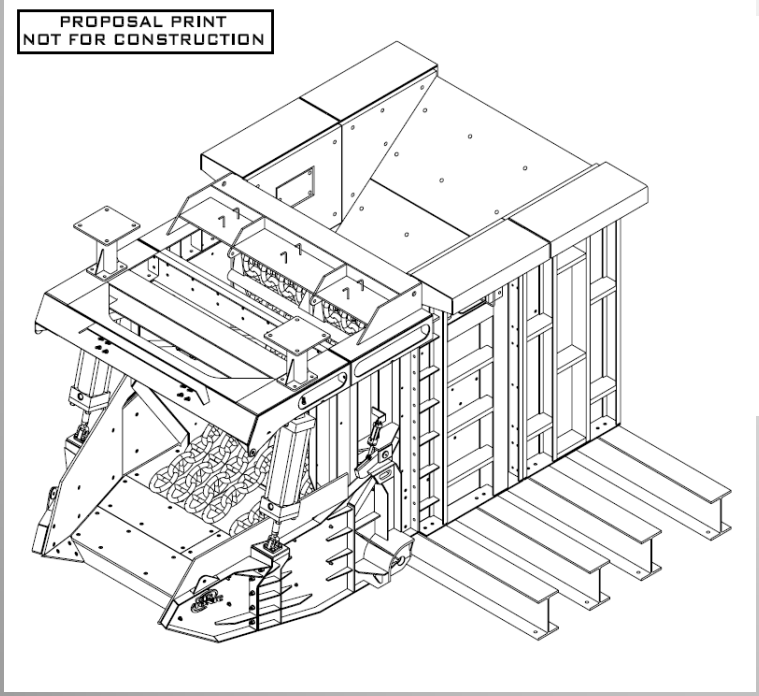
P116 – Surface to underground slickline

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P116 – Surface to underground slickline



P136 – Truck chutes in haulage level



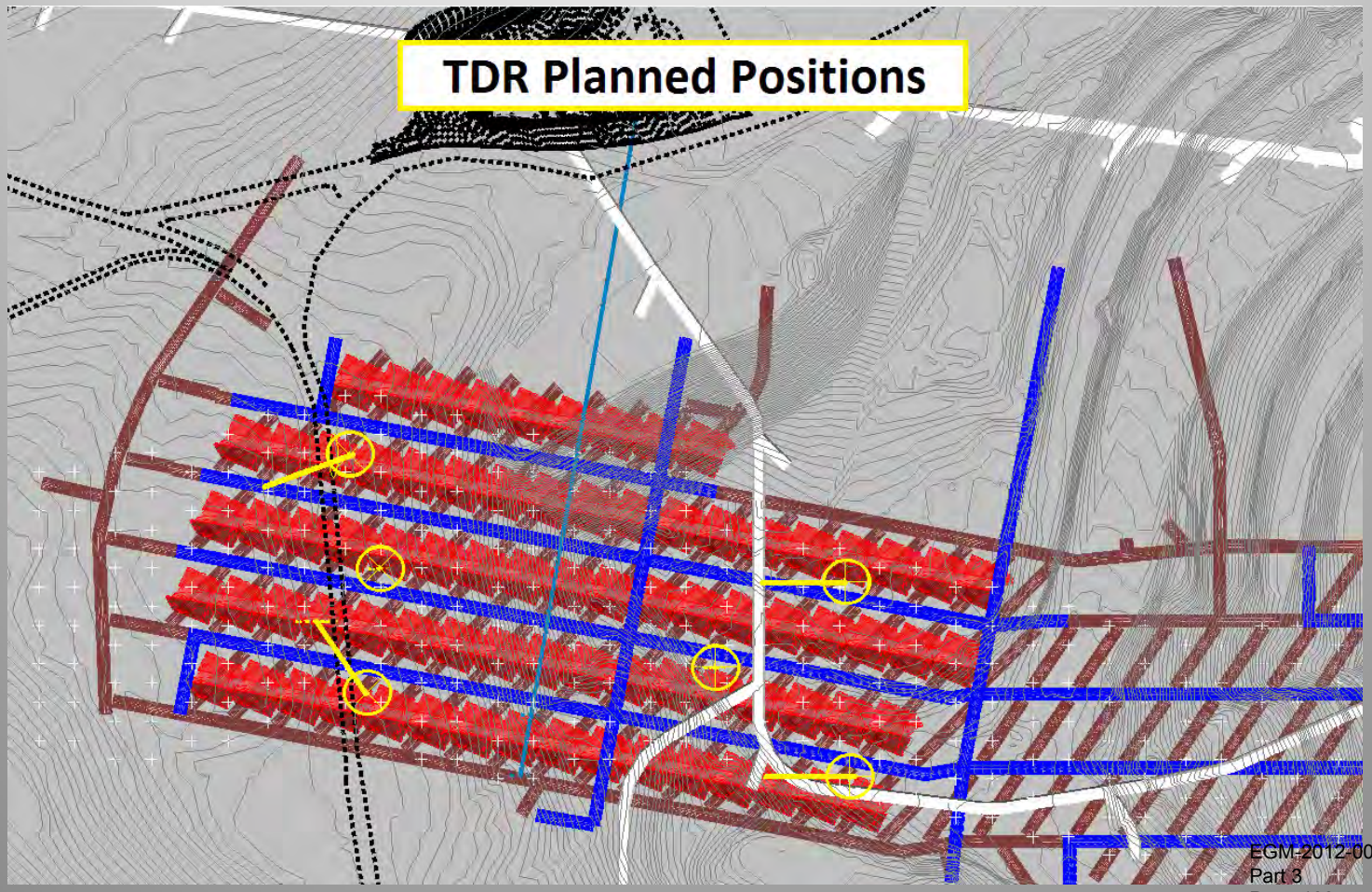
- A study is being conducted on the economic feasibility of truck chutes for the haulage level
- Designs submitted by potential supplier
- Pneumatic operation
- Equipment simulations being run and evaluated
- No specific reference in BCHSRC 2008

P106 – Underground dewatering system

- A study is being conducted into the feasibility of a method to thicken fines from sumps to a manageable consistency
- Objective is to introduce them to the ore handling system (crusher and conveyors)
- System and suppliers are being identified by Engineering consultant

P142 – Convergence Monitoring

- TDR : Time Domain Reflectrometry



P110 – Open Pit Dewatering and mud compaction

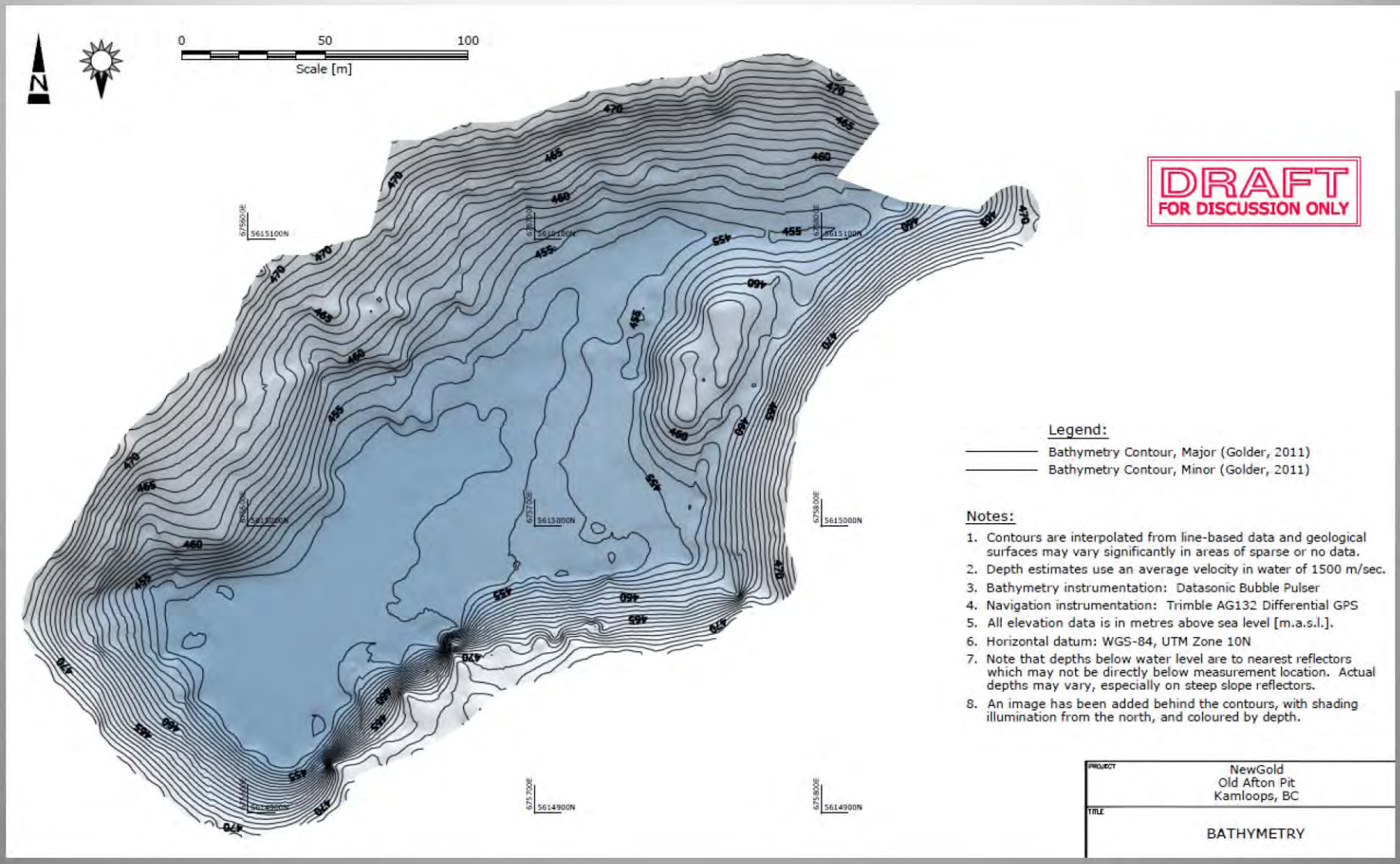
- Bathymetry survey



P110 – Open Pit Dewatering and mud compaction

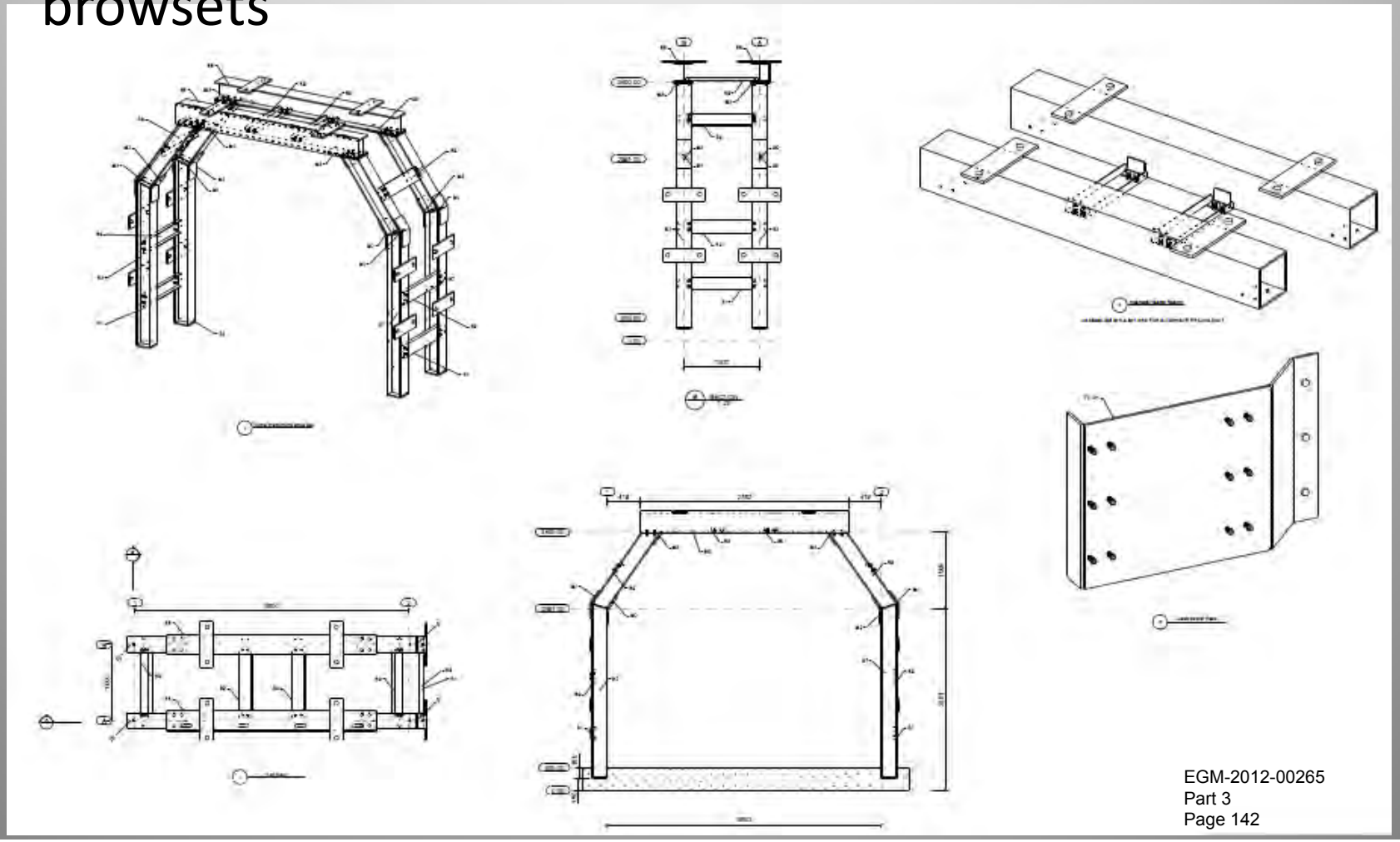
- Open Pit Bathymetry geophysical survey work initiated
- Depth of water 25m - 27m (maximum depth)
- Depth of silts 10m - 15m

Pit Bathymetry initial results (draft)

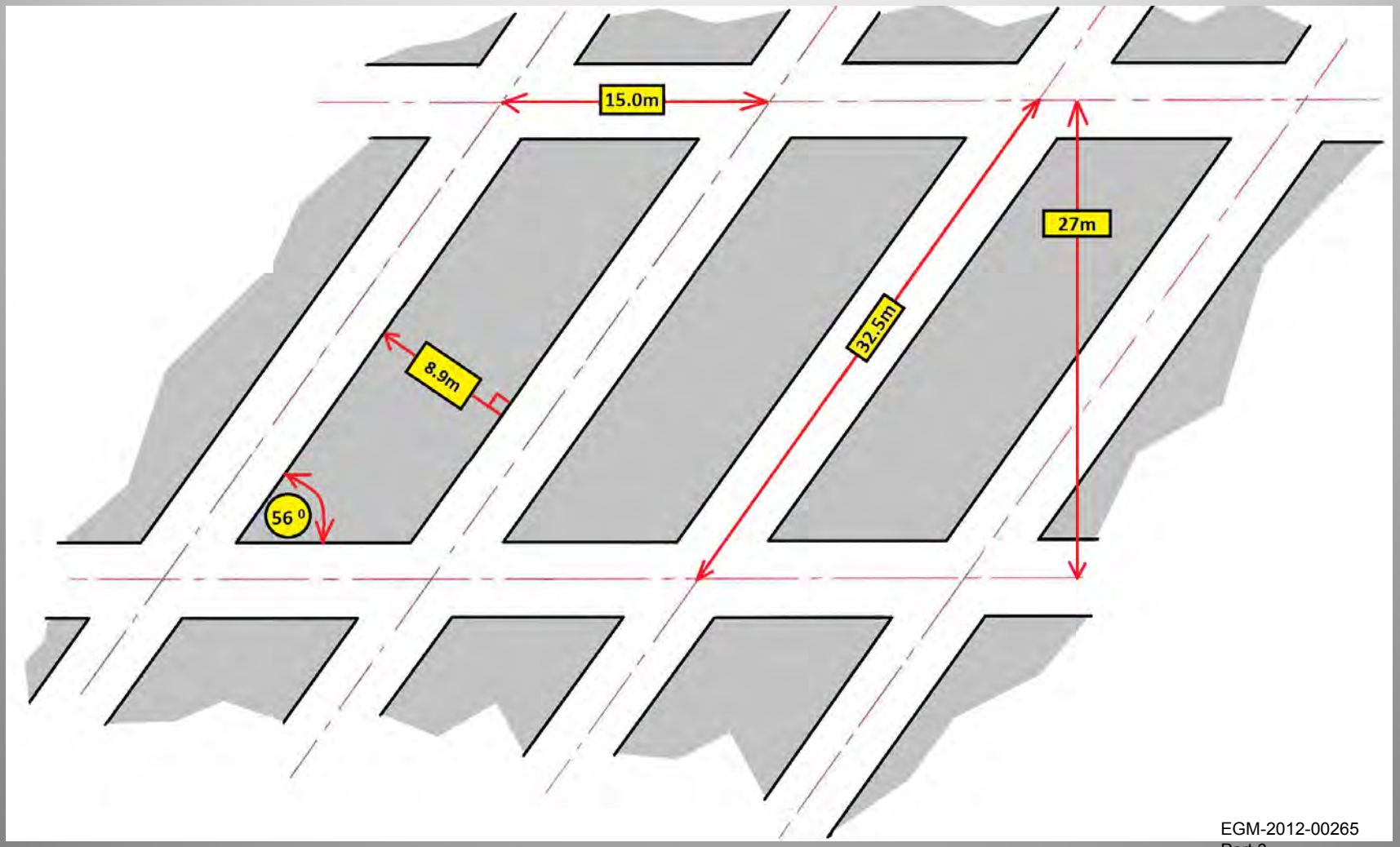


P113 – Drawpoint design - Sets

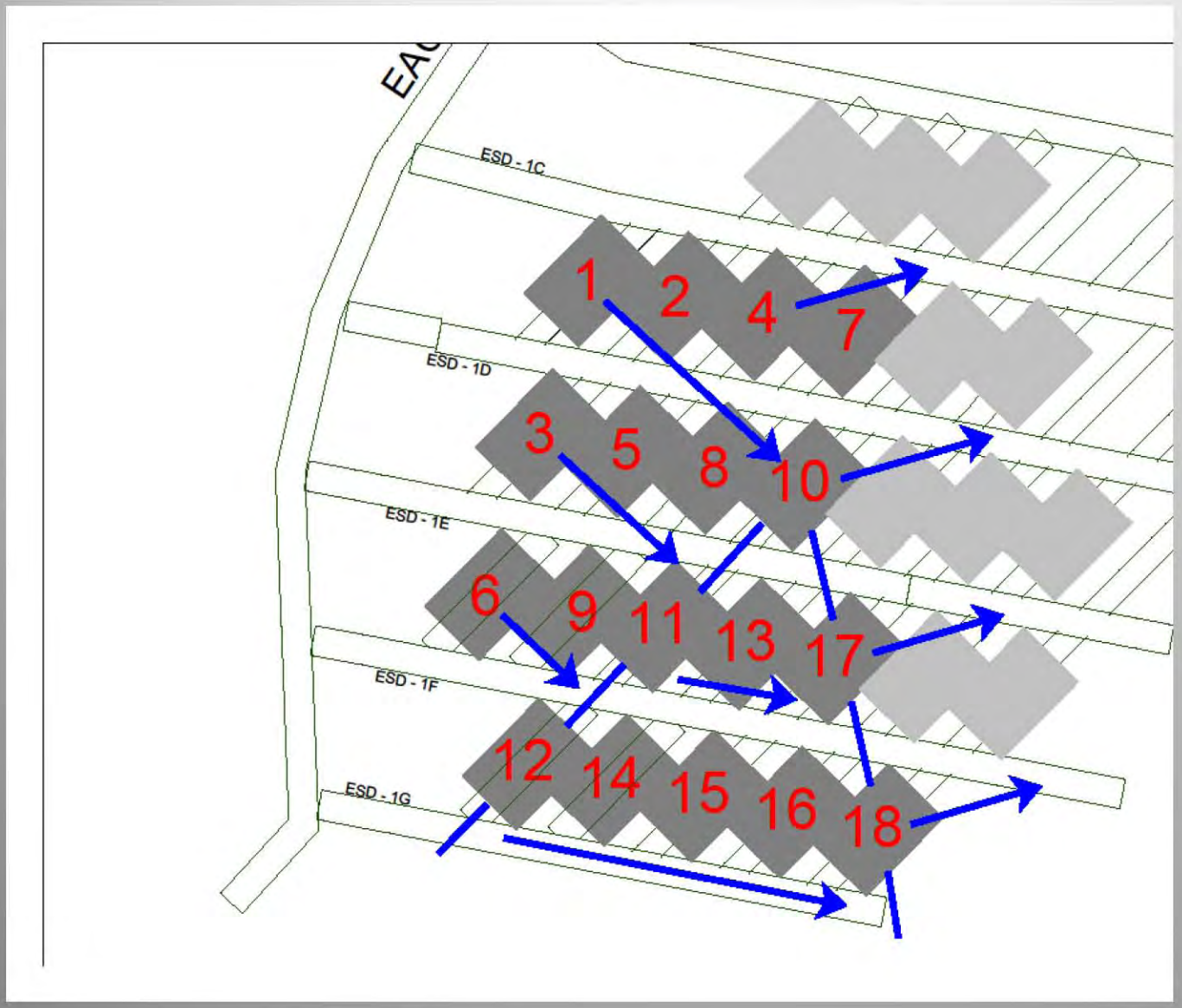
- Drawbell brow support – Set design for “Stiff browsets”



- Drawpoint sizing and pillar design



Initial Draw-Bell Location Change



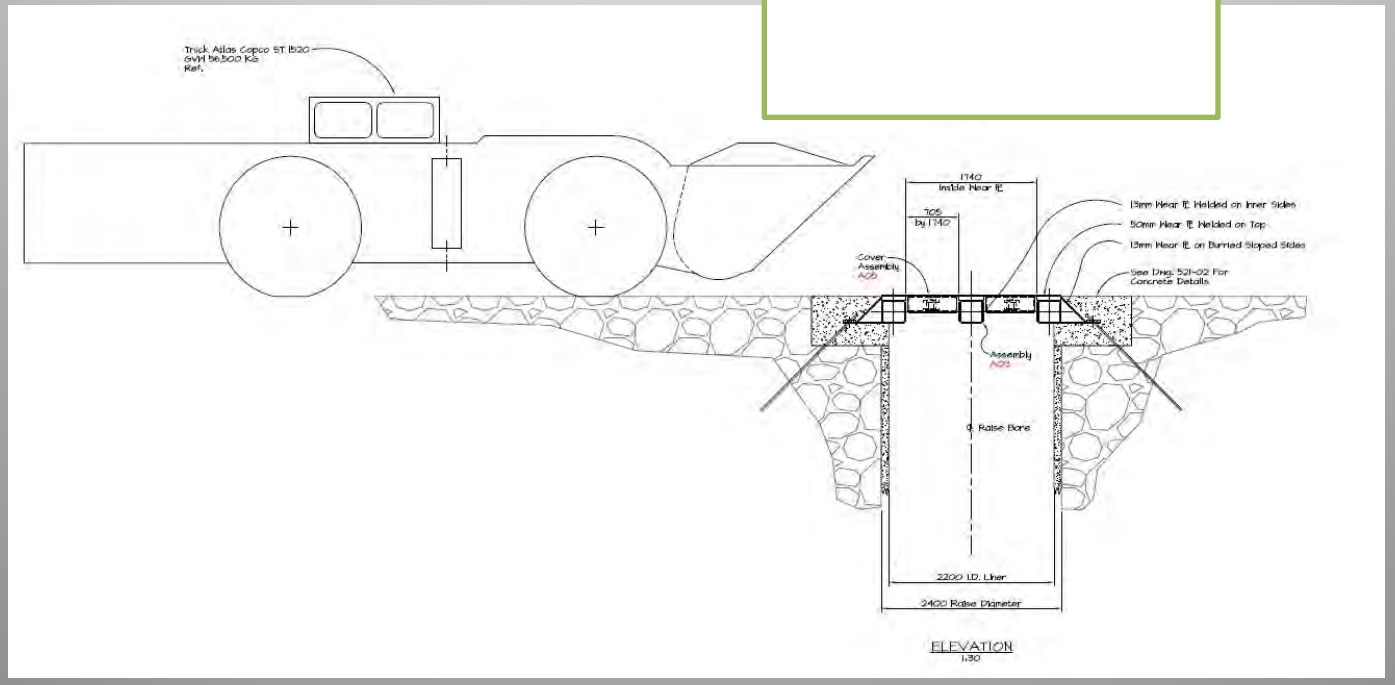
P114 - EXTRACTION LEVEL GRIZZLIES

Personnel Access Strategy – No access to open hole

- Scoop operator never has to leave cab to uncover or cover open hole
- Scoop operator turns on strobe and closes gate while mucking (no access to strike drive)
- If other activities need to continue while mucking (ex.secondary breaking)
    - Scoop operator must be notified prior to passing through gate
    - Personnel must be educated on the dangers of an open hole
- Once mucking complete, grizzly must be covered immediately for ventilation and safety

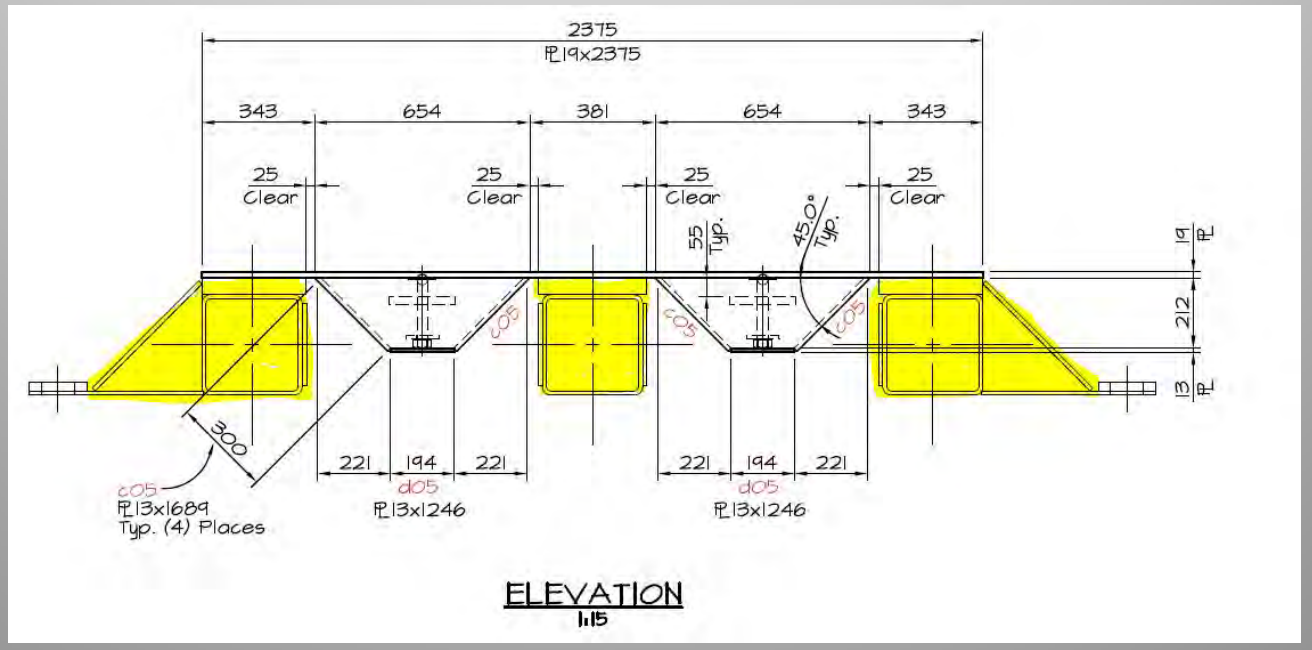
P114 - EXTRACTION LEVEL GRIZZLIES

- 0.7m by 1.7m openings (2.5ft by 6ft)
- All exposed surfaces wear plated for durability
- Designed to withstand a fully loaded 9yd scoop driving overtop



P114 - EXTRACTION LEVEL GRIZZLIES

- Each grizzly has it's own vent cover
- Lifted off and placed by scoop operator without leaving cab
- Designed to withstand a fully loaded 9yd scoop driving overtop



ELEVATION
1:15

New Equipment

Equipment Received to Apr 30

- 2 – Sandvik DS310 Rockbolters, 1 diesel and electric
- 2 – Sandvik DD420 Jumbos
- 1 – Normet Utimec 1500 Transmixer
- 1 – Sandvik DL420 Longhole C-Frame
- 1 – CAT TH407 Zoom Boom
- 1 – CAT R1600G Scoop
- Orica CEBS computerized central blasting system

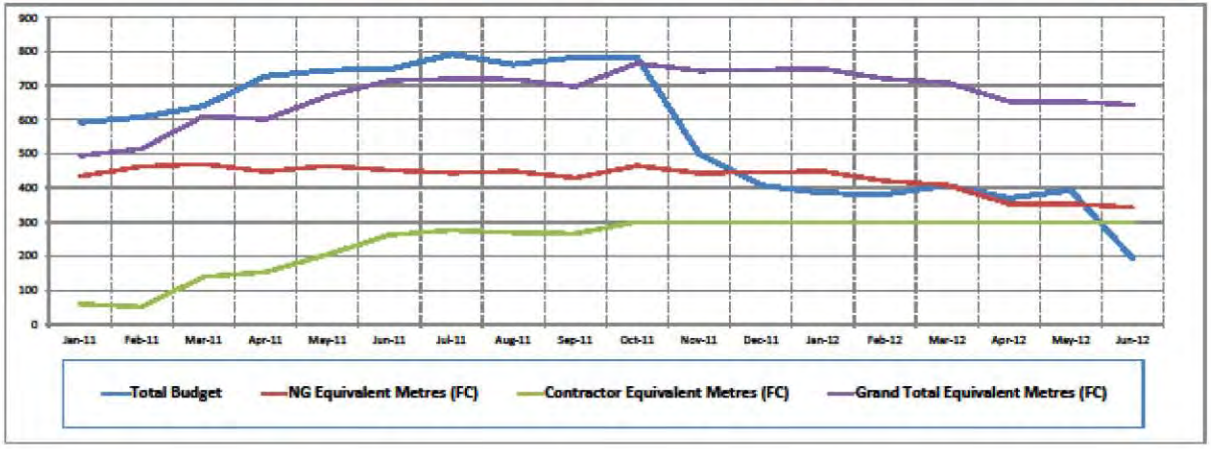
Equipment to come 2011

- 1 - Scoop Mounted rockbreaker
- 4 – Mantrip Tractors
- 1 – Normet 6050 Spraymec (7110 Spraymec to be traded in)
- 1 – Schwing concrete pump
- 1 – Sandvik DS310 Rockbolter
- 1 – Sandvik DL420 Cablebolt Longholer
- 1 – Sandvik DL420 Longhole C-Frame
- 5 – CAT R1600G Scoops
- 1 – MacLean Blockholer
- 1 – Dedicated 20 Man Carrier
- 1 – CAT Compactor
- 1 – Dust Suppression Cassette
- 2 – 8’ wide Multimec Decks
- 1 – Orica/Minecat Emulsion Loading system complete with emulsion totes
- 1 – Replacement ready mix truck
- 1 – Replacement Toyota
- Enclosed cabs for the AC1520 Scoops
- Replace the bucket elevator at the batch plant with a conveyor

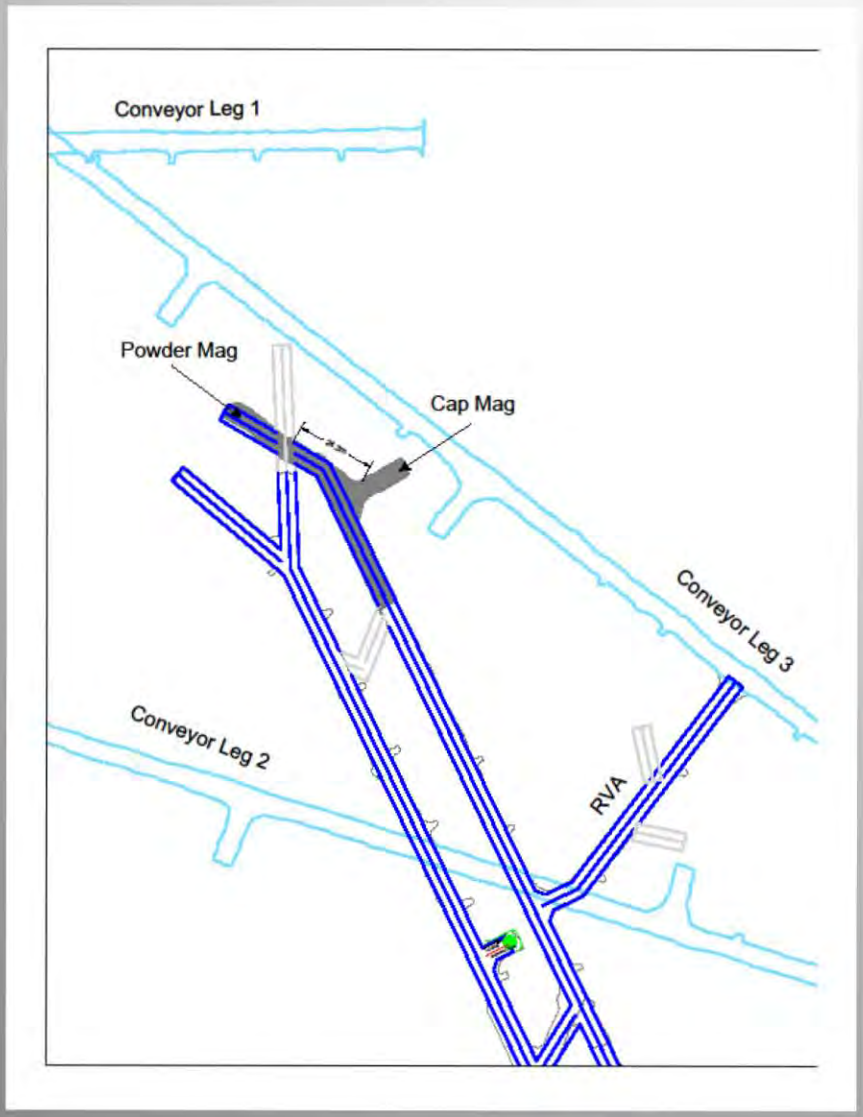
Forecast Development

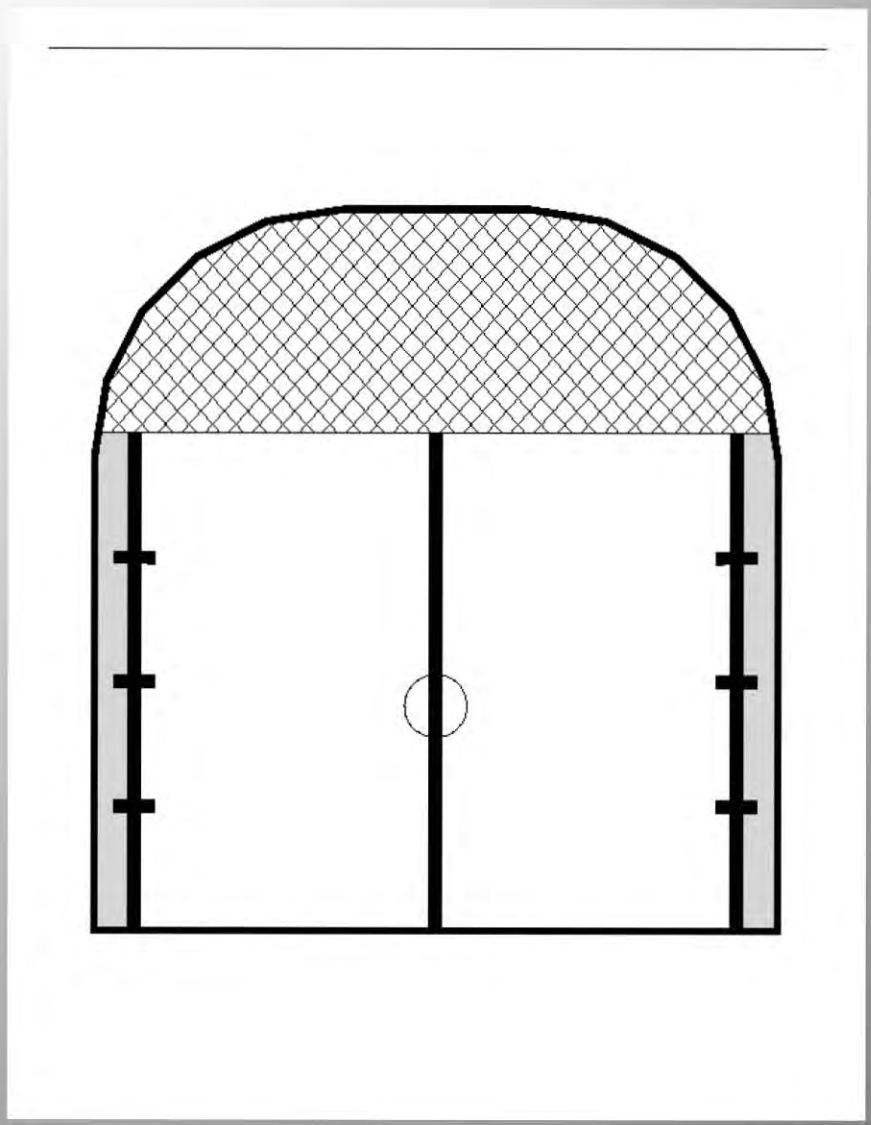
RE-Forecast April 19, 2011

	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Year	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	6 Month	18 Mos
Total Large LGm	447	400	303	360	371	363	391	391	407	364	71	70	3,938	76	71	76	74	76	64	438	4,376
Total Smal SMm	76	207	337	330	336	328	334	332	329	332	303	306	3,549	309	309	331	296	317	130	1,692	0
Total Bulk Budget Eqm	68	0	0	37	38	57	66	38	47	86	126	33	596	0	0	0	0	0	0	0	707
Total Budget	591	607	640	727	745	748	792	761	783	782	500	408	8,082	385	381	408	370	393	195	2,130	10,212
Metres Per Day	19	22	21	24	24	25	26	25	26	25	17	14	22	12	13	13.1	12.3	12.7	6	12	19
NewGold Large	309	222	225	130	133	97	79	84	70	93	96	101	1,639	97	95	83	0	0	0	275	1,914
NewGold Small	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	5,822
NewGold Bulk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NG Equivalent Metres (FC)	434	463	470	448	464	452	444	449	430	465	444	446	5,408	449	420	409	353	353	343	2,327	7,735
Metres Per Day	14	17	15	15	15	15	14	14	14	15	15	15	15	14	14	13.2	11.8	11.4	11.4	13	14
										25	12										
Contractor Large	0	29	70	118	164	223	237	269	227	224	226	281	2,068	249	232	251	276	300	300	1,608	3,677
Contractor Small	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contractor Bulk	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Contractor Equivalent Metres (FC)	60	52	140	153	205	262	276	269	266	300	300	300	2,584	300	300	300	300	300	300	1,800	4,384
Metres Per Day	2	2	5	5	7	9	9	9	9	10	10	10	7	10	10	10	10	10	10	10	8
Total Large-Act/Forecast	309	251	295	248	297	320	316	353	297	317	322	382	3,707	346	327	334	276	300	300	1,883	5,590
Total Small-Act/Forecast	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	0
Total-Bulk-Act/Forecast	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Grand Total Equivalent Metres (FC)	494	515	610	601	669	714	720	718	696	765	743	746	7,992	749	720	709	653	653	643	4,127	12,119
Metres Per Day	16	18	20	20	22	24	23	23	23	25	25	25	22	24	25	23	22	21	21	23	22
Forecast (-) Budget													-90							1,997	1,907



Temporary Underground Mag Move







Ministry of Mines Update

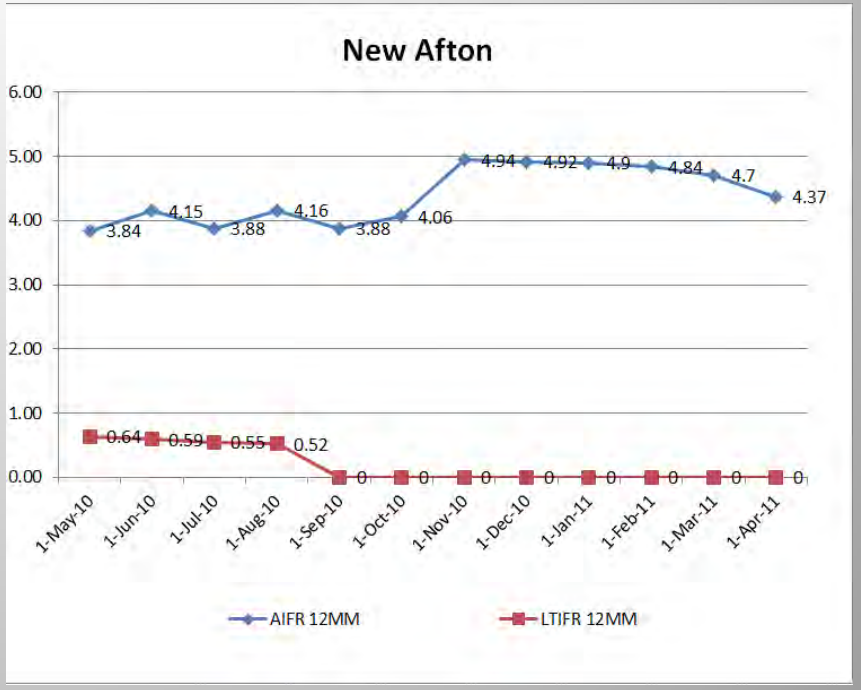
May 4, 2011

Manpower & Hours

- 279+ Employees: 122 mining, 34 mechanics, 99 office & support= 167,075 hours YTD 2011
- 223+ Contractors: 43 Acres, 43 Cementation, 29 Thyssen, 71 Construction Contractors, 37 Independent Contractors = 170,955 hours YTD 2011
- NG - 7 days on/7 days off rotation – 11 hour shifts
- Contractors – 28/14, 20/10, and regular weekly hours
- Third miner trainer group commenced this month.
- Recruiting continues in Mine Ops, Tech Services, Maint, and Mill Operations

YTD Safety Statistics

	Apr 2011	YTD	YTD 2010
Lost Time	0	0	0
Disabling Injury	0	4	2
Medical Treatment	0	2	1
First Aid	6	26	7
Hazards	6	16	0
5pt Card Hazards Reported		35	0
Near Miss	9	34	8
Property Damage	11	47	16
Process Loss	3	7	N/A
LTIFR	0	0	0
AIFR	0	3.55	4.68



2009		2010		12MMA	
AIFR	LTIFR	AIFR	LTIFR	AIFR	LTIFR
3.17	1.27	4.92	0.00	4.37	0.00

Mine Rescue – Emergency Response

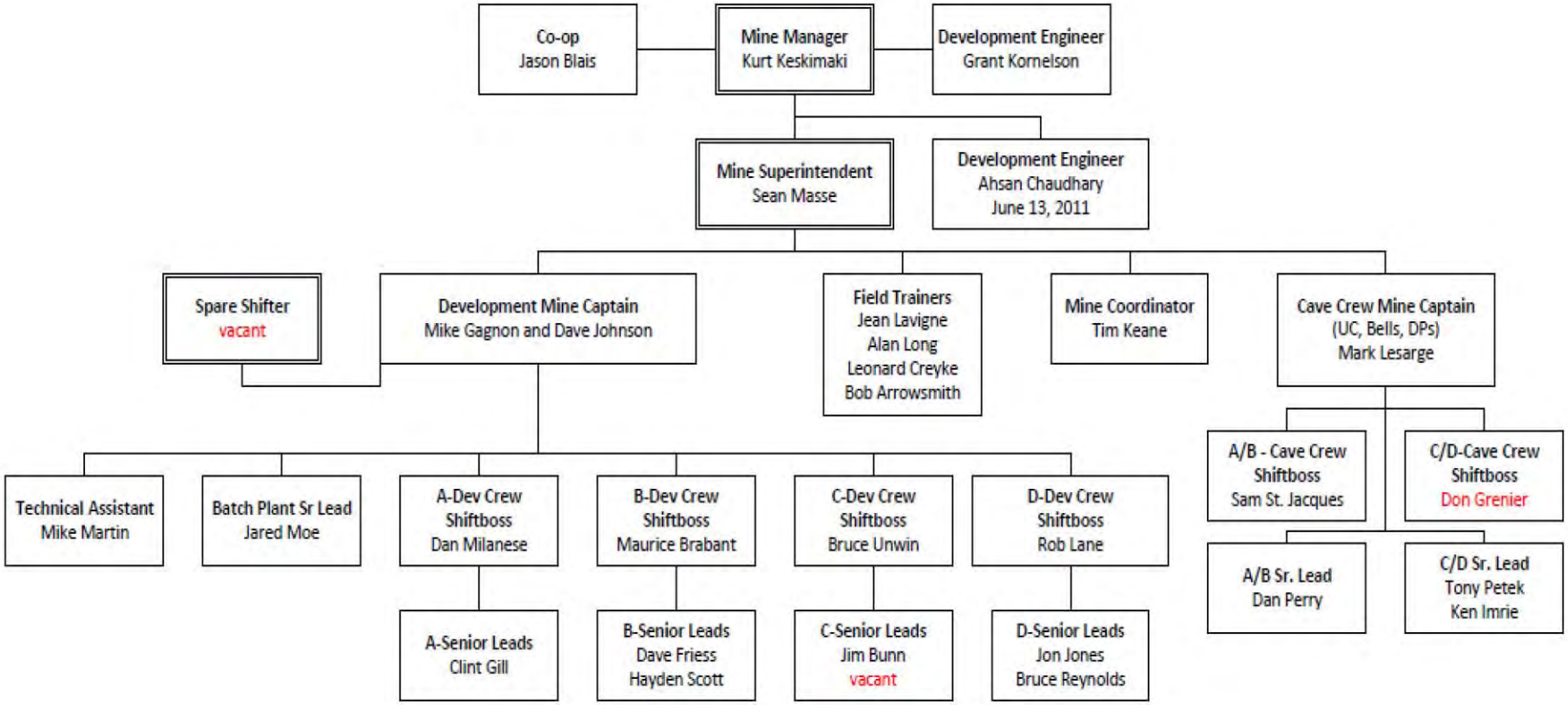
- Hired a new Fire & Mine Rescue Chief (Mike Owens)
- Currently 28 active MR members
- Primary First Aid response remains with SAVI (WPA)
- 50% of workforce has SJA first aid certification
- In process of procuring a Fire Engine & equipment
- Water truck used as surface fire response vehicle
- 4 – 20 person portable refuge stations, 1 - 10 person
- Permanent refuge location (60 person) nearing completion
- Training for BC Mine Rescue competition in Revelstoke
- Mine rescue course to increase active numbers

Achievements & Opportunities - YTD

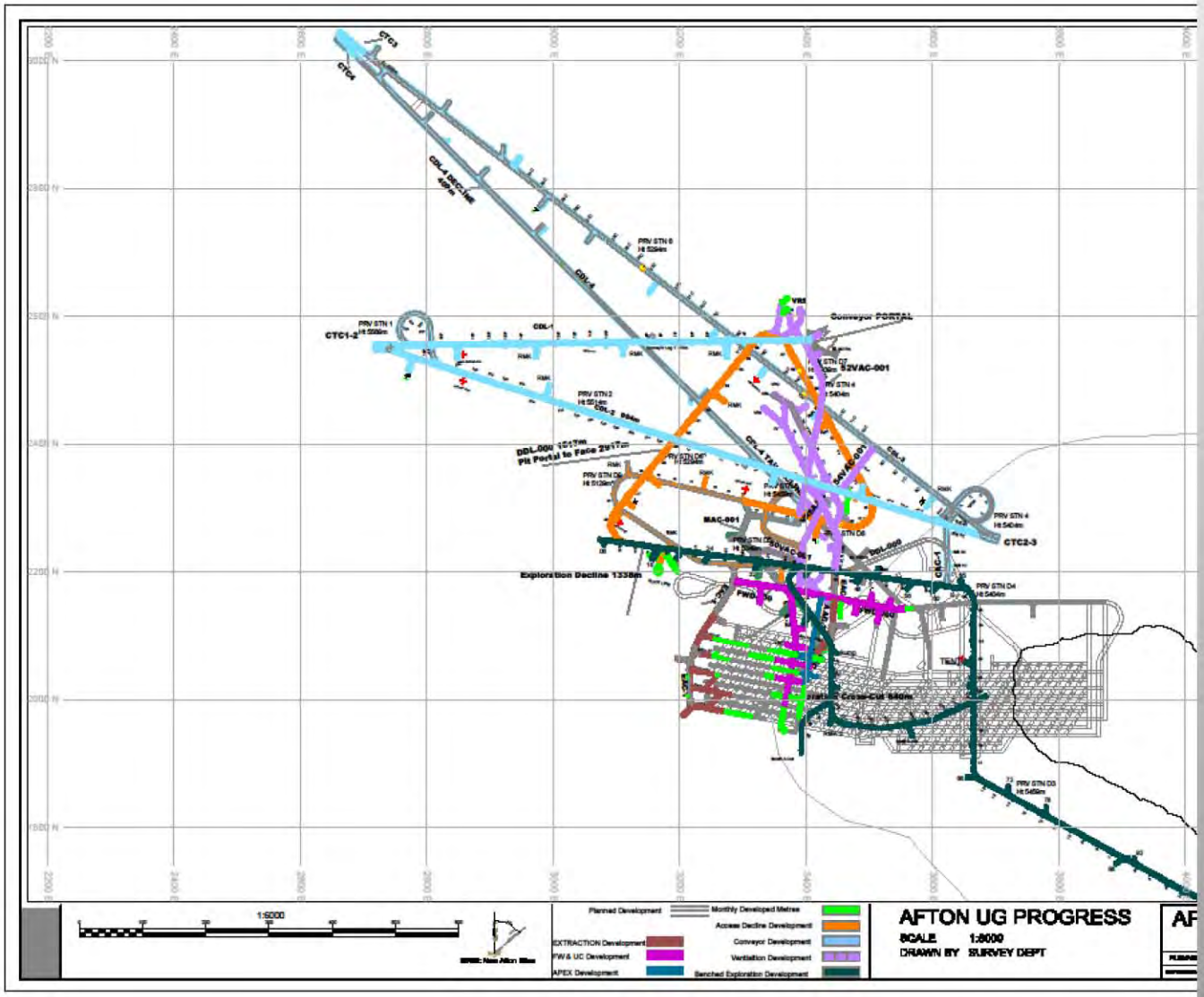
- Reached 1,000,000+ man-hours with no LTI's!
- Miner Training program – working well
- YTD training hours - +5000 hours of total training hours, Mine survival refresher, fire suppression, MSD body mechanics, orientations, equipment training, explosives
- Industrial hygiene monitoring – baseline study June/July
- Surface fire fighting training once new gear arrives
- Improvement in near miss & hazard reporting by 50%
- Quality of incident reports & timely corrective action closeouts
- Internal safety audit & ICS training
- Mill operator training program
- Continue to reinforce the basics…JHA's, 5-point safety, incident reporting, inspections…

newgold New Afton Mine Kamloops, B.C.

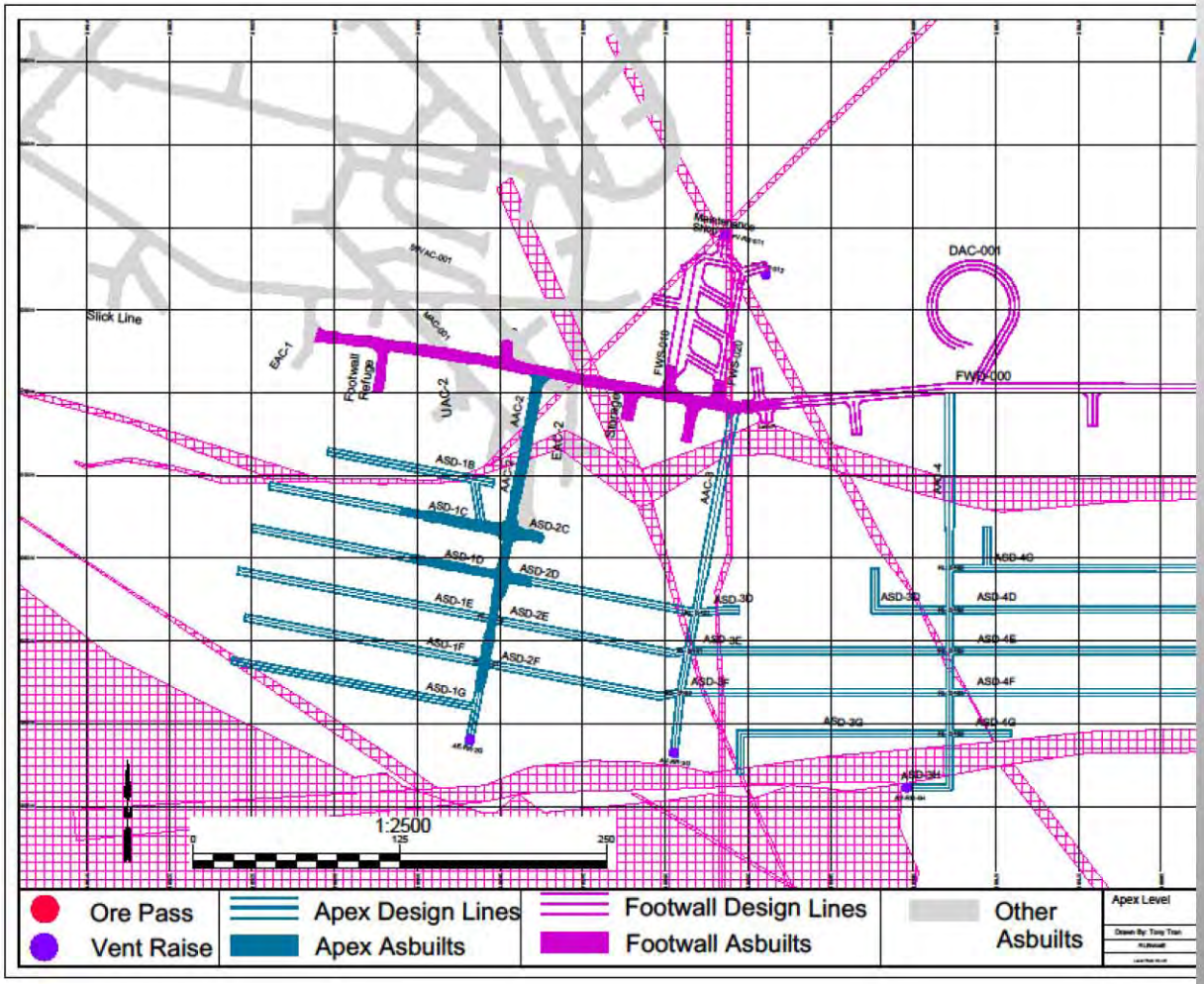
Mine Ops Department 2011



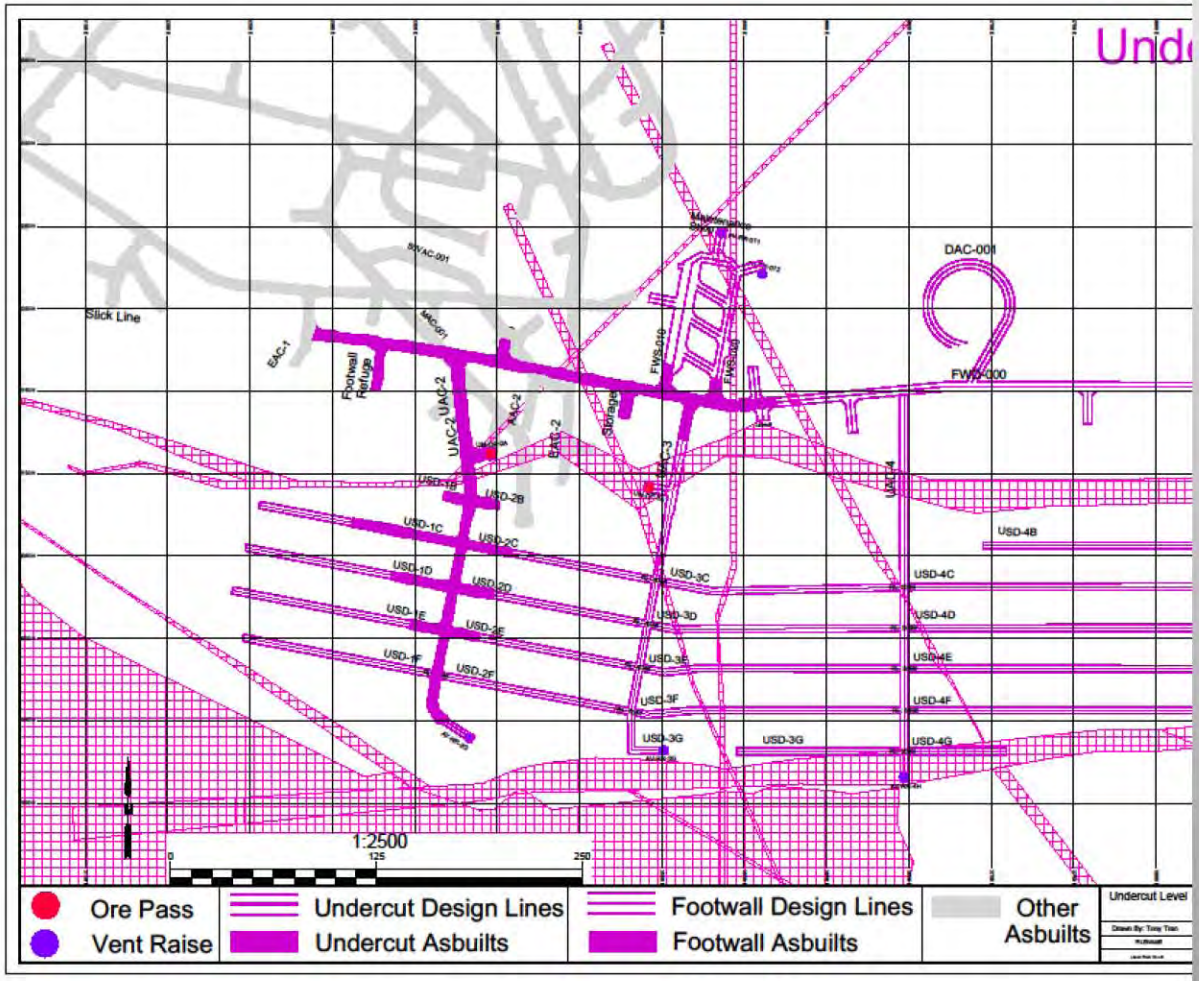
New Afton Underground Progress Through April 2011



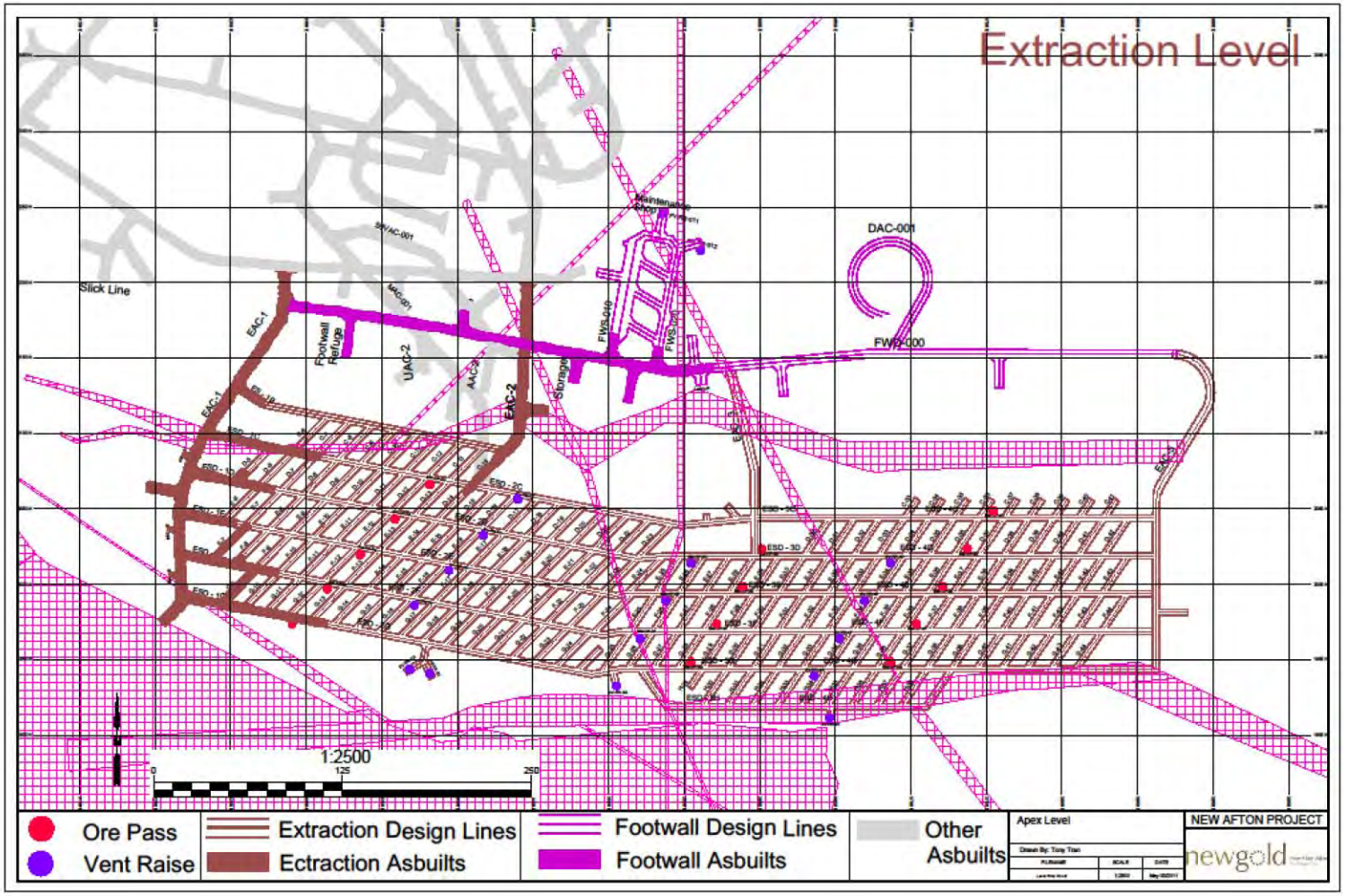
Apex Level Progress Through April 2011



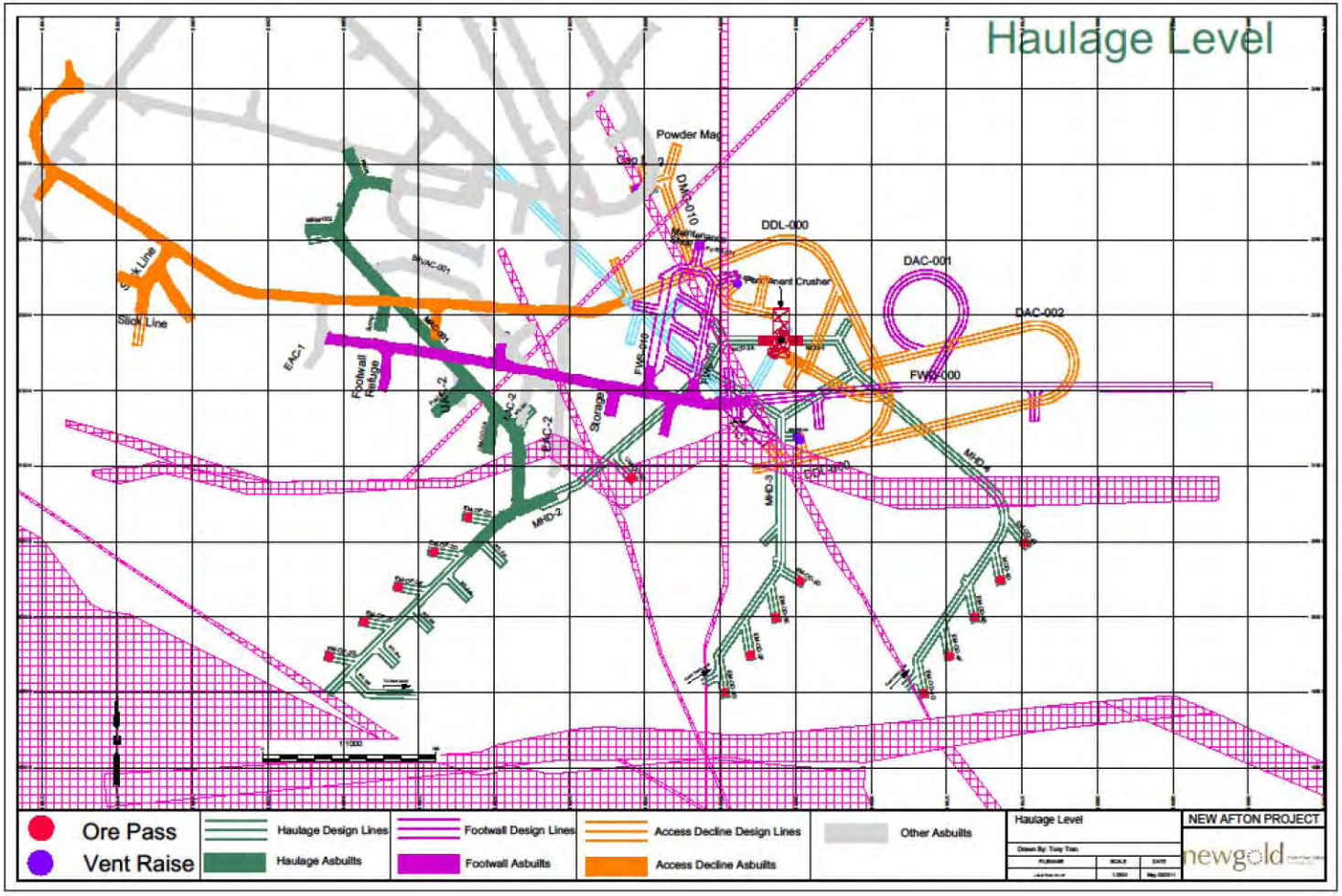
Undercut Level Progress Through April 2011



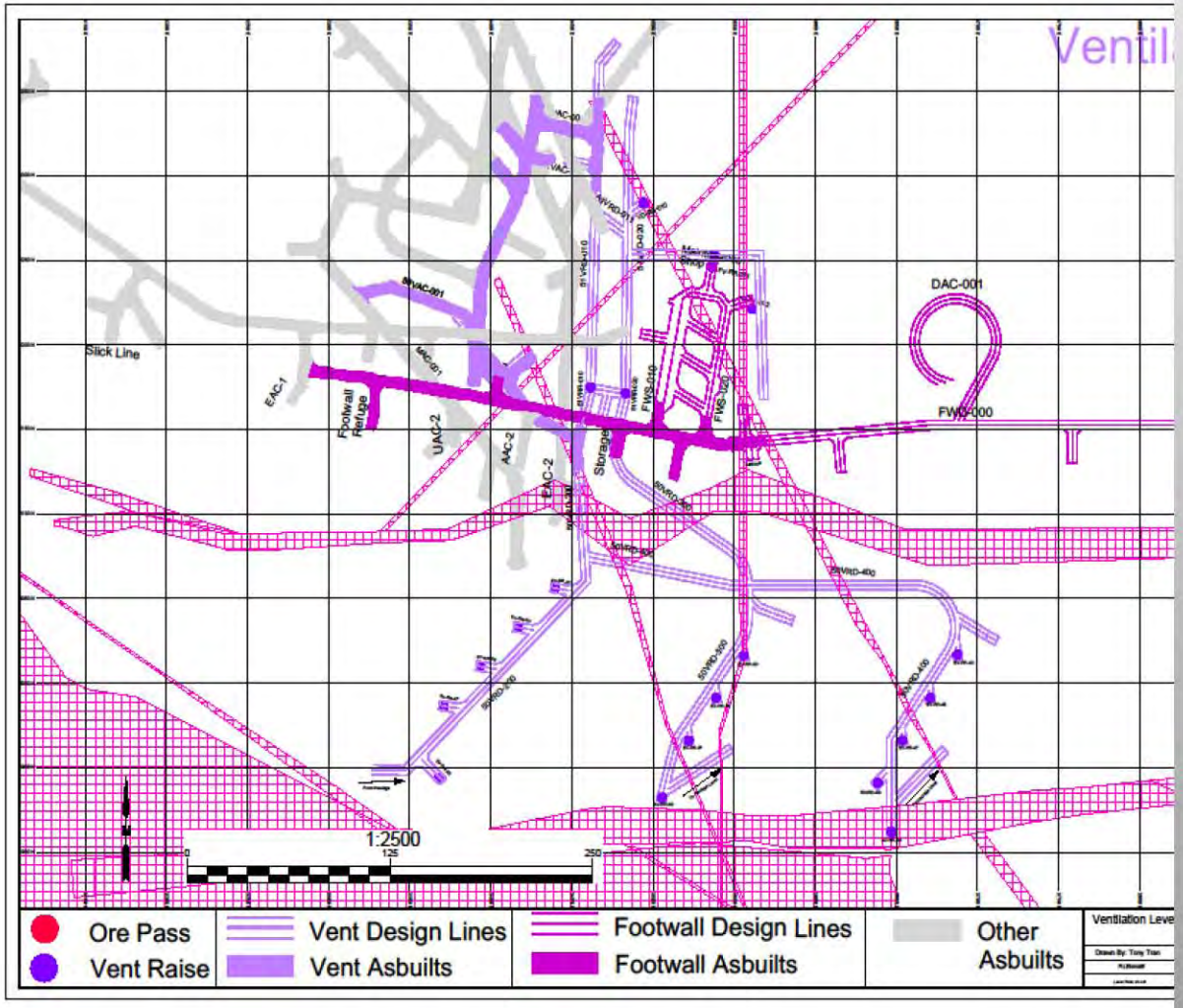
Extraction Level Progress Through April 2011



Haulage Level Progress Through April 2011



Ventilation Level Progress Through April 2011



CONSTRUCTION:

Safety - There were two near miss incidents and one minor property damage incident. The incidents were reviewed with the contractors, underlying and direct causes determined and positive correction actions agreed upon. Weekly Stats; 0 Hot Work permits were issued and logged this period – 63 to date - site manpower Friday – 157 – total safety-hours worked this period – 9254 - total year to date – 222,869 – project to date – 232,123 - Site orientations this period – 25 – to date – 426.

NG Surface - Sterling 15 t crane was in use underground and Sterling, Surface and the RKMS cranes on surface. Lack of crane operators continues to be a concern. Surface equipment continued all week on the Waste Transfer Area. The Pit – to – Surface Ore haul caught up this period. TRU began training operations.

BCH, EMPAC and NG continued with Main Sub commissioning process. 'Power On' Date moved ahead to 03May'11 to accommodate due diligence checking measures decided upon by contractors and management.

Harrison continued underground 15 kV cabling work on ERU 4 and ERU 3 as well as assisting Cutler Hammer in the commissioning of the 15kV switchgear. Lighting and instrumentation cable tray installation took place in CTC 1 / 2. Harrison surface activities brought the completion of the Main Substation to over 98%. The replacement of a 30kVA service transformer was completed. Commissioning by Wismer – Rawlings remained underway at period's end due to the due diligence activities noted above. The VR 6 fan was successfully commissioned. Work on Exhaust Raise Area centered around installing conduits in the E-House slab. The portal 'Load – Break' cabinet was installed.

Plowe – Contractor continued to mobilize materials to site for the o/h line to the Tailings Storage Facility (TSF).

First Nations – 1/ SIB delivered aggregates and supplied haul trucks to Acres for backfilling jobs around the site.
2/ KIB – CSC Electric - Tradesmen continued work on Mill Area temporary power, cable installation for the STP and grounding in the Concentrate Thickener Area. A temporary generator and construction panels were installed in the TSF mobilization area. C & L Holdings continued the Pit-to-Surface ore haul on a seven day per week basis this period.

RKMS – Work continued in the structural / mechanical work in the Reclaim Chamber. Solid progress was made on the Reclaim Stacking Tower. Contractor began mobilizing for its Mill Structural Steel and Mechanical contract.

Acres – 1/ Work began on the base preparation for the VR 5 Raise Bore pad. The Spillway crossing was brought to 92% completion. The earthmoving fleet continued on to the tailings line corridor placing subgrade fills and the filling of the Surface ore storage area. Topsoil removal in the TSF began.

2/ Mill compressor bases and thickener columns were concreted as was the Blower Area slab. Base preparation for the tailings pumps went well.

Cementation – 1/ Return and Training idlers were installed along with lateral bracing of conveyor trays in Leg 1. Leg 3 pipe brackets and sump installation proceeded well. Hanging of Leg 3 conveyor trays continued bringing to total to 156 out of 207. CTC's 3 and 4 base preparation continued with the pouring of lean concrete and the sump in CTC 3. CTC 2/3 saw the mechanical installation of the 20t capacity crane and internal structural steel. Mechanical installation of conveyor drive components was initiated.

Chinook - Scaffolding services carried on for surface and underground work. A major step was the erection of the Rougher Flotation Area scaffold in support of the Flotation Tanks installation work to begin shortly.

ERU 3



CTC 2/3



CTC 2/3



Cell columns and excavating Tailings pump FDN



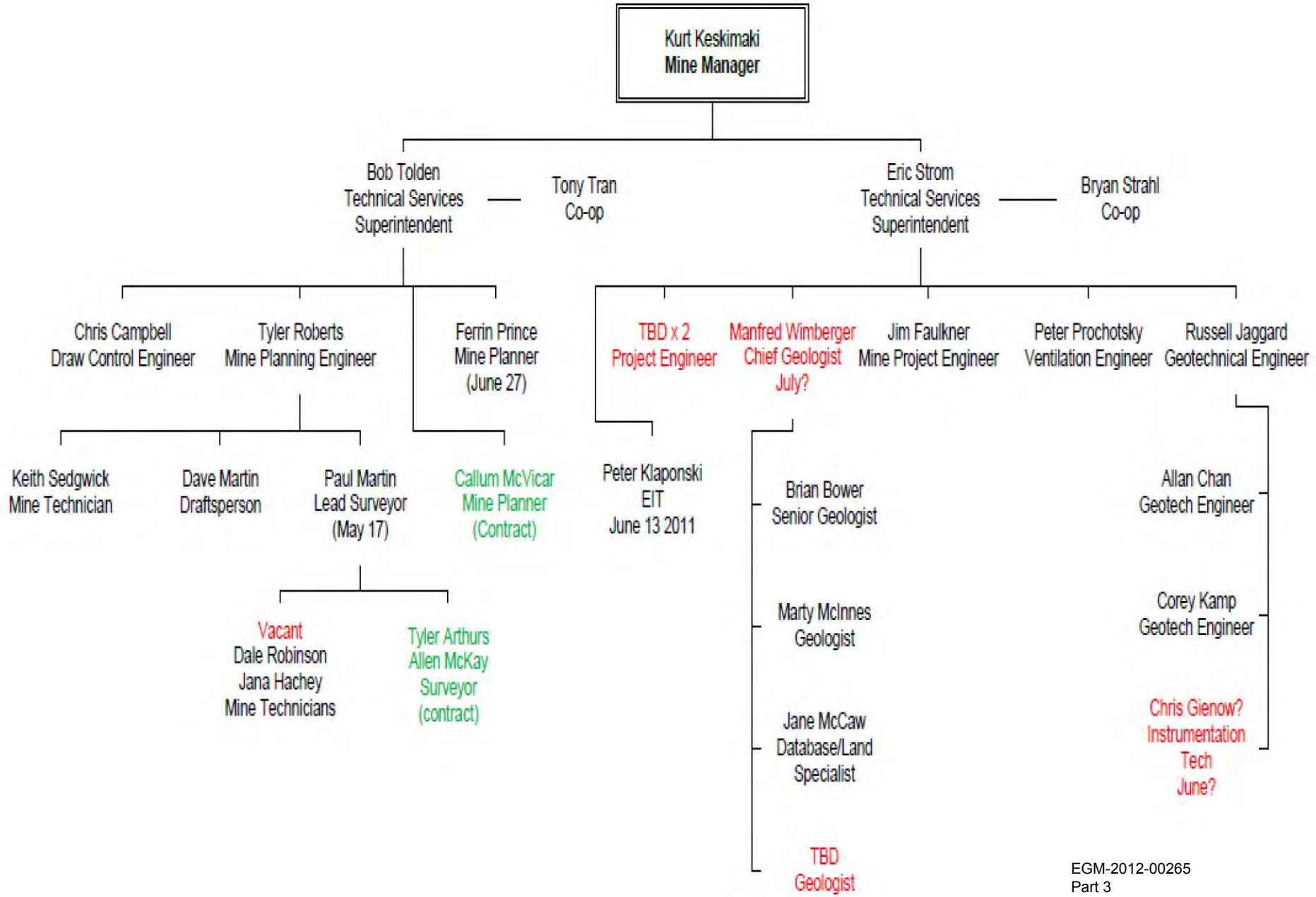
Spill way



Tailing Impoundment Drainage

- We will be commissioning a third party peer review of the raw data looking at our hydrogeological model. The review will also comment on any deficiencies and gaps in our knowledge to date.”

Technical Services



Operational Activities of special interest

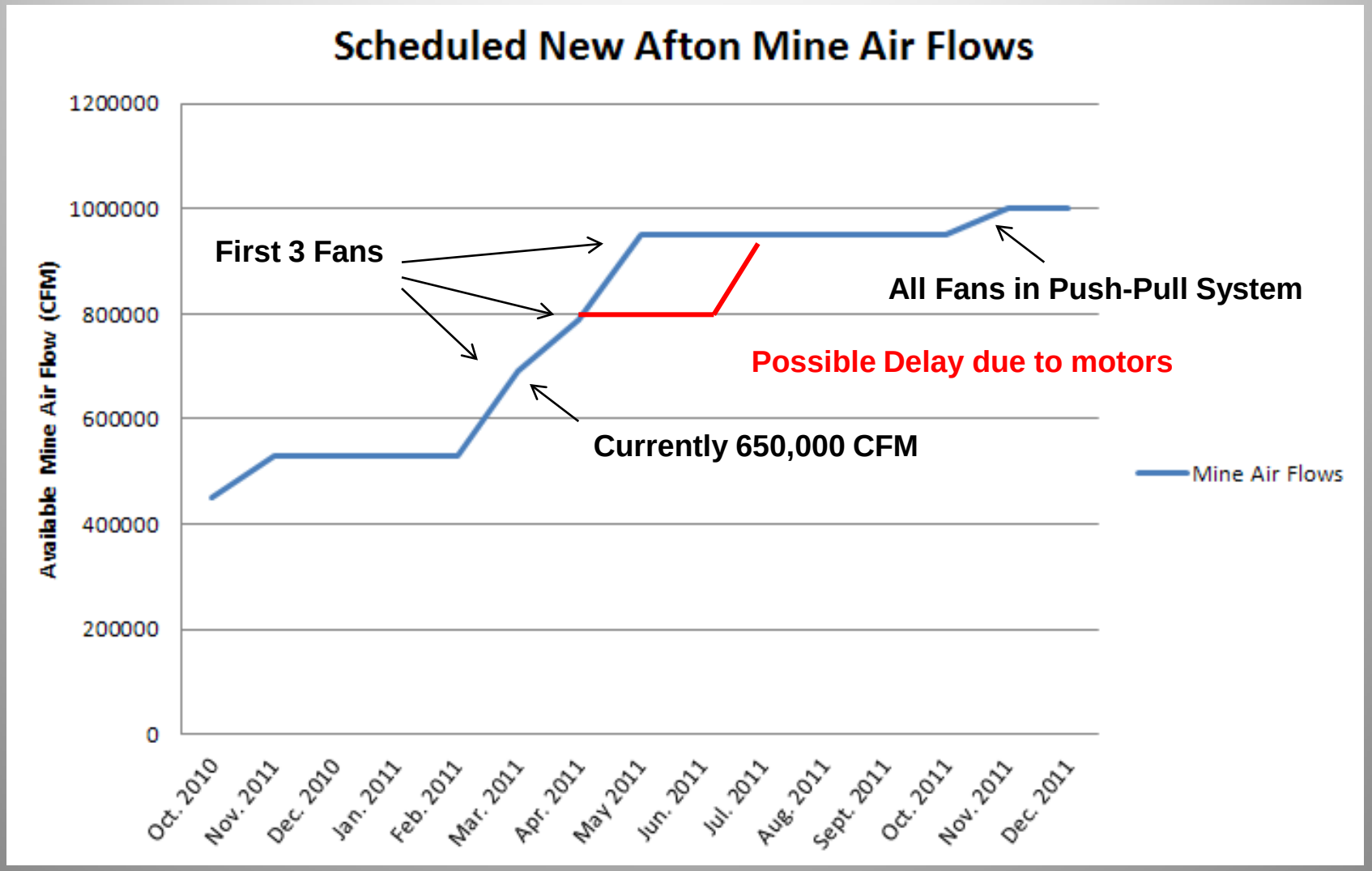
PERMANENT FAN INSTALLATION

VR6 Permanent Fan

- Operating at 780 rpm, 90% motor load
- Providing 400,000 CFM
- Mine Total: 650,000 CFM



PERMANENT FAN INSTALLATION



PERMANENT FAN INSTALLATION

SCHEDULE

- VR6 fan operational April 28, 2011
- VR3 fan scheduled start up May 10, 2011
- VR4 fan installed third – at a later date
    - Delayed due to motor availability

Hauling of material out of the pit

- Hauling of ore material out of the pit has gone well with no incidents
- Seasonal changes to the pit road have not adversely affected hauling
- To date 42,000 tonnes transported to surface stockpile



Seasonal Challenges, spring run off and melt



Ore transition in the pit

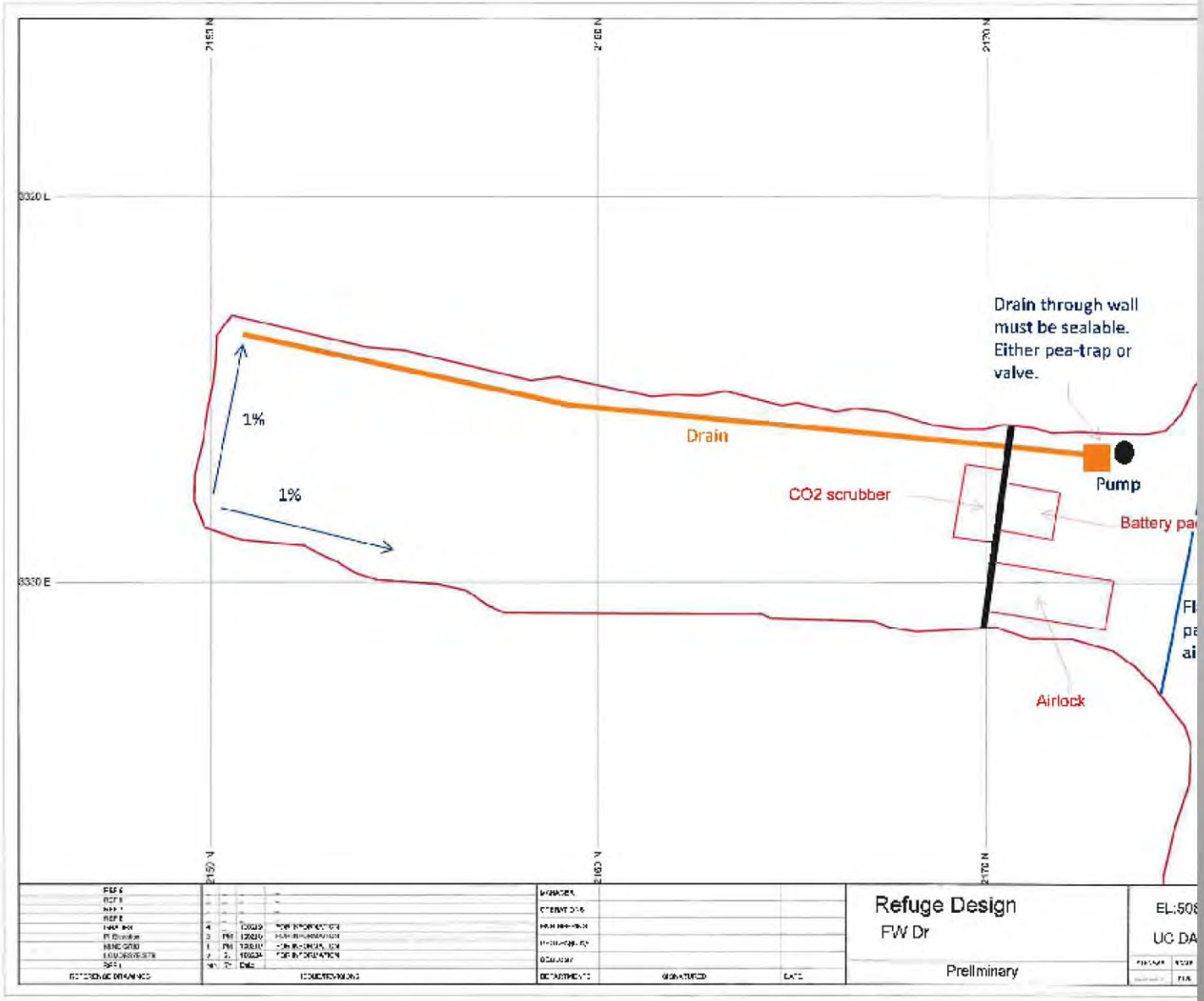


Projects currently Underway

P117 – Underground Refuge Chamber

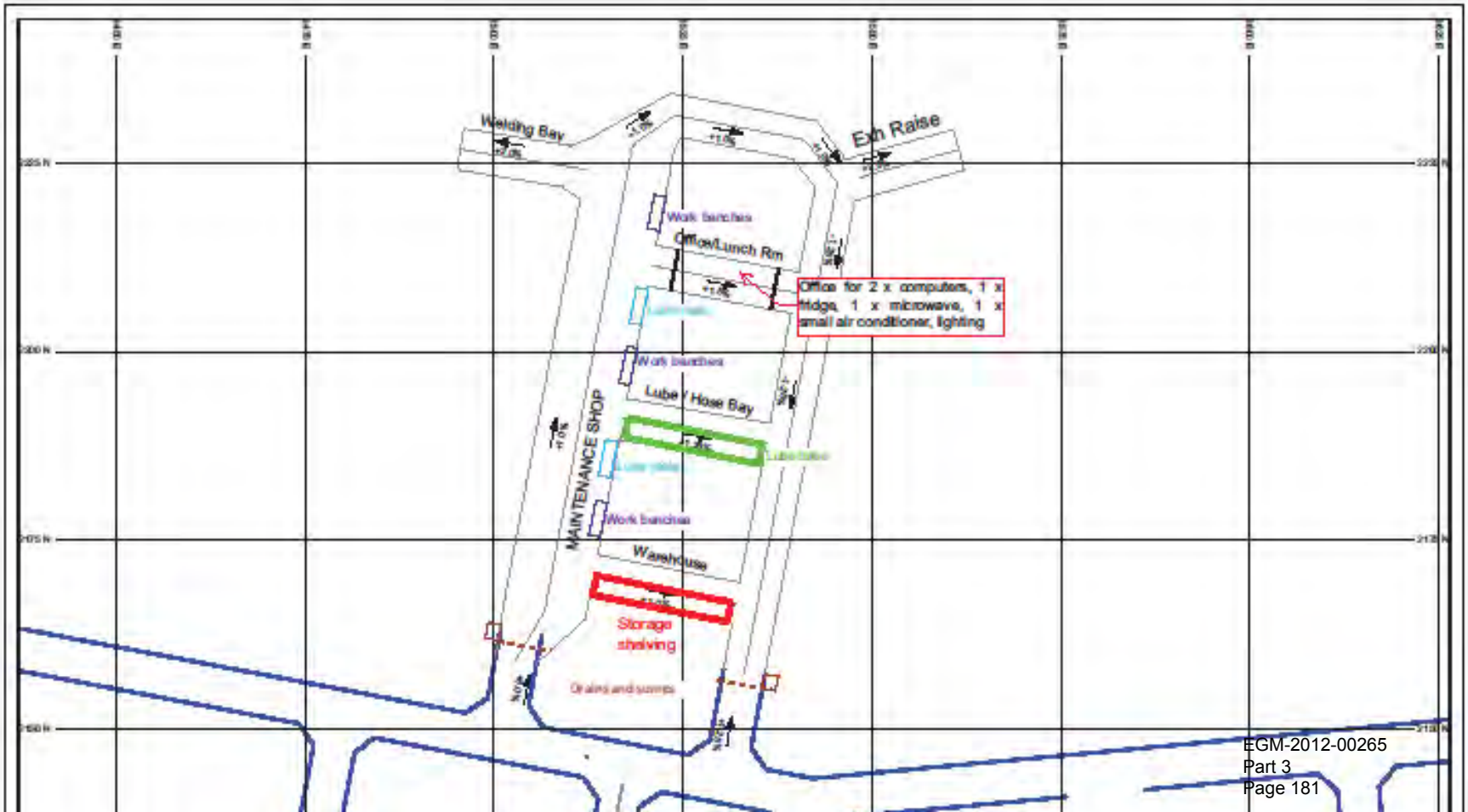
- Excavation Complete
- Concrete floor poured
- Airlock, CO_2 Scrubber and battery pack in construction – Due on site early May
- Communications, air and water supply direct from surface designed
- To be fitted out as permanent cribroom
- Due for completion in mid June

P117 – Underground Refuge Chamber



P115 – Underground Workshop

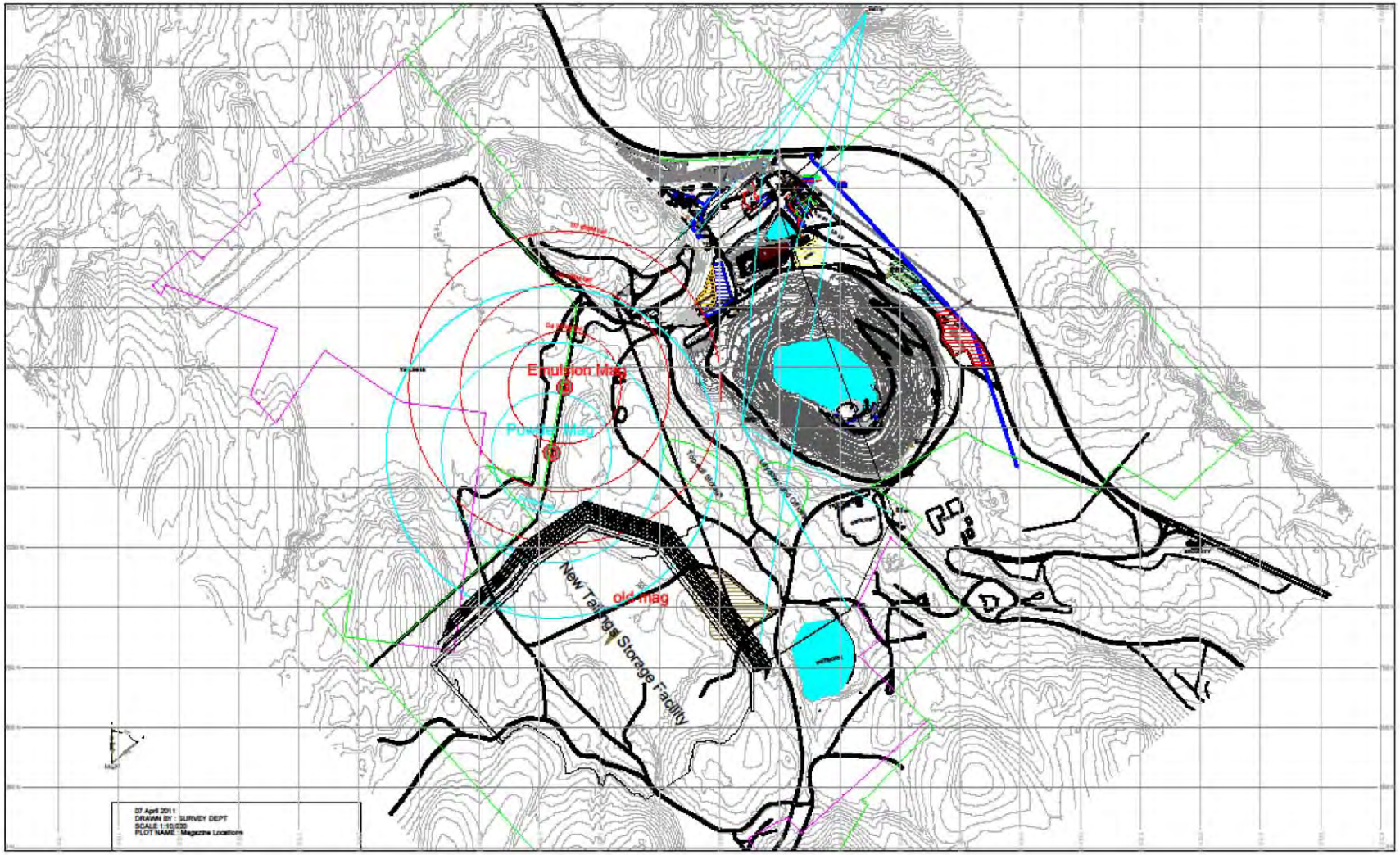
- Excavation Underway



P145 – Surface magazines

- Current magazine to be relocated as it is in the tailings dam footprint
- Additional magazine required for Orica's "Satellite site" – 25,000kg of emulsion
- Locations for New Gold's Powder Magazine and Orica's Emulsion Magazine selected
- Location approval in Progress
- All quantity/distances (Q/D) satisfied

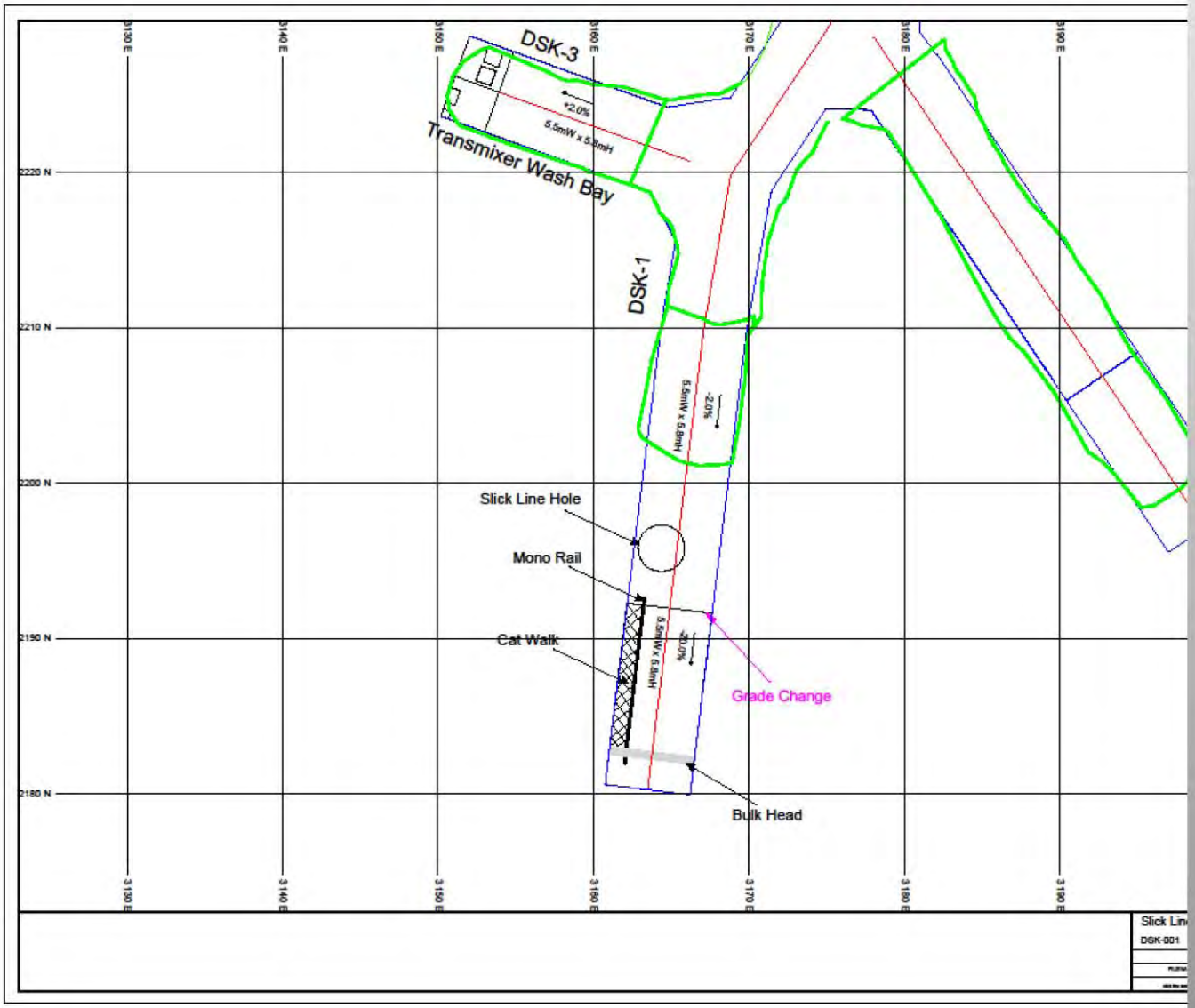
P145 – Surface magazine



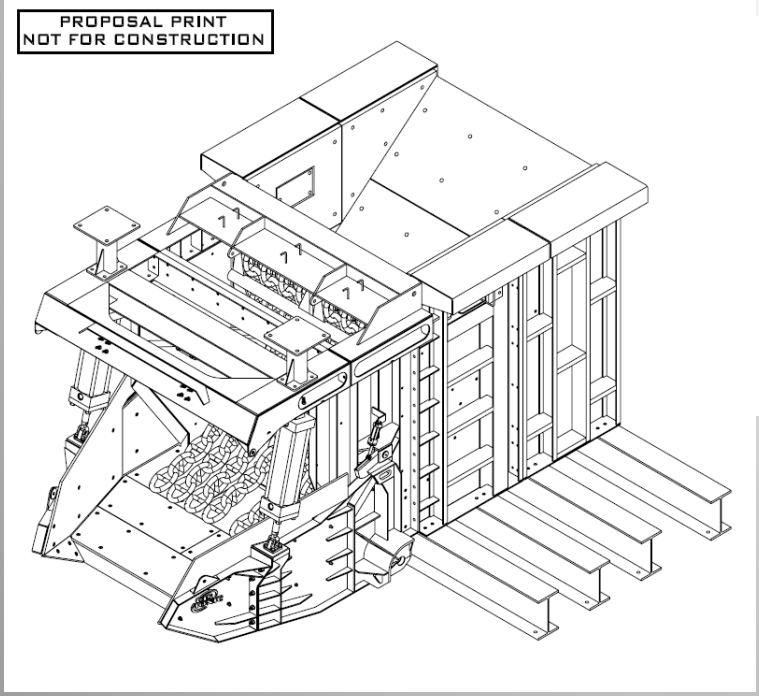
P116 – Surface to underground slickline

- For direct delivery of shotcrete to underground
- 600m vertical hole to be drilled
- Contract driller due on site end of April
- Underground excavation in progress
- Surface and underground handling system in final design phase

P116 – Surface to underground slickline



P136 – Truck chutes in haulage level



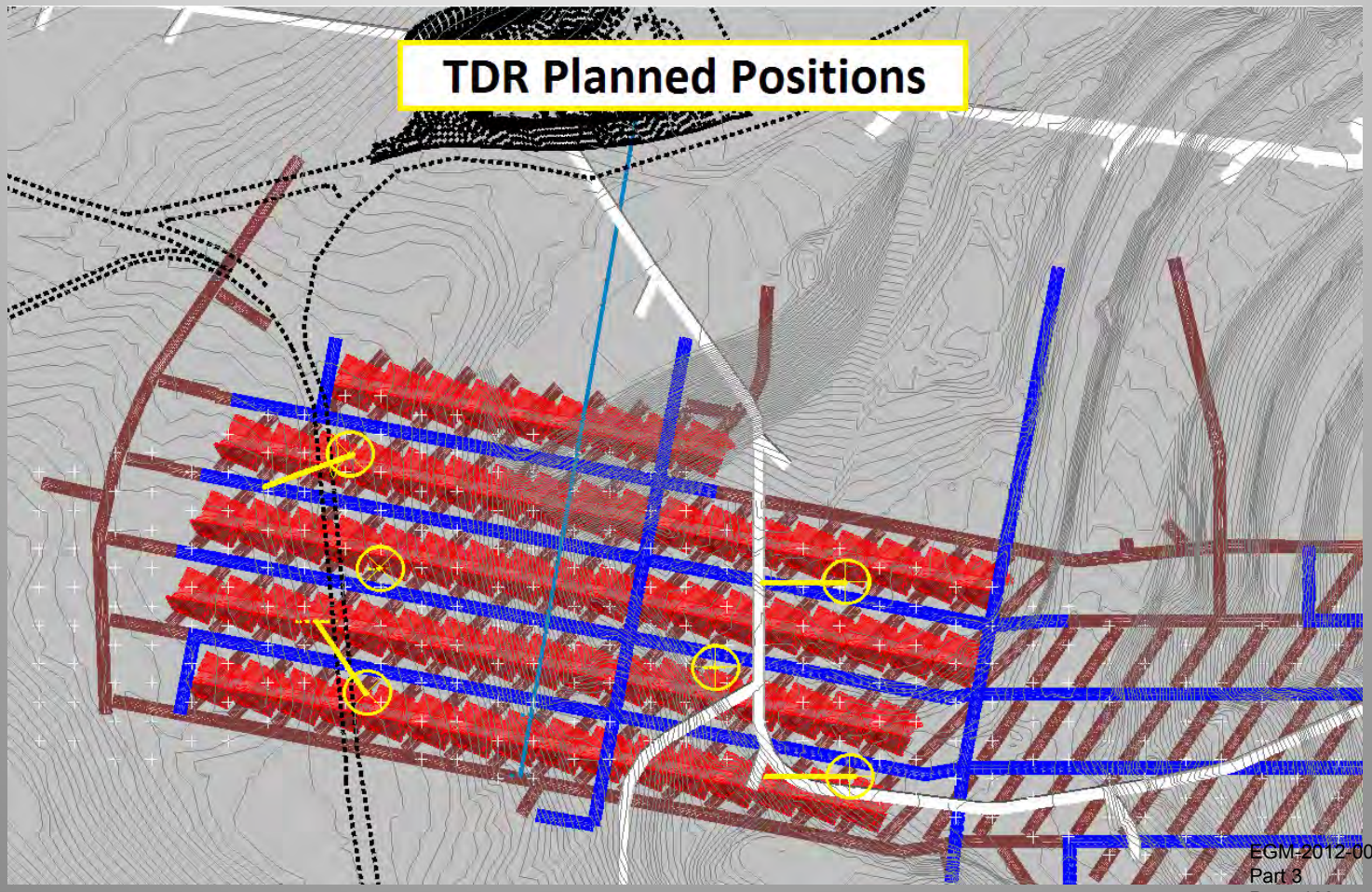
- A study is being conducted on the economic feasibility of truck chutes for the haulage level
- Designs submitted by potential supplier
- Pneumatic operation
- Equipment simulations being run and evaluated
- No specific reference in BCHSRC 2008

P106 – Underground dewatering system

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- Objective is to introduce them to the ore handling system (crusher and conveyors)
- System and suppliers are being identified by Engineering consultant

P142 – Convergence Monitoring

- TDR : Time Domain Reflectrometry



P110 – Open Pit Dewatering and mud compaction

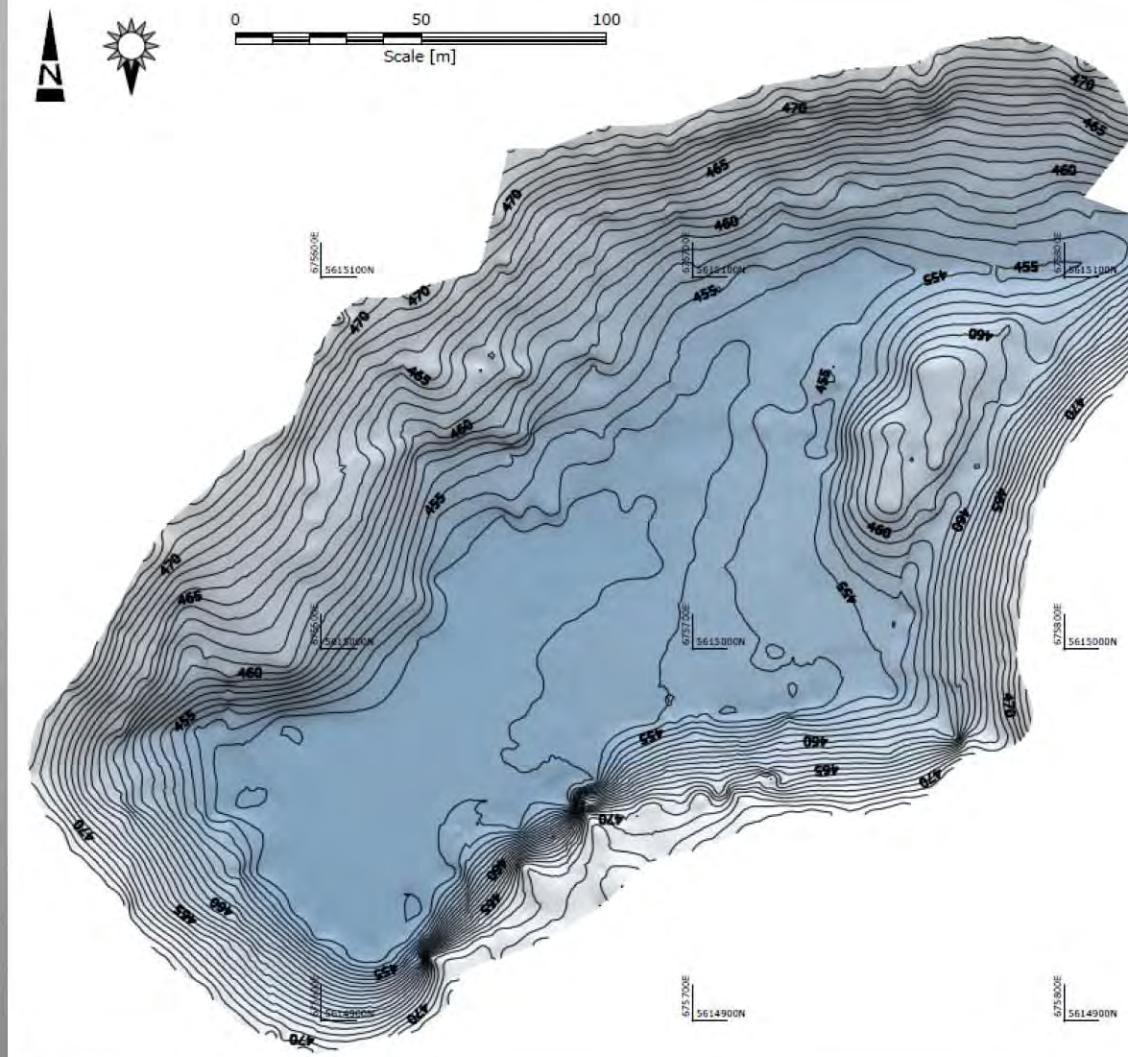
- Bathymetry survey



P110 – Open Pit Dewatering and mud compaction

- Open Pit Bathymetry geophysical survey work initiated
- Depth of water 25m - 27m (maximum depth)
- Depth of silts 10m - 15m

Pit Bathymetry initial results (draft)



DRAFT
FOR DISCUSSION ONLY

Legend:

- Bathymetry Contour, Major (Golder, 2011)
- Bathymetry Contour, Minor (Golder, 2011)

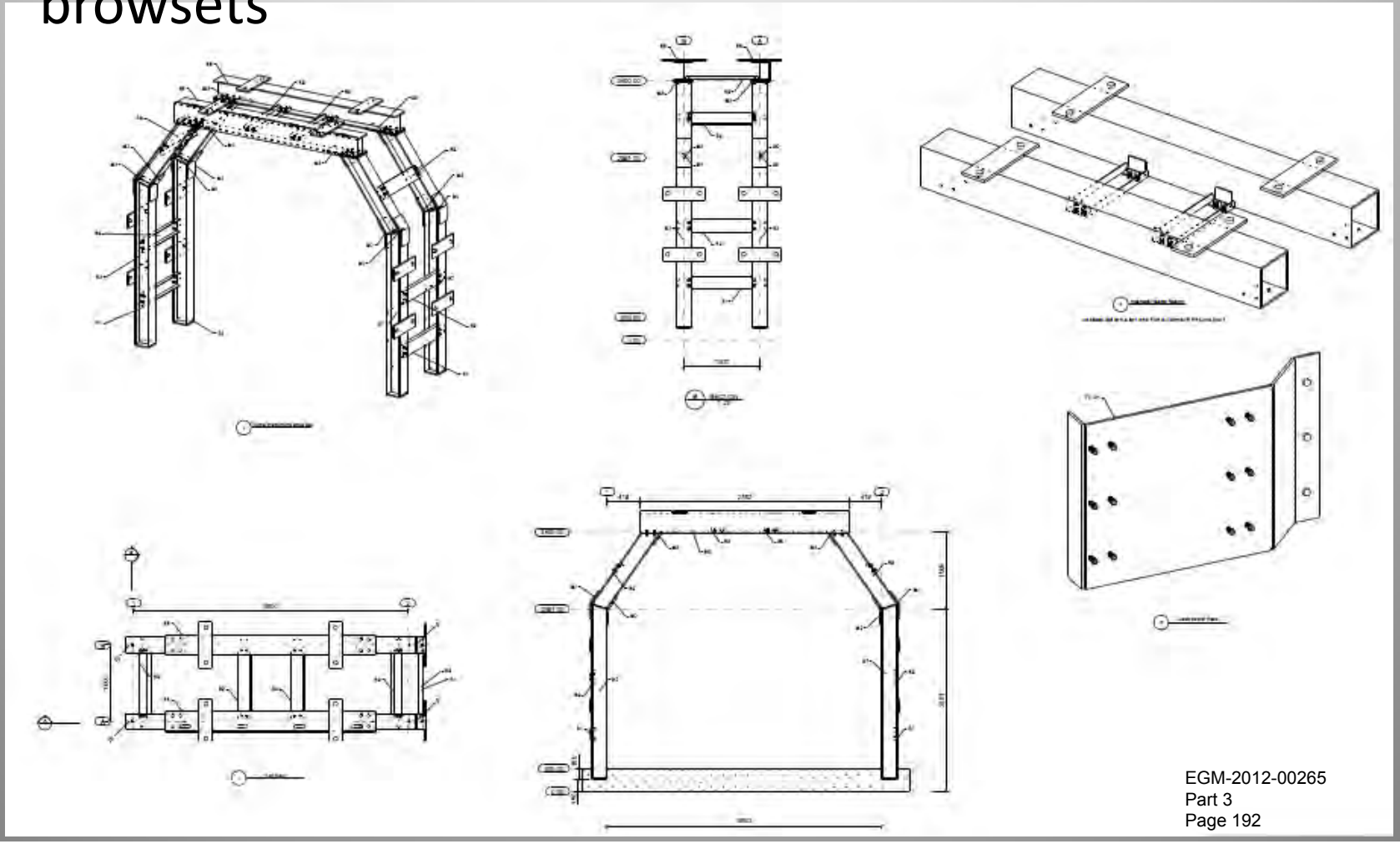
Notes:

1. Contours are interpolated from line-based data and geological surfaces may vary significantly in areas of sparse or no data.
2. Depth estimates use an average velocity in water of 1500 m/sec.
3. Bathymetry instrumentation: Datasonic Bubble Pulser
4. Navigation instrumentation: Trimble AG132 Differential GPS
5. All elevation data is in metres above sea level [m.a.s.l.].
6. Horizontal datum: WGS-84, UTM Zone 10N
7. Note that depths below water level are to nearest reflectors which may not be directly below measurement location. Actual depths may vary, especially on steep slope reflectors.
8. An image has been added behind the contours, with shading illumination from the north, and coloured by depth.

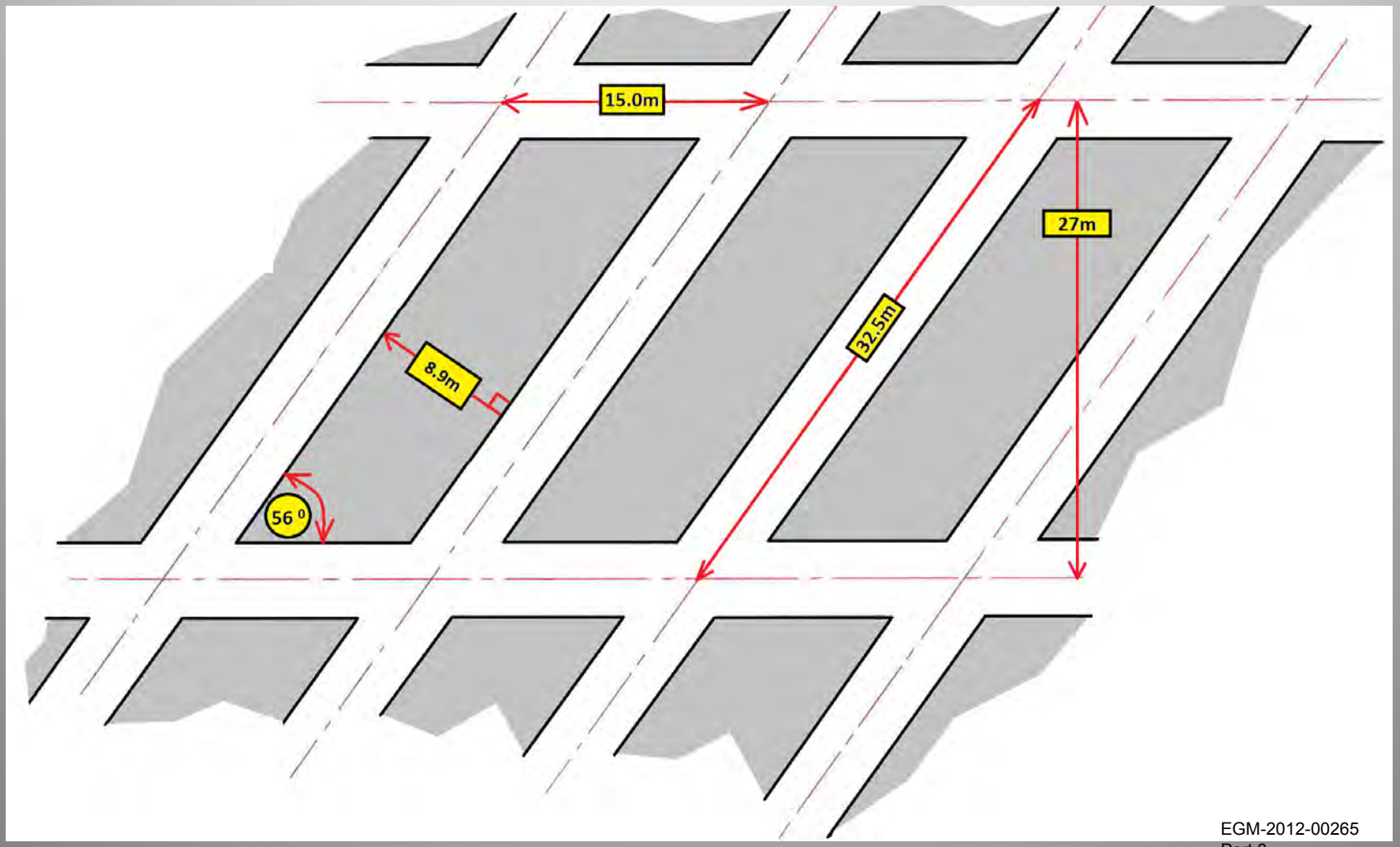
PROJECT	NewGold Old Afton Pit Kamloops, BC
TITLE	BATHYMETRY

P113 – Drawpoint design - Sets

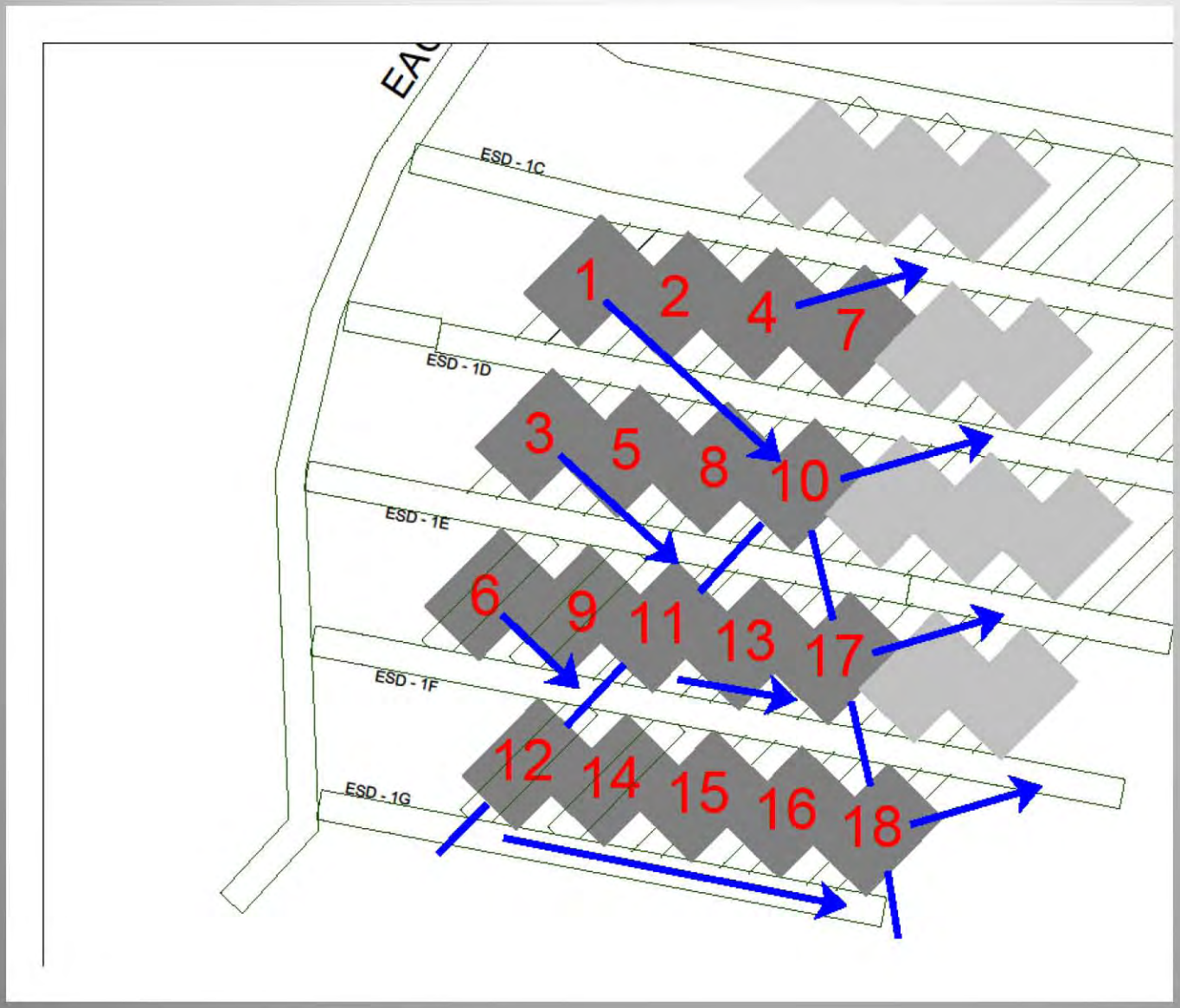
- Drawbell brow support – Set design for “Stiff browsets”



- Drawpoint sizing and pillar design



Initial Draw-Bell Location Change



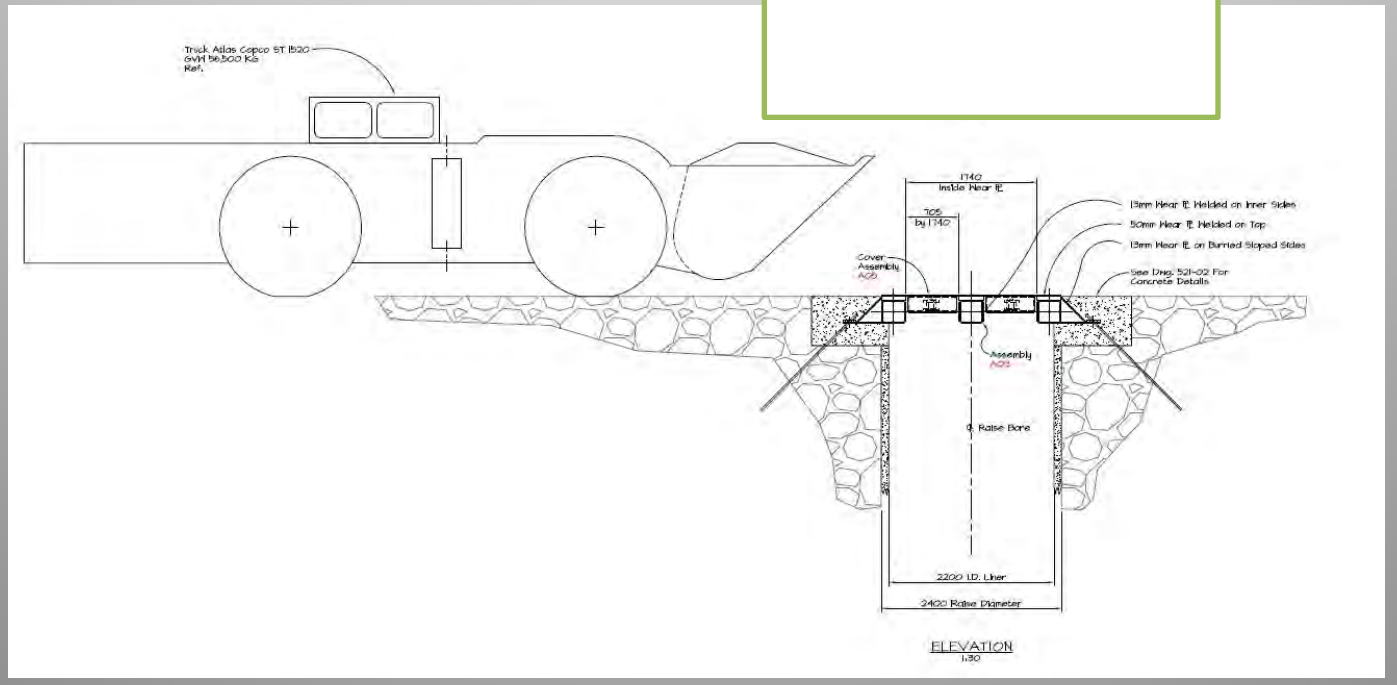
P114 - EXTRACTION LEVEL GRIZZLIES

Personnel Access Strategy – No access to open hole

- Scoop operator never has to leave cab to uncover or cover open hole
- Scoop operator turns on strobe and closes gate while mucking (no access to strike drive)
- If other activities need to continue while mucking (ex.secondary breaking)
    - Scoop operator must be notified prior to passing through gate
    - Personnel must be educated on the dangers of an open hole
- Once mucking complete, grizzly must be covered immediately for ventilation and safety

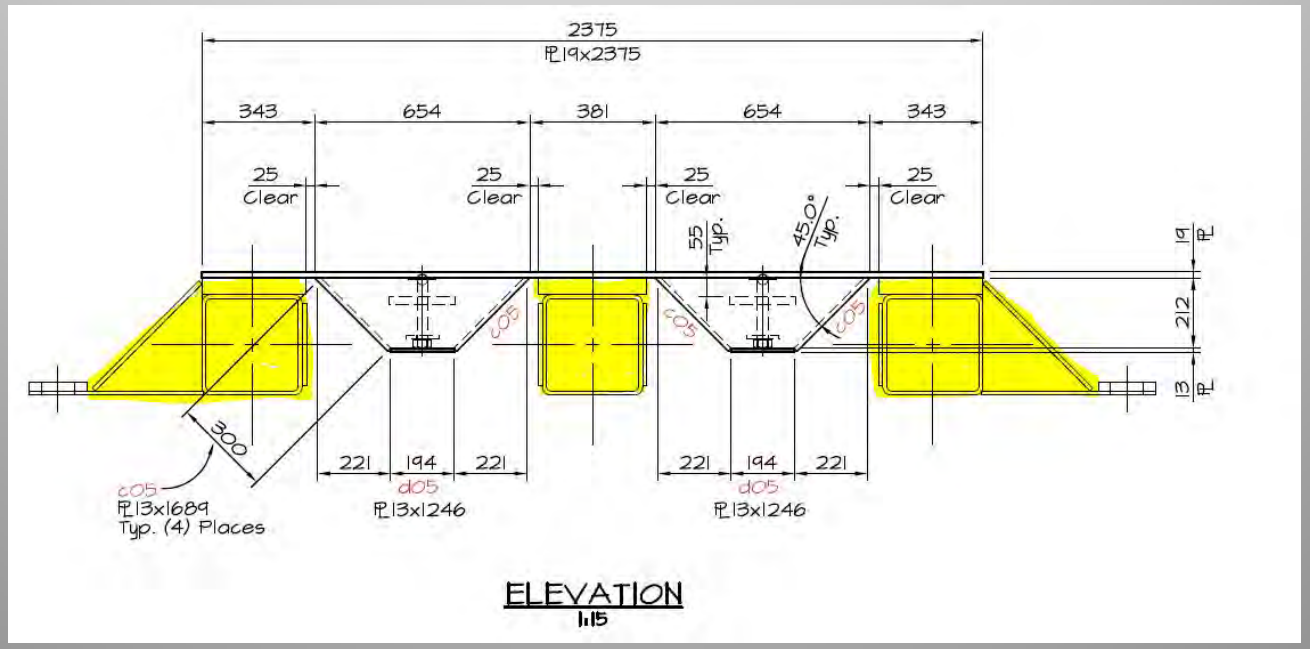
P114 - EXTRACTION LEVEL GRIZZLIES

- 0.7m by 1.7m openings (2.5ft by 6ft)
- All exposed surfaces wear plated for durability
- Designed to withstand a fully loaded 9yd scoop driving overtop



P114 - EXTRACTION LEVEL GRIZZLIES

- Each grizzly has it's own vent cover
- Lifted off and placed by scoop operator without leaving cab
- Designed to withstand a fully loaded 9yd scoop driving overtop



ELEVATION
1:15

New Equipment

Equipment Received to Apr 30

- 2 – Sandvik DS310 Rockbolters, 1 diesel and electric
- 2 – Sandvik DD420 Jumbos
- 1 – Normet Utimec 1500 Transmixer
- 1 – Sandvik DL420 Longhole C-Frame
- 1 – CAT TH407 Zoom Boom
- 1 – CAT R1600G Scoop
- Orica CEBS computerized central blasting system

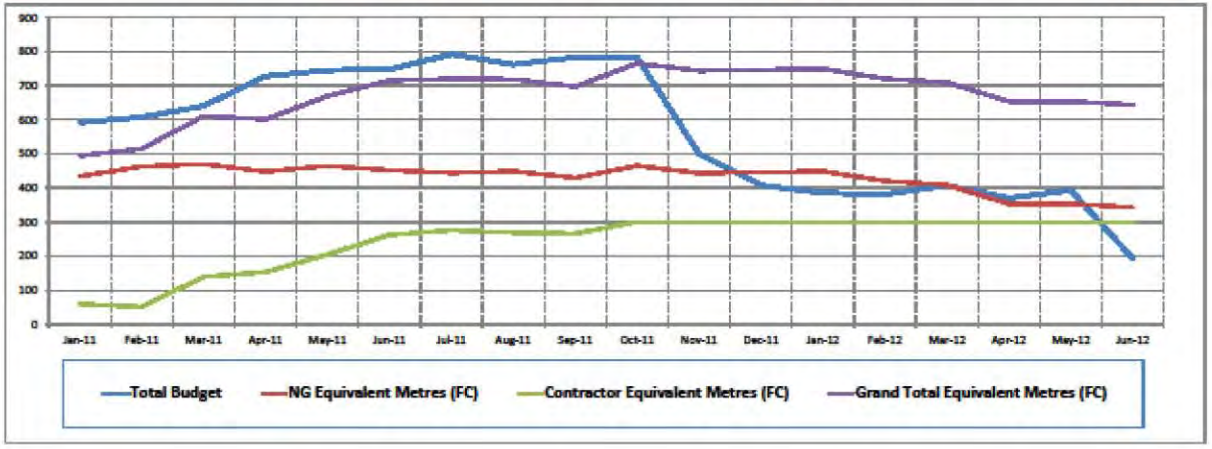
Equipment to come 2011

- 1 - Scoop Mounted rockbreaker
- 4 – Mantrip Tractors
- 1 – Normet 6050 Spraymec (7110 Spraymec to be traded in)
- 1 – Schwing concrete pump
- 1 – Sandvik DS310 Rockbolter
- 1 – Sandvik DL420 Cablebolt Longholer
- 1 – Sandvik DL420 Longhole C-Frame
- 5 – CAT R1600G Scoops
- 1 – MacLean Blockholer
- 1 – Dedicated 20 Man Carrier
- 1 – CAT Compactor
- 1 – Dust Suppression Cassette
- 2 – 8’ wide Multimec Decks
- 1 – Orica/Minecat Emulsion Loading system complete with emulsion totes
- 1 – Replacement ready mix truck
- 1 – Replacement Toyota
- Enclosed cabs for the AC1520 Scoops
- Replace the bucket elevator at the batch plant with a conveyor

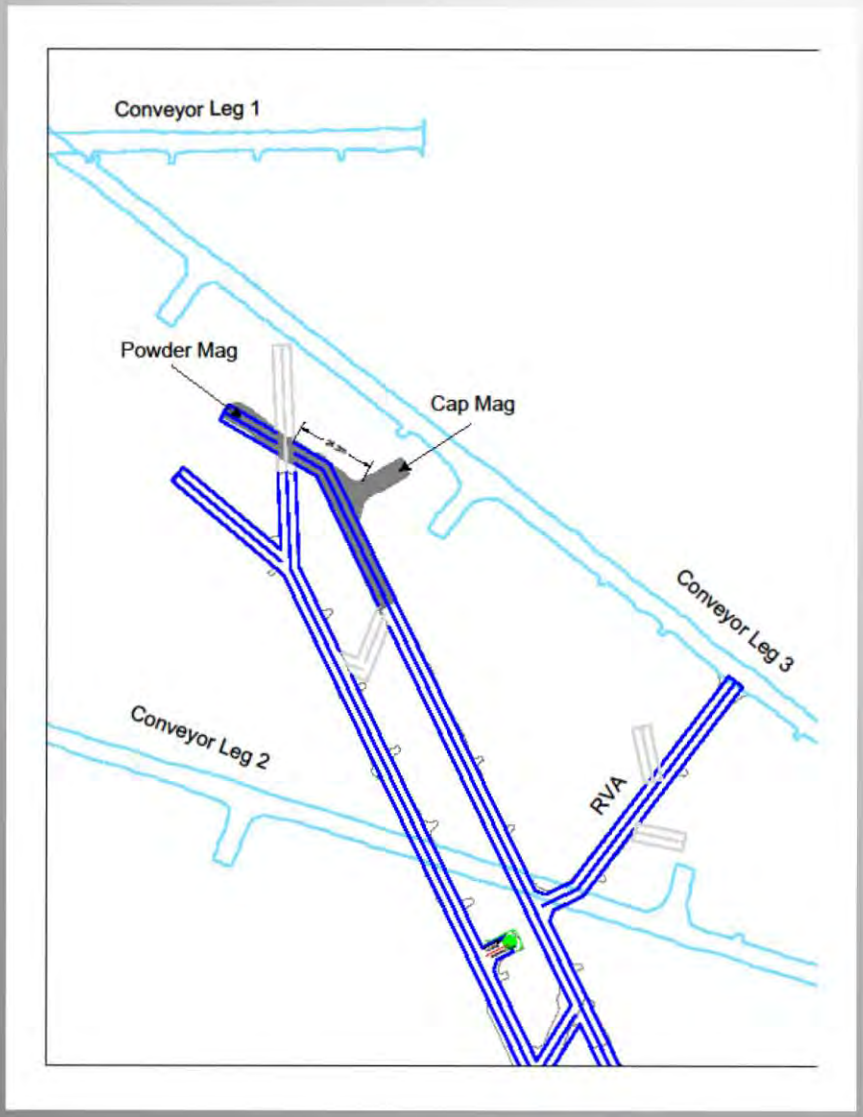
Forecast Development

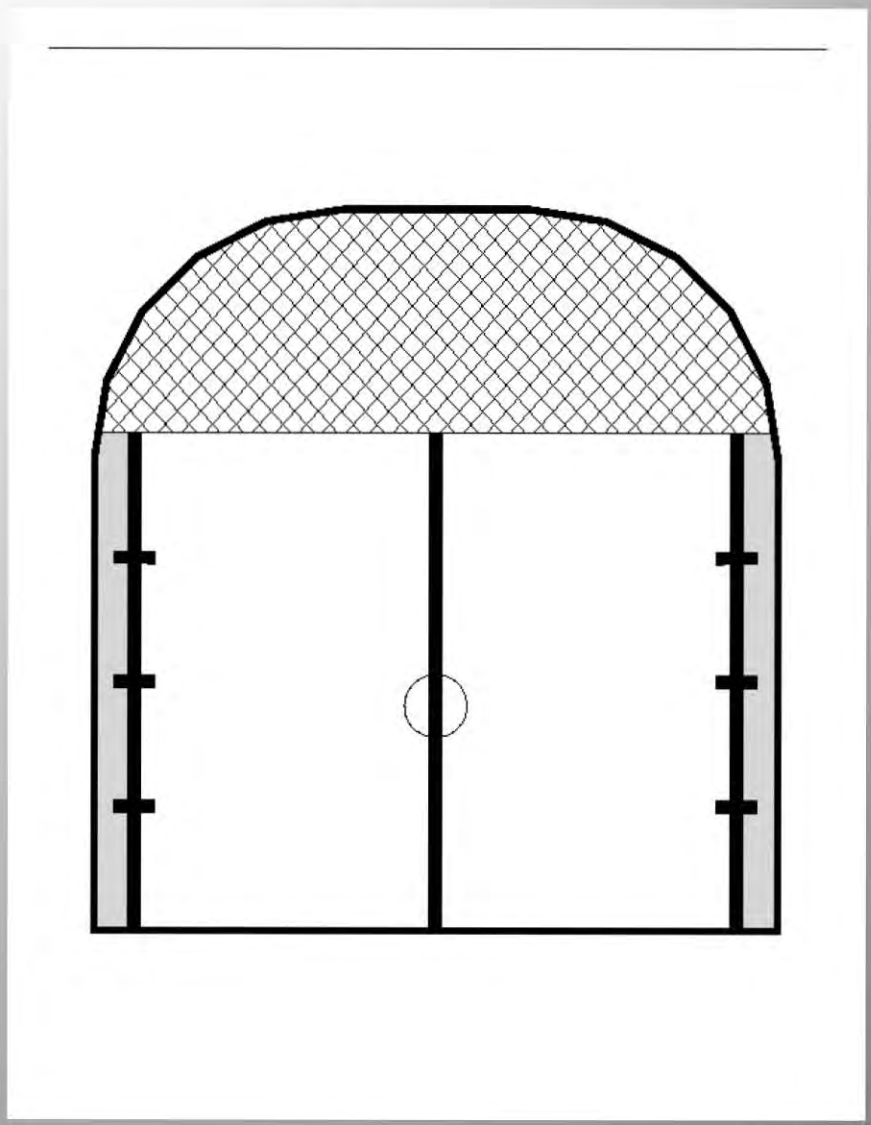
RE-Forecast April 19, 2011

	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Year	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	6 Month	18 Mos
Total Large LGm	447	400	303	360	371	363	391	391	407	364	71	70	3,938	76	71	76	74	76	64	438	4,376
Total Smal SMm	76	207	337	330	336	328	334	332	329	332	303	306	3,549	309	309	331	296	317	130	1,692	0
Total Bulk Budget Egm	68	0	0	37	38	57	66	38	47	86	126	33	596	0	0	0	0	0	0	0	707
Total Budget	591	607	640	727	745	748	792	761	783	782	500	408	8,082	385	381	408	370	393	195	2,130	10,212
Metres Per Day	19	22	21	24	24	25	26	25	26	25	17	14	22	12	13	13.1	12.3	12.7	6	12	19
NewGold Large	309	222	225	130	133	97	79	84	70	93	96	101	1,639	97	95	83	0	0	0	275	1,914
NewGold Small	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	5,822
NewGold Bulk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NG Equivalent Metres (FC)	434	463	470	448	464	452	444	449	430	465	444	446	5,408	449	420	409	353	353	343	2,327	7,735
Metres Per Day	14	17	15	15	15	15	14	14	14	15	15	15	15	14	14	13.2	11.8	11.4	11.4	13	14
										25	12										
Contractor Large	0	29	70	118	164	223	237	269	227	224	226	281	2,068	249	232	251	276	300	300	1,608	3,677
Contractor Small	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contractor Bulk	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Contractor Equivalent Metres (FC)	60	52	140	153	205	262	276	269	266	300	300	300	2,584	300	300	300	300	300	300	1,800	4,384
Metres Per Day	2	2	5	5	7	9	9	9	9	10	10	10	7	10	10	10	10	10	10	10	8
Total Large-Act/Forecast	309	251	295	248	297	320	316	353	297	317	322	382	3,707	346	327	334	276	300	300	1,883	5,590
Total Small-Act/Forecast	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	0
Total-Bulk-Act/Forecast	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Grand Total Equivalent Metres (FC)	494	515	610	601	669	714	720	718	696	765	743	746	7,992	749	720	709	653	653	643	4,127	12,119
Metres Per Day	16	18	20	20	22	24	23	23	23	25	25	25	22	24	25	23	22	21	21	23	22
Forecast (-) Budget													-90							1,997	1,907



Temporary Underground Mag Move





Ministry of Mines Update

May 4, 2011

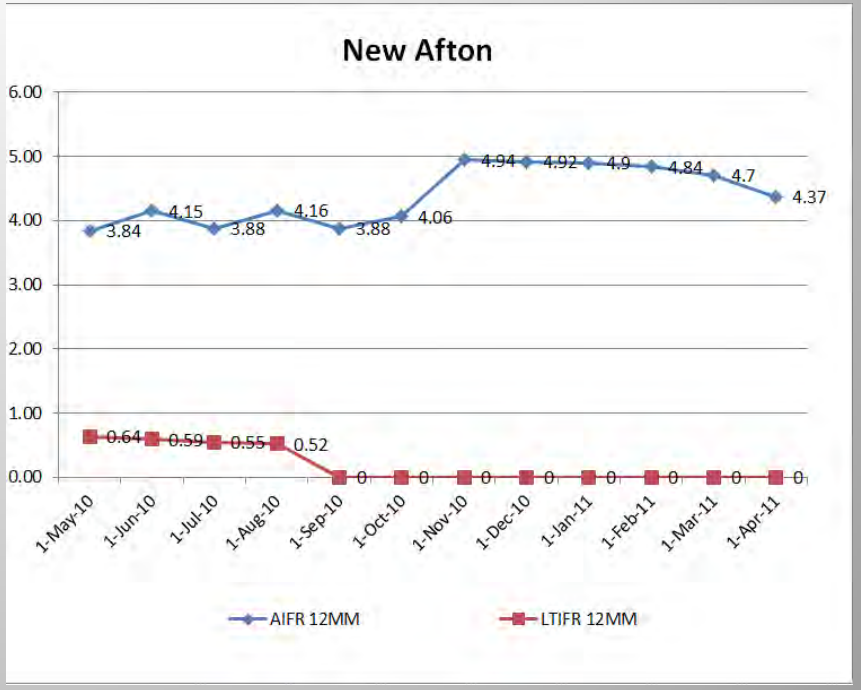


Manpower & Hours

- 279+ Employees: 122 mining, 34 mechanics, 99 office & support= 167,075 hours YTD 2011
- 223+ Contractors: 43 Acres, 43 Cementation, 29 Thyssen, 71 Construction Contractors, 37 Independent Contractors = 170,955 hours YTD 2011
- NG - 7 days on/7 days off rotation – 11 hour shifts
- Contractors – 28/14, 20/10, and regular weekly hours
- Third miner trainer group commenced this month.
- Recruiting continues in Mine Ops, Tech Services, Maint, and Mill Operations

YTD Safety Statistics

	Apr 2011	YTD	YTD 2010
Lost Time	0	0	0
Disabling Injury	0	4	2
Medical Treatment	0	2	1
First Aid	6	26	7
Hazards	6	16	0
5pt Card Hazards Reported		35	0
Near Miss	9	34	8
Property Damage	11	47	16
Process Loss	3	7	N/A
LTIFR	0	0	0
AIFR	0	3.55	4.68



2009		2010		12MMA	
AIFR	LTIFR	AIFR	LTIFR	AIFR	LTIFR
3.17	1.27	4.92	0.00	4.37	0.00

Mine Rescue – Emergency Response

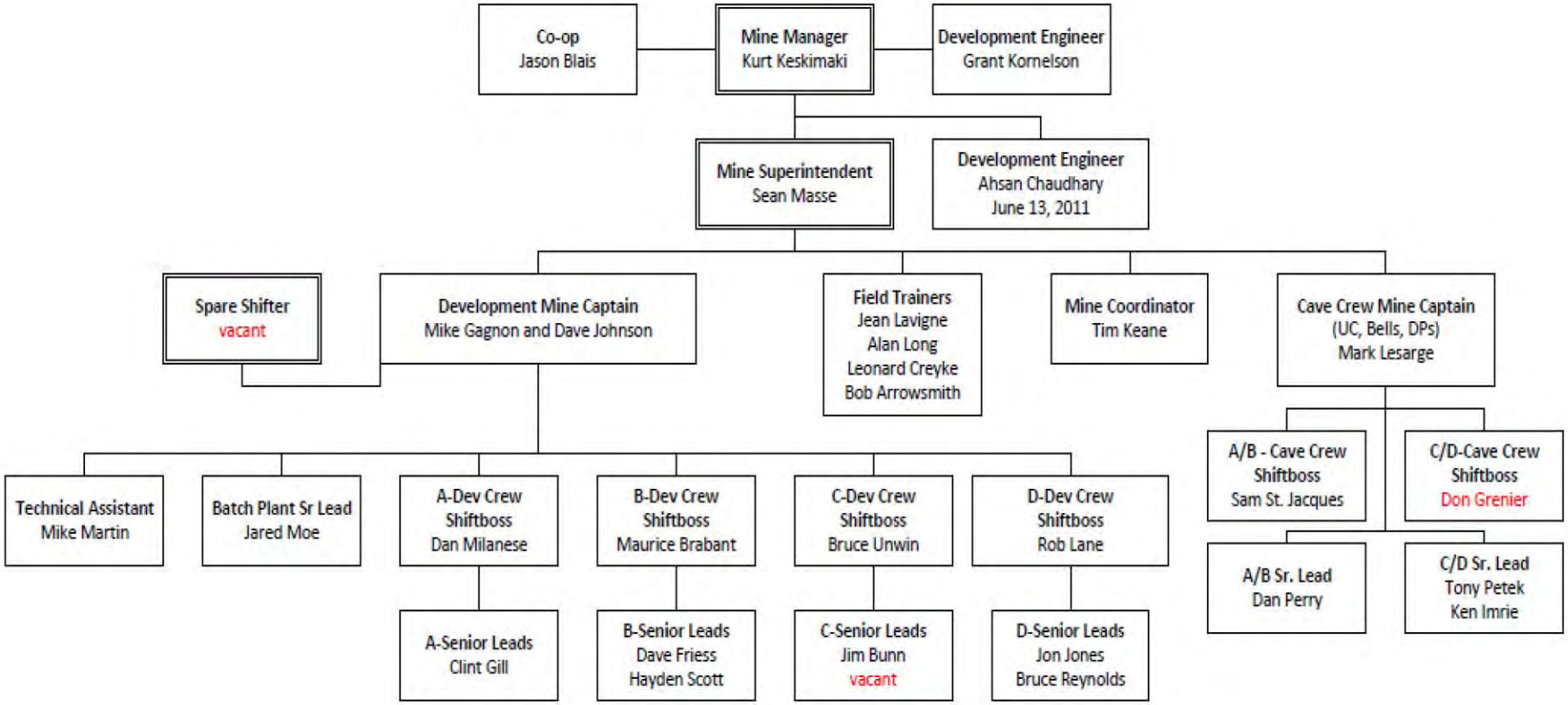
- Hired a new Fire & Mine Rescue Chief (Mike Owens)
- Currently 28 active MR members
- Primary First Aid response remains with SAVI (WPA)
- 50% of workforce has SJA first aid certification
- In process of procuring a Fire Engine & equipment
- Water truck used as surface fire response vehicle
- 4 – 20 person portable refuge stations, 1 - 10 person
- Permanent refuge location (60 person) nearing completion
- Training for BC Mine Rescue competition in Revelstoke
- Mine rescue course to increase active numbers

Achievements & Opportunities - YTD

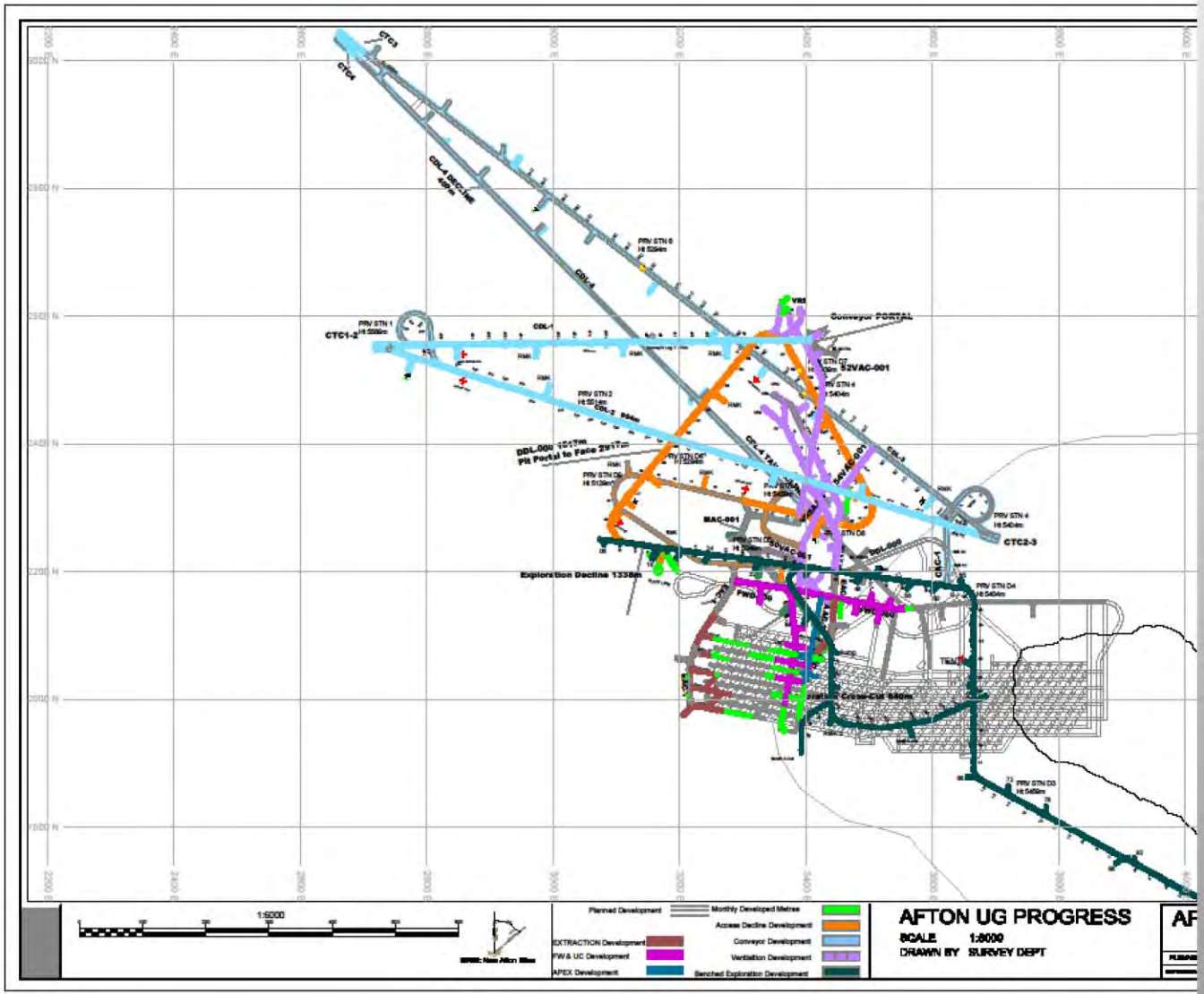
- Reached 1,000,000+ man-hours with no LTI's!
- Miner Training program – working well
- YTD training hours - +5000 hours of total training hours, Mine survival refresher, fire suppression, MSD body mechanics, orientations, equipment training, explosives
- Industrial hygiene monitoring – baseline study June/July
- Surface fire fighting training once new gear arrives
- Improvement in near miss & hazard reporting by 50%
- Quality of incident reports & timely corrective action closeouts
- Internal safety audit & ICS training
- Mill operator training program
- Continue to reinforce the basics…JHA's, 5-point safety, incident reporting, inspections…

newgold New Afton Mine Kamloops, B.C.

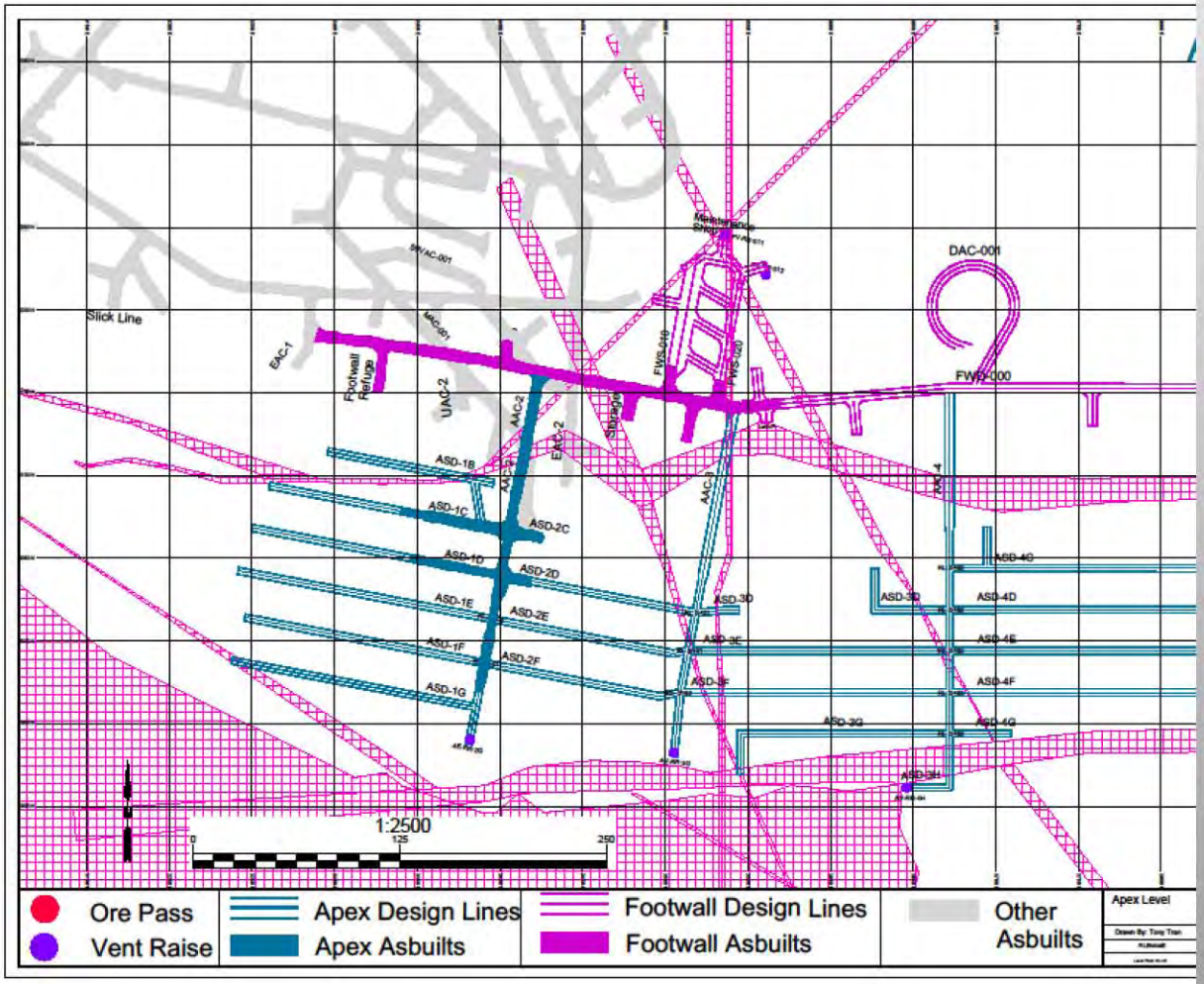
Mine Ops Department 2011



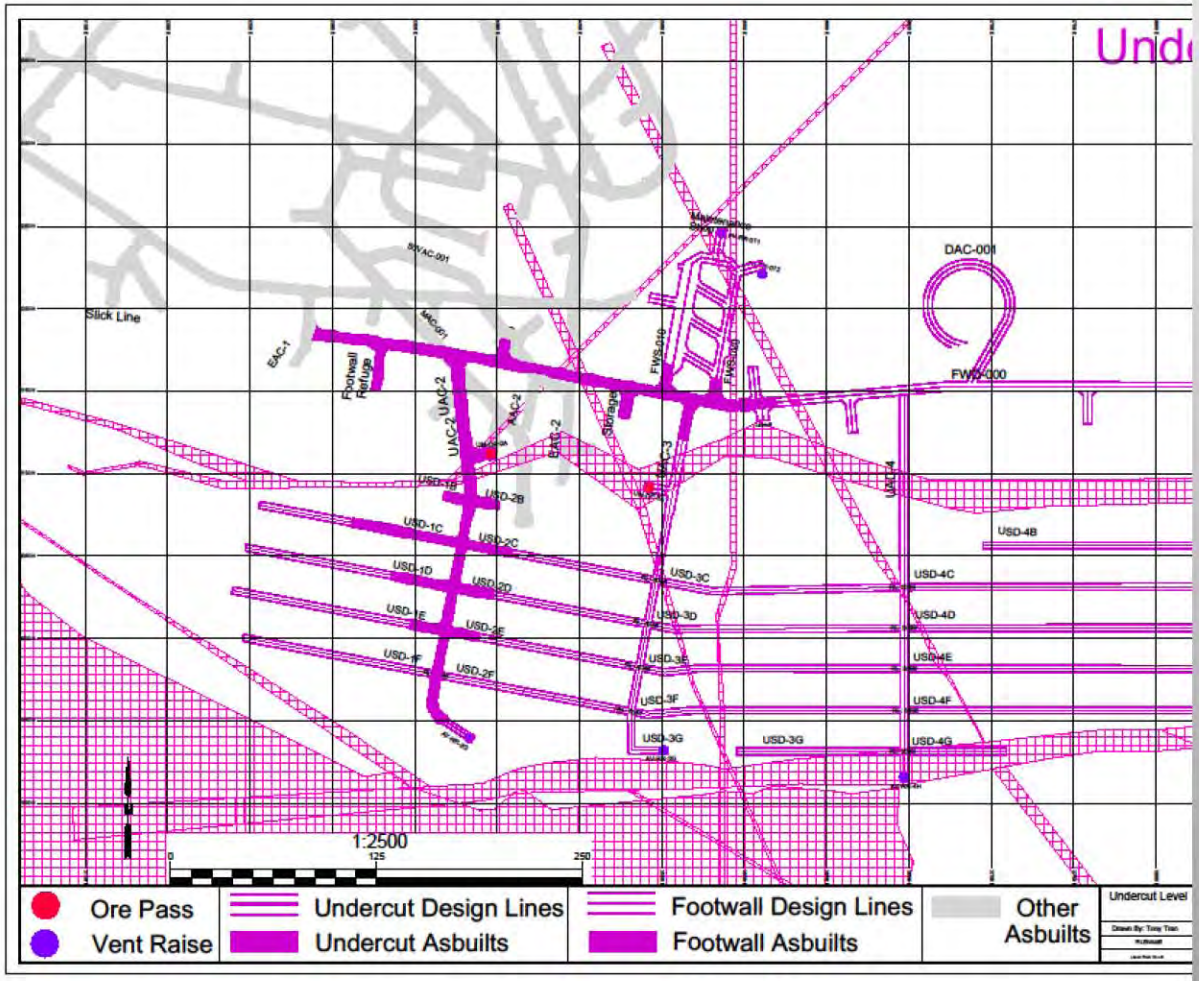
New Afton Underground Progress Through April 2011



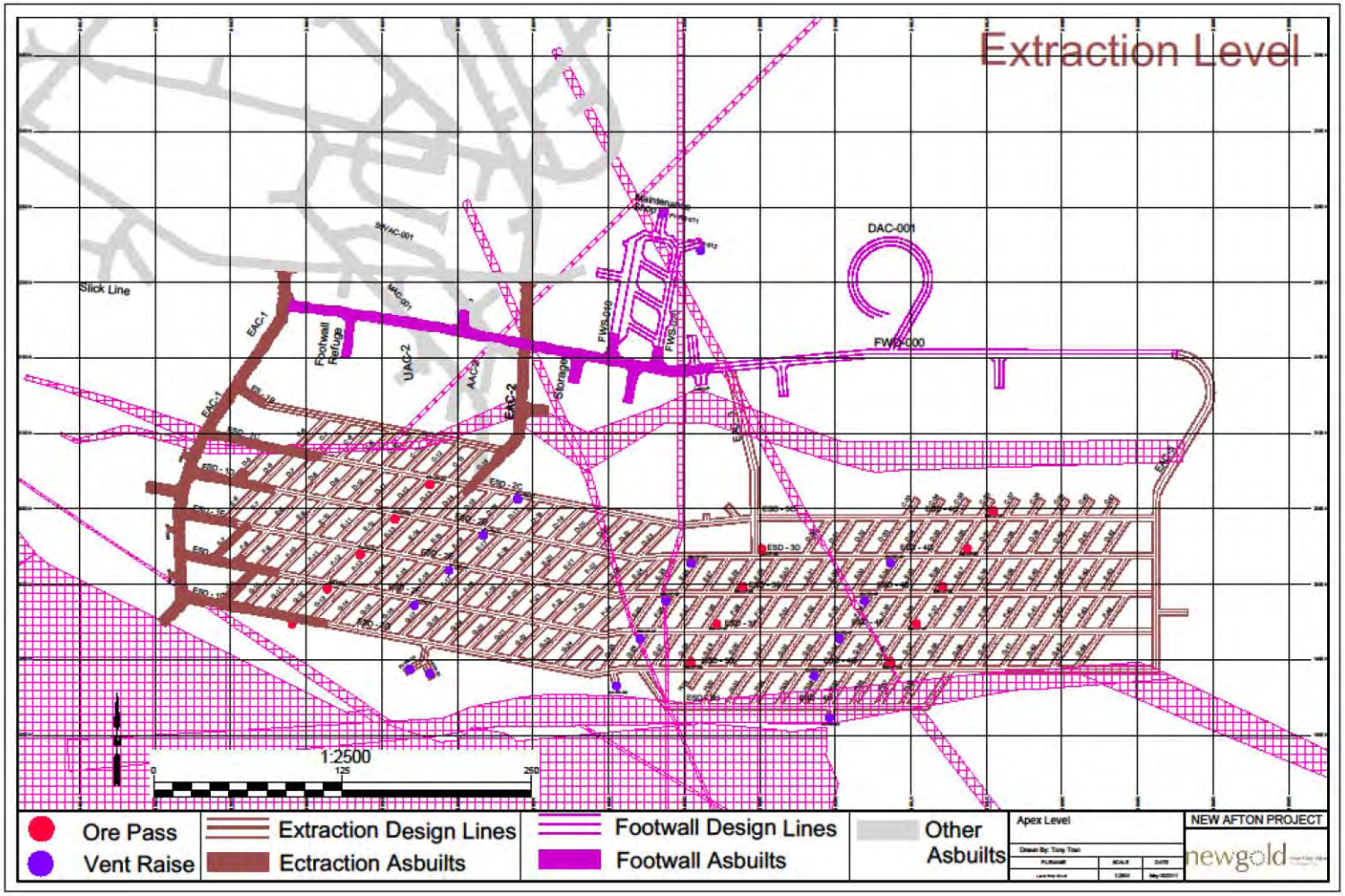
Apex Level Progress Through April 2011



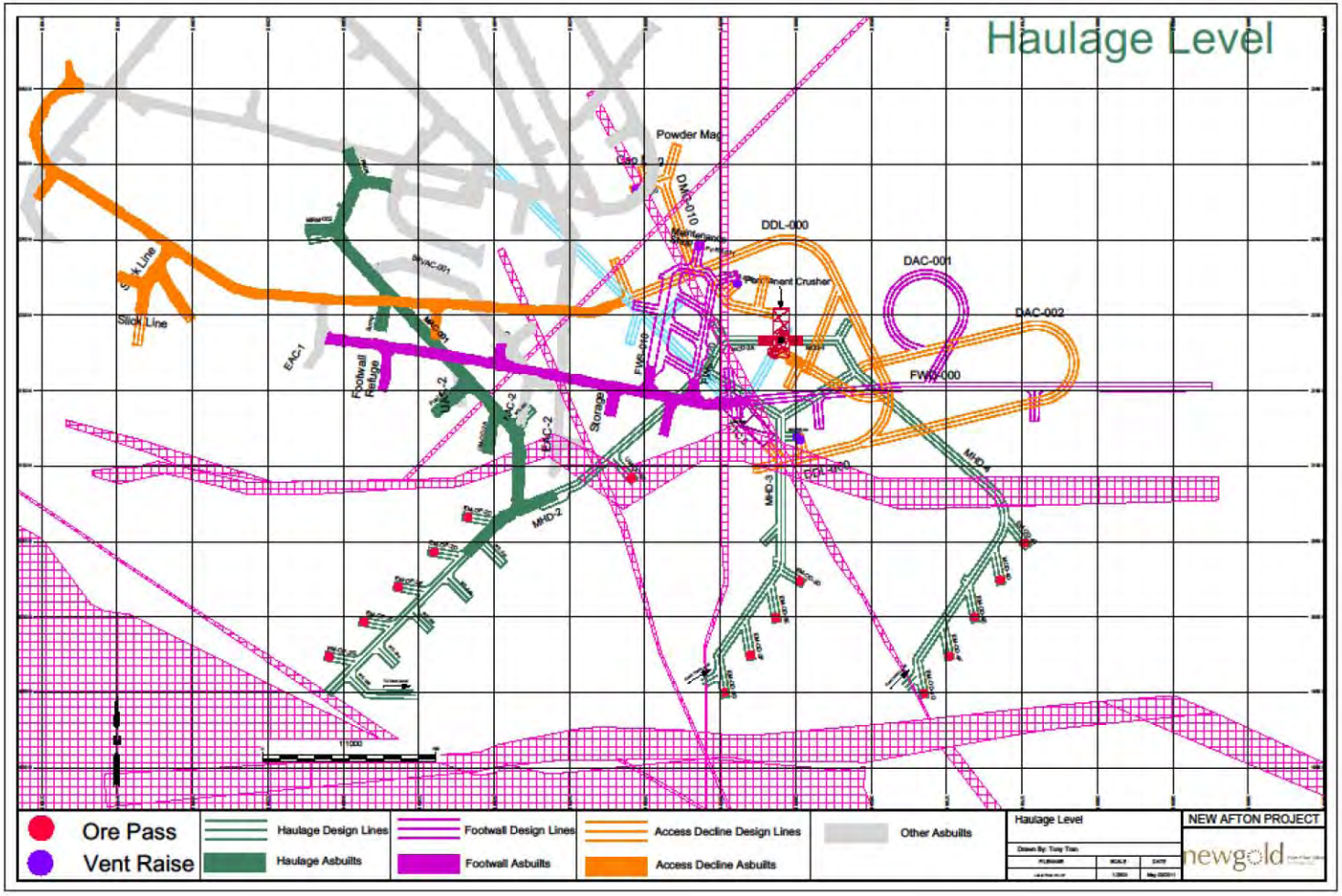
Undercut Level Progress Through April 2011



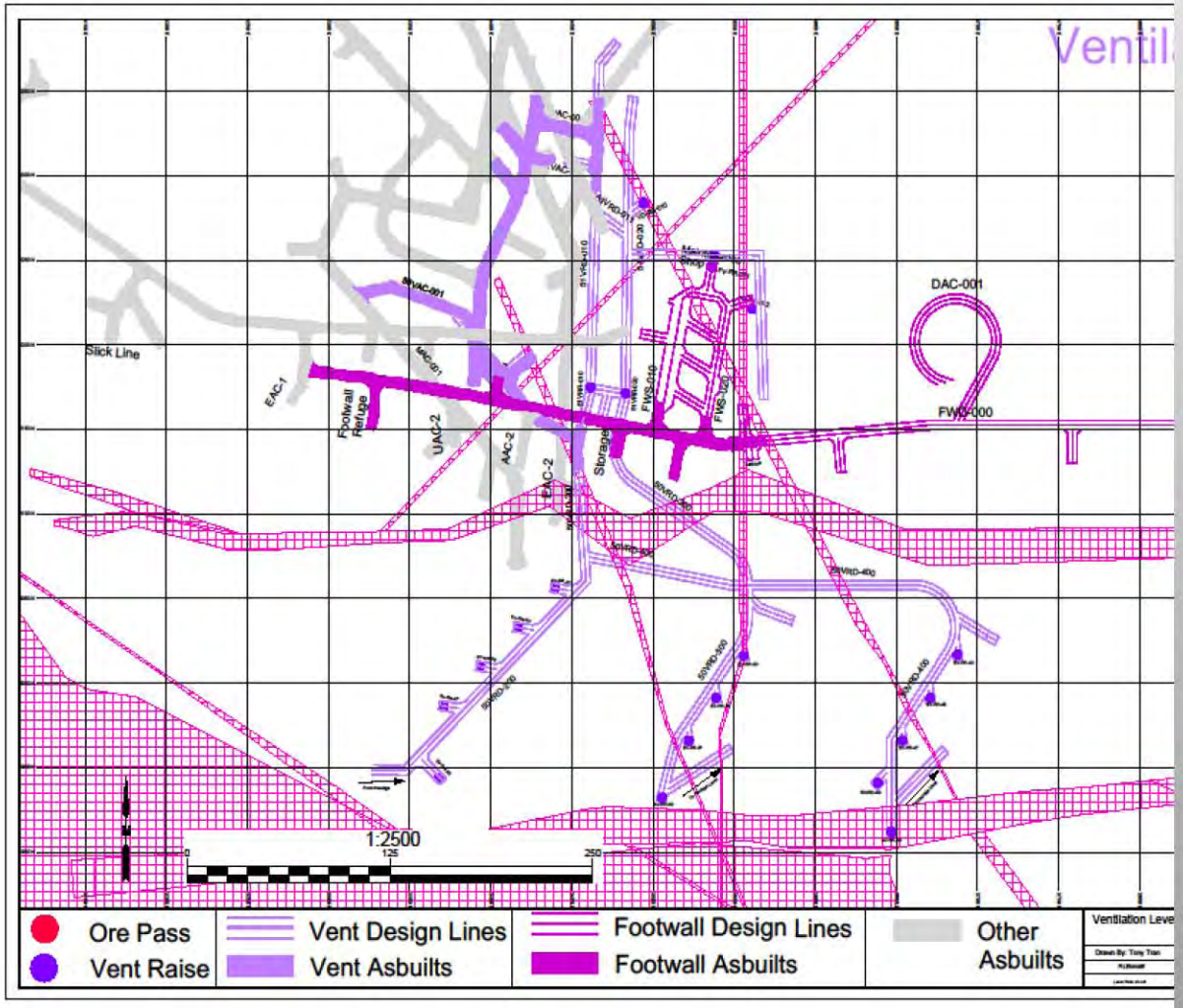
Extraction Level Progress Through April 2011



Haulage Level Progress Through April 2011



Ventilation Level Progress Through April 2011



CONSTRUCTION:

Safety - There were two near miss incidents and one minor property damage incident. The incidents were reviewed with the contractors, underlying and direct causes determined and positive correction actions agreed upon. Weekly Stats; 0 Hot Work permits were issued and logged this period – 63 to date - site manpower Friday – 157 – total safety-hours worked this period – 9254 - total year to date – 222,869 – project to date – 232,123 - Site orientations this period – 25 – to date – 426.

NG Surface - Sterling 15 t crane was in use underground and Sterling, Surface and the RKMS cranes on surface. Lack of crane operators continues to be a concern. Surface equipment continued all week on the Waste Transfer Area. The Pit – to – Surface Ore haul caught up this period. TRU began training operations.

BCH, EMPAC and NG continued with Main Sub commissioning process. 'Power On' Date moved ahead to 03May'11 to accommodate due diligence checking measures decided upon by contractors and management.

Harrison continued underground 15 kV cabling work on ERU 4 and ERU 3 as well as assisting Cutler Hammer in the commissioning of the 15kV switchgear. Lighting and instrumentation cable tray installation took place in CTC 1 / 2. Harrison surface activities brought the completion of the Main Substation to over 98%. The replacement of a 30kVA service transformer was completed. Commissioning by Wismer – Rawlings remained underway at period's end due to the due diligence activities noted above. The VR 6 fan was successfully commissioned. Work on Exhaust Raise Area centered around installing conduits in the E-House slab. The portal 'Load – Break' cabinet was installed.

Plowe – Contractor continued to mobilize materials to site for the o/h line to the Tailings Storage Facility (TSF).

First Nations – 1/ SIB delivered aggregates and supplied haul trucks to Acres for backfilling jobs around the site.
2/ KIB – CSC Electric - Tradesmen continued work on Mill Area temporary power, cable installation for the STP and grounding in the Concentrate Thickener Area. A temporary generator and construction panels were installed in the TSF mobilization area. C & L Holdings continued the Pit-to-Surface ore haul on a seven day per week basis this period.

RKMS – Work continued in the structural / mechanical work in the Reclaim Chamber. Solid progress was made on the Reclaim Stacking Tower. Contractor began mobilizing for its Mill Structural Steel and Mechanical contract.

Acres – 1/ Work began on the base preparation for the VR 5 Raise Bore pad. The Spillway crossing was brought to 92% completion. The earthmoving fleet continued on to the tailings line corridor placing subgrade fills and the filling of the Surface ore storage area. Topsoil removal in the TSF began.

2/ Mill compressor bases and thickener columns were concreted as was the Blower Area slab. Base preparation for the tailings pumps went well.

Cementation – 1/ Return and Training idlers were installed along with lateral bracing of conveyor trays in Leg 1. Leg 3 pipe brackets and sump installation proceeded well. Hanging of Leg 3 conveyor trays continued bringing to total to 156 out of 207. CTC's 3 and 4 base preparation continued with the pouring of lean concrete and the sump in CTC 3. CTC 2/3 saw the mechanical installation of the 20t capacity crane and internal structural steel. Mechanical installation of conveyor drive components was initiated.

Chinook - Scaffolding services carried on for surface and underground work. A major step was the erection of the Rougher Flotation Area scaffold in support of the Flotation Tanks installation work to begin shortly.

ERU 3



CTC 2/3



CTC 2/3



Cell columns and excavating Tailings pump FDN



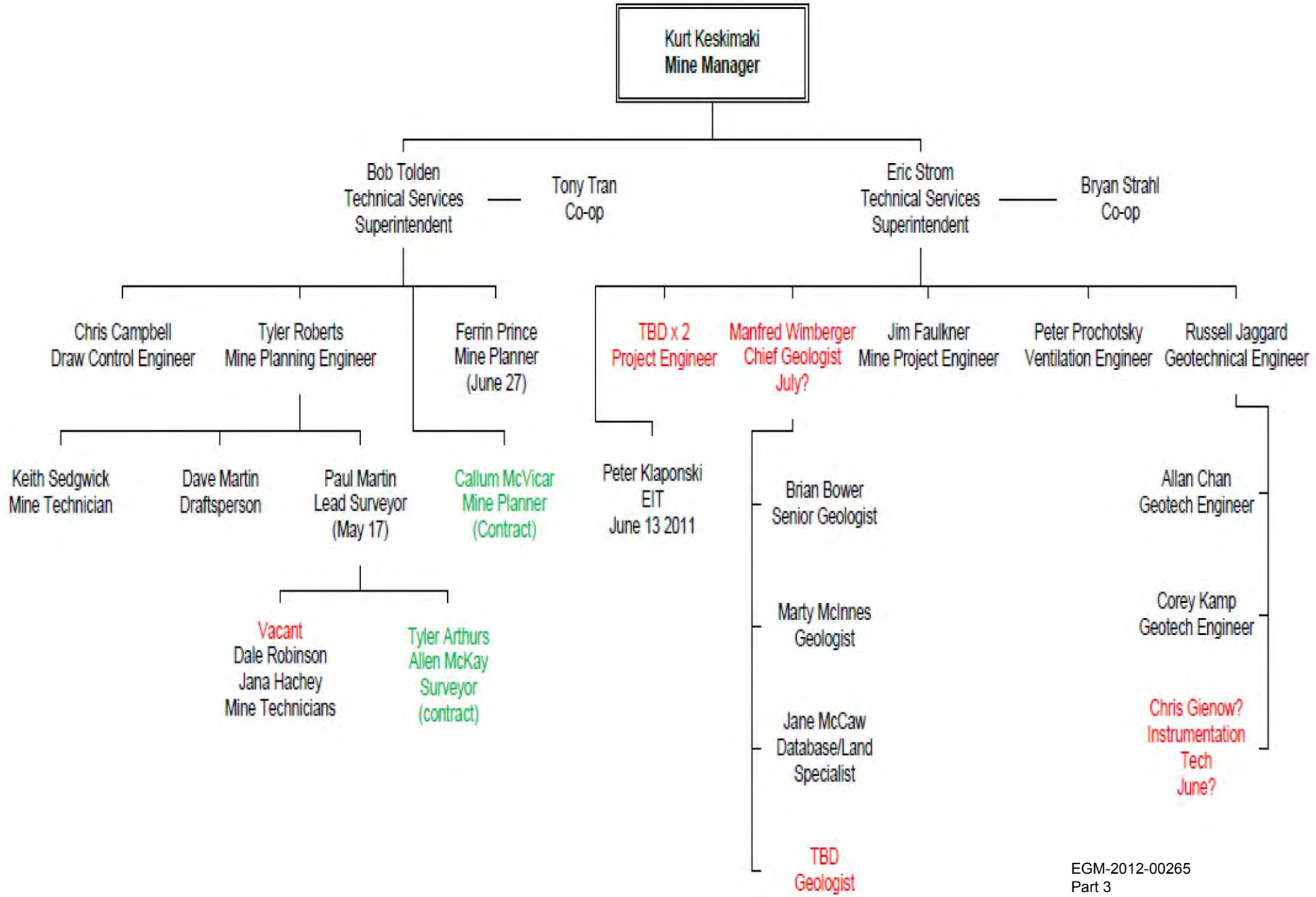
Spill way



Tailing Impoundment Drainage

- We will be commissioning a third party peer review of the raw data looking at our hydrogeological model. The review will also comment on any deficiencies and gaps in our knowledge to date.”

Technical Services



Operational Activities of special interest

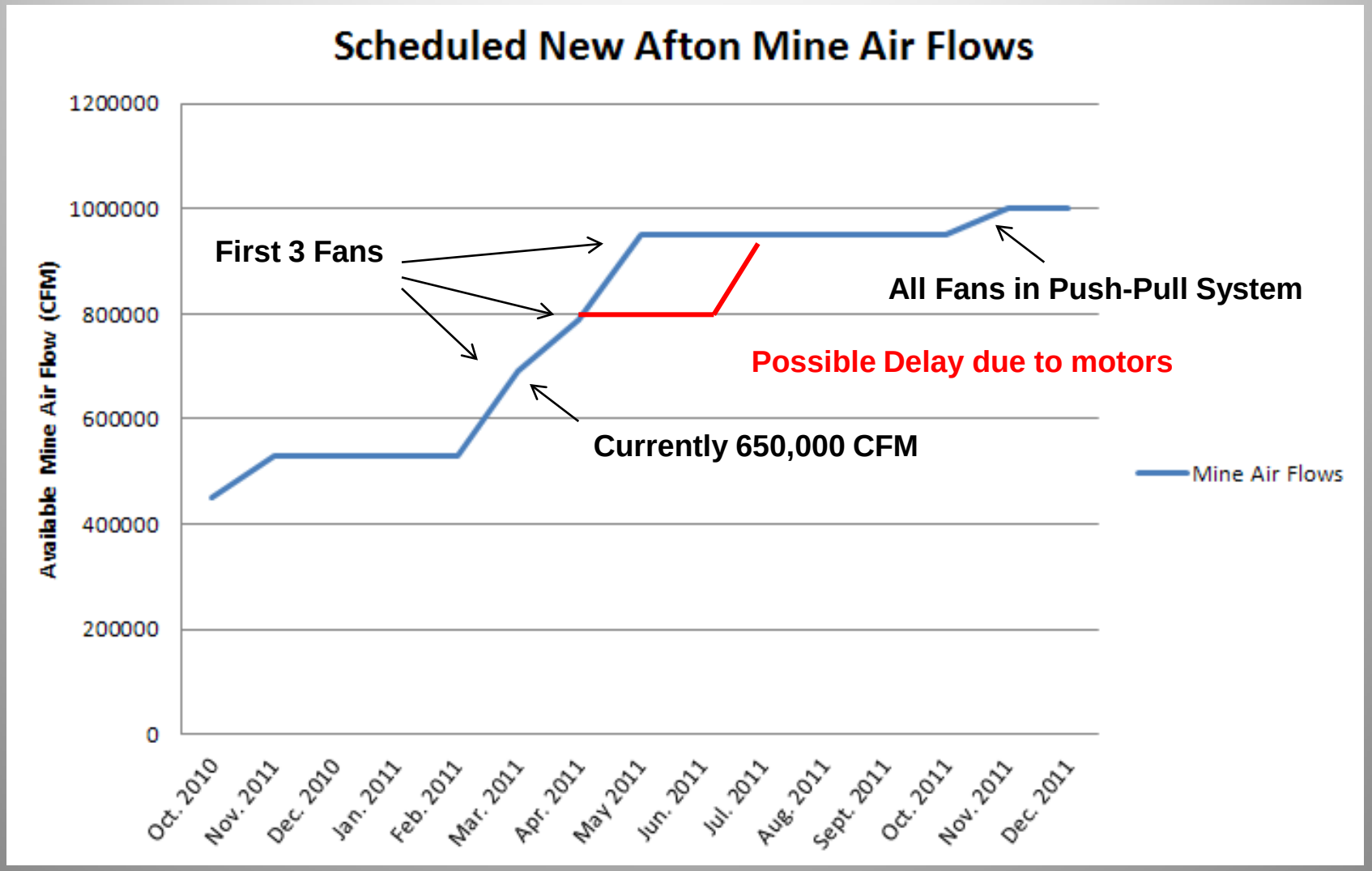
PERMANENT FAN INSTALLATION

VR6 Permanent Fan

- Operating at 780 rpm, 90% motor load
- Providing 400,000 CFM
- Mine Total: 650,000 CFM



PERMANENT FAN INSTALLATION



PERMANENT FAN INSTALLATION

SCHEDULE

- VR6 fan operational April 28, 2011
- VR3 fan scheduled start up May 10, 2011
- VR4 fan installed third – at a later date
    - Delayed due to motor availability

Hauling of material out of the pit

- Hauling of ore material out of the pit has gone well with no incidents
- Seasonal changes to the pit road have not adversely affected hauling
- To date 42,000 tonnes transported to surface stockpile



Seasonal Challenges, spring run off and melt



Ore transition in the pit

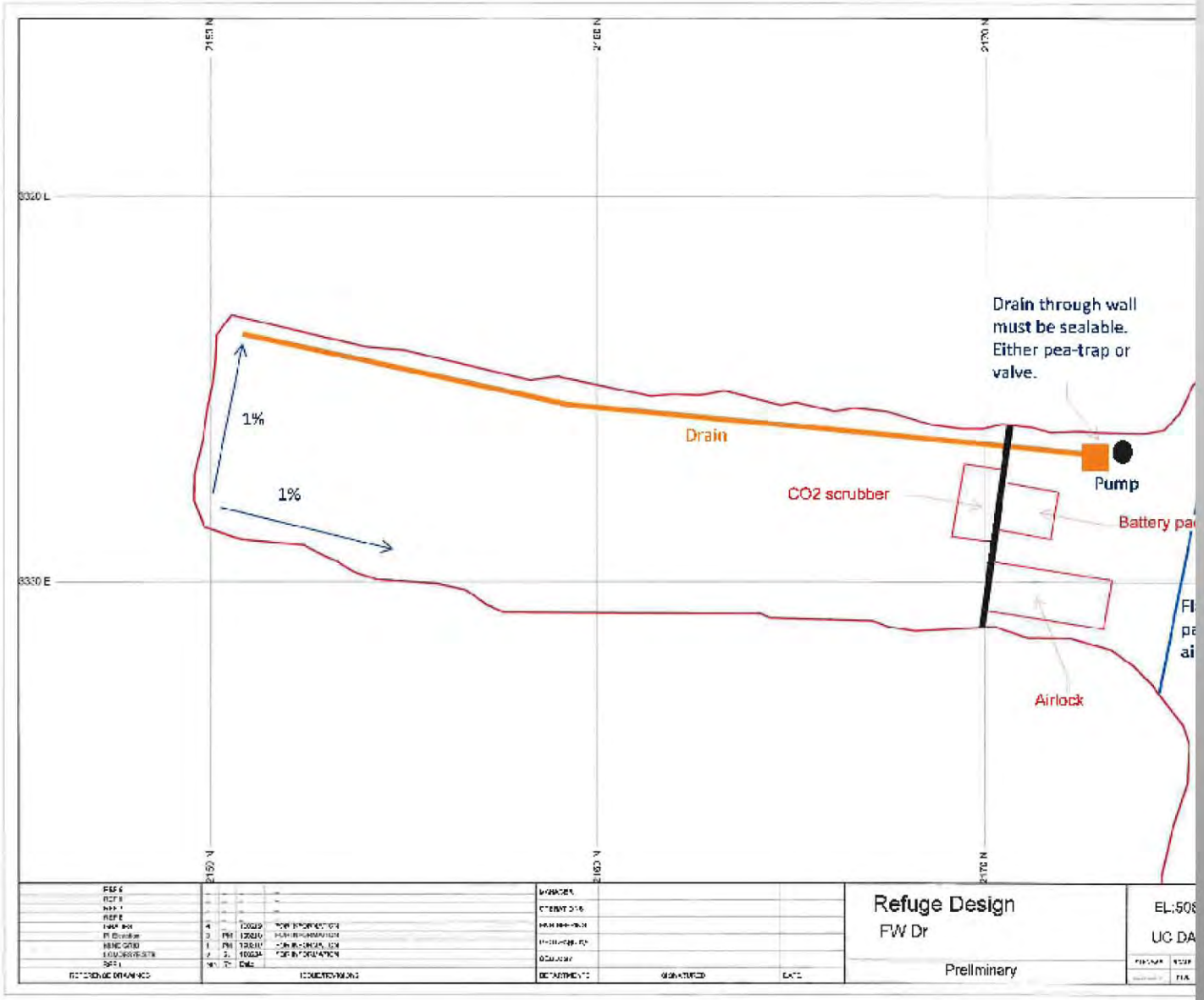


Projects currently Underway

P117 – Underground Refuge Chamber

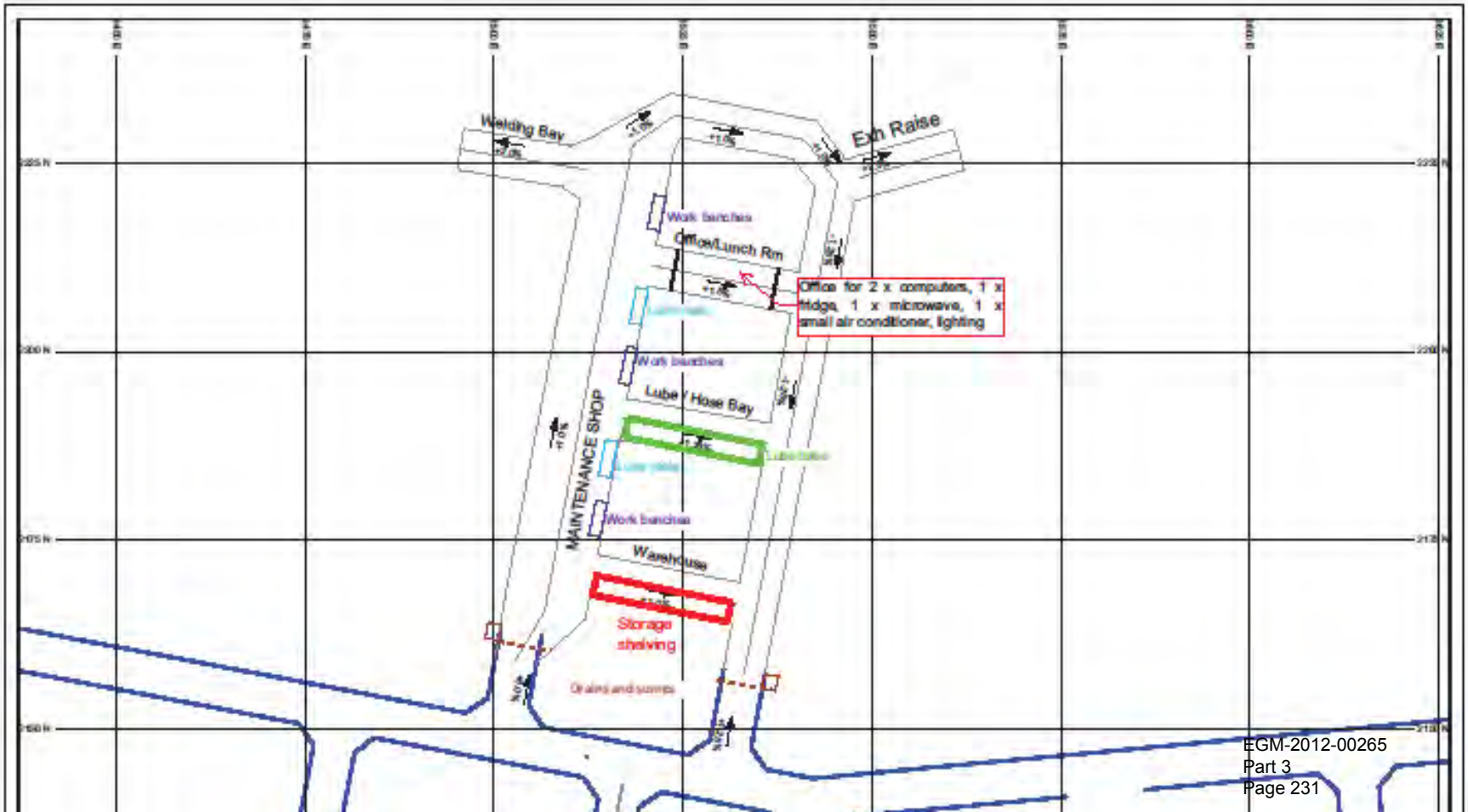
- Excavation Complete
- Concrete floor poured
- Airlock, CO_2 Scrubber and battery pack in construction – Due on site early May
- Communications, air and water supply direct from surface designed
- To be fitted out as permanent cribroom
- Due for completion in mid June

P117 – Underground Refuge Chamber



P115 – Underground Workshop

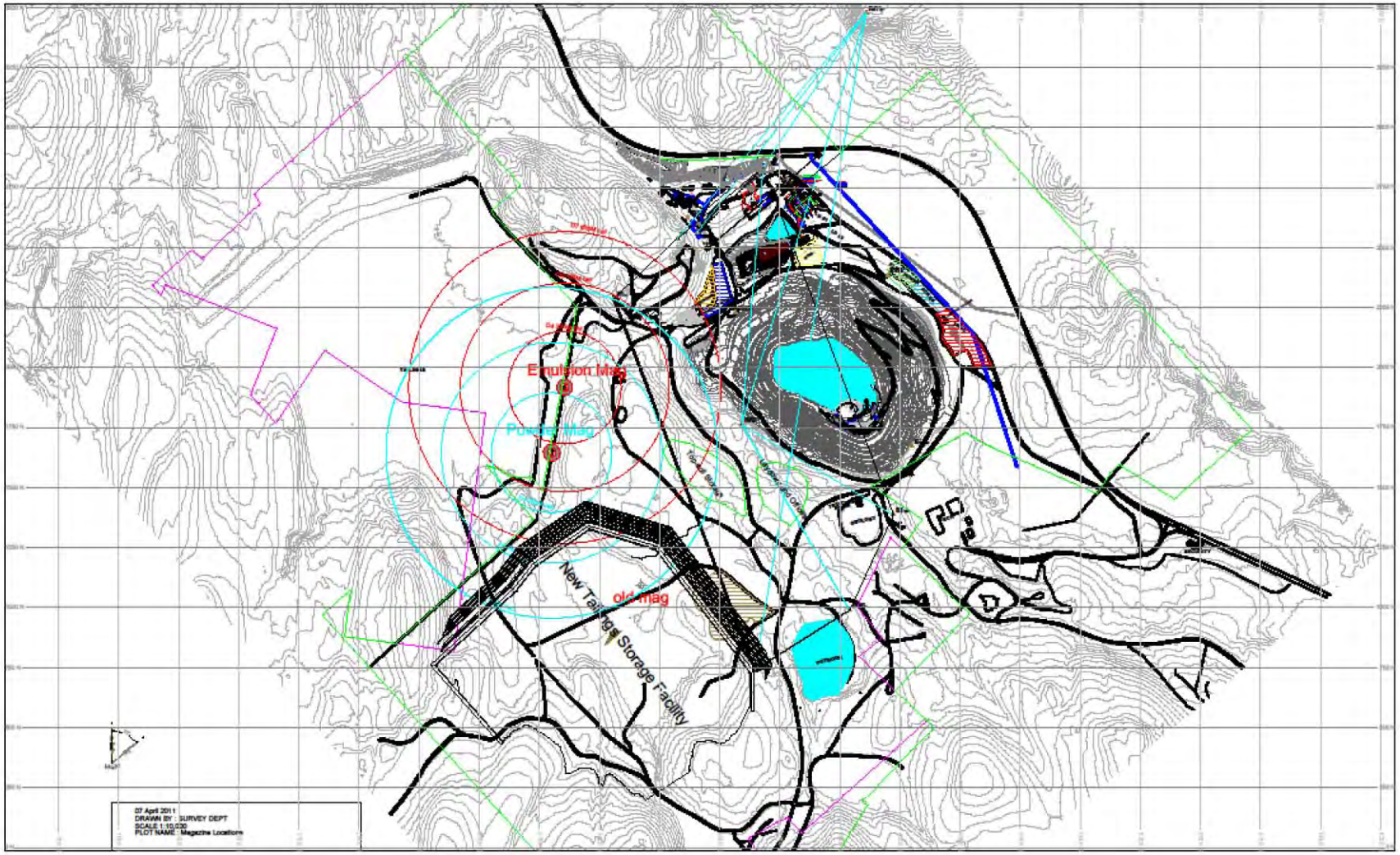
- Excavation Underway



P145 – Surface magazines

- Current magazine to be relocated as it is in the tailings dam footprint
- Additional magazine required for Orica's "Satellite site" – 25,000kg of emulsion
- Locations for New Gold's Powder Magazine and Orica's Emulsion Magazine selected
- Location approval in Progress
- All quantity/distances (Q/D) satisfied

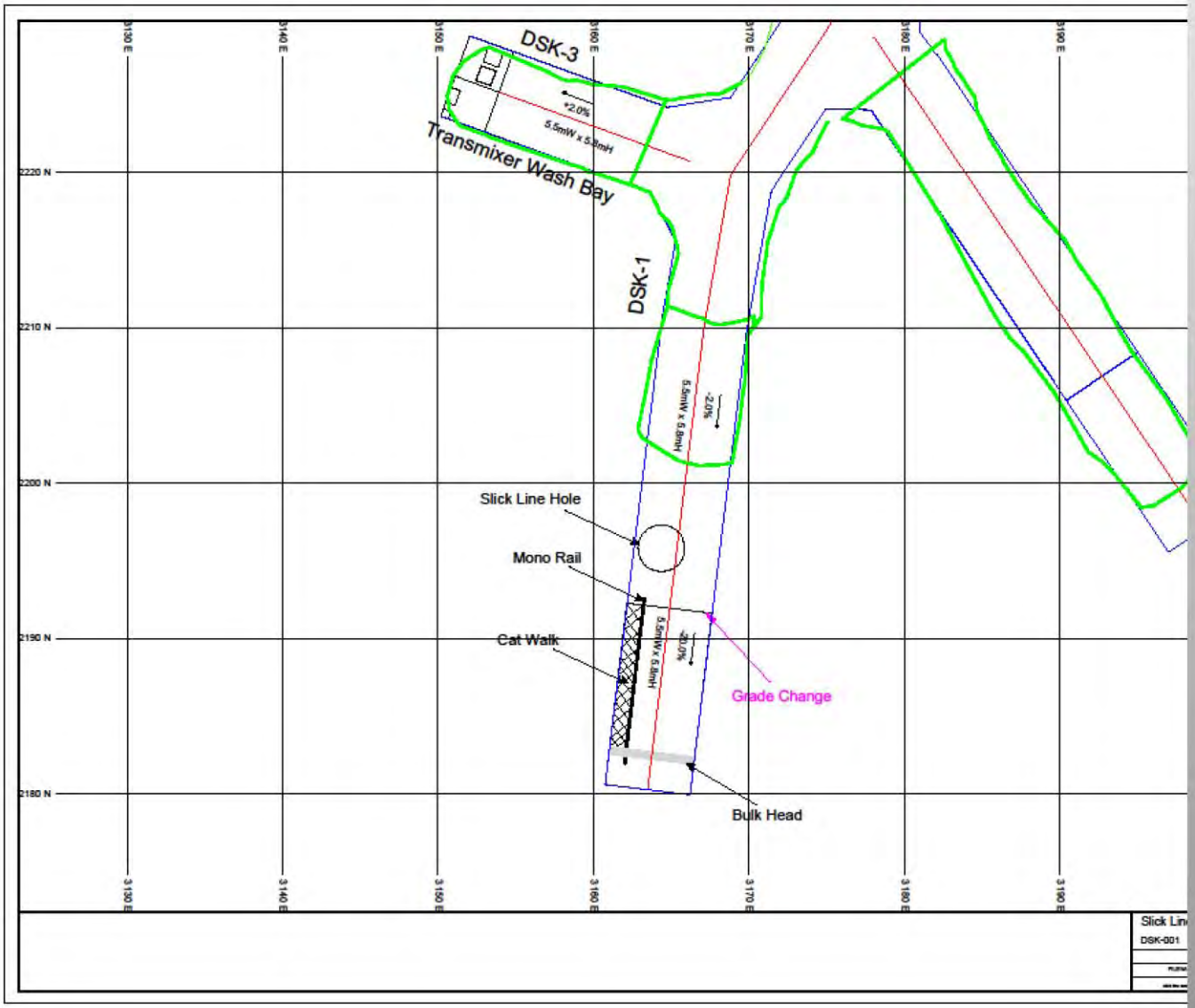
P145 – Surface magazine



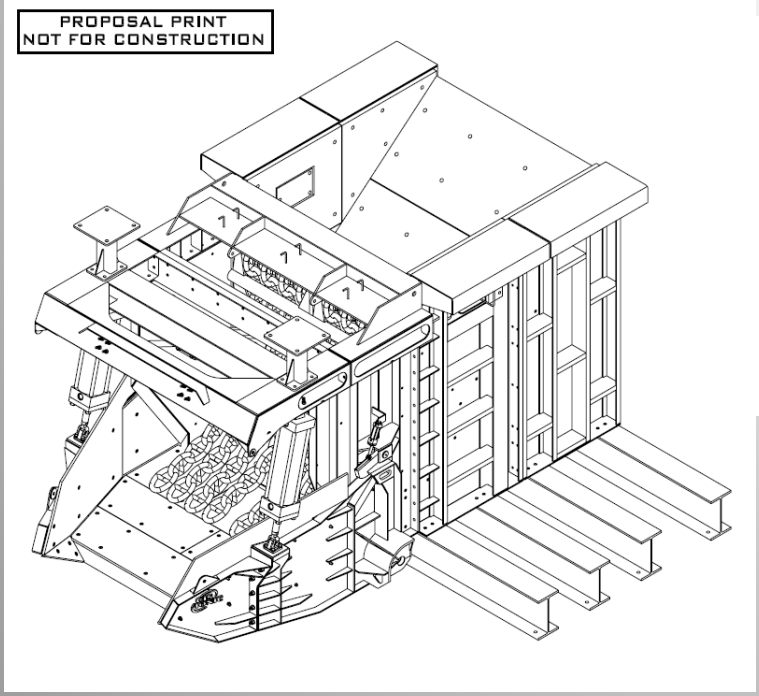
P116 – Surface to underground slickline

- For direct delivery of shotcrete to underground
- 600m vertical hole to be drilled
- Contract driller due on site end of April
- Underground excavation in progress
- Surface and underground handling system in final design phase

P116 – Surface to underground slickline



P136 – Truck chutes in haulage level



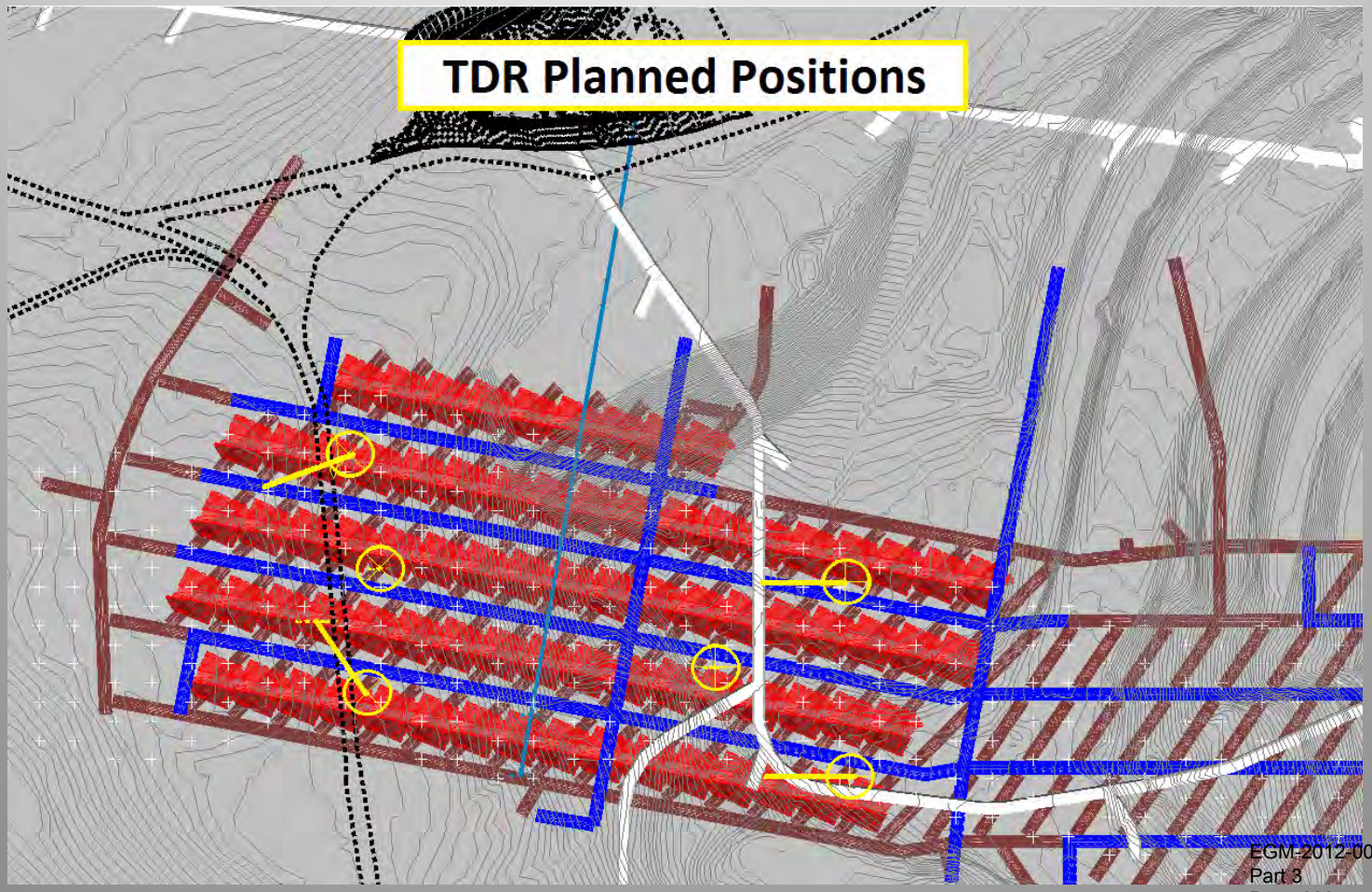
- A study is being conducted on the economic feasibility of truck chutes for the haulage level
- Designs submitted by potential supplier
- Pneumatic operation
- Equipment simulations being run and evaluated
- No specific reference in BCHSRC 2008

P106 – Underground dewatering system

- A study is being conducted into the feasibility of a method to thicken fines from sumps to a manageable consistency
- Objective is to introduce them to the ore handling system (crusher and conveyors)
- System and suppliers are being identified by Engineering consultant

P142 – Convergence Monitoring

- TDR : Time Domain Reflectrometry



P110 – Open Pit Dewatering and mud compaction

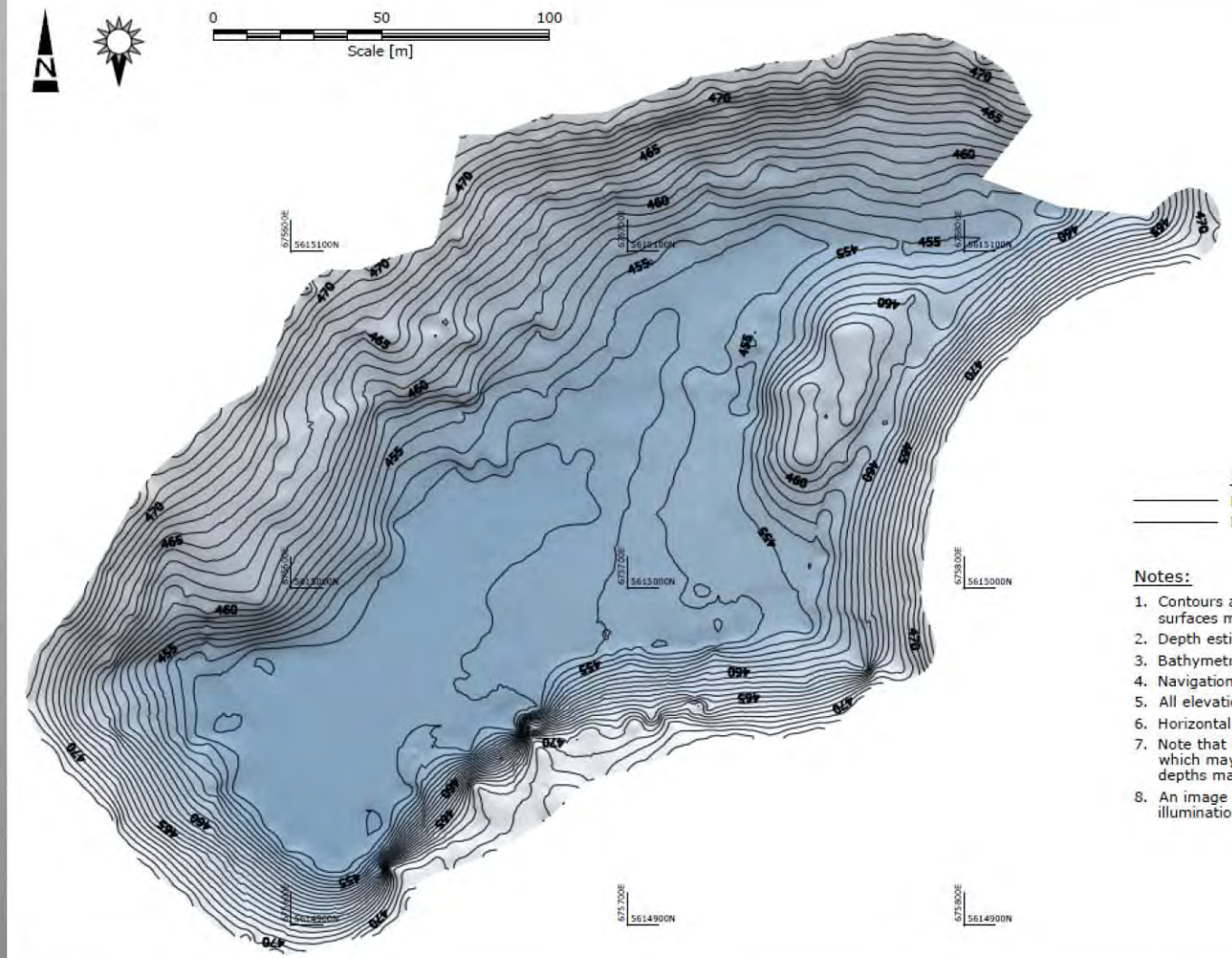
- Bathymetry survey



P110 – Open Pit Dewatering and mud compaction

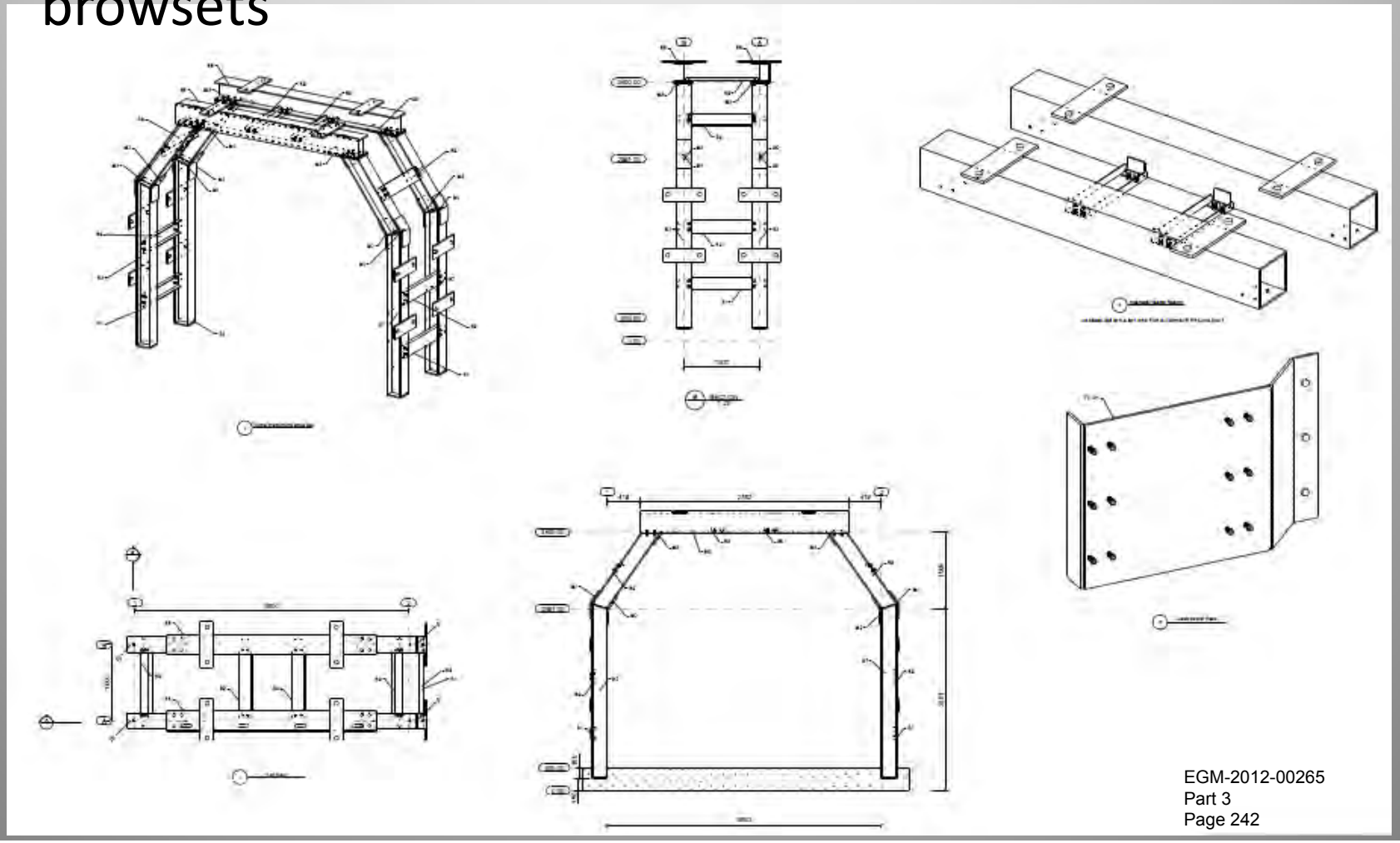
- Open Pit Bathymetry geophysical survey work initiated
- Depth of water 25m - 27m (maximum depth)
- Depth of silts 10m - 15m

Pit Bathymetry initial results (draft)

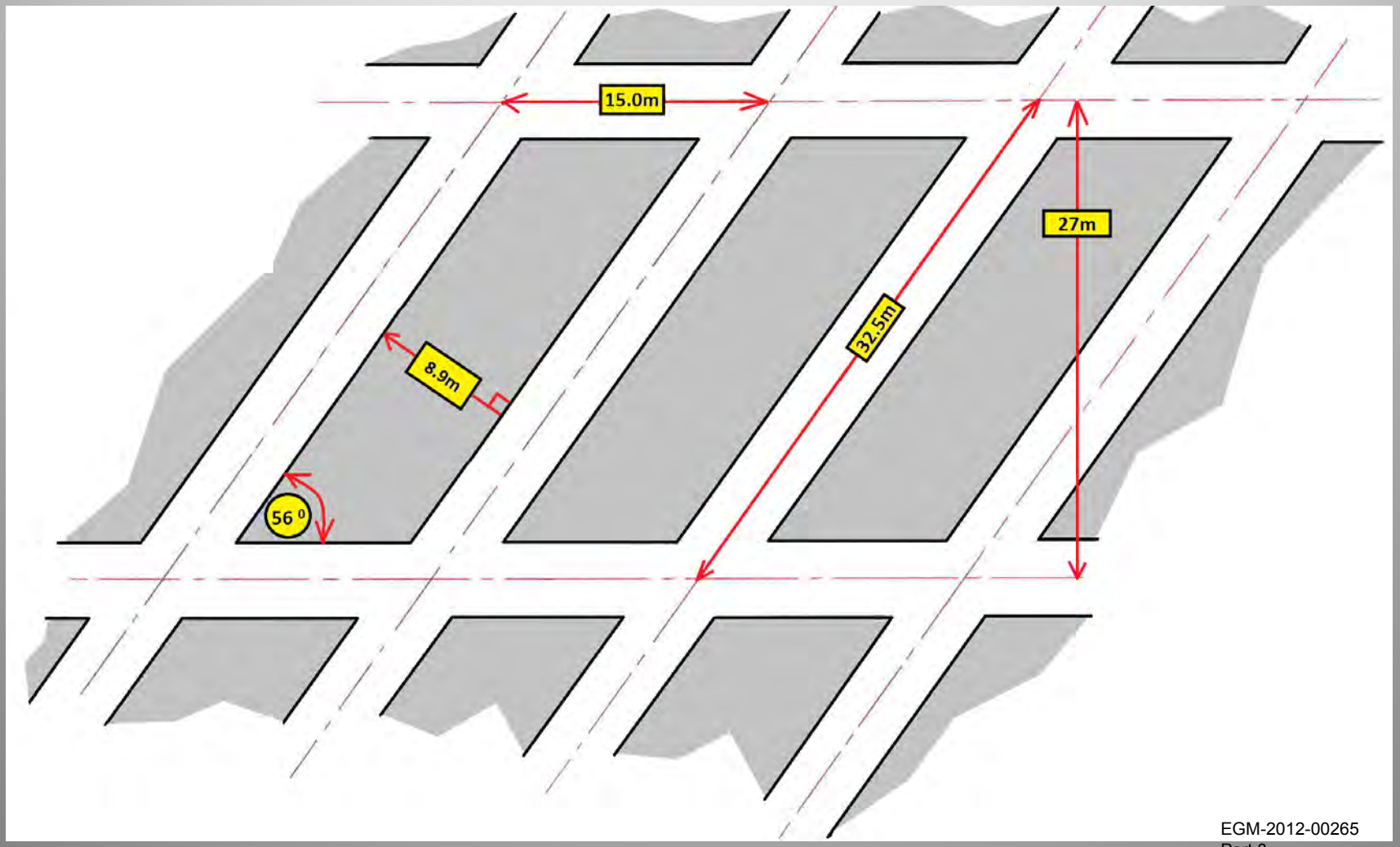


P113 – Drawpoint design - Sets

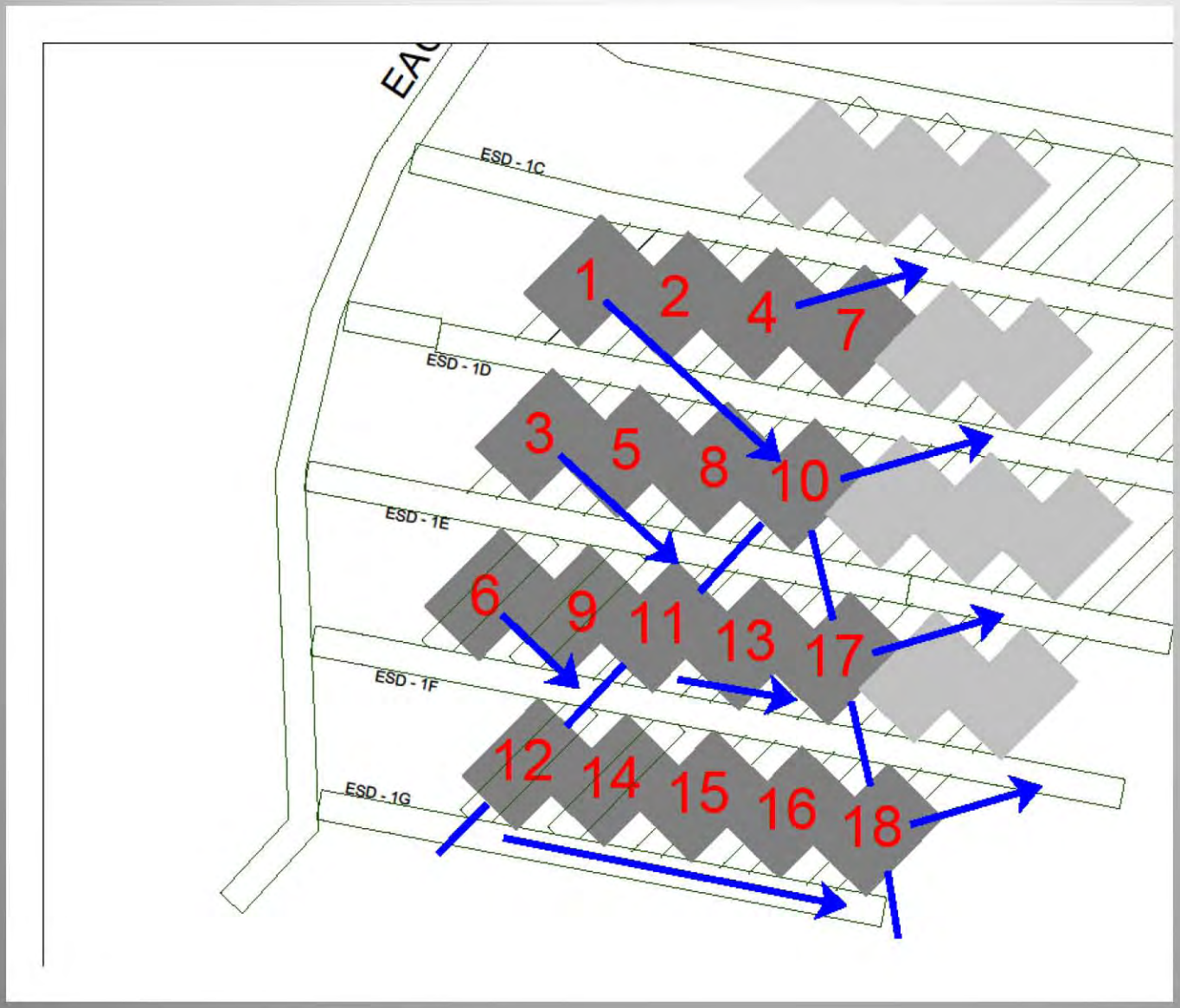
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- Drawpoint sizing and pillar design



Initial Draw-Bell Location Change



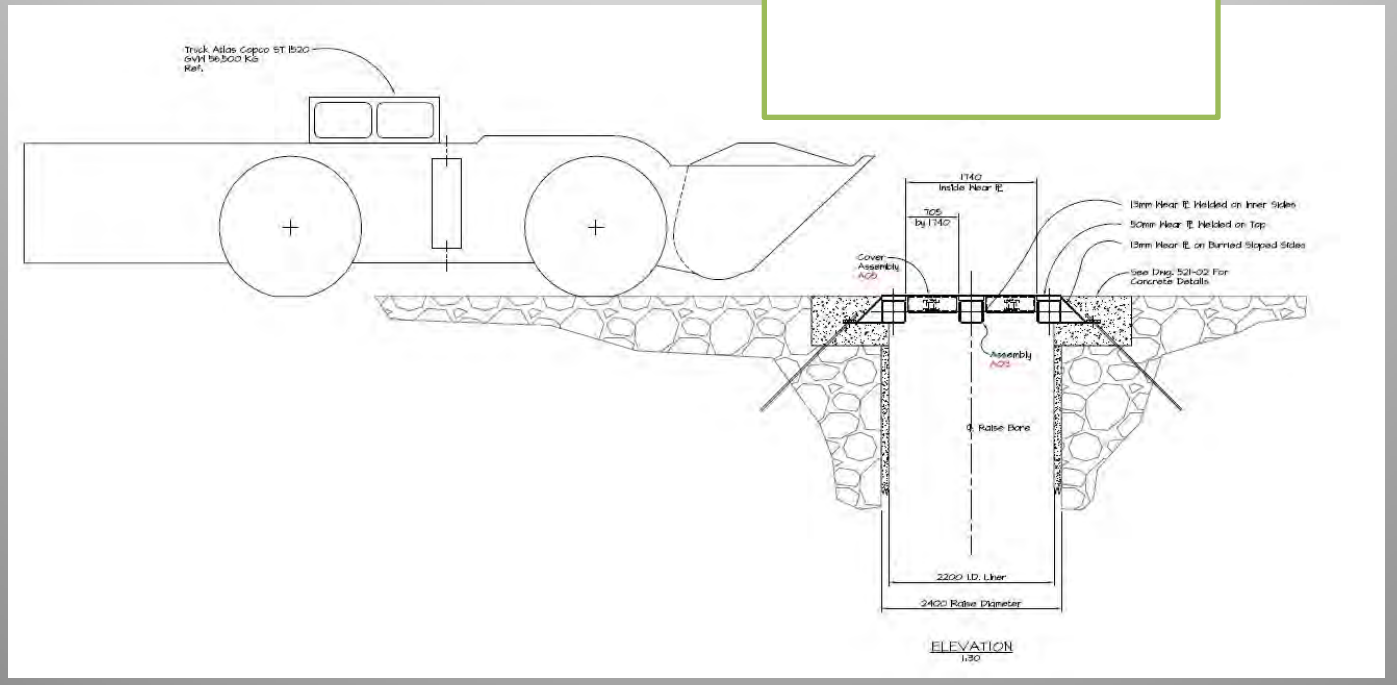
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- Once mucking complete, grizzly must be covered immediately for ventilation and safety

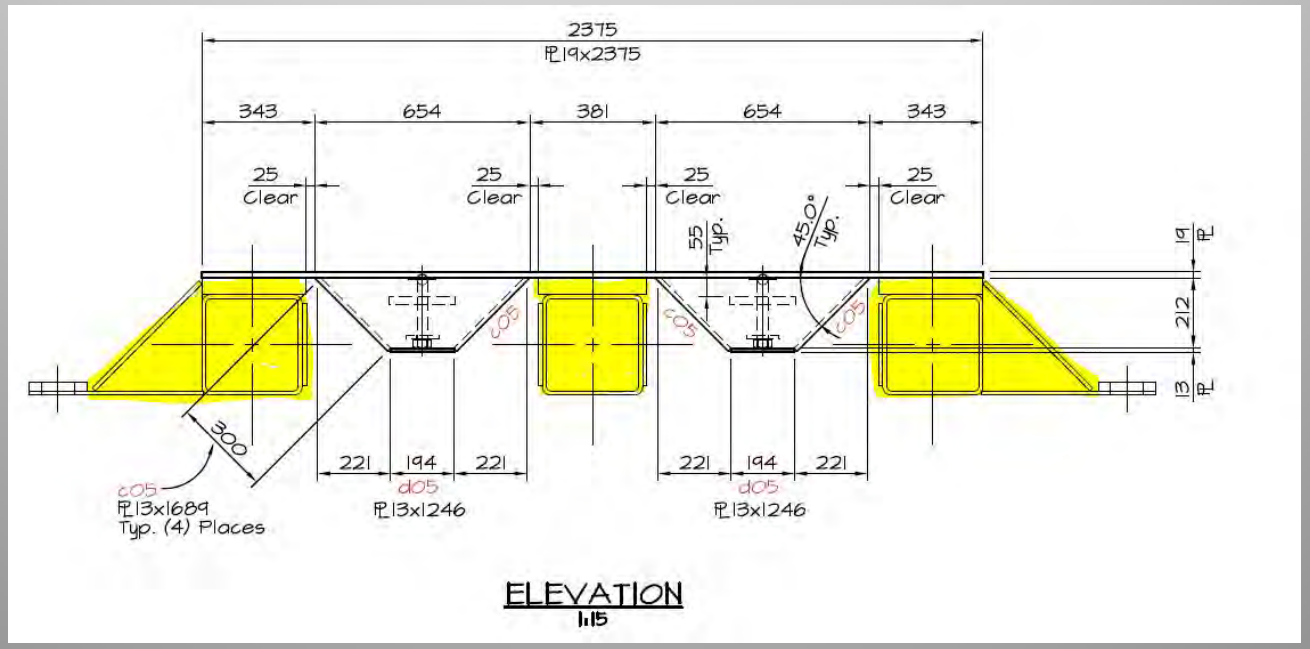
P114 - EXTRACTION LEVEL GRIZZLIES

- 0.7m by 1.7m openings (2.5ft by 6ft)
- All exposed surfaces wear plated for durability
- Designed to withstand a fully loaded 9yd scoop driving overtop



P114 - EXTRACTION LEVEL GRIZZLIES

- Each grizzly has it's own vent cover
- Lifted off and placed by scoop operator without leaving cab
- Designed to withstand a fully loaded 9yd scoop driving overtop



ELEVATION
1:15

New Equipment

Equipment Received to Apr 30

- 2 – Sandvik DS310 Rockbolters, 1 diesel and electric
- 2 – Sandvik DD420 Jumbos
- 1 – Normet Utimec 1500 Transmixer
- 1 – Sandvik DL420 Longhole C-Frame
- 1 – CAT TH407 Zoom Boom
- 1 – CAT R1600G Scoop
- Orica CEBS computerized central blasting system

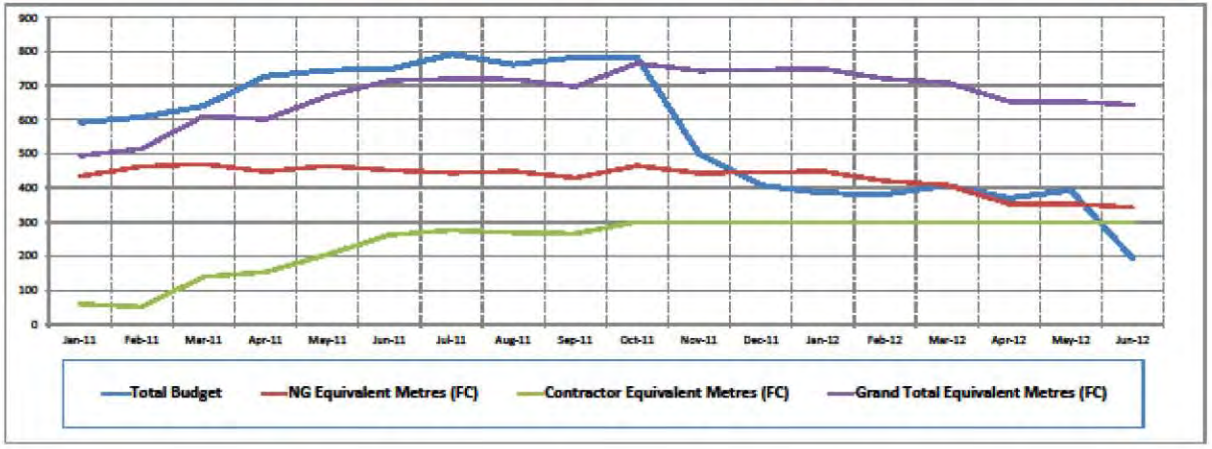
Equipment to come 2011

- 1 - Scoop Mounted rockbreaker
- 4 – Mantrip Tractors
- 1 – Normet 6050 Spraymec (7110 Spraymec to be traded in)
- 1 – Schwing concrete pump
- 1 – Sandvik DS310 Rockbolter
- 1 – Sandvik DL420 Cablebolt Longholer
- 1 – Sandvik DL420 Longhole C-Frame
- 5 – CAT R1600G Scoops
- 1 – MacLean Blockholer
- 1 – Dedicated 20 Man Carrier
- 1 – CAT Compactor
- 1 – Dust Suppression Cassette
- 2 – 8’ wide Multimec Decks
- 1 – Orica/Minecat Emulsion Loading system complete with emulsion totes
- 1 – Replacement ready mix truck
- 1 – Replacement Toyota
- Enclosed cabs for the AC1520 Scoops
- Replace the bucket elevator at the batch plant with a conveyor

Forecast Development

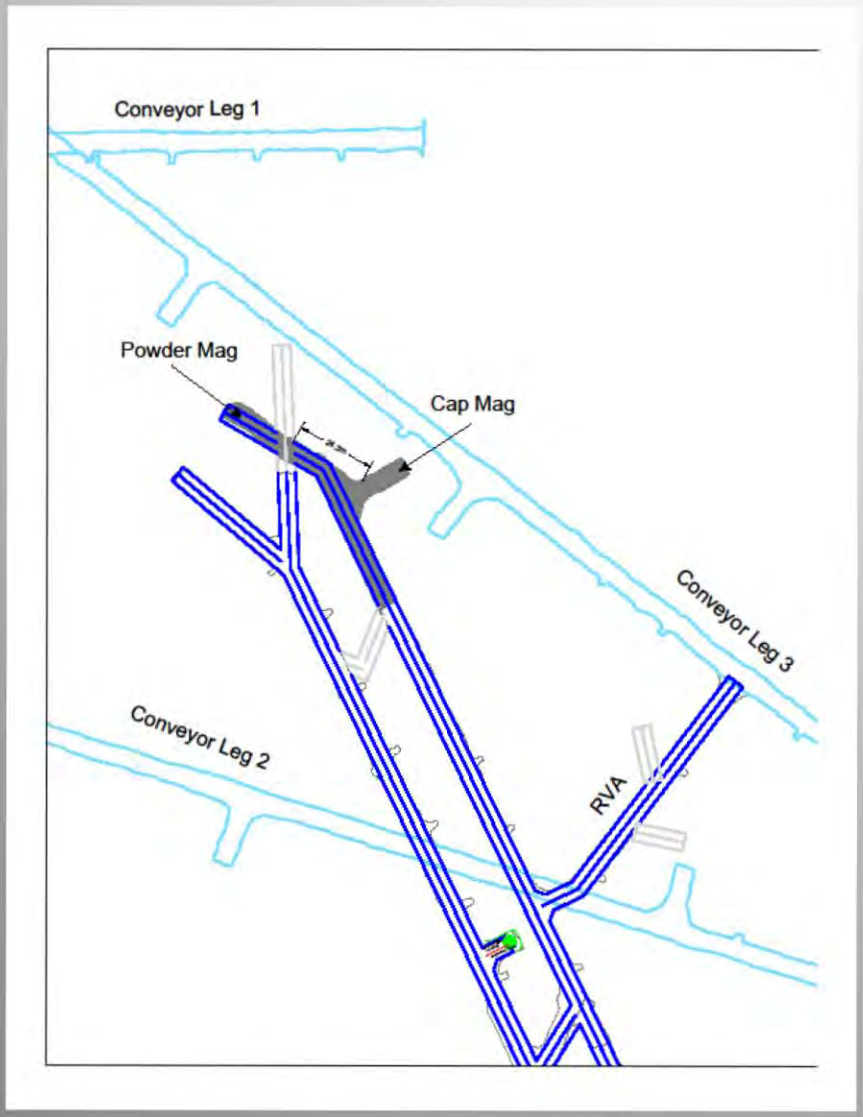
RE-Forecast April 19, 2011

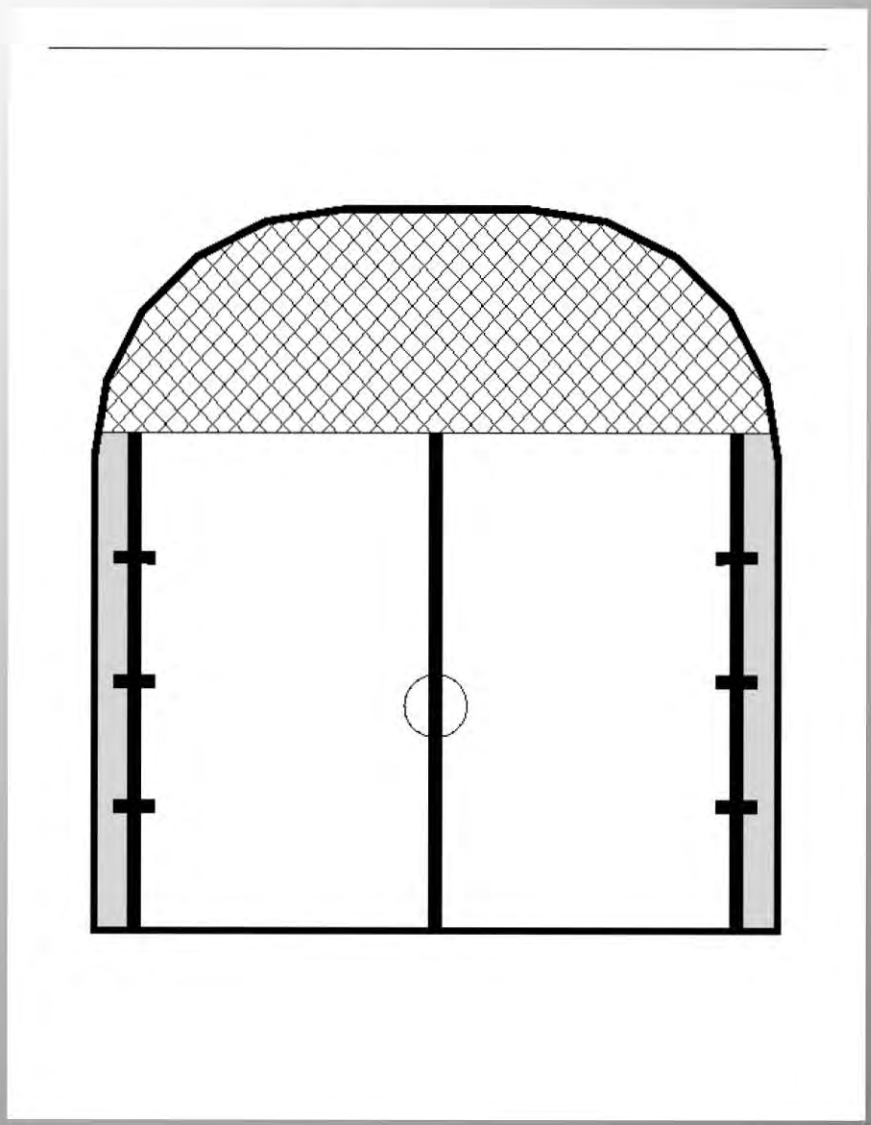
	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Year	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	6 Month	18 Mos
Total Large LGm	447	400	303	360	371	363	391	391	407	364	71	70	3,938	76	71	76	74	76	64	438	4,376
Total Smal SMm	76	207	337	330	336	328	334	332	329	332	303	306	3,549	309	309	331	296	317	130	1,692	0
Total Bulk Budget Eqm	68	0	0	37	38	57	66	38	47	86	126	33	596	0	0	0	0	0	0	0	707
Total Budget	591	607	640	727	745	748	792	761	783	782	500	408	8,082	385	381	408	370	393	195	2,130	10,212
Metres Per Day	19	22	21	24	24	25	26	25	26	25	17	14	22	12	13	13.1	12.3	12.7	6	12	19
NewGold Large	309	222	225	130	133	97	79	84	70	93	96	101	1,639	97	95	83	0	0	0	275	1,914
NewGold Small	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	5,822
NewGold Bulk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NG Equivalent Metres (FC)	434	463	470	448	464	452	444	449	430	465	444	446	5,408	449	420	409	353	353	343	2,327	7,735
Metres Per Day	14	17	15	15	15	15	14	14	14	15	15	15	15	14	14	13.2	11.8	11.4	11.4	13	14
										25	12										
Contractor Large	0	29	70	118	164	223	237	269	227	224	226	281	2,068	249	232	251	276	300	300	1,608	3,677
Contractor Small	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contractor Bulk	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Contractor Equivalent Metres (FC)	60	52	140	153	205	262	276	269	266	300	300	300	2,584	300	300	300	300	300	300	1,800	4,384
Metres Per Day	2	2	5	5	7	9	9	9	9	10	10	10	7	10	10	10	10	10	10	10	8
Total Large-Act/Forecast	309	251	295	248	297	320	316	353	297	317	322	382	3,707	346	327	334	276	300	300	1,883	5,590
Total Small-Act/Forecast	125	241	245	318	331	355	365	365	360	372	348	345	3,770	352	325	326	353	353	343	2,052	0
Total-Bulk-Act/Forecast	60	23	70	36	41	39	39	0	39	76	74	19	516	51	68	49	24	0	0	192	707
Grand Total Equivalent Metres (FC)	494	515	610	601	669	714	720	718	696	765	743	746	7,992	749	720	709	653	653	643	4,127	12,119
Metres Per Day	16	18	20	20	22	24	23	23	23	25	25	25	22	24	25	23	22	21	21	23	22
Forecast (-) Budget													-90							1,997	1,907



April 19 2011 Qtr FC Final.xlsx

Temporary Underground Mag Move

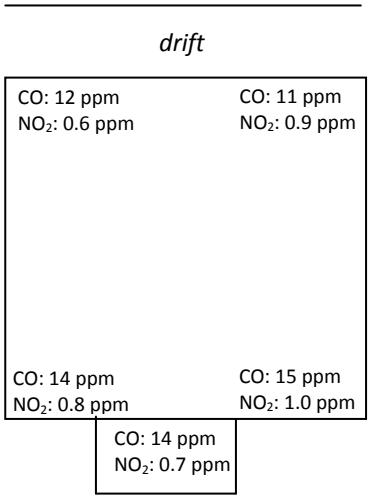




On September 18th, an atmospheric concentration of 19ppm of CO was observed in the refuge station/lunch room adjacent to the underground shop. The concentration of CO in the back of the underground shop was observed to be 14 ppm

On October 16th, an atmospheric concentration of 20 ppm of CO, and 0.5 ppm of NO2 was observed in the Jumbo Drill on apex 2.

On October 16th, an atmospheric concentration of 15 ppm of CO and 0.1 ppm of NO_2 was observed in the refuge station/lunch room adjacent to the underground shop. Levels in other parts of the shop were as follows:



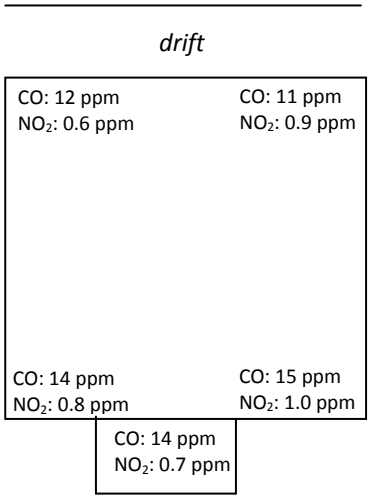
On October 16th, an atmospheric concentration of 19 ppm of CO, and 1 ppm of NO_2 was observed in the fueling station. Atmospheric concentrations of exhaust gases in the drift outside the fueling station sat around 21 ppm of CO and 0.7 ppm of NO_2. The concentration rose to 29 ppm CO and 0.9 ppm NO_2 when trucks past. In the absence of trucks passing, the concentration was observed to drop to 14 ppm of CO.

On October 16th, an atmospheric concentration of 14 ppm of CO, and 1.2 ppm of NO2 was observed in the first axis on undercut near footwall drive

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December 8, 2010

Mr. Kurt Keskimaki
Mine Manager
New Afton New Gold Inc.
Suite 3110 - 666 Burrard Street
Vancouver, BC V6C 2X8

Mine: 0300614
ORCS: 14675-20

Dear Mr. Keskimaki:

Sent: by mail and email: kurt.keskimaki@newgold.com

Re: Variance Request to allow CANMET prescribed ventilation flows at the New Afton Mine

I have read your letters of December 7, 2010 requesting a variance to allow CANMET prescribed ventilation flows at the New Afton Mine, and your request for a variance is denied.

The Health Safety and Reclamation Code for Mines in British Columbia (Code) 4.7.1(2) states that approved equipment shall comply with CSA M421-2. CANMET approve diesel engines for compliance with this requirement and as part of that approval state the minimum volume of air that is required for that vehicle to safely operate and includes the operator. If more than one vehicle may be in a drift or mine roadway then the diesel only requirement is the sum of all of the vehicles which could potentially be there.

The CSA standard also says that the in circumstances where unusually low amounts of diesel particulates are emitted from the machine, it may be that the concentration of one or more of the gaseous emissions will exceed the ACGIH-TLV. In such cases, sufficient air shall be provided to ensure that the concentrations of each toxic constituent, taken separately, do not exceed the ACGIH-TLV or other appropriate limit at its maximum rate of generation.

The Code 4.6.1 requires that 0.6 cubic meters per second of ventilating air per kilowatt of diesel power is provided by mechanical means where any piece of diesel equipment is operating. This is there to ensure adequate air for the Diesel equipment and to ensure that there is adequate ventilation for other equipment that may be operating in the vicinity. The ventilation must take into account electrical transformers, switchgear and motors that are adding energy (heat) to the air. There is also the requirement for dust suppression that increases humidity and relative

temperature, including the influence of strata temperature. A good ventilation plan will address all of these issues and will probably result in figures close to the code requirements.

Ventilation is far more that the compliance with the CANMET requirement. The CANMET requirement is the amount of air that must be available for each specific piece of diesel equipment.

Sincerely,

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

. . . /2

Ec: Mr. Rolly Thorpe, Senior Inspector of Mines, MEMPR, Victoria
Mr. Richard Booth, A/Deputy Chief Inspector of Health and Safety, MEMPR
Mr. Steve Rothman, Senior Inspector of Mines, MEMPR Kamloops
Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MEMPR
Mr. Garry MacDonald, Inspector of Mines, Mechanical, MEMPR
Rothman
Cox
Nakatsuka
Paterson
Padley

December 8, 2010

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Chief Inspector of Mines

AH: mb

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Ec: Mr. Rolly Thorpe, Senior Inspector of Mines, MEMPR, Victoria
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Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MEMPR
Mr. Garry MacDonald, Inspector of Mines, Mechanical, MEMPR
Rothman
Cox
Nakatsuka
Paterson
Padley

May 27, 2010

Mr. Joe Nicholson
Acting Mine Manager
New Gold Inc.
New Afton Mine
Box 948 Stn Main
Kamloops, BC V2C 5N4

ORCS: 14590-20
Mine: 0300614

Dear Mr. Nicholson:

RE: Temporary Variance Request to Chief Inspector of Mines directive for CRN certification on Pressure Vessels for a Normet Charmec Anfo Loading Jumbo.

I have reviewed your request, supported by the OHSC, for a temporary 60 day variance in regards to CRN certification requirements for a Normet Charmec Anfo Loading Jumbo.

I note The 2 x .5 cu meter pots on the unit that currently do not have CRN certification have been submitted to the BC Safety Authority with full design and certification specifications and is awaiting final approval from the Safety Authority.

I also note that the Normet Charmec Anfo Loading Jumbo has an ISO 9001 design criteria as well as Normet's management systems certificate showing it was designed to comply with ASME standards.

I will grant the 60 day variance as requested, the variance will expire July 31, 2010. Also, please note our new address in the footer of this letter.

Sincerely,

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH:mb

Ec: Steve Rothman, Senior Inspector of Mines, MEMPR, Kamloops

May 27, 2010

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Acting Mine Manager
New Gold Inc.
New Afton Mine
Box 948 Stn Main
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ORCS: 14590-20
Mine: 0300614

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Sincerely,

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH:mb

Ec: Steve Rothman, Senior Inspector of Mines, MEMPR, Kamloops

November 24, 2010

Mr. Kurt Keskimaki
Mine Manager
New Afton New Gold Inc.
Suite 3110 - 666 Burrard Street
Vancouver, BC V6C 2X8

Mine: 0300614
ORCS: 14675-20

Dear Mr. Keskimaki:

Sent: by mail and email: kurt.keskimaki@newgold.com

Re: Temporary Variance Request for CANMET certification for Cat TH-407 Telehandler machines

I have reviewed your request of November 17, 2010 for a variance to the Health Safety and Reclamation Code for Mines in British Columbia (Code) section 4.7.1 to use the **Cat TH-407 Telehandler** machines, with **Cat C4.4 DITAAC** engines with a supporting document from Finning clarifying the fact that the engines are presently at CANMET for certification.

You will appreciate that an early response to the CANMET test is required, and accordingly I will only grant your variance to January 31, 2011.

Please note that the Cat **TH-407 Telehandler** shall have the speed restricted to below 20 km/h Code section 4.9.20, and be fitted with an approved fire suppression system as required by the Code 4.9.6 before it operates underground.

Sincerely,

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

. . . /2

Ec: Mr. Rolly Thorpe, Senior Inspector of Mines, MEMPR, Victoria
Mr. Richard Booth, A/Deputy Chief Inspector of Health and Safety, MEMPR
Mr. Steve Rothman, Senior Inspector of Mines, MEMPR Kamloops
Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MEMPR
Mr. Garry MacDonald, Inspector of Mines, Mechanical, MEMPR

November 24, 2010

Mr. Kurt Keskimaki
Mine Manager
New Afton New Gold Inc.
Suite 3110 - 666 Burrard Street
Vancouver, BC V6C 2X8

Mine: 0300614
ORCS: 14675-20

Dear Mr. Keskimaki:

Sent: by mail and email: kurt.keskimaki@newgold.com

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Please note that the Cat **TH-407 Telehandler** shall have the speed restricted to below 20 km/h Code section 4.9.20, and be fitted with an approved fire suppression system as required by the Code 4.9.6 before it operates underground.

Sincerely,

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

. . . /2

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Mr. Richard Booth, A/Deputy Chief Inspector of Health and Safety, MEMPR
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Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MEMPR
Mr. Garry MacDonald, Inspector of Mines, Mechanical, MEMPR

BRITISH COLUMBIA
The Best Place on Earth

November 24, 2010

Mr. Kurt Keskimaki
Mine Manager
New Afton New Gold Inc.
Suite 3110 - 666 Burrard Street
Vancouver, BC V6C 2X8

Mine: 0300614
ORCS: 14675-20

Dear Mr. Keskimaki:

Sent: by mail and email: kurt.keskimaki@newgold.com

Re: Temporary Variance Request for CANMET certification for Cat TH-407 Telehandler machines

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Please note that the Cat **TH-407 Telehandler** shall have the speed restricted to below 20 km/h Code section 4.9.20, and be fitted with an approved fire suppression system as required by the Code 4.9.6 before it operates underground.

Sincerely,

For:

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

. . . /2

Ministry of Natural Resource Operations

Mailing Address:
PO Box 9320, Stn Prov Govt
Victoria, BC V8W 9N3
Ph: 250-952-0793
Facsimile: 250-952-0491

Location:
Sixth Floor
1810 Blanshard Street
Victoria, BC V8W 9N3

Ec: Mr. Rolly Thorpe, Senior Inspector of Mines, MEMPR, Victoria
Mr. Richard Booth, A/Deputy Chief Inspector of Health and Safety, MEMPR
Mr. Steve Rothman, Senior Inspector of Mines, MEMPR Kamloops
Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MEMPR
Mr. Garry MacDonald, Inspector of Mines, Mechanical, MEMPR

Ministry of
Natural Resource
Operations

Mailing Address:
PO Box 9320, Stn Prov Govt
Victoria, BC V8W 9N3
Telephone: (250) 952-0793
Facsimile: (250) 952-0481

Location:
Sixth Floor
1810 Blanshard St
Victoria, BC Canada

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November 24, 2010

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Suite 3110 - 666 Burrard Street
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ORCS: 14675-20

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Please note that the Cat **TH-407 Telehandler** shall have the speed restricted to below 20 km/h Code section 4.9.20, and be fitted with an approved fire suppression system as required by the Code 4.9.6 before it operates underground.

Sincerely,

For: Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

. . . /2

Ministry of Natural Resource Operations

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December 9, 2010

Mr. Kurt Keskimaki
Mine Manager
New Afton New Gold Inc.
Suite 3110 - 666 Burrard Street
Vancouver, BC V6C 2X8

Mine: 0300614
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The CSA standard also states that the in circumstances where unusually low amounts of diesel particulates are emitted from the machine, it may be that the concentration of one or more of the gaseous emissions will exceed the ACGIH-TLV. In such cases, sufficient air shall be provided to ensure that the concentrations of each toxic constituent, taken separately, do not exceed the ACGIH-TLV or other appropriate limit at its maximum rate of generation.

The Code 4.6.1 requires that 0.6 cubic meters per second of ventilating air per kilowatt of diesel power is provided by mechanical means where any piece of diesel equipment is operating. This requirement was adopted to ensure adequate air for the diesel equipment and to ensure that there is adequate ventilation for other equipment that may be operating in the vicinity.

. . ./2

Ministry of
Natural Resource
Operations

Mailing Address:
PO Box 9320, Stn Prov Govt
Victoria, BC V8W 9N3
Ph: 250-952-0793
Facsimile: 250-952-0491

Location:
Sixth Floor
1810 Blanshard Street
Victoria, BC V8W 9N3

The ventilation must also take into account the heat generated from electrical transformers, switchgear and motors that are adding energy (heat) to the air. There is also a requirement for adequate ventilation to ensure dispersal of entrained respirable dust, the maintenance of acceptable heat stress and to ensure that blasting gases are cleared.

Adequate ventilation is far more that the compliance with the CANMET diesel requirement.

Sincerely,

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

Ec:

Mr. Richard Booth, A/Deputy Chief Inspector of Mines Health and Safety, MNRO
Mr. Rolly Thorpe, A/Deputy Chief Inspector of Mines Health and Safety, MNRO
Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MNRO
Mr. Steve Rothman, Senior Inspector of Mines, MNRO, Kamloops
Mr. John Cox, Inspector of Mines, Health and Safety, Kamloops, MNRO
Mr. Emanuel Padley, Inspector of Mines Electrical, Kamloops, MNRO
Mr. Garry MacDonald, Inspector of Mines, Mechanical, MNRO
Ms. Caroline Nakatsuka, Manager of Occupational Health, MNRO
Mr. Terry Paterson, Inspector of Mines Electrical, Cranbrook, MNRO

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December 9, 2010

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New Afton New Gold Inc.
Suite 3110 - 666 Burrard Street
Vancouver, BC V6C 2X8

Mine: 0300614
ORCS: 14675-20

Dear Mr. Keskimaki:

Sent: by mail and email: kurt.keskimaki@newgold.com

Re: Variance Request to allow CANMET prescribed ventilation flows at the New Afton Mine

I have read your letters of December 7, 2010 requesting a variance to allow CANMET prescribed ventilation flows at the New Afton Mine: your request for this variance is denied.

The Health Safety and Reclamation Code for Mines in British Columbia (Code) 4.7.1(2) states that approved equipment shall comply with CSA M421-2. CANMET approves diesel engines for compliance with this requirement and as part of that approval, provides the minimum volumetric flow rate of air required for that vehicle to safely operate and includes the operator. If more than one vehicle may be in a drift or mine roadway then of course the volumetric flow rates are the sum of all the diesel requirements in that particular drift or mine roadway.

The CSA standard also states that the in circumstances where unusually low amounts of diesel particulates are emitted from the machine, it may be that the concentration of one or more of the gaseous emissions will exceed the ACGIH-TLV. In such cases, sufficient air shall be provided to ensure that the concentrations of each toxic constituent, taken separately, do not exceed the ACGIH-TLV or other appropriate limit at its maximum rate of generation.

The Code 4.6.1 requires that 0.6 cubic meters per second of ventilating air per kilowatt of diesel power is provided by mechanical means where any piece of diesel equipment is operating. This requirement was adopted to ensure adequate air for the diesel equipment and to ensure that there is adequate ventilation for other equipment that may be operating in the vicinity.

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Ministry of
Natural Resource
Operations

Mailing Address:
PO Box 9320, Stn Prov Govt
Victoria, BC V8W 9N3
Ph: 250-952-0793
Facsimile: 250-952-0491

Location:
Sixth Floor
1810 Blanshard Street
Victoria, BC V8W 9N3

The ventilation must also take into account the heat generated from electrical transformers, switchgear and motors that are adding energy (heat) to the air. There is also a requirement for adequate ventilation to ensure dispersal of entrained respirable dust, the maintenance of acceptable heat stress and to ensure that blasting gases are cleared.

Adequate ventilation is far more that the compliance with the CANMET diesel requirement.

Sincerely,

Al Hoffman, P.Eng.
Chief Inspector of Mines

AH: mb

Ec:

Mr. Richard Booth, A/Deputy Chief Inspector of Mines Health and Safety, MNRO
Mr. Rolly Thorpe, A/Deputy Chief Inspector of Mines Health and Safety, MNRO
Mr. Greg Mclean, Inspector of Mines, Mechanical, Prince George, MNRO
Mr. Steve Rothman, Senior Inspector of Mines, MNRO, Kamloops
Mr. John Cox, Inspector of Mines, Health and Safety, Kamloops, MNRO
Mr. Emanuel Padley, Inspector of Mines Electrical, Kamloops, MNRO
Mr. Garry MacDonald, Inspector of Mines, Mechanical, MNRO
Ms. Caroline Nakatsuka, Manager of Occupational Health, MNRO
Mr. Terry Paterson, Inspector of Mines Electrical, Cranbrook, MNRO

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Victoria, BC Canada

newgold New Afton Mine Kamloops, B C

Project Address: PO Box 948 Stn Main, Kamloops, BC V1S 1J9
Phone (250) 377-2719

November 17, 2011

Mr. Al Hoffman
Chief Inspector of Mines
Ministry of Energy, Mines and Petroleum Resources
1675 Douglas Street
Victoria, BC
V8W 9N3

RE- Variance Request to Chief Inspector of Mines for Pre-Priming of Longholes Underground

Dear Al,

Please consider this letter as a request for a variance to areas of the code regarding working around loaded holes, specifically 8.5.10:

> **8.5.10** No equipment shall be allowed within 8 m of any charged blasthole except
> (1) authorized explosives vehicles,
> (2) explosive vehicles which have the exhaust directed above the cab of the vehicle, and
> (3) other equipment authorized in writing by the chief inspector.

New Afton requests a variance to pre-prime and pre-load explosives in longholes in order to reduce the exposure of workers to the previously blasted brow. We would operate a scoop and other equipment within 8m of the pre-primed holes.

New Afton has developed a complete set of Safe Operating Procedures for working near pre-primed blast holes in the specific instance of our up-hole production holes, this variance would only apply to production blasting and not to development blasting.

Regards,

Kurt Keskimaki
Mine Manager
New Afton Mine
New Gold Inc.

Chris Gienow
JOHSC Worker Rep

Craig Lockhart
JOHSC Management Rep

Cc: Joint OHSC; S. Rothman, G. MacDonald

Rothman, Stephen MEM:EX

From: Kurt Keskimaki [Kurt.Keskimaki@newgold.com]
Sent: Monday, February 27, 2012 1:40 PM
To: Rothman, Stephen MEM:EX
Cc: Joe Nicholson; Sean Masse
Subject: Pre-loading and Pre-Priming Undercut at New Afton
Attachments: Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Pre-Loading and Priming Variance Request (2).pdf

Steve,

Attached are updated procedures on pre-priming and pre-loading undercut holes at New Afton mine, replacing the SOPs submitted on December 13, 2012 in the request for a variance to the Code.

If you have any questions, please contact me.

Note that New Afton would potentially be prepared to pre-load and pre-prime undercut blast holes by late April, 2012.

Thanks,

Kurt

Kurt Keskimaki
Mine Manager

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newgold New Afton Mine Kamloops B.C.		**MIN-SOP-017** **Handling of Unusual Circumstances in Preprimed Work Areas**	
Author: Mine Captain	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Handling of Unusual Circumstances in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report any irregular circumstances to your Supervisor.

Scope

All activities relating to unusual circumstances encountered when entering a preprimed work area.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

6.25.1, and sections for 8

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole.
- Blast holes are normally primed in two separate locations along the hole.

Stop Work

- Discontinue the assigned task due to a safety concern, immediately guard and bring to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow

Tools

- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Discover an unusual circumstance in a preprimed work area (i.e. explosives on the floor, leads fallen through a bottle brush, fallen ground, etc.)
2. Stop work and retreat from the area.
3. Put the barricade back up and remain at the scene guarding the condition.

IMPORTANT: Protect yourself and other employees by guarding unsafe conditions.

4. Contact the Supervisor to report the condition and to provide notification that you are guarding the area.
5. Install a barricade at the entrance to the work area. Ensure a **"DANGER LOADED & PRIMED BLAST HOLES"** sign and any other required sign warning of the hazard discovered are on the barricade.
6. Wait for the Supervisor to arrive. Receive instruction from the Supervisor on work assignment for the remainder of the shift.
7. Before the end of the shift, employee and supervisor will record and report the incident.

Document and Records

- JHA
- 5-point card
- SOP

newgold New Afton Mine Kamloops, B.C.		MIN-SOP-018 Entry into Preprimed Work Areas	
Author: Mine Captain (Caving)	Approver: Mine Manager Kurt Kobluk	Revision Number: 01	Creation Date: 23-Nov-11 Date Last Modified: 10-Feb-12 Review Frequency: 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Entry into Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. If unusual conditions are encountered while following this procedure, stop work, guard the area and report to your Supervisor any irregularities.

Scope

All activities related to entering any preprimed work areas.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Section 6.25.1 and any related sections from 8

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole.
- Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow

Tools

- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions and authorization from the Supervisor requiring entry into a preprimed work area.
2. Proceed to the preprimed work area and stop at the entrance.
3. Remove the barricade.
4. Inspect the preprimed work area, stopping 18 (eighteen) meters from the brow (before encountering any preprimed rings).
5. Visually examine each preprimed ring to ensure the bottle brushes are in place. If a brush is not in place contact Supervisor immediately and barricade area.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material.

6. If no bottle brushes are missing, continue the work assignment according to its procedure. If a bottle brush is missing or any other abnormal condition exists (i.e. explosives on the floor, leads fallen through a bottle brush, fallen ground, etc.) Use Procedure: MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas:
    a. Stop work.
    b. Retreat from the area.
    c. Put the guardrail back up and add a second one to create a double barricade. If no material is available for a double barricade, remain at the scene guarding the condition.

IMPORTANT: Protect other employees by guarding unsafe conditions.

    d. Contact the Supervisor and report the condition being guarded.

7. Ensure material and garbage is removed from the work area.
8. Ensure all bottle brushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
9. Install single guardrail at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the guardrail.

Document and Records

- JHA
- 5-point cards
- SOP

newgold New Afton Mine Kamloops, B.C		MIN-SOP-019 Blasting of Preprimed Work Areas with Ikon™ Detonators	
Author: Mine Captain	Approver: Mine Manager	Revision Number: 01	Creation Date: 23-Nov-11 Date Last Modified: 10-Feb-12 Review Frequency: 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Blasting of Preprimed Work Areas with Electronic Detonators. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to the loading and blasting of pre-primed work areas.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

8.6.23, 8.6.3, 8.6.15, 8.3.1, 8.6.2

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Blast letter

- Document that describes which holes will be loaded, the sequence of initiation, the timing of initiation and any other information that is pertinent to the particular blast.

Blasting print

- Engineering document including prints showing preprimed holes and the required holes that are to be blasted.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Working off a muckpile
- Working near the brow
- Open brow

Tools

- One man carrier
- One electronic detonator recorder
- One electronic detonator field receiver
- One electronic detonator base station
- Miscellaneous connectors/connecting wire
- The following personal protective equipment must be used while performing this procedure:
    - Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Preparatory Work

- Engineering provides a blasting print showing delay timing for each electronic detonator.

Job Step

1. Supervisor verifies the ring(s) has been authorized for blasting with the engineering department, who compares the ring number(s) on the tag(s) turned in by the loading/priming crew to the rings authorized to blast by engineering and the blast letter.
2. Receive instructions from the Supervisor to blast a heading preprimed with electronic detonators.
3. Locate man carrier and do pre-op check.
4. Pick up material and blasting print.
5. Clear and guard the blast area according to the blasting procedure.
6. Proceed to the preprimed heading and follow Procedure: MIN-SOP-018 Entry into Preprimed Work Areas. Ensure there are bottlebrushes in place in the preprimed holes and remove the bottle brushes from the ring(s) to be blasted, allowing the detonator leads to hang out, waiting to be logged and set up for blasting.

Prepare a Ring(s) for Blasting

7. Connect the IKON detonator leads, testing each detonator. Use the IKON Logger assign the delay times to the IKON detonators. This timing information is recorded in the IKON Logger. Repair damaged detonators, if both are not repairable, reprime the hole with a third IKON detonator and test it.
8. Leave the heading and ensure the barricade is up (add the **"DANGER KEEP OUT BLASTING"** sign).

IMPORTANT: Ensure signs are up to warn other employees heading is prepared for blasting. Inadvertent entry could cause the detonator rings to be damaged.

9. Return excess material, tools and equipment to storage.
10. Ensure blast prints are filled in and return to Supervisor at end of shift.
11. Remove material and garbage from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

12. The preprimed rings being blasted have all the bottlebrushes removed and the leads hooked up.
13. All bottlebrushes from the remaining preprimed rings are in place with no leads or explosives hanging out of the blast holes or on the floor.
14. Single guardrail is in place at the entrance to the work area with a **"DANGER KEEP OUT BLASTING"** sign on the barricade.
15. Proceed to connect the Ikon™ detonators back into the Ikon™ detonator recorder and check the delays according to the blasting print.
16. If the holes are untimed, notify the Supervisor, time the holes using the Ikon ™ detonator recorder according to the blasting print and continue with this procedure.
17. Install a barricade with a "**DANGER, KEEP OUT, BLASTING**" sign at the heading and connect the electronic detonator recorder to the Ikon™ detonator base station through the blasting line.
18. Test the connection to the Ikon™ detonators.

IMPORTANT: Always test connections.

CAUTION: Always ensure blast area is cleared. Once the area is clear of all personnel and equipment the blasters shall retreat to surface and await final instructions from the Supervisor before firing the shot.

19. Blast (note clearance has already been given from the Supervisor).

DANGER: Carbon Monoxide and other harmful gases are present in blast smoke!

20. Collect the Ikon™ detonator base station and the electronic detonator recorder.
21. Remove barricade and signage, pick up garbage connection wire, inspect blasted heading and re-install the barricade.
22. Return excess material, tools and equipment to storage.
23. Fill in paperwork, turn it and the blast history report in and inform the Supervisor of the condition of the blasted heading (i.e. needs vent, services to remove).
24. ENDSTATE:
    - Material and garbage is removed from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

- All bottlebrushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
- Single guardrail is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the guardrail.

Document and Records

- JHA
- Blast Print
- Related SOP's
- 5-Point Cards

newgold New Afton Mine Kamloops, B.C.		**MIN-SOP-020** **Drilling in Preprimed Work Areas**	
Author: Safety Supervisor	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Drilling in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

This procedure covers activities related to the drilling in any preprimed work areas.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and any applicable manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

Reference to section(s) 8.5.10 (3), 8.7.1, 8.7.2, 8.7.3, 8.7.4 & 4.1

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Detonator

- A device used in firing a charge of explosive and includes blasting cap and electric blasting cap. It is used to initiate other explosives after a timed delay.

Drill ring

- A series of blast holes drilled from the same set-up line.

Drill prints

- Engineering prints that are designed as a reference for the driller in the preprimed work areas.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Primer

- A small charge placed within the main charge to initiate an explosion.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow
- Mobile equipment pinch points

Tools

- One remote capable solo drill
- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use barricades to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Preparatory Work

- Engineering to provide prints of area to be cleared for remote drilling and drilling layout.

Job Step

1. Receive instructions from the Supervisor requiring drilling in a preprimed work area.
2. Locate equipment and complete preop checks.
3. Proceed to the preprimed work area and stop at the entrance.
4. Follow Procedure: MIN-SOP-018 Entry Into Preprimed Work Areas.
5. Set-up drill according to layout and prints, and initialize automatic drilling system if required.
6. Remote drilling is required when approaching the previously blasted apex drifting above (refer to MIN-SOP-015 Remote Drill Operation):
    a. From drilling horizon:

        Clear 30m from the hole if in clear view, and a protective barrier or designed drilling shelter installed (if drilling underground) between the station and the drill.

        NOTE: The station may be established closer than 30m but not less than 15m travel distance if there is a substantial protective barrier, such as a pillar, between the hole collar and the station.

    b. At breakthrough horizon:

        Follow Safety Notice. Clear Blasting Danger Area and post guard or a screened double barricade with a **"DANGER, KEEP OUT, BLASTING IN PROGRESS"** sign.

IMPORTANT: Every effort must be made to blast loaded rings within 8m of the required drilling, so that this portion of the procedure is not required.

Danger: As prescribed by s. 7.1 of the HRSCEC any drilling within 5m of known loaded explosives must be carried out under the direction of a supervisor.

7. Install **'REMOTE DRILLING IN PROGRESS, CONTACT OPERATOR BEFORE ENTRY'** sign, at the entry to the cross-cut.
8. Contact driller and give clearance to drill.
9. Receive clearance to drill and drill hole(s) as per layout.
10. Contact supervisor when remote drilling is completed.
11. Confirm that remote drilling is completed and remove the screened barricade(s).
12. Tear down drill and move out to next location, put up a barricade on the way out with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign if required.

IMPORTANT: All unexpected breakthroughs are to be treated as 'Unusual Circumstances'. Stop work and follow the MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas procedure.

13. Ensure Material and garbage is removed from the work area.
14. All bottle brushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
15. Single guardrail is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the guardrail if required.

Document and Records

- JHA
- Related SOP's
- Drill prints

- 5-point cards

newgold New Afton Mine Kamloops, B C		**MIN-SOP-021** **Engineering Controls for Preprimed Work Areas**	
Author: Safety Supervisor	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Engineering Controls for Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. If unusual conditions are encountered while following this procedure, stop work, guard the area and report to your Supervisor any irregularities.

Scope

All activities related to the engineering controls of preprimed work areas.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Section 6.25.1 and any related sections from 8

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Blasting print

- Engineering document showing preprimed holes and the required holes that are to be blasted.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Misfired holes
- Remnants of explosives

Tools

- Remote drilling gear
- Engineering prints and drawings
- Standard underground PPE

Requirements

- Use **"DANGER KEEP OUT"** signage where required.
- Use Proper Standard Tagging Procedures.
- Inspect equipment and tools to ensure that they are in proper condition before starting job.
- Safety notices to be issued as required.

Job Step

1. Record any reported Unusual Circumstances in Preprimed Work Areas.
2. Provide a blasting print showing collar and loaded lengths for each preprimed hole.
3. Add information on repaired, replaced detonators and reloaded holes to the official records.
4. Update prints to show holes to be drilled, previously drilled holes and preloaded rings.
5. In cases where a column of explosive is unable to be fired due to a fall of ground or brow over-break, prints will be updated to show unfired explosives and these locations to be treated as containing known explosives, for remote drilling purposes. The operations department will be notified by engineering that a specified tonnage shall be mucked and the situation documented, noting any explosives or irregularities in the muckpile. If detonator leads are not accessible and collar priming is not possible, all reasonable attempts will be taken to either clean out the explosives with a remote re-drill or washing out the explosives. If these attempts are unsuccessful, a JHA will be completed and used to address this condition. Engineering will consider hole casing as a pre-emptive solution in bad ground areas. If at any time preprimed holes cannot be fired, do not fire the ring and Engineering must be notified.
6. A timing & blasting print will be issued to identify when a preprimed ring is to be fired. These will be separate documents from the loading print.
7. Time Limitations on Leaving Preprimed Holes Unblasted:
    a. All preprimed rings shall be inspected before any work is to be done in the area to ensure they are in good condition. If the condition of the ring has deteriorated, immediate plans will be made to blast the ring. If the ring is in good condition, it will be scheduled to be blasted within one month. An electronic database will be created to record the date rings are preprimed and the latest date the preprimed rings should be blasted.
    b. Engineering to examine mining sequence and ensure rings will not be preprimed if the sequence does not call for them to be blasted within one month.
    c. When preprimed: the ring level, heading and number are recorded in the electronic database with a latest blast date one month from the time of loading.
    d. All preprimed rings not blasted before the one month period will have to be inspected for deterioration. If any visible signs of damage or deterioration are present, the rings are to be washed out.
    e. In the event of a planned extended shutdown in the mining process, engineering will issue blasting prints for all of the preprimed rings and they will be blasted or washed out before the shutdown commences.

Document and Records

- Related SOPs

newgold New Afton Mine Kamloops, B.C.		**MIN-SOP-022** **Loading and Priming of Rings in Preprimed Work Areas**	
Author: Mine Captain (Caving)	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Loading and Priming of Rings in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to the loading and priming of drilled rings in a preprimed work area.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and applicable manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Sections 8.2.1, 8.2.2, 8.3.1, 8.5.1, & 6.25.1

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Blast letter

- Document that describes which holes will be loaded, the sequence of initiation, the timing of initiation and any other information that is pertinent to the particular blast.

Blasting print

- Engineering document including prints showing preprimed holes and the required holes that are to be blasted.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number See figure 1.01.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

IKON Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an electronic initiation system.
- It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fibre Shotcrete

- Concrete mix for spraying that contains reinforcing fibres used for ground support.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely written warning from the Engineering to Operating department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Working off a muckpile
- Uneven ground
- Mobile equipment pinch points

- Working near the brow
- Open brow

Tools

- One emulsion truck (filled with emulsion)
- IKON detonators power cord and or boosters
- One IKON detonator logger
- Cari-strap and yellow hats (triangle pockets made from vent tubing)
- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Engineering provides a blasting print showing collar and primer locations for each hole.
2. Receive instructions from Supervisor to preprime a heading or inspect and repair existing preprimed rings (problem in heading reported).
3. Pick up blasting print.
4. Locate equipment and do preop checks.
5. Pick up material.
6. Proceed to the preprimed heading and stop at the entrance. (Follow Procedure: MIN-SOP-018 Entry into Preprimed Work Areas.)
7. Remove the barricade.
8. Inspect the heading, stopping approximately 10 (ten) meters from the brow (before encountering any preprimed rings).
9. Proceed towards the brow stopping at each ring to ensure the bottlebrushes are in place.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material. Stay under supported ground. If brow is open, stop and retreat out of the work area and contact the Supervisor for further instructions.

10. If any abnormal conditions are discovered (i.e. fall of ground, bottlebrush is missing or any leads have fallen through a bottlebrush) or if the muckpile is not dressed properly, follow procedure: MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas, and:
    a. Retreat from the area.
    b. Put the barricade back up.

IMPORTANT: Protect other employees by guarding unsafe conditions.

    c. Contact the Supervisor immediately and await his arrival.

Load & Preprime a Ring(s):

11. Set the loader up at the closest ring to the brow that is not loaded. (Remove the bottlebrush from Hole #1 and verify the ring number against the blasting print from engineering. (Note: if the bottlebrush or tag is

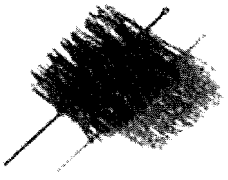
missing, verify the ring number before proceeding). If unable to verify the ring number, **DO NOT LOAD** and contact your supervisor immediately.

Measure each hole on the ring and record the lengths prior to loading any holes. If any holes are shorter than what is on the blast print then **DO NOT LOAD** and contact Supervisor.

CAUTION: The entire ring must be measured before loading the first hole to minimize risk if any redrilling is required.

12. Load and prime the ring according to the blasting print. Record actual primer locations, pounds of emulsion loaded and hole collars.
13. Remove emulsion truck from heading.
14. Use a manlift to reach back. Place bottlebrushes to hold the leads up in each of the holes (put the bottlebrush with the ring number tag back in Hole #1). If the bottlebrush is too loose to stay in the hole, put two brushes in.
15. If more than one ring will be blasted, repeat steps 12 to 15 prepriming as outlined by the blast letter.

Figure 1.01 Bottle Brush



newgold New Afton Mine Kamloops, B.C.		MIN-SOP-023 Mucking in Preprimed Work Areas	
Author: Safety Supervisor	Approver: Mine Manager	Revision Number: 01	Creation Date: 23-Nov-11 Date Last Modified: 10-Feb-12 Review Frequency: 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Mucking in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. If unusual circumstances are encountered while following this procedure, stop work, guard the area and report to your Supervisor any irregularities.

Scope

All activities related to the mucking in a preprimed work area.

Introduction

These standards were created to provide a safe and responsible working procedure for all underground employees and their supervisor, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Part 4, sections 4.6.1, 6.19.3, 6.25.1 & 2 and related sections to Part 6 and Part 8

Definitions

Blast holes

- Holes drilled into rock to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snow banks removed, roadway back bladed and floor leveled.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Open Brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely written warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow
- Mobile equipment pinch points

Tools

- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use barricade to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.

- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions and authorization from Supervisor before mucking in a preprimed work area.

DANGER: Watch to locate unfired explosives. Supervisor will inform you if loaders have reported an unconnected detonator.

2. Locate equipment and complete pre-op checks.
3. Proceed to the preprimed work area and stop at the entrance.
4. Follow Procedure: MIN-SOP-018 Entry Into Preprimed Work Areas.
5. Check for adequate ventilation and water spray, if not adequate stop work, retreat from the area, install the barricade and contact the Supervisor.

DANGER: Not having adequate ventilation and water spray allows dust into the atmosphere.

DANGER: When entering the drawpoint with the scooptram ensure the bucket is always positioned so there is no chance of any part of the bucket or muck making contact with the back. Check the brow and ensure it is not open (+18" between muckpile and brow). If it is open, stop mucking and contact the Supervisor for further instructions.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material.

6. Stay under supported ground.
7. If the brow is open or at any time during mucking becomes open, stop mucking and retreat from the area installing a **"DANGER OPEN BROW"** sign on the barricade. Inform the Supervisor.
8. Return to the heading to be mucked and start mucking. Do not allow the bucket or material in the bucket to contact the back under the preprimed holes.

DANGER: Do not allow the bucket or material in the bucket to contact the back under the preprimed holes, the material could hook a bottlebrush out of a hole.

IMPORTANT: Contacting detonator leads does not initiate the detonators, but may damage them.

9. Watch for changes around the preprimed holes on each trip. Stop if any bottlebrushes come out, if any detonator leads fall out of a hole or if any explosives come out of a hole retreat from the area installing a barricade with **"DANGER LOADED & PRIMED HOLES"** on the way. Inform the Supervisor. Follow Procedure: MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas.
10. **When mucking is completed: Dress the muckpile. Put the barricade up with a "DANGER LOADED & PRIMED BLAST HOLES" sign. If mucking was done to the grizzly, clean the mantle or grizzly and ensure the gate closes. Cover is reinstalled.**
11. Remove Material and garbage from the work area.

IMPORTANT: Good housekeeping makes a workplace safer. Over-size are to be placed in designated areas only.

12. All bottlebrushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
13. Single barricade is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the guardrail.

Document and Records

- MIN-SOP-018 Entry into Preprimed Work Areas
- MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas
- JHA

- 5-point cards

newgold New Afton Mine Kamloops, B.C.		MIN-SOP-024 **Reconditioning of Preprimed Work Areas**	
Author: Mine Captain (Caving)	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Reconditioning of Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to the reconditioning of any preprimed work areas.

Introduction

These standards were created to provide a safe and responsible working procedure for all underground employees and their Supervisor, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Section 8

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes

IKON Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an electronic initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely written warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow
- Mobile equipment pinch points
- Noise
- Rotating drill components

Tools

- Standard underground PPE
- One shotcrete spray arm
- One shotcrete haulage truck & shotcrete
- Water sprays
- Burlap & cari-strap
- One bolter or scissor truck with hand drills & bolts and resin

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions from Supervisor to recondition a preprimed work area.
2. Locate equipment and complete pre-op checks.
3. Proceed to preprimed work area. Stop at entrance. Follow SOP-018 Entry into Preprimed Work Areas.
4. Check scale the area requiring reconditioning from a scissor truck.

CAUTION: Do not allow scaling bar or screen cutters to enter a preprimed hole. Contact may damage the electronic detonator leads.

5. Cut out protruding screen.
6. Bolt and screen up to the ring number specified by the Supervisor (so that drilling does not take place within 8m of a preprimed hole).

DANGER: Do not drill within 8m of a preprimed blast hole. If drilling is required to take place any closer DO NOT drill and contact your Supervisor for further instructions.

7. Shotcrete as required using fiber shotcrete where screen is not present. Remember to precondition shotcrete equipment (sprayer & transmixer) with form oil as per New Afton standards.
    a. Push bottlebrushes in 8" prior to inserting burlap.
    b. Tie cari-strap around the burlap for easy removal and tie the cari-strap off on the wall to keep it out of the way.
    c. Cover all holes in affected shotcrete area.
    d. Setup to shotcrete.
    e. Shotcrete as required.
    f. Stop shotcreting if the burlap protecting a preprimed hole falls out.
    g. If unable to replace the burlap, stop work. Notify the Supervisor, pull out of the heading, put a barricade up with signs and proceed to another area to spray or dump the remainder of the load.

CAUTION: Shotcrete will damage the electronic detonators. Do not spray shotcrete if the burlap protecting the electronic detonators is missing.

    h. Tear down and pull out of the heading. Put the barricade up.
    i. Wait for shotcrete to set.
    j. Return and remove burlap without travelling under the shotcrete.
    k. Dispose of burlap properly.

IMPORTANT: If any bottlebrushes or electronic detonator leads come out with the burlap, stop work, do not replace them, notify the Supervisor, the detonator leads will need to be tested by the loading crew. Leave and install a barricade.

8. Wash out shotcrete truck.
9. Wash shotcrete off spray arm.
10. Return all unused supplies and equipment to storage.
11. Fill out any required paperwork, submit it and inform the supervisor of the condition of the heading.
12. Material and garbage is to be removed from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

13. All bottle brushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
14. Barricade is in place at the entrance to the work area with a "**DANGER LOADED & PRIMED BLAST HOLES**" sign on the barricade.

Document and Records

- All related SOPs
- 5-point cards
- JHA

newgold New Afton Mine Kamloops, B C		MIN-SOP-025 **Re-entry into Preprimed Work Areas after Blasting & Installation of Services**	
Author: Safety Supervisor	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Re-entry into Preprimed Work Areas After Blasting & Installation of Services. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to the re-entry into a preprimed work area after blasting and installation of services.

Introduction

These standards were created to provide a safe and responsible working procedure for all underground employees and their supervisor, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Section 6.25.1, 6.19.3, and any related sections of 8

Definitions

Blast holes

- Holes drilled into the rock to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed and slagged.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from engineering to operating department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow

Tools

- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use barricades to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions from Supervisor to prepare a freshly blasted heading in a preprimed work area for mucking.
2. Locate scissor truck and do preop check.
3. Pick up material.
4. Proceed to the preprimed work area and stop at the entrance. Follow SOP-018 Entry into Preprimed Work Areas.
5. Remove the barricade, if there is no barricade or it is damaged, install a new barricade with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign.
6. Inspect the preprimed work area, stopping before encountering any preprimed rings.

DANGER: Do not approach the brow area if the brow is open. Retreat, back out and contact the Supervisor and await further instructions.

7. Fill in '5 Point' safety card and visually examine each preloaded ring (to ensure the bottlebrushes are in place.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material. Stay under supported ground.

8. If a bottlebrush is missing or any other abnormal condition exists (i.e. explosives on the floor, leads fallen through a bottlebrush, fallen ground, open brow, etc.) use Procedure: MIN-SOP-017 Unusual Circumstances in Preprimed Work Areas:
    a. Retreat from the area.
    b. Put the barricade back up.

IMPORTANT: Protect other employees by guarding unsafe conditions.

    c. Contact the Supervisor.
9. If no bottlebrushes are missing, wash down the walls, back and muckpile.
10. Install a water spray.

DANGER: Do not drill within 5m of a loaded and primed hole.

11. Check to ensure the ventilation ducting is in good condition and within 25m of the face. Fix it if it is not.
12. Leave the heading and put up the barricade. Ensure a **"DANGER LOADED & PRIMED BLAST HOLES"** sign is on the guardrail.
13. Return the unused material and equipment to storage.
14. Report the condition of the heading to the Supervisor.
15. Material and garbage is to be removed from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

16. All bottlebrushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
17. Barricade is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the barricade.

Document and Records

- 5-point card
- Related SOP's

newgold New Afton Mine Kamloops, B.C.		MIN-SOP-026 Secondary Blasting in Preprimed Work Areas	
Author: Mine Captain (Caving)	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Secondary Blasting in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to secondary blasting in any of the preprimed work areas.

Introduction

These standards were created to provide a safe and responsible working procedure for all underground employees and their Supervisor, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Any related sections in Part 8, and 6.25.1

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

IKON Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an electronic initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Mishole

- Any portion of a hole that failed to completely detonate.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely written warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Blast fumes and gasses
- Working off a muckpile
- Uneven ground
- Tripping hazards
- Working near the brow
- Open brow
- Fly rock (when collaring)

- Rotating components (drill steel)
- Mobile equipment pinch points
- Manual handling
- Handling chunks
- Damaged services

Tools

- Standard underground PPE
- Double hearing protection when drilling
- One scoop (if required)
- One blockholer (if required)
- One man carrier
- Electronic detonators (if blasting a ring at the same time) or nonels and explosives for secondary blasting
- Peripherals for secondary blasting (blasting poles, battery, locks)

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions from Supervisor that in a preprimed work area secondary blasting is required in conjunction with blasting a ring or secondary blasting is required without blasting a ring.
2. Locate equipment and do preop checks.
3. Inspect the heading using Procedure: MIN-SOP-018 Entry into Preprimed Work Areas.

DANGER: There could be rings closest to the brow that are loaded and primed.

4. Determine if any chunks in the muckpile can be moved with a scoop. If possible get the scoop operator to remove chunks to a suitable blasting location.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material. Stay under supported ground. If the brow is open retreat out and contact the Supervisor for further instructions.

5. Maneuver chunks 20 feet away from the toe of the muckpile to allowing drilling and blasting to take place away from the preprimed rings. (If possible move it all the way to a suitable blasting location.)

IMPORTANT: Do not use uncontained explosives directly under preprimed rings. The leads could be damaged.

6. If possible blast down any hung chunks following the hangup blasting procedures.
7. Inspect all chunks for bootlegs and circle them with a ring of contrasting paint. If there are any misholes, inform the Supervisor and Engineering for tracking purposes.

DANGER: Do not drill within 1m/3ft of a bootleg or within 5m of a mishole. If drilling is required within 5m of a mishole do not drill and contact Supervisor.

8. Drill accessible chunks with the blockholer. Plan on blasting the chunk enough to move it with a scoop. If chunks were unable to be totally inspected for explosives, they must be drilled on remote.
9. Load the drilled chunks and set shots against hang ups following the hangup blasting procedures.
10. Blast according to the appropriate blasting procedure at the end of the shift never during the shift.
11. Prevent Access to Areas Affected by Blasting Gas.

CAUTION: Always ensure blast area is cleared. Place any required guards and yourself in a safe location before blasting.

   a. When secondary blasting in conjunction with blasting a ring, follow the Procedure: MIN-SOP-019 Blasting of Preprimed Work Areas with Electronic Detonators. Note that the secondary blasting is to be sequenced to fire with the first hole.

   b. When secondary blasting without blasting a ring, blast assuming that a ring in the heading will go off, and therefore only blast at the end of the shift.

DANGER: Carbon Monoxide and other harmful gasses are present in blast smoke.

12. Material and garbage is to be removed from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

13. All bottlebrushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
14. Barricade is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the Barricade

Document and Records

- Equipment Pre-Op check
- JHA
- Related SOP's
- 5-point card

newgold New Afton Mine Kamloops, B C

Project Address: PO Box 948 Stn Main, Kamloops, BC V1S 1J9
Phone (250) 377-2719

November 17, 2011

Mr. Al Hoffman
Chief Inspector of Mines
Ministry of Energy, Mines and Petroleum Resources
1675 Douglas Street
Victoria, BC
V8W 9N3

RE- Variance Request to Chief Inspector of Mines for Pre-Priming of Longholes Underground

Dear Al,

Please consider this letter as a request for a variance to areas of the code regarding working around loaded holes, specifically 8.5.10:

> **8.5.10** No equipment shall be allowed within 8 m of any charged blasthole except
> (1) authorized explosives vehicles,
> (2) explosive vehicles which have the exhaust directed above the cab of the vehicle, and
> (3) other equipment authorized in writing by the chief inspector.

New Afton requests a variance to pre-prime and pre-load explosives in longholes in order to reduce the exposure of workers to the previously blasted brow. We would operate a scoop and other equipment within 8m of the pre-primed holes.

New Afton has developed a complete set of Safe Operating Procedures for working near pre-primed blast holes in the specific instance of our up-hole production holes, this variance would only apply to production blasting and not to development blasting.

Regards,

Kurt Keskimaki
Mine Manager
New Afton Mine
New Gold Inc.

Chris Gienow
JOHSC Worker Rep

Craig Lockhart
JOHSC Management Rep

Cc: Joint OHSC; S. Rothman, G. MacDonald

Rothman, Stephen MEM:EX

From: Kurt Keskimaki [Kurt.Keskimaki@newgold.com]
Sent: Monday, February 27, 2012 1:40 PM
To: Rothman, Stephen MEM:EX
Cc: Joe Nicholson; Sean Masse
Subject: Pre-loading and Pre-Priming Undercut at New Afton
Attachments: Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Attached Image; Pre-Loading and Priming Variance Request (2).pdf

Steve,

Attached are updated procedures on pre-priming and pre-loading undercut holes at New Afton mine, replacing the SOPs submitted on December 13, 2012 in the request for a variance to the Code.

If you have any questions, please contact me.

Note that New Afton would potentially be prepared to pre-load and pre-prime undercut blast holes by late April, 2012.

Thanks,

Kurt

Kurt Keskimaki
Mine Manager

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newgold New Afton Mine Kamloops B.C.		**MIN-SOP-017** **Handling of Unusual Circumstances in Preprimed Work Areas**	
Author: Mine Captain	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency: 1 Year**

Objective

This procedure provides the information necessary for the safe and efficient Handling of Unusual Circumstances in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report any irregular circumstances to your Supervisor.

Scope

All activities relating to unusual circumstances encountered when entering a preprimed work area.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

6.25.1, and sections for 8

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole.
- Blast holes are normally primed in two separate locations along the hole.

Stop Work

- Discontinue the assigned task due to a safety concern, immediately guard and bring to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow

Tools

- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Discover an unusual circumstance in a preprimed work area (i.e. explosives on the floor, leads fallen through a bottle brush, fallen ground, etc.)
2. Stop work and retreat from the area.
3. Put the barricade back up and remain at the scene guarding the condition.

IMPORTANT: Protect yourself and other employees by guarding unsafe conditions.

4. Contact the Supervisor to report the condition and to provide notification that you are guarding the area.
5. Install a barricade at the entrance to the work area. Ensure a **"DANGER LOADED & PRIMED BLAST HOLES"** sign and any other required sign warning of the hazard discovered are on the barricade.
6. Wait for the Supervisor to arrive. Receive instruction from the Supervisor on work assignment for the remainder of the shift.
7. Before the end of the shift, employee and supervisor will record and report the incident.

Document and Records

- JHA
- 5-point card
- SOP

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newgold New Afton Mine Kamloops, B.C.		**MIN-SOP-018** **Entry into Preprimed Work Areas**	
Author: Mine Captain (Caving)	**Approver:** Mine Manager Kurt Kobluk	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Entry into Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. If unusual conditions are encountered while following this procedure, stop work, guard the area and report to your Supervisor any irregularities.

Scope

All activities related to entering any preprimed work areas.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Section 6.25.1 and any related sections from 8

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole.
- Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow

Tools

- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions and authorization from the Supervisor requiring entry into a preprimed work area.
2. Proceed to the preprimed work area and stop at the entrance.
3. Remove the barricade.
4. Inspect the preprimed work area, stopping 18 (eighteen) meters from the brow (before encountering any preprimed rings).
5. Visually examine each preprimed ring to ensure the bottle brushes are in place. If a brush is not in place contact Supervisor immediately and barricade area.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material.

6. If no bottle brushes are missing, continue the work assignment according to its procedure. If a bottle brush is missing or any other abnormal condition exists (i.e. explosives on the floor, leads fallen through a bottle brush, fallen ground, etc.) Use Procedure: MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas:
    a. Stop work.
    b. Retreat from the area.
    c. Put the guardrail back up and add a second one to create a double barricade. If no material is available for a double barricade, remain at the scene guarding the condition.

IMPORTANT: Protect other employees by guarding unsafe conditions.

    d. Contact the Supervisor and report the condition being guarded.

7. Ensure material and garbage is removed from the work area.
8. Ensure all bottle brushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
9. Install single guardrail at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the guardrail.

Document and Records

- JHA
- 5-point cards
- SOP

newgold New Afton Mine Kamloops, B.C		MIN-SOP-019 Blasting of Preprimed Work Areas with Ikon™ Detonators	
Author: Mine Captain	Approver: Mine Manager	Revision Number: 01	Creation Date: 23-Nov-11 Date Last Modified: 10-Feb-12 Review Frequency: 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Blasting of Preprimed Work Areas with Electronic Detonators. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to the loading and blasting of pre-primed work areas.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

8.6.23, 8.6.3, 8.6.15, 8.3.1, 8.6.2

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Blast letter

- Document that describes which holes will be loaded, the sequence of initiation, the timing of initiation and any other information that is pertinent to the particular blast.

Blasting print

- Engineering document including prints showing preprimed holes and the required holes that are to be blasted.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Working off a muckpile
- Working near the brow
- Open brow

Tools

- One man carrier
- One electronic detonator recorder
- One electronic detonator field receiver
- One electronic detonator base station
- Miscellaneous connectors/connecting wire
- The following personal protective equipment must be used while performing this procedure:
    - Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Preparatory Work

- Engineering provides a blasting print showing delay timing for each electronic detonator.

Job Step

1. Supervisor verifies the ring(s) has been authorized for blasting with the engineering department, who compares the ring number(s) on the tag(s) turned in by the loading/priming crew to the rings authorized to blast by engineering and the blast letter.
2. Receive instructions from the Supervisor to blast a heading preprimed with electronic detonators.
3. Locate man carrier and do pre-op check.
4. Pick up material and blasting print.
5. Clear and guard the blast area according to the blasting procedure.
6. Proceed to the preprimed heading and follow Procedure: MIN-SOP-018 Entry into Preprimed Work Areas. Ensure there are bottlebrushes in place in the preprimed holes and remove the bottle brushes from the ring(s) to be blasted, allowing the detonator leads to hang out, waiting to be logged and set up for blasting.

Prepare a Ring(s) for Blasting

7. Connect the IKON detonator leads, testing each detonator. Use the IKON Logger assign the delay times to the IKON detonators. This timing information is recorded in the IKON Logger. Repair damaged detonators, if both are not repairable, reprime the hole with a third IKON detonator and test it.
8. Leave the heading and ensure the barricade is up (add the **"DANGER KEEP OUT BLASTING"** sign).

IMPORTANT: Ensure signs are up to warn other employees heading is prepared for blasting. Inadvertent entry could cause the detonator rings to be damaged.

9. Return excess material, tools and equipment to storage.
10. Ensure blast prints are filled in and return to Supervisor at end of shift.
11. Remove material and garbage from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

12. The preprimed rings being blasted have all the bottlebrushes removed and the leads hooked up.
13. All bottlebrushes from the remaining preprimed rings are in place with no leads or explosives hanging out of the blast holes or on the floor.
14. Single guardrail is in place at the entrance to the work area with a **"DANGER KEEP OUT BLASTING"** sign on the barricade.
15. Proceed to connect the Ikon™ detonators back into the Ikon™ detonator recorder and check the delays according to the blasting print.
16. If the holes are untimed, notify the Supervisor, time the holes using the Ikon ™ detonator recorder according to the blasting print and continue with this procedure.
17. Install a barricade with a "**DANGER, KEEP OUT, BLASTING**" sign at the heading and connect the electronic detonator recorder to the Ikon™ detonator base station through the blasting line.
18. Test the connection to the Ikon™ detonators.

IMPORTANT: Always test connections.

CAUTION: Always ensure blast area is cleared. Once the area is clear of all personnel and equipment the blasters shall retreat to surface and await final instructions from the Supervisor before firing the shot.

19. Blast (note clearance has already been given from the Supervisor).

DANGER: Carbon Monoxide and other harmful gases are present in blast smoke!

20. Collect the Ikon™ detonator base station and the electronic detonator recorder.
21. Remove barricade and signage, pick up garbage connection wire, inspect blasted heading and re-install the barricade.
22. Return excess material, tools and equipment to storage.
23. Fill in paperwork, turn it and the blast history report in and inform the Supervisor of the condition of the blasted heading (i.e. needs vent, services to remove).
24. ENDSTATE:
    - Material and garbage is removed from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

- All bottlebrushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
- Single guardrail is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the guardrail.

Document and Records

- JHA
- Blast Print
- Related SOP's
- 5-Point Cards

newgold New Afton Mine Kamloops, B.C.		**MIN-SOP-020** **Drilling in Preprimed Work Areas**	
Author: Safety Supervisor	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Drilling in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

This procedure covers activities related to the drilling in any preprimed work areas.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and any applicable manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

Reference to section(s) 8.5.10 (3), 8.7.1, 8.7.2, 8.7.3, 8.7.4 & 4.1

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Detonator

- A device used in firing a charge of explosive and includes blasting cap and electric blasting cap. It is used to initiate other explosives after a timed delay.

Drill ring

- A series of blast holes drilled from the same set-up line.

Drill prints

- Engineering prints that are designed as a reference for the driller in the preprimed work areas.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Primer

- A small charge placed within the main charge to initiate an explosion.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow
- Mobile equipment pinch points

Tools

- One remote capable solo drill
- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use barricades to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Preparatory Work

- Engineering to provide prints of area to be cleared for remote drilling and drilling layout.

Job Step

1. Receive instructions from the Supervisor requiring drilling in a preprimed work area.
2. Locate equipment and complete preop checks.
3. Proceed to the preprimed work area and stop at the entrance.
4. Follow Procedure: MIN-SOP-018 Entry Into Preprimed Work Areas.
5. Set-up drill according to layout and prints, and initialize automatic drilling system if required.
6. Remote drilling is required when approaching the previously blasted apex drifting above (refer to MIN-SOP-015 Remote Drill Operation):
    a. From drilling horizon:

        Clear 30m from the hole if in clear view, and a protective barrier or designed drilling shelter installed (if drilling underground) between the station and the drill.

        NOTE: The station may be established closer than 30m but not less than 15m travel distance if there is a substantial protective barrier, such as a pillar, between the hole collar and the station.

    b. At breakthrough horizon:

        Follow Safety Notice. Clear Blasting Danger Area and post guard or a screened double barricade with a **"DANGER, KEEP OUT, BLASTING IN PROGRESS"** sign.

IMPORTANT: Every effort must be made to blast loaded rings within 8m of the required drilling, so that this portion of the procedure is not required.

Danger: As prescribed by s. 7.1 of the HRSCEC any drilling within 5m of known loaded explosives must be carried out under the direction of a supervisor.

7. Install **'REMOTE DRILLING IN PROGRESS, CONTACT OPERATOR BEFORE ENTRY'** sign, at the entry to the cross-cut.
8. Contact driller and give clearance to drill.
9. Receive clearance to drill and drill hole(s) as per layout.
10. Contact supervisor when remote drilling is completed.
11. Confirm that remote drilling is completed and remove the screened barricade(s).
12. Tear down drill and move out to next location, put up a barricade on the way out with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign if required.

IMPORTANT: All unexpected breakthroughs are to be treated as 'Unusual Circumstances'. Stop work and follow the MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas procedure.

13. Ensure Material and garbage is removed from the work area.
14. All bottle brushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
15. Single guardrail is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the guardrail if required.

Document and Records

- JHA
- Related SOP's
- Drill prints

- 5-point cards

newgold New Afton Mine Kamloops, B C		**MIN-SOP-021** **Engineering Controls for Preprimed Work Areas**	
Author: Safety Supervisor	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Engineering Controls for Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. If unusual conditions are encountered while following this procedure, stop work, guard the area and report to your Supervisor any irregularities.

Scope

All activities related to the engineering controls of preprimed work areas.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Section 6.25.1 and any related sections from 8

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Blasting print

- Engineering document showing preprimed holes and the required holes that are to be blasted.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Misfired holes
- Remnants of explosives

Tools

- Remote drilling gear
- Engineering prints and drawings
- Standard underground PPE

Requirements

- Use **"DANGER KEEP OUT"** signage where required.
- Use Proper Standard Tagging Procedures.
- Inspect equipment and tools to ensure that they are in proper condition before starting job.
- Safety notices to be issued as required.

Job Step

1. Record any reported Unusual Circumstances in Preprimed Work Areas.
2. Provide a blasting print showing collar and loaded lengths for each preprimed hole.
3. Add information on repaired, replaced detonators and reloaded holes to the official records.
4. Update prints to show holes to be drilled, previously drilled holes and preloaded rings.
5. In cases where a column of explosive is unable to be fired due to a fall of ground or brow over-break, prints will be updated to show unfired explosives and these locations to be treated as containing known explosives, for remote drilling purposes. The operations department will be notified by engineering that a specified tonnage shall be mucked and the situation documented, noting any explosives or irregularities in the muckpile. If detonator leads are not accessible and collar priming is not possible, all reasonable attempts will be taken to either clean out the explosives with a remote re-drill or washing out the explosives. If these attempts are unsuccessful, a JHA will be completed and used to address this condition. Engineering will consider hole casing as a pre-emptive solution in bad ground areas. If at any time preprimed holes cannot be fired, do not fire the ring and Engineering must be notified.
6. A timing & blasting print will be issued to identify when a preprimed ring is to be fired. These will be separate documents from the loading print.
7. Time Limitations on Leaving Preprimed Holes Unblasted:
    a. All preprimed rings shall be inspected before any work is to be done in the area to ensure they are in good condition. If the condition of the ring has deteriorated, immediate plans will be made to blast the ring. If the ring is in good condition, it will be scheduled to be blasted within one month. An electronic database will be created to record the date rings are preprimed and the latest date the preprimed rings should be blasted.
    b. Engineering to examine mining sequence and ensure rings will not be preprimed if the sequence does not call for them to be blasted within one month.
    c. When preprimed: the ring level, heading and number are recorded in the electronic database with a latest blast date one month from the time of loading.
    d. All preprimed rings not blasted before the one month period will have to be inspected for deterioration. If any visible signs of damage or deterioration are present, the rings are to be washed out.
    e. In the event of a planned extended shutdown in the mining process, engineering will issue blasting prints for all of the preprimed rings and they will be blasted or washed out before the shutdown commences.

Document and Records

- Related SOPs

newgold New Afton Mine Kamloops, B.C.		**MIN-SOP-022** **Loading and Priming of Rings in Preprimed Work Areas**	
Author: Mine Captain (Caving)	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Loading and Priming of Rings in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to the loading and priming of drilled rings in a preprimed work area.

Introduction

These standards were created to provide safe and consistent working standards for all New Afton employees and their Supervisors, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and applicable manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Sections 8.2.1, 8.2.2, 8.3.1, 8.5.1, & 6.25.1

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Blast letter

- Document that describes which holes will be loaded, the sequence of initiation, the timing of initiation and any other information that is pertinent to the particular blast.

Blasting print

- Engineering document including prints showing preprimed holes and the required holes that are to be blasted.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number See figure 1.01.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

IKON Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an electronic initiation system.
- It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fibre Shotcrete

- Concrete mix for spraying that contains reinforcing fibres used for ground support.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely written warning from the Engineering to Operating department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Working off a muckpile
- Uneven ground
- Mobile equipment pinch points

- Working near the brow
- Open brow

Tools

- One emulsion truck (filled with emulsion)
- IKON detonators power cord and or boosters
- One IKON detonator logger
- Cari-strap and yellow hats (triangle pockets made from vent tubing)
- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Engineering provides a blasting print showing collar and primer locations for each hole.
2. Receive instructions from Supervisor to preprime a heading or inspect and repair existing preprimed rings (problem in heading reported).
3. Pick up blasting print.
4. Locate equipment and do preop checks.
5. Pick up material.
6. Proceed to the preprimed heading and stop at the entrance. (Follow Procedure: MIN-SOP-018 Entry into Preprimed Work Areas.)
7. Remove the barricade.
8. Inspect the heading, stopping approximately 10 (ten) meters from the brow (before encountering any preprimed rings).
9. Proceed towards the brow stopping at each ring to ensure the bottlebrushes are in place.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material. Stay under supported ground. If brow is open, stop and retreat out of the work area and contact the Supervisor for further instructions.

10. If any abnormal conditions are discovered (i.e. fall of ground, bottlebrush is missing or any leads have fallen through a bottlebrush) or if the muckpile is not dressed properly, follow procedure: MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas, and:
    a. Retreat from the area.
    b. Put the barricade back up.

IMPORTANT: Protect other employees by guarding unsafe conditions.

    c. Contact the Supervisor immediately and await his arrival.

Load & Preprime a Ring(s):

11. Set the loader up at the closest ring to the brow that is not loaded. (Remove the bottlebrush from Hole #1 and verify the ring number against the blasting print from engineering. (Note: if the bottlebrush or tag is

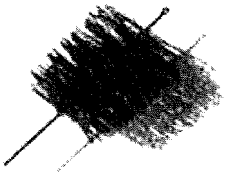
missing, verify the ring number before proceeding). If unable to verify the ring number, **DO NOT LOAD** and contact your supervisor immediately.

Measure each hole on the ring and record the lengths prior to loading any holes. If any holes are shorter than what is on the blast print then **DO NOT LOAD** and contact Supervisor.

CAUTION: The entire ring must be measured before loading the first hole to minimize risk if any redrilling is required.

12. Load and prime the ring according to the blasting print. Record actual primer locations, pounds of emulsion loaded and hole collars.
13. Remove emulsion truck from heading.
14. Use a manlift to reach back. Place bottlebrushes to hold the leads up in each of the holes (put the bottlebrush with the ring number tag back in Hole #1). If the bottlebrush is too loose to stay in the hole, put two brushes in.
15. If more than one ring will be blasted, repeat steps 12 to 15 prepriming as outlined by the blast letter.

Figure 1.01 Bottle Brush



newgold New Afton Mine Kamloops, B.C.		MIN-SOP-023 Mucking in Preprimed Work Areas	
Author: Safety Supervisor	Approver: Mine Manager	Revision Number: 01	Creation Date: 23-Nov-11 Date Last Modified: 10-Feb-12 Review Frequency: 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Mucking in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. If unusual circumstances are encountered while following this procedure, stop work, guard the area and report to your Supervisor any irregularities.

Scope

All activities related to the mucking in a preprimed work area.

Introduction

These standards were created to provide a safe and responsible working procedure for all underground employees and their supervisor, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Part 4, sections 4.6.1, 6.19.3, 6.25.1 & 2 and related sections to Part 6 and Part 8

Definitions

Blast holes

- Holes drilled into rock to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snow banks removed, roadway back bladed and floor leveled.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Open Brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely written warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow
- Mobile equipment pinch points

Tools

- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use barricade to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.

- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions and authorization from Supervisor before mucking in a preprimed work area.

DANGER: Watch to locate unfired explosives. Supervisor will inform you if loaders have reported an unconnected detonator.

2. Locate equipment and complete pre-op checks.
3. Proceed to the preprimed work area and stop at the entrance.
4. Follow Procedure: MIN-SOP-018 Entry Into Preprimed Work Areas.
5. Check for adequate ventilation and water spray, if not adequate stop work, retreat from the area, install the barricade and contact the Supervisor.

DANGER: Not having adequate ventilation and water spray allows dust into the atmosphere.

DANGER: When entering the drawpoint with the scooptram ensure the bucket is always positioned so there is no chance of any part of the bucket or muck making contact with the back. Check the brow and ensure it is not open (+18" between muckpile and brow). If it is open, stop mucking and contact the Supervisor for further instructions.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material.

6. Stay under supported ground.
7. If the brow is open or at any time during mucking becomes open, stop mucking and retreat from the area installing a **"DANGER OPEN BROW"** sign on the barricade. Inform the Supervisor.
8. Return to the heading to be mucked and start mucking. Do not allow the bucket or material in the bucket to contact the back under the preprimed holes.

DANGER: Do not allow the bucket or material in the bucket to contact the back under the preprimed holes, the material could hook a bottlebrush out of a hole.

IMPORTANT: Contacting detonator leads does not initiate the detonators, but may damage them.

9. Watch for changes around the preprimed holes on each trip. Stop if any bottlebrushes come out, if any detonator leads fall out of a hole or if any explosives come out of a hole retreat from the area installing a barricade with **"DANGER LOADED & PRIMED HOLES"** on the way. Inform the Supervisor. Follow Procedure: MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas.
10. **When mucking is completed: Dress the muckpile. Put the barricade up with a "DANGER LOADED & PRIMED BLAST HOLES" sign. If mucking was done to the grizzly, clean the mantle or grizzly and ensure the gate closes. Cover is reinstalled.**
11. Remove Material and garbage from the work area.

IMPORTANT: Good housekeeping makes a workplace safer. Over-size are to be placed in designated areas only.

12. All bottlebrushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
13. Single barricade is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the guardrail.

Document and Records

- MIN-SOP-018 Entry into Preprimed Work Areas
- MIN-SOP-017 Handling of Unusual Circumstances in Preprimed Work Areas
- JHA

- 5-point cards

newgold New Afton Mine Kamloops, B.C.		MIN-SOP-024 **Reconditioning of Preprimed Work Areas**	
Author: Mine Captain (Caving)	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Reconditioning of Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to the reconditioning of any preprimed work areas.

Introduction

These standards were created to provide a safe and responsible working procedure for all underground employees and their Supervisor, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Section 8

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes

IKON Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an electronic initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely written warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow
- Mobile equipment pinch points
- Noise
- Rotating drill components

Tools

- Standard underground PPE
- One shotcrete spray arm
- One shotcrete haulage truck & shotcrete
- Water sprays
- Burlap & cari-strap
- One bolter or scissor truck with hand drills & bolts and resin

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions from Supervisor to recondition a preprimed work area.
2. Locate equipment and complete pre-op checks.
3. Proceed to preprimed work area. Stop at entrance. Follow SOP-018 Entry into Preprimed Work Areas.
4. Check scale the area requiring reconditioning from a scissor truck.

CAUTION: Do not allow scaling bar or screen cutters to enter a preprimed hole. Contact may damage the electronic detonator leads.

5. Cut out protruding screen.
6. Bolt and screen up to the ring number specified by the Supervisor (so that drilling does not take place within 8m of a preprimed hole).

DANGER: Do not drill within 8m of a preprimed blast hole. If drilling is required to take place any closer DO NOT drill and contact your Supervisor for further instructions.

7. Shotcrete as required using fiber shotcrete where screen is not present. Remember to precondition shotcrete equipment (sprayer & transmixer) with form oil as per New Afton standards.
    a. Push bottlebrushes in 8" prior to inserting burlap.
    b. Tie cari-strap around the burlap for easy removal and tie the cari-strap off on the wall to keep it out of the way.
    c. Cover all holes in affected shotcrete area.
    d. Setup to shotcrete.
    e. Shotcrete as required.
    f. Stop shotcreting if the burlap protecting a preprimed hole falls out.
    g. If unable to replace the burlap, stop work. Notify the Supervisor, pull out of the heading, put a barricade up with signs and proceed to another area to spray or dump the remainder of the load.

CAUTION: Shotcrete will damage the electronic detonators. Do not spray shotcrete if the burlap protecting the electronic detonators is missing.

    h. Tear down and pull out of the heading. Put the barricade up.
    i. Wait for shotcrete to set.
    j. Return and remove burlap without travelling under the shotcrete.
    k. Dispose of burlap properly.

IMPORTANT: If any bottlebrushes or electronic detonator leads come out with the burlap, stop work, do not replace them, notify the Supervisor, the detonator leads will need to be tested by the loading crew. Leave and install a barricade.

8. Wash out shotcrete truck.
9. Wash shotcrete off spray arm.
10. Return all unused supplies and equipment to storage.
11. Fill out any required paperwork, submit it and inform the supervisor of the condition of the heading.
12. Material and garbage is to be removed from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

13. All bottle brushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
14. Barricade is in place at the entrance to the work area with a "**DANGER LOADED & PRIMED BLAST HOLES**" sign on the barricade.

Document and Records

- All related SOPs
- 5-point cards
- JHA

newgold New Afton Mine Kamloops, B C		**MIN-SOP-025** **Re-entry into Preprimed Work Areas after Blasting & Installation of Services**	
Author: Safety Supervisor	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Re-entry into Preprimed Work Areas After Blasting & Installation of Services. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to the re-entry into a preprimed work area after blasting and installation of services.

Introduction

These standards were created to provide a safe and responsible working procedure for all underground employees and their supervisor, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Section 6.25.1, 6.19.3, and any related sections of 8

Definitions

Blast holes

- Holes drilled into the rock to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labelling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed and slagged.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely warning from engineering to operating department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor.

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Uneven ground
- Open brow

Tools

- Standard underground PPE

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use barricades to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions from Supervisor to prepare a freshly blasted heading in a preprimed work area for mucking.
2. Locate scissor truck and do preop check.
3. Pick up material.
4. Proceed to the preprimed work area and stop at the entrance. Follow SOP-018 Entry into Preprimed Work Areas.
5. Remove the barricade, if there is no barricade or it is damaged, install a new barricade with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign.
6. Inspect the preprimed work area, stopping before encountering any preprimed rings.

DANGER: Do not approach the brow area if the brow is open. Retreat, back out and contact the Supervisor and await further instructions.

7. Fill in '5 Point' safety card and visually examine each preloaded ring (to ensure the bottlebrushes are in place.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material. Stay under supported ground.

8. If a bottlebrush is missing or any other abnormal condition exists (i.e. explosives on the floor, leads fallen through a bottlebrush, fallen ground, open brow, etc.) use Procedure: MIN-SOP-017 Unusual Circumstances in Preprimed Work Areas:
    a. Retreat from the area.
    b. Put the barricade back up.

IMPORTANT: Protect other employees by guarding unsafe conditions.

    c. Contact the Supervisor.
9. If no bottlebrushes are missing, wash down the walls, back and muckpile.
10. Install a water spray.

DANGER: Do not drill within 5m of a loaded and primed hole.

11. Check to ensure the ventilation ducting is in good condition and within 25m of the face. Fix it if it is not.
12. Leave the heading and put up the barricade. Ensure a **"DANGER LOADED & PRIMED BLAST HOLES"** sign is on the guardrail.
13. Return the unused material and equipment to storage.
14. Report the condition of the heading to the Supervisor.
15. Material and garbage is to be removed from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

16. All bottlebrushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
17. Barricade is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the barricade.

Document and Records

- 5-point card
- Related SOP's

newgold New Afton Mine Kamloops, B.C.		MIN-SOP-026 Secondary Blasting in Preprimed Work Areas	
Author: Mine Captain (Caving)	**Approver:** Mine Manager	**Revision Number:** 01	**Creation Date:** 23-Nov-11 **Date Last Modified:** 10-Feb-12 **Review Frequency:** 1 Year

Objective

This procedure provides the information necessary for the safe and efficient Secondary Blasting in Preprimed Work Areas. Compliance with this procedure will prevent personal injury, avoid damage to equipment and minimize disruption to mining activities.

All personnel shall comply with this procedure. When following this procedure, stop work, guard the area and report to your Supervisor any irregular circumstances.

Scope

All activities related to secondary blasting in any of the preprimed work areas.

Introduction

These standards were created to provide a safe and responsible working procedure for all underground employees and their Supervisor, and to comply with New Gold standards, the Health, Safety & Reclamation Code of BC and manufacturer's recommendations.

Health, Safety & Reclamation Code of BC

- Any related sections in Part 8, and 6.25.1

Definitions

Blast holes

- Holes drilled into the ground to allow the placement of explosives.

Booster

- A packaged explosive product used to initiate other explosives. It requires a detonator to initiate.

Bootleg

- A remnant of a blasted hole.

Bottlebrush

- A retention device for keeping detonator leads inside blast holes and labeling the drill ring by number.

Brow

- Upward edge of the drift meeting an opening above.

Bulk Emulsion

- An explosive that is pumped into blast holes.

IKON Detonator

- A capsule containing highly sensitive explosives with a lead to connect it to an electronic initiation system. It is used to initiate other explosives after a timed delay.

Dressed Muckpile

- Base of muckpile is cleaned, snowbanks removed and the roadway back bladed.

Drill ring

- A series of blast holes drilled from the same set-up line.

Endstate

- The required condition of a work area when you leave it.

Explosive

- Any material that can undergo a rapid chemical reaction to produce heat and extreme pressure.

Fiber Shotcrete

- Concrete mix for spraying that contains reinforcing fibers used for ground support.

Mishole

- Any portion of a hole that failed to completely detonate.

Open brow

- Material above the brow is jammed not allowing flow of material down to the floor.

PPE

- Personal Protective Equipment

Prepriming

- The practice of loading and priming a controlled number of drill rings in advance of production blasting without connecting detonators to a source of initiation.

Priming

- The installation of a booster and detonator combination in a blast hole. Blast holes are normally primed in two separate locations along the hole.

Safety Notice

- Timely written warning from the Engineering to Operating Department of potential dangers in progressing with underground work.

Stop Work

- Discontinue the assigned task due to a safety concern that is immediately guarded and brought to the attention of a Supervisor

Preparation

Hazards

- Unplanned initiation of explosives
- Dust
- Blast fumes and gasses
- Working off a muckpile
- Uneven ground
- Tripping hazards
- Working near the brow
- Open brow
- Fly rock (when collaring)

- Rotating components (drill steel)
- Mobile equipment pinch points
- Manual handling
- Handling chunks
- Damaged services

Tools

- Standard underground PPE
- Double hearing protection when drilling
- One scoop (if required)
- One blockholer (if required)
- One man carrier
- Electronic detonators (if blasting a ring at the same time) or nonels and explosives for secondary blasting
- Peripherals for secondary blasting (blasting poles, battery, locks)

Requirements

- Wear approved 'Fall Arrest System' when required.
- Use guardrails to limit access to any unsafe condition.
- Inspect tools to ensure that they are in proper condition before starting the job.
- Complete pre-op before using equipment.
- People entering a preprimed work area must be authorized to do so.

Job Step

1. Receive instructions from Supervisor that in a preprimed work area secondary blasting is required in conjunction with blasting a ring or secondary blasting is required without blasting a ring.
2. Locate equipment and do preop checks.
3. Inspect the heading using Procedure: MIN-SOP-018 Entry into Preprimed Work Areas.

DANGER: There could be rings closest to the brow that are loaded and primed.

4. Determine if any chunks in the muckpile can be moved with a scoop. If possible get the scoop operator to remove chunks to a suitable blasting location.

CAUTION: Material at the brow is not secured. Watch for rolling or falling material. Stay under supported ground. If the brow is open retreat out and contact the Supervisor for further instructions.

5. Maneuver chunks 20 feet away from the toe of the muckpile to allowing drilling and blasting to take place away from the preprimed rings. (If possible move it all the way to a suitable blasting location.)

IMPORTANT: Do not use uncontained explosives directly under preprimed rings. The leads could be damaged.

6. If possible blast down any hung chunks following the hangup blasting procedures.
7. Inspect all chunks for bootlegs and circle them with a ring of contrasting paint. If there are any misholes, inform the Supervisor and Engineering for tracking purposes.

DANGER: Do not drill within 1m/3ft of a bootleg or within 5m of a mishole. If drilling is required within 5m of a mishole do not drill and contact Supervisor.

8. Drill accessible chunks with the blockholer. Plan on blasting the chunk enough to move it with a scoop. If chunks were unable to be totally inspected for explosives, they must be drilled on remote.
9. Load the drilled chunks and set shots against hang ups following the hangup blasting procedures.
10. Blast according to the appropriate blasting procedure at the end of the shift never during the shift.
11. Prevent Access to Areas Affected by Blasting Gas.

CAUTION: Always ensure blast area is cleared. Place any required guards and yourself in a safe location before blasting.

   a. When secondary blasting in conjunction with blasting a ring, follow the Procedure: MIN-SOP-019 Blasting of Preprimed Work Areas with Electronic Detonators. Note that the secondary blasting is to be sequenced to fire with the first hole.

   b. When secondary blasting without blasting a ring, blast assuming that a ring in the heading will go off, and therefore only blast at the end of the shift.

DANGER: Carbon Monoxide and other harmful gasses are present in blast smoke.

12. Material and garbage is to be removed from the work area.

IMPORTANT: Good housekeeping makes a workplace safer.

13. All bottlebrushes are in place with no leads or explosives hanging out of the blast holes or on the floor.
14. Barricade is in place at the entrance to the work area with a **"DANGER LOADED & PRIMED BLAST HOLES"** sign on the Barricade

Document and Records

- Equipment Pre-Op check
- JHA
- Related SOP's
- 5-point card

RE: Physiokinetic Adjusted TLVs at New Afton

Thursday, November 29, 2012
1:10 PM

Subject	**RE: Physiokinetic Adjusted TLVs at New Afton**
From	Doyle, Carina EMNG:EX
To	'Sean Masse'
Cc	'Kurt Keskimaki'; 'Kevin Mihalicz'; Hoffman, Al EMNG:EX; Nakatsuka, Caroline M EMNG:EX; Rothman, Stephen EMNG:EX
Sent	Wednesday, October 24, 2012 6:50 PM

Sean,

Thank you for your email. We have discussed your email and recognize we have made an error in approving this without a variance as a method has already been outlined in the Code. I agree that this is a recognized method of adjusting TLV's for shifts longer than 8 hours. Section 2.1.2 of the code specifies that mines in BC should use the following equation:

Shifts Longer Than 8 Hours

2.1.2 When shifts longer than 8 hours are being worked, the time-weighted average concentration of airborne contaminants shall be based on the "concentration equivalent" (Ceq) which is derived from the following formula:

$$Ceq = \frac{(8\text{-hour TWA}) \times 8}{\text{shift length in hours}}$$

The Ministry would be happy to consider an application for a variance to this section. Please submit a variance request signed by the mine manager, the OHSC and the local union representative. If this is not received at the time of the submission, the Chief Inspector is obligated to wait 30 days for input from all stakeholders. Please include in your application the values you indent to use for the half-life of contaminants in the body (i.e. the values for NH3, NOx, or any other contaminants of concern on site).

The ultimate objective is to reduce exposures to the lowest amount possible, as these thresholds are not discrete cut offs between safe and unsafe levels.

Regards,

Carina Doyle
Inspector of Mines, Occupational Health

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-952-0668 | Cell: 250-812-5171 | Fax: 250-952-0491
Email: Carina.Doyle@gov.bc.ca | Website: www.em.gov.bc.ca

From: Sean Masse [mailto:Sean.Masse@newgold.com]
Sent: Tuesday, October 23, 2012 5:33 PM
To: Doyle, Carina EMNG:EX; Rothman, Stephen EMNG:EX
Cc: Kurt Keskimaki; Kevin Mihalicz
Subject: Physiokinetic Adjusted TLVs at New Afton

Hello,

I had sent an email about adjusting TLVs to Steve last week. Apparently Kevin discussed it with Steve and Steve asked for an email outlining the approach.

We were reviewing our TLVs a few weeks back to gain consistency with several different presentations we use. We were working through the ACGIH material on adjusted TLVs. I was interested in an approach for our common gases that takes into account the physiological effect of the particular gas. I knew this existed but hadn't researched it before.

The gases we deal with at New Afton:

- NOx are both irritants to mucous membranes and can cause edema and fluid in the lungs with large exposures
- NH3 again an irritant that can cause fluid in the lungs with large exposures
- CO an oxygen substitute on hemoglobin that has very well documented affinity and half life

$$Fp = \frac{\left(1-e^{-kt_{1x}}\right)\left(1-e^{-k(t_{1x}+t_{2x})n}\right)\left(1-e^{-kT_x}\right)\left(1-e^{-k(t_{1x}+t_{2x})}\right)}{\left(1-e^{-kt_{1x}}\right)\left(1-e^{-k(t_{1x}+t_{2x})m}\right)\left(1-e^{-kT_x}\right)\left(1-e^{-k(t_{1m}+t_{2x})}\right)}$$

This equation is described on the documentation sheet in the attached workbook

It is a complicated equation but I did find a spreadsheet published by McMaster university on the topic. My approach was as follows for our main gases:

Given these understandings of the gases we decided to leave the irritants with the MoM calculation for adjusted TLV, this seemed to be conservative and allows for a factor of safety, given the more variable effect of these gases.

For CO we found a conservative half-life of the CO equilibrium in the body of 4-5 hours. We chose to use 5 hours.

Using the calculator from McMaster and a half-life of 5 hours we come up with an adjustment factor (Fp) of .86, therefore our adjusted TLV would be TLV'=0.86*25ppmCO=21.5ppm

My understanding from Kevin is that this is agreeable to Steve and that this email would constitute our submittal and backup to this effect.

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INITIAL HEALTH AND SAFETY AUDIT

New Afton Mine

October 16 & 17, 2012

Part Two

(DETAILED)

Report

PREPARED BY

MINISTRY OF ENERGY, MINES AND NATURAL GAS

MINES AND MINERAL RESOURCE DIVISION

Section 1.3.1 Authority to Enter a Mine:	
Subsection: 1.3.2 Posting *Is there "only authorized persons" notice posted on all road entrances to the mine?*	
Initial Audit - Inspector Comments: There are signs posted and the main access to the site is controlled by 24/7 security.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Section 1.6.9 Occupational Health and Safety Managerial Responsibility:	
Subsection 1.6.9(1) Health and Safety Program: *Has the Manager developed a Mine Health and Safety program and has it been reviewed recently by the OHSC?*	

Initial Audit - Inspector Comments:	Score
The mine does have an Occupational Health and Safety Manual in draft form. There are also elements of the program in the safety management system, but neither of these have been reviewed by the JOHSC	3
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Has the Manager developed a Mine Health and Safety Policy? Is it in Writing?*	
Initial Audit - Inspector Comments:	Score
There were two safety polices posted. One was a Corporate policy and one was a site policy. Both read the same but one was not signed. There needs to be one policy for the site and that is the one that should be posted.	4
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Does the safety policy set forth Company safety Program Objectives?*	
Initial Audit - Inspector Comments: The site policy speaks of the Management teams commitment but only in general terms.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection1.6.9 (1a) Health and Safety Program : *Does the safety policy Identify the authority/accountability or responsibility of workers and management?*	

Initial Audit - Inspector Comments:	Score
The policy speaks of Responsibilities and Accountabilities being transfer to employees but does not define or outline what they are.	3
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Is the safety policy posted in conspicuous locations?*	
Initial Audit - Inspector Comments:	Score
One or both of the safety polices were posted throughout the site.	5
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection1.6.9 (1a) Health and Safety Program : *Is it reviewed/reissued on an annual basis?*	
Initial Audit - Inspector Comments: The most recent posted policy was dated October 15, 2012 but the General Manager's signature was not on it. It was admitted that although the policy had been re-dated it had not been reviewed for quality or content.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Are workers familiar with the safety policy?*	
Initial Audit - Inspector Comments:	Score
Employees interviewed stated they were aware of a policy but were not sure what it said.	2
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 1.6.9 (1a) Health and Safety Program : *Is it communicated to new employees?*	
Initial Audit - Inspector Comments:	Score
The safety policy is not covered in the new hire orientation.	0

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection1.6.9 (1a) Health and Safety Program : ***Is it discussed during regular staff/team/workgroup meetings?***	
Initial Audit - Inspector Comments: The records presented did not show the policy had been reviewed at any meetings.	Score 0
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 1.6.9 (1)(b) Health and Safety Program : *Have general safety rules been developed?*	
Initial Audit - Inspector Comments:	Score
Some general rules are reviewed in the new hire orientation and some are in the OHS manual, (which is in draft form and not reviewed).	4
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 1.6.9 (1)(b) Health and Safety Program : *Are workers familiar with general safety rules?*	
Initial Audit - Inspector Comments:	Score
The majority of the workers interviewed indicated they were aware of the general rules but felt they needed to be reviewed more often.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.9 (1)(c) Health and Safety Program : *Have Safe Work Procedures been developed on a departmental basis?*	
Initial Audit - Inspector Comments: Safe Operating Procedures are being developed on an ongoing basis using a Job Hazard Analysis process for each Department. Some departments are further along in this process than others.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection1.6.9 (1)(c) Health and Safety Program : *Have the safe work procedures been reviewed with all relevant workers?*	
Initial Audit - Inspector Comments: There is an employee training matrix in place that tracks which SOP's are reviewed by which employee. It was also noted that some of the SOP's are also being reviewed at crew meetings. This process needs to be expanded to capture all training.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.9 (1)(e) Health and Safety Program : ***I****s there a provision for regular monthly crew safety meetings?*	
Initial Audit - Inspector Comments: There are formal monthly meetings being held with minutes being kept.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.9 (1)(f) Health and Safety Program : *Are there procedures developed for accident and serious incident investigations?*	
Initial Audit - Inspector Comments: There are procedures developed in the OHS manual, which needs to be published. There has been formal accident investigation training done, but the process needs to be published and reviewed.	Score 3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.9 (1)(g) Health and Safety Program : *Are there procedures for monthly safety tour inspections?*	
Initial Audit - Inspector Comments: There is a procedure outlined in SOP procedure SAF-FRM-088	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.9 (2) Health and Safety Program : *Does the OHSC regularly review the mine Health and Safety program for completeness and effectiveness and submit its findings to the manager?*	
Initial Audit - Inspector Comments: In review of the minutes from the OHSC it appears that some of the safety program elements are being discussed but the committee needs to expand their focus to more parts of the program.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Section 1.6.1 Occupational Health and Safety Managerial Responsibility:	
Subsection 1.6.1 Health and Safety Committee: *Is there a health and safety committee established in accordance with section 1.6.1?*	

Initial Audit - Inspector Comments:	Score
There is a committee that is comprised of New Gold employees and Contractors, which creates a rather lager committee. This appears to have an impact on the committee's ability to work on the bigger picture elements of the safety program.	3

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Section 1.6.3 Inspections:

Subsection 1.6.3(1) Health and Safety Committee:

Does the committee conduct regular monthly inspections?

- *All hazard areas are identified and inspected regularly*
- *Substandard conditions are documented in writing*

Initial Audit - Inspector Comments:	Score
The records show that regular monthly inspections are being done, with minutes kept. It was noted that at the time of this audit the hazard rating that was being used previously for items found during the inspection has been dropped from the present process. The reason for this needs to be reviewed.	3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.3(2) Health and Safety Committee: *Does the Committee meet after their inspection?* *Are minutes of this meeting prepared including a description of conditions found during the inspection?* *Are Action and follow-up plans are developed specifying what will be done, by whom, when?* *Are the minutes posted in a conspicuous place and filed with the Manager?*	
Initial Audit - Inspector Comments: Review of the records show that minutes of the Inspections are being kept with action items identified. These action items are put in the site's Corrective Action tracking system for implementation and monitoring.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 1.6.4 Inspections:

Subsection: 1.6.4(3) Health and Safety Committee:
Are the OHSC Minutes posted in a conspicuous place and filed with the Manager?

Initial Audit - Inspector Comments: Minutes from the OHSC were observed posted throughout the site.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section 1.6.5 Accident Investigations:

Subsection: 1.6.5 Health and Safety Committee:

Do the OHSC co-chairpersons or their designate participate in investigations of medical aids and dangerous occurrences as required in 1.7.1 of the HSRC?

Initial Audit - Inspector Comments:	Score
In review of the records, they showed that the OHSC co-chair persons or designates are involved sometimes but not on a consistent basis. There were many AI reports that did not have a safety representative signature on them.	3

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section 1.6.7 Cooperation with the OHSC:

Subsection: 1.6.7 (1,2,3) Health and Safety Committee:

Do all persons working at the mine cooperate with the OHSC by;

- *Providing facility to carry out its inspections and investigations*
- *Allowing access to all records and reports*
- *Correcting hazards as noted by the agreed date by the OHSC?*

Initial Audit - Inspector Comments:	Score
There appears to be good cooperation with the OHSC. It is worth noting that at the time of this audit there appeared to be a good working relationship between the Surface and Underground OHSC representatives.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection: 1.6.7 Health and Safety Committee:

Is there a system in place to ensure follow-up and implementation of committee recommendations?

Initial Audit - Inspector Comments:	Score
The action items identified from the OHSC are put into the site Corrective action process for tracking. The OHSC should be reviewing the status of these items at each monthly meeting to ensure action has been implemented.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection: 1.6.7 Health and Safety Committee *Is the Committee involved in the development of:* • *Safety program elements* • *Program measurements* • *Safe work procedures* • *Training for workers*	
Initial Audit - Inspector Comments: Records show the OHSC has started to look at these aspects but due to the size and structure of the committee, the review is a complicated process. Records also show the committee spends most of its time looking at the physical conditions of the mine and less time on the behaviours, processes and procedures that show the effectiveness of the program	Score 3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 1.6.8 Committee Training:

Subsection: 1.6.8 OHSC training:
Has the OHSC received any training?

Initial Audit - Inspector Comments: This topic was a point of some frustration for the OHSC. It was stated that a training plan had been developed for the committee for the year but for some reason was not followed through with. The records also showed that not all OHSC representatives had accident investigation training. This topic of training for the OHSC needs to be reviewed and a commitment made to get the training done.	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Section 1.11.1 Occupational Health and Safety Managerial Responsibility:	
Subsection: 1.11.1(2) Training in the Workplace: *Is there a comprehensive orientation and safety training program for new workers, including hazard awareness and reporting, general safety rules, safe work procedures, safety and health policy, safety Committee emergency procedures, etc?* *Does this training include all Managers/Supervisors?*	
Initial Audit - Inspector Comments: There is a new hire orientation process in place at the mine. Some of the Personnel safety rules that are identified in the Health and Safety Reclamation code are not reviewed in this orientation. There were no records provided that showed that Managers or Supervisors had received any new hire orientation.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection: 1.11.1 Training in the Workplace *Are workers given task specific safety training on how to do each task safely including being informed of hazards associated with the task?*	
Initial Audit - Inspector Comments: Specific task hazard analysis is done through the use of the Job Hazard analysis process, which helps in the development of SOPs for each task. In review of the records they do not clearly show that all relevant workers get this task hazard training.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection: 1.11.2.Training in the Workplace: *Is there a recording system developed for recording all training received by workers and supervisors?*	
Initial Audit - Inspector Comments: There was, at the time of this audit, an Excel spreadsheet that was being used to track employee training which was a very labour intensive system to use. There is a new system being introduced, the INX-Health Data/Incident Entry Management system which appears will make this tracking process a lot more manageable.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Part 1 – Total out of 150	**102**
Part 1 – Percentage out of 100%	**68%**

Section 2.1 Workplace Health Hazard Management Program:

Subsection: 2.1.3(1) Workplace Monitoring Program

Has a written program to ensure a hazard free environment been established in accordance with the "Workplace Monitoring Procedures Manual"? Is there a written program and is it reviewed on a regular basis?

Initial Audit - Inspector Comments:	Score
On three occasions a consulting company has conducted workplace monitoring for the mine: May 2009, Oct. 2011 and May 2012. In 2009, exposures to noise, silica, and respirable combustible dust were assessed and lighting, radon gas, and gamma radiation surveys were conducted. In 2011, exposures to noise, silica, and respirable combustible dust were re-assessed and heat stress monitoring was conducted. In 2012, noise, silica, and respirable combustible dust were again assessed and concentrations of fourteen airborne metals, including mercury, were assessed underground, a second gamma radiation survey was conducted and the heat stress monitoring program was re-evaluated. This work has been complemented by ongoing monitoring conducted by the mine for noise, silica, respirable combustible dust, and three metals (nickel, magnesium and chromium).	4

Initial Audit - Manager's Reply:
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2nd Audit Follow Up - Manager's Reply:

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Subsection: 2.1.3(1) Anticipation/Recognition of Hazards

- *Are work areas being assessed to anticipate/recognize occupational health hazards?*
- *Does the program identify the potential health hazards?*
- *Does the program identify the locations of these hazards?*
- *Does the program identify the workers exposed? Including grouping workers of similar exposures together (SEG)?*

Initial Audit - Inspector Comments:	Score
Hazards have been identified and SEGs have been developed. In 2009, the consultant hired to conduct workplace monitoring categorized approximately 65 employees into similar exposure groups, and in 2011, the consultant categorized approximately 230 employees into similar exposure groups. The mine currently employees approximately 800 people, including contractors. SEGs should be reviewed and adjusted on a regular basis. Methodology for identification of hazards and their respective locations is unclear. It remains unclear if all hazards have been identified (organic vapours? cement dust? Are surface labourers exposed to noise? etc). For the majority of SEG's (all except SEG 1), the workers exposed have been identified.	3

Initial Audit - Manager's Reply:

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2nd Audit Follow Up - Manager's Reply:

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Subsection 2.1.3 (1)(2)/2.1.1/2.1.2 Evaluation of Hazards

- *Does the program specify the frequency of monitoring?*
- *Does the program specify the evaluation methods used to determine the exposure levels of workers?*
- *Are worker's trained in conducting the program? Is monitoring being conducted?*
- *Are records of the monitoring program being kept?*
- *Are employees exposed to airborne concentrations of chemical agents or noise in excess of the levels specified in the Code or 1994-95 TLVs?*
- *Are TWA concentrations calculated based on Ceq formula when shifts are longer than 8 (eight) hours*

Initial Audit - Inspector Comments:	Score
A considerable amount of personal samples have been collected. Program sampling frequencies appear to be chosen based on qualitative information/professional judgment. Sampling frequency for newly identified SEG has not yet been established. Recommended sampling frequencies are not consistently being met. For example, three personal samples have been taken for welding fumes, too few to ascertain compliance. Samples taken by the consultant in 2012 were area samples, rather than personal sampling for airborne contaminants.	3

Initial Audit - Manager's Reply:

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Subsection 2.1.3/2.2.1/1.9.1 Control of Hazards

- *Does the program specify the controls in place for the hazard?*
- *Are controls being developed/implemented to reduce worker exposures?*
- *Has the manager taken all reasonable and practicable measures to ensure that the workplace is free of potentially hazardous agents and conditions which could adversely affect the health, safety, or well-being of the workers?*
- *Where practicable, has the manager instituted controls at the source to ensure that workers are not exposed to a level of any physical, chemical, or radiation hazard in excess of the limits prescribed in the code or by an inspector, with the exception of unusual short term or emergency situations, and has the manager required that persons wear effective personal protective equipment in any situation where control at the source, as required by section 1.9.1(2), is impractical.*

Initial Audit - Inspector Comments:	Score
There is limited evidence to show that quantitative data from collected samples is being used to make recommendations for the implementation of controls. Data should be analyzed appropriately to ensure that workers' exposure profiles fall within acceptable limits. For example, current monitoring results from SEG 8 and SEG 1 for silica quartz demonstrate that employee's exposure profiles lie above the safe working limit.	2

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
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2.2.1 Workplace to be hazard free

Subsection: 2.2.1

Is there an effective housekeeping program developed and implemented to ensure:

- *That all workplaces and travel ways are maintained in a safe condition?*
- *Materials and equipment are stored in a manner so as not to endanger persons?*
- *Appropriate action is taken whenever necessary to maintain*

Initial Audit - Inspector Comments:	Score
• Areas in the mill had water unable to drain such as at the filter press and at a smelly, catchment area without a drain by the south door. • In the mill, the sag in the conveyer belt leading to the pebble crusher caused coarse ore to fall from conveyer and scatter all over the floor, making a considerable mess. Similarly, the magnetic roller separator used to pick steel out of the ore was not aligned properly. Coarse steel-containing rocks are being picked up and dropped over walkways and under conveyer belt. A build up of dust and rock under the head end of S3 conveyer in the mill was also observed. • Underground, there were a number of areas leading up to where operators worked or accessed (operator access to Crusher cab, lower work ladder and catwalk at bottom of crusher, access area to a diamond drill platform) that had loose rock and other debris that could lead to tripping hazards. Given that trends of ankle injuries were seen in the records review, this should be an area of housekeeping focus. • A pump in one underground area was off, resulting in a significant build up of water in the travel way. Upon observing the water build up the mine captain took initiative to have the area cleaned. • Employees report having observed rodents in the permanent underground refuge station. Mouse traps have been set in the area, however it is not known if the rodent problem has been resolved. Upon review of incident reports, recommendations for control measures were often made but were not always adequate or signed off as completed. When not completed, it is unknown whether hazards are controlled.	3

Initial Audit - Manager's Reply:
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Section 1.11 Training

Subsection: 1.11.2/1.8.1/1.8.2 Respirators

- *Does the manager supply properly fitted PPE? I.e. is respirator fit testing being conducted? Are records being kept?*
- *Does the manager ensure that the equipment is adequate for its purpose?*
- *Are workers wearing the PPE?*
- *Are workers instructed in the use and maintenance of the equipment, the reasons for it, and its location and limitations?*
- *Is a record of the training maintained?*

Initial Audit - Inspector Comments:	Score
Fit testing is being conducted and employees are being instructed in the use and maintenance of the equipment. Employees report that respiratory protection can be obtained from the warehouse without a fit test being conducted. At the time of inspection, the respirator protection program provided to the Ministry appears to be draft form, as it lacks a document control number, lacks a title, and had not been assigned with a revision number. An appropriate respirator was observed being used during a grinding task in the shop.	4

Initial Audit - Manager's Reply:

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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

1.6.9/1.1.2 Musculoskeletal Disorder Prevention

Subsection: 1.6.9 (1)(h) Musculoskeletal Disorder Prevention Program

Has the Manager developed a written MSD prevention program for the recognition, evaluation and prevention of adverse health effects resulting in Musculoskeletal Disorders (MSD) and in reporting related symptoms and injuries?

Initial Audit - Inspector Comments: A Wellness Program including some content on MSD Prevention in the form of a presentation was reviewed. It recognized some risk factors related to MSD but often focused on behavioural changes to reduce the exposure to risks associated with MSD. It did not reference how to evaluate the severity of risk factors or control through the application of a hierarchy of controls. Symptoms and early reporting are not discussed. This training does not meet the requirements for training for the OHSC.	Score 1
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 1.6.9 (1)(h)/1.1.2 /1.11.1(2) MSD Prevention Program

- *Has the Manager developed a Mine Health and Safety Program which includes the following sections:*
- *(h) a written preventative training program, acceptable to the chief inspector, to educate OHSC members in the recognition, evaluation and prevention of adverse health effects resulting in Musculoskeletal Disorders (MSD) and in reporting related symptoms and injuries*
- *Are ½ the worker representative and ½ the management representatives trained?*

Initial Audit - Inspector Comments: The Wellness program presentation which contained some MSD Prevention content was reviewed. Training records for this training were not provided. Lisa Martinovic, Andrew Bryant, Kevin Mihalisz and Jackson Chamberlain have attended training on this topic offered by this Ministry. At least half of the OHSC requires training so that OHSC knowledgeable on this content can effectively be involved in investigations or site inspections and assessments where tasks risk associated with MSD may need to be identified, evaluated and controlled.	Score 1
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.11.1 MSD Prevention Program *Have workers been trained in the recognition, evaluation and prevention of adverse health effects resulting in Musculoskeletal Disorders (MSD) and in reporting related symptoms and injuries as it relates to their work?* *Has the manager ensured that, with respect to musculoskeletal disorder prevention,* *(1) workers are adequately trained to do their job or are working under the guidance of someone who has competency both in the job and in giving instruction, and* *(2) ensure that all employees receive thorough orientation and basic instruction in safe work practices*	
Initial Audit - Inspector Comments: The Wellness presentation includes some information on risk factors associated with MSD and some instruction on body mechanics. Early reporting and signs and symptoms are not emphasized. Training records were not provided. Some additional training records regarding 1 hr sessions: "Ergonomic Risk Presentation" and "Office Ergonomics Training" were provided. Training was conducted by a consultant ergonomist April 26/27, 2011. A summary of the training content was not provided. Some workers interviewed demonstrated some working knowledge of possible injury risk related to overexertion activities associated with their work. This was more apparent in the more experienced workforce so is not clear whether this has been learned through experience, previous workplaces or information presented at this mine.	Score 2

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
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Subsection 1.9.1

(1) With respect to ergonomics has the manager taken all reasonable and practicable measures to ensure that the workplace is free of potentially hazardous agents and conditions which could adversely affect the health, safety, or well-being of the workers,

(2) *Has the manager taken a proactive approach to musculoskeletal disorder prevention? Are safety tours addressing workstation design being conducted, area job demand analyses being done, and is research into hazards and controls being conducted?*

Initial Audit - Inspector Comments:	Score
Several office ergonomics assessments "Ergonomic Spot Audit Checklist" had been completed by a consultant. It is unknown if the recommendations contained within were put into place and effective. A Physical Demands Analysis had also been completed for the Mill Control Room but it did not contain any recommendations or evaluation of risk associated with any physical demands. A finger-tip adjustable work surface was installed and will be effective in reducing symptoms associated with static postures at this work task, providing control room operators adjust their posture regularly. No other evidence of ergonomics assessments underground or within surface operations was provided. Proactive inspection tours with respect to MSD related hazards may have revealed: 1.C-frame jumbo: noted cramped space for operator's with some visibility difficulties. Drill operation console actually articulates (handle at left side) which changes the angle of the controls to increase comfort and adjustability for workers but was stuck. Recommend this be fixed and demonstrated to drill operators to help reduce static and awkward postures related to this task. 2. Underground crusher cab – small area needs better suited furniture (more narrow profile chairs, cabinets) for this small space. Also foot-rung on main operator's chair a hazard for tripping.	2

Initial Audit - Manager's Reply:
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Subsection 3.3.5/1.9.1

With respect to ergonomics has the manager:

(2) where practicable, instituted controls at the source to ensure that workers are not exposed to a level of any physical, chemical, or radiation hazard in excess of the limits prescribed in the code or by an inspector, with the exception of unusual short term or emergency situations.

Materials Handling

Where a materials handling task endangers the safety of the persons doing the work, does the manager ensure that:

1. *the physical parameters of the handling task are redesigned or*
2. *mechanical lifting aids or personal protective equipment is provided, or*
3. *the work area where the work is carried out is redesigned to eliminate unsafe condition conditions relating to floor surfaces, lighting, or obstruction to materials handling, or*
4. *a combination of (1), (2), or (3) is implemented.*

Initial Audit - Inspector Comments:	Score
Flocculent-mill: due to the design of where the flocculent is stored, handled and poured into a hopper in the mill, workers are exposed to lifting tasks in excess of recommended weight limits due to how the 25 kg bag is handled to complete this task. To reduce physical demands associated with handling this 25 kg bag, workers would benefit from an elevation in the floor surface which could be accomplished by installing grating across the containment ledge to raise the standing surface in front of the hopper for ease of lifting bag to dump into the hopper and a ledge to place the bag on to cut it then dump in the hopper. A reduction in the carrying distance of the flocculent would also decrease risk associated with this handling task. Incident reports were reviewed where handling injuries occurred. Investigators need to consider engineering controls to more effectively reduce the need for items to be handled vs. simply recommending workers should "take their time". In the new Assay lab and in the warehouse, lifting aids and carts were available for workers to use when needed. In the warehouse, large items were being stored on palettes for safer lifting by a forklift instead of by hand.	1

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 2.9.1/1.9.1

Where the equipment, work procedure, or working condition in a work area has caused injurious inflammation of muscles, tendons, or bursae of the upper limbs of the persons doing the work, and it is demonstrated to be from repetitive or forceful use, the Chief Inspector shall, where practicable, require implementation of one or more of the following preventive measures:

1. *Modification of work procedures or equipment to reduce physical demands on affected body areas*
2. *A rescheduling of work to permit safe adjustment to unaccustomed task requirements*

Or where practicable, institute controls at the source to ensure that workers are not exposed to a level of any physical, hazard in excess of the limits prescribed in the code or by an inspector, with the exception of unusual short term or emergency situations.

Initial Audit - Inspector Comments:	Score
Several incident reports were reviewed where workers were involved in incidents where an overexertion injury occurred. Recommendations were often limited to behavioural controls and administrative controls such as adding a worker to the task. These controls are not as effective as using engineering methods of control or redesign to reduce risk. Also, as recommendations were not always signed off as complete, it is unknown if this was consistently completed. Overall, the low quality of investigation reports with respect to MSD Prevention is directly related to the lack of training of those involved in MSD-related investigations.	1

Initial Audit - Manager's Reply:
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2. Hazards

Subsection 2.1.4 Oxygen Content of Air

Do persons work or remain in any section of the Mine where they may be exposed to air with less than 19.5% oxygen without an alternate air supply?

Initial Audit - Inspector Comments:	Score
A number of unidentified (unmarked) confined spaces were observed in the mill. The Ministry has been informed that a review is underway to identify all confined spaces and have them adequately identified.	2
Initial Audit - Manager's Reply:	
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Subsection2.5.1/2.5.2/2.5.3/2.5.4/2.5.5/2.5.6 Abrasive Blasting

No Silica or Lead:

Is abrasive blasting material containing 1% or more free silica or lead being used?

Is all abrasive blasting and similar operations,:

- *when carried out within a building, conducted in an isolated enclosure to prevent injury to persons?*
- *when carried out outside a building, conducted in a place and manner to prevent injury to persons?*

Do the enclosures have sufficient exhaust ventilation to ensure that a continuous inward flow of air is maintained at all openings in the enclosure during the blasting operation?

Protective Equipment:

During abrasive blasting operations are air-supplied hoods or respirators suitable for the work supplied and work, together with gloves, leggings, and clothing designed to protect the employees from dust, and projected abrasive or other material?

Does air supplied to the hood or respirator meet the requirements of CSA Standard CAN3Z180, 1-M85 "Compressed Breathing Air and System," as updated from time to time, and is the volume of air supplied sufficient for respiration and to prevent the entry of contaminants into the hood or respirator, and not less than 105 L per minute at the mask?

Nozzles and Valves:

1. *Are blast cleaning nozzles equipped with an operating valve which must be held open manually and the normal operation of this valve not defeated?*
   - *Is there support provided on which the nozzle can be secured when not in use?*
2. *In addition to the operating valve required by subsection (1), is there another operating control readily accessible to the operator to enable the flow of abrasives to be stopped immediately?*

Workers to Be Removed:

Are persons not required to assist in abrasive blasting or a similar operation which release harmful substances to the atmosphere, removed from contaminated areas?

Where such removal is not practical, are the exposed persons advised of the hazard and supplied with suitable personal protective equipment which they shall wear?

Initial Audit - Inspector Comments:	Score
The Ministry was informed there is no abrasive blasting being conducted on site.	n/a
Initial Audit - Manager's Reply:	
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Audit Follow Up – Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:

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Subsection 2.3.1/2.3.2 Asbestos

The manager shall ensure that

(1) as effective, less hazardous, asbestos-free substitutes become available and practical for such items as brake lining, insulation, and fire retardant materials, they shall be used,

(2) where there is no substitute available for an asbestos-containing material, a procedure acceptable to the chief inspector is developed to protect the health of persons using, maintaining, or exposed to such material,

(3) notwithstanding subsection (2), items containing crocidolite asbestos are not to be used at a mine,

(4) spraying of asbestos, or material containing more than 1% of asbestos, is prohibited, and

(5) protective clothing and equipment made of material containing asbestos is used in such a manner as to prevent the release of asbestos fibres.

Where any work involves the use, handling, or disposal of asbestos or materials containing asbestos, the manager shall ensure that the procedures outlined in the manual "Safework Practices for Handling
Asbestos Revision 10 1996" published by WorkSafe BC are followed, and that the inspector and the OHSC are notified of the procedures.

Initial Audit - Inspector Comments:	Score
An asbestos survey was conducted under previous supervision. The results of the asbestos survey could not be located at the time of the audit. Employees were aware that some building walls were asbestos containing. Signs need to be mounted on the asbestos containing walls to indicate they should not be disturbed.	2

Initial Audit - Manager's Reply:

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Audit Follow Up – Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 2.3.5 Hazardous Dust *Is dust being removed by suitable means (wet sweeping or shovelling, vacuuming or being suppressed) where it could become a hazard by restricting vision, or could cause a fire or explosion or be potentially hazardous if inhaled or ingested?*	
Initial Audit - Inspector Comments: Dry sweeping was observed in the shop and indications of dry sweeping were observed in the mill (broom and dust pile without indication of dust collecting agent or use of water). Previous dust monitoring results suggest that inhaled dust may be potentially hazardous due to elevated levels of silica quartz. The site has taken positive steps to mitigate potential dust issues. Dust suppressant has been applied to roadways and DustFoam is being added to ore.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score Choose an item.

Audit Follow Up - Manager's Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:

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Subsection2.3.9 (1)(2)/2.3.10/2.3.11 Radiation

Is equipment which emits harmful levels of infrared or ultraviolet radiation shielded to protect employees from exposure to such radiation?
Is PPE supplied to and worn by persons who could become exposed to harmful radiation levels?
Are employees exposed to non-ionizing radiation which exceeds the recommendations contained in the publication "Safety Code 6, Recommended Safety Procedures for the Installation and Use of Radio Frequency and Microwave Devices in the Frequency Range of 10 MHz to 300 GHz", published by Health and Welfare, Canada?

1. *Are workers being exposed to ionizing radiation levels greater than:*
   a. *4.0 Working Level Months (20 millisieverts) of radon decay products per year averaged over 5 years, and 10.0 Working Level Months (50 millisieverts) in a single year?*
   b. *20 millisieverts (2 Rem) of gamma radiation per year averaged over 5 years, and 50 millisieverts (5 Rem) in a single year?*
   c. *A combination of radon decay products and gamma radiation totalling 20 millisieverts averaged over 5 years or 50 millisieverts in a single year?*
2. *Are workers provided and wearing a gamma radiation dosimeter if measurements indicate exposure to gamma radiation greater than 5.0 microsieverts per hour (0.5 millirem per hour) at 0.5 meters from the source?*
3. *Are all radioactive materials used, handled, stored, transported, and disposed of in accordance with the Canadian Nuclear Safety Commission Regulations?*

Initial Audit - Inspector Comments:	Score
This section appears to be within compliance.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
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Subsection 2.3.12 ISOCYANATES

Where paints, protective coatings, adhesives, or insulating materials containing isocyanate compounds or other compounds that have similar sensitizing effects are being applied, persons shall be protected from the airborne contaminants by

(1) where practicable, performing the work in an isolated enclosure having sufficient exhaust ventilation to ensure that contaminated air is not released from the enclosure into areas where unprotected persons can enter, and

(2) where methylene bisphenyl isocyanate is used, ensuring that a supplied-air respirator (SAR) approved by NIOSH or MSHA is worn by all exposed persons, in accordance with the following concentrations:

- *up to 2 mg/m3: SAR or SCBA,*
- *up to 5 mg/m3: SAR operated continuous flow, or SCBA,*
- *up to 10 mg/m3: positive pressure, full facepiece SAR,*
- *up to 100 mg/m3: positive pressure, full facepiece SCBA, and*
- *Emergency or planned entry into unknown concentrations or immediately dangerous to life or health: positive pressure, full-facepiece SCBA, or positive pressure full-facepiece SAR with an auxiliary positive pressure SCBA.*

(3) A respirator type shall be selected in accordance with assigned protection factors as outlined in Table 2 of CSA Standard Z94.4-93

Initial Audit - Inspector Comments:	Score
The Ministry was informed there are no isocyanates on site. However, products (e.g. WHMIS controlled products) can be brought onto site without a central check for materials containing isocyanate compounds or other compounds that have similar sensitizing effects. It remains unclear whether there are such products on site. It was recently confirmed (after the onsite audit) that New Afton conducted a trial for a new type of resin rebar with an isocyanate containing material. It is unclear what safe work procedures and controls were used. A substitute for this product should be considered and if this isocyanate containing product will be used appropriate safe work procedures and controls must be developed.	3

Initial Audit - Manager's Reply:
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Subsection 2.7.1 Lasers

Are laser emitting devices being classified and used in accordance with the procedures outlined in ANSIZ136.1 – 1993 – "American National Standard for the Safe Use of Lasers"?

Initial Audit - Inspector Comments:	Score
The Ministry was informed that lasers are not being used on site. Pit monitoring equipment may involve the use of lasers. Upon request, the site did not produce an SOP for the use of lasers. Given the lack of information provided this item was not reviewed.	n/a

Initial Audit - Manager's Reply:
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Subsection Noise 2.6.1 NOISE

Mufflers Required:

If practicable is machinery or equipment which, when operating, expose the operator or persons in the vicinity to noise levels in excess of those prescribed in Table 2-2, Part 2, for unprotected ears, fitted with a properly maintained muffler or other noise reducing device?

Initial Audit - Inspector Comments:	Score
Noise levels in the mill were loud. It is unknown whether any assessment has taken place to identify areas that could be controlled. Of the vehicles that were observed, all were outfitted with mufflers.	3

Initial Audit - Manager's Reply: Click here to enter text.	
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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 2.8.1/2.8.2 Illumination

Lighting Standards:

Do all working places have suitable and adequate lighting in accordance with the ANSI/IES Standard RP-7-1991: "American National Standard Practice for Industrial Lighting", as updated from time to time, unless otherwise authorized by the Code?

Surface Illumination:

Is there a separate and independent emergency source of illumination at all places where a hazard could be caused by a failure of the normal lighting system?

Is the emergency lighting:

1. *Where it is a section of a permanent installation, turn on automatically when the normal lighting fails?*
2. *Providing adequate illumination to allow employees to initiate emergency shutdown procedures and leave their work areas safely?*
3. *Tested as frequently as necessary to ensure that it will function when required?*

Initial Audit - Inspector Comments:	Score
Poor lighting was observed in the mill in certain areas. A number of light fixtures between the SAG mill and the floatation circuits had filled with water and burnt out. It would appear there is no practical way to assess whether emergency lighting in the emergency exit culvert and at intake conveyer is in working order (cutting power to that circuit would mean cutting power to the conveyer also).	4
Initial Audit - Manager's Reply:	
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Audit Follow Up - Manager's Reply:	
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2nd Audit Follow Up - Manager's Reply:	
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Subsection 2.10.1 (1)(2)(3) HEAT AND COLD STRESS: *Is there a program to control for heat or cold stress?* *Is it a problem?*	

Initial Audit - Inspector Comments:	Score
A program for Heat Stress is in place. It includes education and a hierarchy of controls to mitigate heat exposure. High temperatures had been reported to have been observed in the underground workings. It was unconfirmed whether testing had been done to monitor conditions. A program for Cold Stress was not demonstrated in the materials provided.	3
Initial Audit - Manager's Reply:	
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Audit Follow Up - Manager's Reply:	
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Section 2.4 Harmful Chemical Exposure

Subsection 2.4.1 (1)(2)(3) EMERGENCY WASH FACILITIES

Are eye wash equipment, emergency water baths or showers or other suitable means immediately available to effectively cleanse the affected body areas where persons may be exposed to corrosive or other chemicals harmful to the eyes or skin?

1. *Emergency shower facility shall provide a tempered supply of potable water for a minimum of 15 minutes?*
2. *In cases where it is not practical to install a permanent facility portable eye wash stations and/or portable emergency wash facilities may be installed as applicable*
3. *Are provisions taken to ensure that water supplies and eye wash isotonic fluids are protected from freezing and are adequately maintained?*

Initial Audit - Inspector Comments:	Score
A plumbed emergency shower wash was installed in the assay lab. At the time of the audit, emergency wash facilities were not being tested regularly in the mill. Tags to record regular checks were blank. When testing the eyewash stations, water lines were initially plugged, causing white foamy water to spray a few feet in the air until the lines had cleared. Water supplied to emergency wash stations in the mill was not tempered. There was no eye wash station near the DustFoam addition point/storage where ore enters the mill. DustFoam is particularly toxic to the eyes. Some eyewash stations underground were in poor condition (very dusty). At one eyewash station in the underground shop, the eyewash solution had been removed from its holder, placed nearby, and replaced by an empty energy drink can. There was no eyewash station in proximity to the DustFoam addition point in transfer chamber 4/5.	3

Initial Audit - Manager's Reply:
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Subsection 2.4.2 (1) (2) (3) Harmful Chemical Exposure

(1) Are shower or wash facilities and separate areas for street and work clothing provided where the nature of the work causes a person's clothing or skin to be contaminated with substances which could cause injury or endanger the health of the person or contaminate other areas on or off the minesite?

(2) Are means for cleaning contaminated clothing or is suitable protective clothing provided where contaminated clothing is not to be removed from the minesite?

(3) Do persons exposed to contaminants:

- Cleanse affected skin areas as soon as practicable?
- Not consume or handle food or tobacco products until hands and face are free of contamination?
- Ensure contaminated clothing is removed and disposed of?
- Not leave the mine at end of shift until all affected skin areas have been cleansed of contamination?

Initial Audit - Inspector Comments:	Score
In the underground shop refuge station/break room, soap and a means to dry hands was not available. There were other areas where people take breaks underground that had no means available for washing hands. Clean and dirty areas are provided in the Mine Drys both at the Mine Operations area as well as at the Truck Shop. Contaminated clothing is washed on site by contractors and measures are in place to neutralize the shotcrete which accumulates on coveralls worn underground. Shower facilities are provided to all personnel at the Mine Drys and employees are encouraged to use them after returning to surface from underground. There is evidence that personnel are using tobacco underground but it is unclear whether these workers, as a general rule, are cleansing their hands and face before use. Contaminated clothing is gathered in the Mine Dry in designated bins and washed by contract employees.	3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 2.11 Lunchrooms and Sanitary Conveniences

Subsection 2.11.1/2.11.8 Water

Has the Manager provided a source of cool, potable drinking water complying with the Safe Drinking Water Guidelines of the Ministry of Health in locations that:

- *Are reasonably accessible to employees?*
- *Are kept clean and in a sanitary condition?*
- *Are designed to permit the water to be dispensed and drunk in a sanitary manner?*

Temperature of washing water:

Does water used for personal washing exceed 60 degrees Celsius at any outlet, or is it mixed directly with steam?

Initial Audit - Inspector Comments:	Score
Potable water is available in most areas on surface. In areas, such as the Safety Trailer, where the water is not potable, bottled water is provided. Posted signage indicating that the water is not for consumption is inconsistent throughout the property, for example: signage was missing in the women's dry in the shop, shop "cafeteria", underground shop break-room. Samples are being taken of the potable water system with some frequency however the Mine Operations trailers, which are the end of the potable water line, are not being sampled. There are two individuals with a water treatment ticket. They are both also mill operators and often too busy to monitor the potable water system themselves, thus requiring assistance. The non-potable water supply, which is used for hygiene purposes (including washing in lunch rooms), is not monitored for water quality. Employees are encouraged to get water before heading underground and an ice machine is provided on surface to keep water cooler longer. Once underground there are a few key locations where workers can refill their water such as the permanent refuge station.	4

Initial Audit - Manager's Reply:
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Subsection 2.11.3/2.11.4 Lunchrooms

Where 7 or more persons regularly congregate to eat food, other than where the mining activity of an open pit mine is preformed, is a lunchroom provided which:

1) *Is heated, lighted, and ventilated?*
2) *Has or be located near facilities for persons to wash with cold and hot running water and dry their hands?*
3) *Does not have an entrance through a toilet facility?*
4) *Contains sufficient fire retardant receptacles with lids, which are used by employees to dispose of all waste food, paper, and other related material, and the containers emptied regularly?*
5) *Has suitable seating facilities equipped with backrests and tables with impervious top surfaces which is kept in clean and sanitary condition?*
6) *Is constructed of materials which can be, and is, maintained in a clean condition?*
7) *Has the following minimum dimensions:*
    a. *No. of Persons sq. m / Person*
    b. *25 or less 1.2 (min. size. 6 sq. m.*
    c. *26 to 74 1*
    d. *75 to 149 0.66*
    e. *150 to 499 0.56*
    f. *500 or more 0.46*
8) *Be located in an area away from process chemicals and contaminants?*

Where more than 3 persons and fewer than 7 persons regularly congregate to eat food, other than where the mining activity at an open pit mine is preformed, is an eating area provided which complies with 2.11.3 (1), (4), (5), (6), (7), and (8), and provided with facilities for persons to clean their hands?

Initial Audit - Inspector Comments:	Score
1) Lunchrooms all appear to be heated, lighted and ventilated adequately. 2) In the underground shop refuge station/break room, soap and a means to dry hands was not available. There were other areas where people take breaks underground that had no means available for washing hands, such as in refuge stations. 3) The entrances to lunchrooms do not pass through a restroom facility. 4) Waste containers appear to be adequate for the locations and seemed to be emptied regularly. 5) Tables and chairs were in good shape, generally clean and were in adequate supply. Seats with backrests were available in all designated break areas. 6) As above 7) The lunchrooms appeared adequate in size. There were chemicals stored in the permanent refuge station which doubles as a lunchroom underground however these chemicals were segregated away from the area where personnel would eat and therefore was found to be acceptable.	3
Initial Audit - Manager's Reply:	
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Subsection 2.11.5/2.11.7 Mine Dry

1. *The Manager shall provide separate facilities for male and female employees to wash and shower, and to change and dry their clothing*
   - *At a surface mine where persons are subject to dusty, dirty, or wet conditions*
   - *At an underground mine and this facility shall include separate storage facilities for street clothes and working clothes*
2. *The facilities shall have separate approaches with signs clearly indication for which gender they have been provided.*

Location of Mine Dry:

Is the mine dry adequately heated, lighted and ventilated, kept clean and sanitary, and have one shower for every 7 persons leaving work at the same time?

Initial Audit - Inspector Comments:	Score
The drys located in the shop were clean, organized and adequate. Separate facilities for male and female employees are available and are of sufficient quantity to meet the requirements of this subsection. There was a lack of signage visible at the entrances to the Mine Ops Mine Drys to indicate which doors led into the male Dry and which led into the female.	4

Initial Audit - Manager's Reply:

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Subsection 2.11.9/2.11.10/2.11.12 Toilet Facilities

Are there separate toilet facilities for male and female employees:

- *having separate entrances*
- *with signs clearly indicating for which gender they have been provided?*

On the surface of a mine, are washroom facilities conveniently located and equipped with:

- *One toilet and one urinal for every 25 male employees or fraction thereof, and one toilet for every 9 female employees or fraction thereof, except where the maximum number of employees on any shift is fewer than 6 when one toilet is required?*
- *One wash basin, or equivalent facility, provided with hot and cold running water for every 15 employees or fraction thereof?*
- *A means for drying hands hygienically?*
- *Adequate heat, light, and ventilation?*

Toilets are:

- *Of the water flushing type or other sanitary design, located in an individual compartment with a door that locks, and with walls and floor of a finish or material that can be easily cleaned?*
- *Fitted with an open-front seat and provided with a reasonable supply of toilet paper?*
- *Provided with a clothes hook and lighting where electricity is available?*
- *Kept clean and sanitary, and any waste products shall be disposed of regularly?*

Initial Audit - Inspector Comments:	Score
There were no signs indicating an entrance to the men's dry on surface from the parking lot. Inspected washrooms on surface and underground were clean, stocked, operable and equipped with hooks. In almost all areas separate toilet facilities were provided for male and female employees however in the Safety Trailer there is only one toilet facility which must be shared by both genders. In those areas that did have separate toilet facilities there were separate entrances leading into both. The Mine Operation's Mine Dry did not have signage at each door to indicate which door led into the male side and which door led into the female side. There are an adequate number of toilets and urinals for employees and an adequate number of wash basins. There are hygienic options, either paper towel and/or automatic hand driers in each restroom. Heat, light and ventilation are adequate for all facilities. The toilets were generally as prescribed in this subsection however some, such as in the Safety Trailer, were not fitted with an open front seat. Some clothes hooks, such as in one of the toilets in the Mine Operations Building, appear to have once had a clothes hook but it is now missing.	4

Initial Audit - Manager's Reply:
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Section 2.12 Medical Surveillance Programs

Subsection 2.12.1 Medical Surveillance Programs 2.12.1(1)(a,b,c)

Are medical surveillance programs in place where necessary? E.g. blood lead for fire assay workers, high silica exposures?

1. *The Manager shall notify the Chief Inspector when he believes there is a need for a medical surveillance program, for persons:*
    - *In a dust exposure occupation*
    - *Exposed to excessive noise*
    - *Exposed to any chemical, physical, or radiation agent specified by the Chief Inspector*
2. *A medical surveillance program, when required by the Chief Inspector, shall be modeled after the "Guidelines for Standard Practice for Medical Monitoring Programs" issued by the Chief Inspector and shall be of a form satisfactory to him.*

Initial Audit - Inspector Comments:	Score
The Medical Surveillance Program still appears to be in its infancy. There are plans at the Corporate Level to advance this program in the coming year but at this point much work is still to be done. The corporate level has communicated that the intention is to implement mandatory medical screening, an action that contravenes the code. There were no records available to suggest evidence of Lung Function Testing for any employees. Audiometric testing is in place and is being conducted by on-site contractors (Security/First Aid). Baseline blood lead testing has been completed for employees who will be working in the Assay Lab.	2

Initial Audit - Manager's Reply:

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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 2.12.3 (1)(2) Advising Workers

1. *The Manager shall advise persons working in a dust, excessive noise, chemical, physical, or radiation exposure occupation, of the nature of the health risks and that a medical surveillance program is available, and the person, at his option, may choose to participate in the program.*

A person participating in the medical surveillance program may attend the doctor of his choice to undergo the examinations and tests required 2.12.1 (2).

Initial Audit - Inspector Comments: In speaking with a number of individuals at the mine most were aware of the audiometric testing but were not aware of any other medical surveillance programs that might be available.	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:

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Subsection 2.12.4.(1) (a, b,c,d,e) 2.12.4 (2)

Does the medical surveillance program, required by section 2.12.1 ensure that each person examined or clinically tested is:

- *Aware of the nature of the health risks and effects for which he is being examined*
- *Advised on his medical fitness to work*
- *Advised of any work restrictions resulting from his medical condition*
- *Instructed in health precautions required*

Provided with a copy of the results of the medical examination

Initial Audit - Inspector Comments:	Score
For the extent of audiometric testing only, interviewed workers reported that upon completion of their audiometric testing the results of the test was shared with them, they were advised of deficiencies and the personnel conducting the testing actively promoted the use of hearing protection in areas of concern. As personnel were unaware of any other medical surveillance they could not make comment on these factors outside of audiometric testing.	3

Initial Audit - Manager's Reply:

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2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 2.12.5 (1) (2) Maintenance of Records *Personal medical records shall be maintained on a confidential basis by the physician or nurse, and shall not be made available to the Manager or any other person, except as required by statute, without the informed written consent of the individual?*

Initial Audit - Inspector Comments:	Score
There was no evidence to suggest any contradictions to this subsection.	5

Initial Audit - Manager's Reply: Click here to enter text.

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2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 2.12.6 Chemical Analysis *Whenever a chemical analysis is required for biological monitoring is it carried out at a laboratory acceptable to the Chief Inspector?*

Initial Audit - Inspector Comments:	Score
There was no evidence to suggest any contradictions to this subsection.	5

Initial Audit - Manager's Reply: Click here to enter text.	
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Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 2.12.7 Programs at Owner's Expense *All medical examinations and tests performed on a person during a medical surveillance program shall be done at the owner's or agent's expense and the expense shall not be passed on to that person.*	
Initial Audit - Inspector Comments: It appears the company has been paying for medical surveillance tests, as per draft policy.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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Subsection 2.12.2/2.12.4 (2)/2.12.5 (2) Hearing Conservation Program

A hearing conservation program is developed and followed that includes:

- *Noise measurement*
- *Education and training*
- *Engineered noise control*
- *Hearing protection*
- *Posting of noise hazard areas*
- *Hearing tests*
- *Annual program review*
- *Audiometric Testing*

Audiometric testing shall be carried out by a certified audiometric technician.

Audiometric information shall be made available to the Chief Inspector.

Initial Audit - Inspector Comments:	Score
These components were addressed in a draft Hearing Conservation Program document. All components were present with the exception of a commitment to review the program annually.	2

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
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Section 2.13 WHMIS

Subsection 2.13.1-2/2.13.19-20/2.3.4/2.3.6/2.3.8 CHEMICAL STORAGE & WASTE

Is the WHMIS program fully implemented including the storage and handling of hazardous products including those substances which are not controlled products but could cause adverse health effects?

Proper containers:

Are dangerous or potentially hazardous materials stored in containers designed, constructed and maintained to ensure proper containment of their contents?

Hazardous Waste:

Is hazardous waste material that could be detrimental to a person's health or could cause a fire or explosion:

- *Stored in impervious containers?*
- *Labelled?*
- *Covered and located in well-ventilated areas?*
- *Collected, handled, sorted and disposed of by persons trained and wearing any necessary PPE?*

Flammable Waste Storage:

Are waste materials containing solvents, grease, paints or other flammable substances stored in appropriate covered containers while awaiting disposal?

Storage of Hazardous Materials:

Are dangerous or potentially hazardous materials stored in designated storage areas:

- *Acceptable to Inspector?*
- *Well ventilated?*

Incompatible materials adequately separated?

Initial Audit - Inspector Comments:	Score
Flammable storage cabinets were in use in the surface shop. They were also to be put in place in the new assay lab. All hazardous waste material appears to be stored in containers which are designed to hold the contents. There were some containers, for example in the Underground Shop, where what appeared to be waste hazardous materials was not adequately labelled. Flammable waste storage was observed to be in appropriate covered containers.	4
Initial Audit - Manager's Reply:	
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Audit Follow Up – Inspector Comments:	Adjusted Score
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Audit Follow Up - Manager's Reply:	
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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:	
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Subsection 2.13.5-10 CHEMICAL LABELLING *Is the WHMIS program fully implemented including suppliers and workplace labelling?* *All hazardous products are properly identified and labelled.*	
Initial Audit - Inspector Comments:	Score
The majority of the site had appropriate labels located on chemicals and hazardous materials. There were some hazardous materials, such as in the Lube Oil Room of the Truck Shop and the Batch Plant which did not have placarding which would be easily identifiable.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.9(d)/2.3.6 SAFE HANDLING/ WORK PROCEDURE *Are there safe handling procedures for working with hazardous and potentially hazardous materials?* *Are workers trained to safely handle the material and wear any necessary protective clothing or equipment to safeguard their own and any other person's health and safety?* *An emergency spill plan has been developed to protect workers and the environment.* *Are spills or releases of hazardous waste materials cleaned up as soon as possible by trained persons and are they wearing any necessary PPE?*	
Initial Audit - Inspector Comments: Procedures are being used to handle hazardous and potentially hazardous materials safely. PPE is contained within the procedures and is being utilized as was evidence when speaking with Mill employees about the safe handling of reagents. An emergency spill plan has been developed and the site is in the process of stocking up their spill response trailer. Spills which have occurred on site are reported to the Environment Department, cleaned up and then the Environment Department follows up to ensure that the spill has been adequately cleaned.	Score 4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 2.13.3-4 WORKER EDUCATION AND TRAINING *Is the WHMIS program fully implemented including:* *Worker indoctrination and refresher training?*	
Initial Audit - Inspector Comments: Training is given to new employees upon hire but there is currently no schedule for refresher courses. Many employees have worked on site for more than one year, yet records showed only three have been given a refresher course, as required annually.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 1.6.9 (d)/2.13.11-18 SUPPLIER MATERIAL SAFETY DATA SHEETS *Are MSDS's in place, updated and available to all workers?* • *All hazardous products have current Material Safety Data Sheets* • *An up-to-date inventory exists of all hazardous products* *Workers who work with or in proximity have ready access to Material Safety Data Sheets.*	
Initial Audit - Inspector Comments: MSDS sheets were located in a few prominent locations such as within the shop. Upon inspection approximately 1 out of every 10 was out of date. Note that most that were out of date were only by a year or two. MSDS sheets were also available on the operation's network. It is unknown if these are automatically updated. MSDS appeared only available on supervisor's computers. Employees could not easily access MSDS.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

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2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Part 2 – Total out of 190	**115**
Part 2 – Percentage out of 100%	**61%**

Section 3.1 Impairment and Conduct

Subsection 3.1.1 - Impaired Persons:
Have all employees been instructed; that no persons shall enter, remain or be knowingly permitted to enter or remain in the mine if his/her ability is so impaired as to endanger his/her health or safety or that of another person.

Initial Audit - Inspector Comments:	Score
This topic is adequately addressed in the Certification Fitness for Duty form that is given and discussed during orientation. There were no records showing the all employees have signed off on this certificate.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 3.1.2 - Drugs and Liquor
Are employees instructed that they will not possess liquor, or illegal drugs in or about the mine?

Initial Audit - Inspector Comments:	Score
This is adequately addressed in the Certification Fitness for Duty form that is given and discussed during orientation	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.1.3 - Improper Conduct *Have employees been instructed to not engage in any improper conduct that might create or constitute a hazard to himself or any other person? Includes horseplay, scuffling, fighting, playing, practical jokes, or other.*	
Initial Audit - Inspector Comments: There was no evidence found showing where this topic is reviewed with employees.	Score 0
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 3.1.4 - Tampering with Safety Devices and Equipment *Have employees been instructed that they shall not, without cause, render ineffective any device, equipment, or material provided for the protection of the health and safety of persons employed in, on or about a mine, or the safety of the public?*

Initial Audit - Inspector Comments:	Score
There was no evidence found showing where this topic is reviewed with employees.	0

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.
Section 3.2 General Safety Rules
Subsection 3.2.1 - Age *Are there any persons under the age of 18 years employed at the mine?*

Initial Audit - Inspector Comments:	Score
There was no person under the age of 18 years of age, found on site at the time of this audit.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 3.2.2 – Tallying

1. *Is there a system in place to account for all persons on the mining property?*
    a. *Workers*
    b. *Staff*
    c. *Contractors*
2. *How is the system introduced to new persons coming onto the mine site?*

Initial Audit - Inspector Comments: Access to the site is controlled at a secure gate where electronic cards are used to track persons going on and off site. It is the responsibility of the gate persons to account for those that have not signed out at end of day and report to the respective area should someone be unaccounted for.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.2.3 – Working Alone 1. *Does a means exist for checking the well being of workers working alone and may not be able to secure assistance in the event of an injury or other misfortune?* 2. *Do the intervals between checks exceed 2.5 hours?*	
Initial Audit - Inspector Comments: There was no procedure developed at the time of this audit to address this topic.	Score 0
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 3.2.4 – Transportation of Persons

1. *Are there persons being transported in the box of a pickup truck or riding in a standing position?*
2. *Are there persons boarding or leaving any vehicle while that vehicle is in motion?*

Initial Audit - Inspector Comments:	Score
No observations were made of persons being transported in the box of pickup trucks or in a standing position. There are records that show this having been discussed with employees.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section 3.3 Working Conditions

Subsection 3.3.2 – Hazardous Work:

1. *Are there any locations in the mine where persons are working overhead?*
2. *How is employee safety being protected by not allowing them to enter into any location at a mine where persons are working overhead?*

Initial Audit - Inspector Comments:	Score
No such procedure was presented at the time of this audit.	0
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	

Subsection 3.3.3 Hazardous Work

When persons are required to work or be near water, where drowning could be a risk:

1. *Has the Manager provided, at conspicuous locations, life-buoys equipped with heaving lines of adequate length which conform to Ministry of Transport (Canada) standards?*
2. *If the person is required to work alone at these sites or be transported across water is that person provided with and wearing a personal floatation device conforming to Canadian Government Specifications Board Standard CAN/CGSB-65.7-M88?*

Initial Audit - Inspector Comments: There was no procedure in place at the time of this audit to address this topic. No life-buoys or flotation devices were observed in areas where drowning could be a risk.	Score 0
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up – Manager Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow up – Manager's Reply: Click here to enter text.	Score
Section 3.4 Hazardous Atmosphere – Confined Spaces	
Subsection 3.4.1 Work in Confined Spaces *Are written procedures developed and implemented for work in confined spaces where irrespirable, toxic or flammable atmospheres might be encountered?*	
Initial Audit - Inspector Comments: There was a draft procedure presented at the time of this audit but it was still under revision.	Score 3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 3.4.2 Safe work Procedures

The procedures required under section 3.4.1 shall include:

1. *The use of lifelines and safety belts wherever possible;*
2. *When lifelines and safety belts cannot be used, sufficient resources with respiratory equipment capable of performing a rescue be stationed outside the confined space;*
3. *Maintenance of an effective means of communication between persons inside and outside the confined space;*
4. *Specified time intervals for making periodic visual contact with persons inside the confined space;*
5. *Specific procedures to be followed whenever welding or burning operations are to be carried out in the confined space;*
6. *Appropriate breathing apparatus and persons trained in its use, and readily available at every confined space in which person are working; Compressed air used for breathing complying with the requirements of CSA Standard CAN-3-Z180.1M85 Series*
7. *Disconnection, blanking or blinding off pipes carrying substances that could be hazardous to the person entering the confined space;*

Initial Audit - Inspector Comments: These topics are outlined in the draft confined space procedure.	Score 3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 3.4.3 Tests of Confined Space

Are persons without self-contained breathing apparatus instructed not to enter a confined space in which a harmful atmosphere might exist or develop until:

1. *Tests have been made to determine the nature and quantity of harmful vapours, gases, fumes, mists, dusts, and the oxygen content of the atmosphere inside the confined space and these test results recorded in a logbook kept for that purpose?*
2. *The written work procedures under section 3.4.1 have been read and understood by the person and the required emergency and rescue procedures are in place?*
3. *The confined space is being ventilated continuously by a natural or forced ventilation system?*

Initial Audit - Inspector Comments: These items are covered in the Pre-Entry Check procedure SAF-FRM-006	Score 4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.4.4 Test of Intervals *Are tests of the atmosphere inside the confined space made at intervals during the work process to ensure that the quality of the air does not deteriorate and the test results shall be recorded as required by section 3.4.3 (1)?*	
Initial Audit - Inspector Comments: Confined space procedure requires testing at 20 minute intervals.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 3.4.5 Confined Space Ventilation: *Where tests made under 3.4.3 and 3.4.4 or any other test or examination indicates a harmful atmosphere or the presence of a harmful substance, is the confined space ventilated or cleaned, or both, and re-tested or re-examined to ensure that no person without self-contained breathing apparatus is allowed to enter the confined space unless:* 1. *The atmosphere or substance in the confined space is no longer considered harmful according to the acceptable standards prescribed in part 2 of the Code* 2. *The oxygen content of the atmosphere inside the confined space is not less than 18%*

Initial Audit - Inspector Comments:	Score
This requirement is outlined in the confined space procedure.	4

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 3.4.6 Wearing of Protective Equipment

Where tests made under 3.4.3 and 3.4.4 indicate the presence of harmful or explosive substances and it is not practical to provide a safe, respirable atmosphere

1. *Do persons entering the confined space wear self-contained breathing apparatus and personal protective equipment?*
2. *Is the concentration of flammable substances maintained below 20% of the lower explosive limit as determined by repeated testing?*
3. *Are all possible sources of ignition eliminated or controlled where flammable substances exist?*

Initial Audit - Inspector Comments:	Score
This requirement is outlined in the confined space procedure.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
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Audit Follow Up - Manager's Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:

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Section 3.6 Industrial First Aid

Subsection 3.6.1 First Aid Supplies:
Does the Manager provide and maintain first aid supplies and services as required by the WorkSafe BC?

Initial Audit - Inspector Comments:	Score
The first aid room was clean and well organized. First aid records are kept in a locked cabinet. Instruments are sterilized with bleach. Inventory of first aid supplies is done at least monthly by first aid staff and replenished as required.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 3.6.3 First Aid Supplies
How is a means of communication provided by which the services of a physician can be obtained expeditiously?

Initial Audit - Inspector Comments:	Score
A nurse or doctor, at the hospital emergency room, can be reached by phone. The hospital is less than 20 minute drive away. BC ambulance will come to the mine site or the mine ETV can transport a patient directly to the hospital.	5

Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:	
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Section 3.7 Mine Rescue

Subsection 3.7.1 Underground

Mine Emergency Response Plan:

Is there a mine rescue emergency response plan?

- *Developed*
- *Filed with the Chief Inspector*
- *Kept up to date*
- *Followed in the event of an emergency*
- *Contain all elements required in the Mine Emergency Response Plan Guidelines for the Mining Industry*

Initial Audit - Inspector Comments:	Score
An initial plan was developed February 11/10. The latest revision is dated April 10/12 and filed with the Chief and contains the required elements.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.7.2 Underground Are trained mine rescue teams established, maintained and equipped at underground mines where the number of employees underground at one time is less than: 1. 50, but greater than 10, 1 team? 2. Is greater than 50, 2 teams? 3. On every shift where there are less than 20 working underground at any one time there are four persons trained in mine rescue?	
Initial Audit - Inspector Comments: There are 44 employees trained in emergency response and mine rescue.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection3.7.4 Surface at Underground Mine *At all underground mines where a surface fire can compromise people, plant, or equipment has the Manager ensured that sufficient trained personnel and equipment are available to provide fire suppression capability for the site?*	
Initial Audit - Inspector Comments: There are two fire engines and 44 employees trained in fire fighting. Team members are trained in structure-fire fighting at the fire department training facility in Kamloops. An underground fire truck and ambulance is budgeted to be purchased within the next year.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 3.7.7 Mine Rescue Team

Are the qualified members of a mine rescue team:

1. *In possession of a valid mine rescue certificate and a valid St. John "Standard" first aid certificate, or equivalent?*
2. *Free from a beard, moustache, or sideburns that could interfere with the face piece seal of any breathing apparatus?*
3. *Considered competent to act as a mine rescue team member by the person appointed as a trainer under section 3.7.9?*
4. *Medically fit for the nature of the work required?*

Initial Audit - Inspector Comments:	Score
All team members have valid mine rescue and first aid certificates. They are clean shaven as required. They have annual medicals by "Nurse Next Door" and confirmed to be medically fit to be part of the mine rescue team.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:

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Subsection 3.7.8 Mine Rescue Records

Is there a record of all mine rescue training maintained at the mine site, and

1. *Is the logbook maintained by the qualified person appointed by the Manager, to conduct the training?*
2. *Contains the particulars of the training, including the names of those participating and the trainer?*
3. *Notes the condition of all equipment used during the training?*

Initial Audit - Inspector Comments:	Score
Records of all training are kept, who attended and what training was given. There are 4 Platoons, 4 Captains and 4 Lieutenants.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 3.7.9 Mine Rescue Records

Has the Manager:

1. *Appointed a qualified person as a trainer for mine rescue team members?*
2. *Ensured that all mine rescue team members practice 8 hours during each 3 months the mine operates?*
3. *Ensured that all mine rescue personnel are not underground at any one time except for rescue work or training?*

Initial Audit - Inspector Comments:	Score
Mike Owens is the trainer. Training is done every month except July and August. All team members are not underground at the same time.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.7.10 Type of Breathing Apparatus *Where self-contained breathing apparatus is required is it of a type approved by a recognized certification agency, and suitable for the intended work?*	
Initial Audit - Inspector Comments: There are 12 BG4s and 6 more will be acquired. There are also PSS 7000 units on surface in the fire trucks and Oxy-K units cached underground.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.7.11 Mine Plan for Rescue Purposes *Are the mine plans required under Part 6 of the Code readily available for the use of mine rescue teams?*	
Initial Audit - Inspector Comments: Mine plans are available and updated monthly by Tech. Services.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 3.7.12 Mine Plan for Rescue Purposes

Has the Manager appointed a qualified person:

1. *To be responsible for the care and maintenance of all rescue apparatus?*
2. *For the entries into a logbook to be kept at the mine recording the condition of all equipment used for mine rescue or fire fighting?*
3. *For the care of the rescue equipment storage room, and equipment caches?*

Initial Audit - Inspector Comments:	Score
There are 6 trained technicians for the BG4s and current log sheets for each machine. There is no log book for ropes and the ropes are not tagged for identification. The equipment store room is a sea-can container, which is quite congested. There appears to be much new equipment and tools but a bigger storage space would be an advantage for organizing the gear. There are plans to build a new facility.	3

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

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2nd Audit Follow Up - Inspector Comments:	Adjusted Score
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2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection3.8.2 Survival Rescue Procedures

1. *Has the Manager of an underground mine established a training program in survival mine rescue, including the use of approved self-rescue apparatus, and the use of firefighting equipment in place at his mine?*
2. *Are all persons, employed at the mine or not, instructed and trained in these procedures before entering the underground mine?*

Initial Audit - Inspector Comments:	Score
During new employee orientation, training on W65 and fire extinguisher use is given. All visitors receive basic training as well.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 3.8.3 Instructor Emergency Procedures

Has the Manager of the mine appointed a qualified person to instruct and establish a training program for all employees in basic emergency response, and fire fighting?

Initial Audit - Inspector Comments:	Score
During orientation, all employees receive training in the Code 1 procedure, refuge station instruction, fire extinguisher and W65 training.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 3.9 Fire Fighting

Subsection 3.9.1 Fire Fighting Equipment

1. *Is firefighting equipment provided and maintained at all locations at the mine where fire may endanger life?*
2. *Unless specified otherwise in this Code, the British Columbia Fire Code 1998 and subsequent supplements and revisions shall apply in determining the level of firefighting equipment and maintenance as prescribed in subsection (1).*

Initial Audit - Inspector Comments: There fire extinguishers on most vehicles and in most areas on surface and underground. There are automatic deluge systems in the fuel bay and in the shops and conveyor transfer points. There are fire hydrants on surface in many locations, supplied by fresh water storage tanks. There are two fire trucks on surface.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 3.10 Underground Fire Fighting

Subsection 3.10.1 Underground Fire Fighting

1. *Is firefighting equipment provided and maintained at all underground crusher stations, electrical installations, pump stations, shaft stations, tipples, conveyors, service garages, fuelling stations, and where a fire hazard may exist?*
2. *Are a suitable number of fire extinguishers of a specified capacity provided and maintained at each stationary diesel motor, transformer substation and any splitter panel?*
3. *Is the location of the firefighting equipment required by sections 3.10 (1) and (2) such that, in the event of a fire, the direction of the mine ventilation air flow will not prevent or hamper the effective use of the equipment?*

Initial Audit - Inspector Comments: Extinguishers are found in all locations where a fire hazard may exist. However, not all fire extinguishers have tags indicating when they were last inspected (e.g.: the deluge system and hand-held extinguishers in the underground fuel station).	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.10.3 Underground Fire Fighting: *Are inspections and if necessary, testing and maintenance of all firefighting equipment carried out by a qualified person at least once a month?*	
Initial Audit - Inspector Comments: Not all fire extinguishers seen underground had date cards on them indicating when they were last checked. The fuel bay had an overhead auto discharge, nitrogen activated, dry chemical system. However, there was no tag indicating when it was last checked. It was not determined who is responsible for checking this equipment.	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 3.10.4 Fire Fighting Plans:

1. *Is the position of all fire fighting pipe lines, hydrant valves, fire stations and fire cabinets shown on a plan drawn to scale of not less than 1:2,500 with a metric scale bar and a marked north point?*
2. *Is the plan updated at intervals not exceeding three months?*

Initial Audit - Inspector Comments:	Score
A surface plan was seen with the location of fire hydrants marked.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section 3.12 Gas Detectors

Subsection 3.12.1 Approved Detector

Is every device used for the detection of flammable or noxious gas at a surface or underground mine of a type approved for such use by a recognized testing agency?

Initial Audit - Inspector Comments:	Score
6 Altair testers were observed in the mine rescue room (LEL, O2, CO, CO2, H2S and NO2). The docking stations bump test the units each day. Acklands has a contract to service these units regularly.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.12.2 Servicing Detectors *Has the Manager appointed a qualified person to be responsible for maintaining the appliances used for detection of flammable or noxious gases?*	
Initial Audit - Inspector Comments: Acklands has a contract to service the detectors. Marcel Syens from MSA, Vancouver has come on one occasion to service some of the units.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 3.12.3 Use of Appliance *Has the Manager appointed a qualified person to carry and use an appliance for the detection of flammable or noxious gas?* *Does the qualified person:* 1. *Check the appliance for damage and ensure it is in proper working order before use* 2. *Not use the appliance if found damaged or dysfunctional* 3. *Take all reasonable precautions to prevent the appliance from being damaged*

Initial Audit - Inspector Comments:	Score
The shift bosses and mine rescue members have taken on-line, gas detector training (MSA University). This self-study course is followed up with an interview with the trainer to confirm the employee understands how to use the unit.	5

Initial Audit - Manager's Reply: Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply: Click here to enter text.

Section 3.13 Evacuation

Subsection 3.13.1 Procedures and Instructions

Has the Manager of a mine:

1. *Prepared procedures for the safe evacuation of personnel from the mine, or part of the mine, if necessitated by an emergency?*
2. *Posted copies of the procedure in conspicuous places at the surface and underground?*
3. *Ensured that each employee receives instruction in the procedures prepared under subsection (1) and that he can recognize the emergency warning system and is familiar with the emergency escape routes from the mine?*

Initial Audit - Inspector Comments:	Score
The evacuation procedure is found in the "Code One" booklet and is posted. Instructions on the procedure are given during new employee orientation.	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 3.13.2 Emergency Warning System

Has the Manager developed and maintained a system acceptable to an Inspector for warning all employees, whether underground or in buildings on surface, of an emergency requiring prompt evacuation of their work places?

Initial Audit - Inspector Comments:	Score
A stench gas system is used to warn employees underground. The stench warning is activated remotely or manually if the automatic system is down. On surface, a phone system and radio backup is used for warning employees.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 3.13.3 Test of System

Is a test of the warming system required under section 3.13.2 that does not involve evacuation of key process personnel carried out at least once every 12 months on a production shift, and does the Manager unsure that key process personnel unable to evacuate are knowledgeable with the warning system, and the evacuation procedure?

Initial Audit - Inspector Comments:	Score
A surprise test of the stench warning system was done on October 12, 2011. After the test, a review was done to determine which employees smelled the stench, (if not then why?) and how long it took employees to evacuate.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 3.13.4 Report of Test *Is a report of all emergency warning system tests, including their effectiveness, produced in a timely manner by the Manager, reviewed by the OHSC and kept on file at the mine?*	
Initial Audit - Inspector Comments: OHSC members were involved in the test of the system but there is no record of the test being discussed at an OHSC meeting.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Part 3 – Total out of 195	**156**
Part 3 – Percentage out of 100%	**80%**

Section 4.1 Buildings - General

Subsection 4.1.1 Design and Construction

Are the buildings constructed in accordance with the British Columbia Building Code?

- *Drawing of the buildings available on site*
- *Services that are buried such as water, sewer and electrical are available in plan form*
- *The plans have been updated*
- *Work supervised by a professional engineer*

Initial Audit - Inspector Comments:	Score
The buried services and building drawings for the new infrastructure meets the requirements of the code, however the buried services and building drawings for the old Afton infrastructure is out-dated and incomplete. Click here to enter text.	3

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 4.1.4 Access to Work Areas
Are emergency exits clearly marked and designed to provide quick and unimpeded exit?

Initial Audit - Inspector Comments:	Score
All emergency exits provided an unimpeded exit. Click here to enter text.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 4.1.5 Equipment Entranceways to Buildings
Are all the vertical doors installed with a sensing device along the lower edge where applicable?

Initial Audit - Inspector Comments:	Score
An overhead power operated vertical door in the mill has a non-functional "bump stop" device on the lower edge of the door. The doors checked in the shop were equipped with "momentary switches" and were compliant. Click here to enter text.	3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.1.6 Storage of Materials *Are all materials stored or stacked in an appropriate manner?*	
Initial Audit - Inspector Comments: Ventilated storage cabinets in the shop were being used to store non-dangerous materials, while aerosol spray cans were being stored on work benches and tool boxes. Click here to enter text.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.1.7 – 4.1.9 Handrails and Guardrails *Are standard guardrails installed where applicable?* • *Designed and constructed properly* • *Openings, pits in floors, roof walkways or accessible work areas properly secured*	
Initial Audit - Inspector Comments: All hand railings checked met the requirements of the code. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 4.2 Buildings – Surface

Subsection 4.2.1 Repair Shops

Is the repair shop located in such a way for adequate drainage away from the shop?

- *Adequate parking*
- *Signage adequate where applicable*

Initial Audit - Inspector Comments:	Score
The repair shops on the surface and underground were in compliance with this part. Click here to enter text.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section 4.3 Fuel Pipelines Underground Mines

Subsection 4.3.8 Fire Protection and Control:

Every fuel storage tank shall:

1. Have a means of accurately determining the amount of fuel it contains
2. Be identified as to its contents and that it is a fire hazard area
3. Be surrounded by a dike or curb capable of containing 110% of its storage capacity

Initial Audit - Inspector Comments:	Score
The fuel tank supplying fuel to the auxiliary generator at the mill does not have signs identifying the contents of the tank; this tank does not have a fire extinguisher located at the tank. Click here to enter text.	4

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Section 4.4 Fixed Equipment

Subsection 4.4.1 Fall Arresting Devices
Are there appropriate fall arrest where applicable?

Initial Audit - Inspector Comments:	Score
Activities requiring fall arrest were good; all workers observed were using appropriate fall arrest when needed. Click here to enter text.	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 4.4.1 Fall Arresting Devices
Does all the fall arrest comply with the relevant design and performance requirements of CSA?

Initial Audit - Inspector Comments:	Score
All fall arresting devices were of the required type and were in good condition. Click here to enter text.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.4.2 / 4.4.3 Moving Parts of Machinery *Unless situated so as to prevent a person from coming into accidental contact are all moving parts adequately guarded?*	
Initial Audit - Inspector Comments: There was a barrier gate in the jaw crusher left open and therefore left a drive for the screen deck exposed to worker contact. Other guarding appeared to meet the requirements of the code. Click here to enter text.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.4.3 Grinders *Are there suitable safety devices available when grinders are being used?* • *Rest Properly Adjusted* • *Eye and face protection* • *Inspected and maintained regularly* • *Proper exhaust system (other than hand-held)*	
Initial Audit - Inspector Comments: One hand grinder without a guard and two bench grinders that needed to have the rest adjusted were found; these grinders were taken out of service. Click here to enter text.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.4.7 Welding and Burning Equipment *Is there safety procedure developed by the mine for the safe transportation or use of torches or welding equipment?* • *Use of fastened safe caps* • *Stored in upright and secured position* • *Stored in well ventilated area*	
Initial Audit - Inspector Comments: Compressed gas cylinder storage and use was good in general. However, there were some improperly stored cylinders in the jaw crusher area. Click here to enter text.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 4.4.9 Lifting Devices *All lifting devices shall be designed, constructed and installed in accordance with recognized standards and good engineering practices:* • *Maximum load marked on structure* • *Are the safety devices checked and tested regularly* • *Maintenance and inspection recorded*

Initial Audit - Inspector Comments:	Score
Several lifting devices were found in the mill, shop, and underground that will not displaying their rated loads. Click here to enter text.	3

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 4.4.10 Install Fire Protection

Is there suitable type and size of fire extinguisher provided at all fire hazard areas?

- *Fire suppression system (sprinklers, foam, etc.)*
- *On underground fixed equipment containing more than 10L flammable fluids*
- *On surface in buildings and structures adjacent to opening and underground mine*

Initial Audit - Inspector Comments:	Score
The fuel tank for the auxiliary generator at the mill does not have a fire extinguisher. Click here to enter text.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 4.4.11 Boilers and Engines Near Underground Workings:
Is there any part of a steam boiler or stationary internal combustion engine installed within 30m of any part of the collar of a shaft or openings to underground workings

Initial Audit - Inspector Comments:	Score
No such steam boilers or stationary engines were observed near any portals. Click here to enter text.	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 4.4.12 Engine Exhausts:
Is the exhaust of an internal combustion engine temporarily or permanently installed within or outside a building prevented from re-entering the building?

Initial Audit - Inspector Comments:	Score
No engines found had exhausts that could enter a building. Click here to enter text.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.4.13 Fans for Supplying Underground Ventilation: *Are all fans supplying ventilating air to underground workings and structures:* • *Containing fans constructed of non-combustible material?* • *Provide a means for reversing the direction of air flow?* • *Procedure for reversing only by the mine's authorization?*	
Initial Audit - Inspector Comments: The fans checked appeared to meet the requirements of this section of the code. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.4.16 Conveyor Belts *Are all conveyors provided with a walkway or other acceptable access for maintenance and inspection?* • *Pull cords to stop conveyors in an emergency* • *Conveyors; are they re-set manually* • *Start up warning device* • *Delay of 10 seconds* • *Head, tail drives, tension pulleys guarded* • *Conveyors longer than 15m (inside building or enclosed) belt slip detection* • *Policy and procedure for clean-up around conveyors*	
Initial Audit - Inspector Comments: Guarding, pull-cording, start-up horns and procedures appear to meet the requirements of the code. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.4.17 & 4.4.18 Steam and Compressor Plant Operation: *Has the Manager developed a procedure for the operation of compressor plants?* • *Does it conform to the safety regulation* • *Temperature shutdown devices (exceeds 30kw)* • *Carbon monoxide monitoring (supply air U/G)* • *Is the monitor tested monthly and recorded*	
Initial Audit - Inspector Comments: All devices checked appeared to meet the requirements of the code. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.4.20 Portable Ladders *Are all portable ladders meeting the CSA Standard CAN Z11 M81?*	
Initial Audit - Inspector Comments: Portable ladder compliance was good; all portable ladders checked were good. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 4.4.21 Construction of Portable Ladders

Are all the portable wooden ladders that are constructed at the mine meeting the requirements of HSR Code?

1. *Side rails 38x39mm*
2. *Cleats (rungs) 21x89mm*
3. *If nail is a filler block use between cleats*
4. *Width between cleats 500mm*
5. *Material used of #2 grade*

Initial Audit - Inspector Comments:	Score
Portable ladder construction appeared to meet the requirements of the code. Click here to enter text.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

4.6 Mobile Equipment – Underground Mine

Subsection 4.6.1 Diesel Equipment Underground:

Does the Manager have written procedures for the operation of diesel-powered equipment underground?

- *Fuel used meet the CAN/CGSB Standard (is a copy of the fuel specification at the mine.*
- *Is equipment left running when not personally being attendant?*
- *Has a cool down period been established by the OHSC when vehicles are parked.*
- *Is the master switches turned off when the operator leaves the vehicle?*

Initial Audit - Inspector Comments:	Score
Most of the requirements of this section were good. However, several pieces of underground mobile equipment were observed being shut down with no cool down period. Click here to enter text.	4

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

4.7 Trackless Diesel Powered Equipment

Subsection 4.7.1 Trackless Diesel Powered Equipment:
Do the self-propelled underground vehicles comply with the requirements of CAN/CSA M424.3-90?

Initial Audit - Inspector Comments:	Score
All pieces of underground equipment checked, met the requirements of this section. Click here to enter text.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

CSA M424.1 – 88 Trackless Diesel Powered Equipment
Does the company have copies of the underground diesel certification numbers on file?
CSA M424.2-90

Initial Audit - Inspector Comments:	Score
All equipment checked met the requirements of this section. Click here to enter text.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
CSA M424.1 – 88 Trackless Diesel Powered Equipment *Are the maintenance records up to date on the underground diesel equipment?* *CSA M424.2-90*	
Initial Audit - Inspector Comments: All equipment records checked met the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

4.8 Flammable Materials

Subsection 4.8.1 & 4.8.3 General Requirements:

Are there any flammable materials stored within 30m of a mine portal, shaft or other mine openings?

- *Flammables flashpoint of less the 52 degrees Celsius (need copy of fuel spec.)*
- *Method of transportation*
- *Storage underground (containers etc;)*
- *Amount of supply underground (per day oil and grease)*
- *Flammable materials shall be storage in an area approved by the mine Manager*

Initial Audit - Inspector Comments: Some compressed gas cylinders were found at the Alimak shafts were stored closer than 30m to the shaft. Click here to enter text.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

4.9 Mobile Equipment

Subsection 4.9.1 Back-up Alarm

Is all the equipment in excess of 7,000kg gross vehicle weight equipped with a back alarm?

Initial Audit - Inspector Comments: All equipment checked had functional/suitable back-up alarms. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 4.9.2 Transmission Interlock

Does all equipment with fluid drive transmission have an interlocking system to prevent the unit from being started and put in motion?

Initial Audit - Inspector Comments:	Score
All equipment checked had functional transmission interlock devices. Click here to enter text.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 4.9.3 Fire Extinguisher

Is all the equipment carrying at least one fire extinguisher of adequate size and proper type?

Initial Audit - Inspector Comments:	Score
Several pick-up trucks were found that did not have a suitable fire extinguisher. Click here to enter text.	3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.9.4 Vehicle Requirements *All rubber tired mobile equipment over 7000 kg gross vehicle weight shall have a minimum of two wheel chocks which shall be used whenever necessary.*	
Initial Audit - Inspector Comments: A scissor lift truck was found underground that did not have the required wheel chocks on the machine. Overall compliance with wheel chocks was good. Click here to enter text.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection4.9.4 Vehicle Requirements *Does the equipment have the appropriate safety devices:* • *Firmly secured seat (as well as passenger)* • *Seat belts* • *Clearance lights & Reflectors* • *Windshield* • *Mirrors*	
Initial Audit - Inspector Comments: One scoop underground was found that had a side window missing. Click here to enter text.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.9.5 Vehicle Requirements *Does a vehicle, other than a vehicle used directly for production in an operation open pit:* *Shall have in addition to the equipment required for highway driving, be equipped with:* • *a whip antenna that is fitted with a flag and lamp high enough to be visible to the drivers of all production vehicles or* • *a flashing light mounted above the cab of the vehicle?*	
Initial Audit - Inspector Comments: All personal carriers checked met the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 4.9.6 Fire Suppression for Underground Mines *All mobile equipment capable of containing more than 25L of flammable fluids and used in underground mines shall be fitted with a manually activated multi-nozzle fire suppression system. Is the activation of the system possible from each side of the machine and at the operators cab?* *Does the activation of the system shut the engine down?*

Initial Audit - Inspector Comments:	Score
All machines checked had a suitable fire suppression system. Click here to enter text.	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 4.9.7 *Are vehicles that are regularly or primarily used as personnel carriers suitable for the intended purpose?*	
Initial Audit - Inspector Comments: The seat belts on some personal carriers were non-functional and need to be repaired. Click here to enter text.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.9.9 *Does the name plate visible to the operator showing manufacturer, serial number, and maximum rated load. Load grade decal?*	
Initial Audit - Inspector Comments: All machines checked met the requirements of this section. Click here to enter text.	Score 5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.9.11 / 4.9.12 Rollover Protective Modifications *Does all the equipment have ROPS that is required in accordance with the HSR Code?* • *ROPS permanently marked* • *Seat belts* • *Properly labelled*	
Initial Audit - Inspector Comments: All ROPS/FOPS checked met the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.9.14 tires and Rims *Does the Manager have a tire and rim procedure developed?*	
Initial Audit - Inspector Comments: This operation is using the Fountain Tire procedure. This procedure meets the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 4.9.15

Are trucks with dump boxes being equipped with a permanently attached device for securing or locking the box in a raised position, or carrying suitable equipment on board for this purpose?

Initial Audit - Inspector Comments:	Score
All vehicles checked had the required devices on the vehicle. Click here to enter text.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	Choose an item.

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 4.9.17 Parking Brake

Are all vehicles equipped with a proper activating park brake?

Initial Audit - Inspector Comments:	Score
All vehicles checked had a suitable functional parking brake. Click here to enter text.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.9.19 *Trucks having a manufacturer's rated gross vehicle weight in excess of 45,000 kg shall be subjected to downgrade braking tests such that at least once a year 50% of the fleet is tested, and every truck in the fleet is tested at intervals not exceeding 3 years. Is this testing up to date?*	
Initial Audit - Inspector Comments: There is no documentation available for the annual brake testing on the haulage trucks in use on the surface projects. Click here to enter text.	Score 0
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.9.20 Auxiliary Steering *Do all vehicles, which require auxiliary steering, meet the provision of the HRS Code? Stored energy devices depressurize when engine is shut down.*	
Initial Audit - Inspector Comments: All vehicles checked met the requirements of this section. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

4.11 Lock-Out Procedures

Subsection 4.11.1 Lock-Out Procedures

Has the mine developed a lockout procedure, which includes all the provisions as decided in this part of the Code?

- *Tagging procedures*
- *Power disconnects*
- *Provision for draining stored energy*
- *Appropriate lock-outs (mobile equipment, etc.)*
- *Use of a watchman*

Initial Audit - Inspector Comments:	Score
There are two lock-out procedures in use at this mine, a new one in the mill and the old one on the used for the rest of the mine. In the shop area, it was observed that a worker was using a departmental lock as a personal protection lock; persons other than the worker had keys to this lock. Click here to enter text.	3

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

4.12 Lifting Devices – General

Subsection 4.12 Manually-Operated Hoists and Winches

Is there a suitable inspection and maintenance program in place?

- *NDT inspection*
- *Safety checks*
- *Logbooks where applicable*

Initial Audit - Inspector Comments:	Score
The annual inspection and NDT records were requested for these devices, but no documents were provided. Mine officials assured me that these tests had taken place.	2

Initial Audit - Manager's Reply:

Audit Follow Up – Inspector Comments:	Adjusted Score

Audit Follow Up - Manager's Reply:

2nd Audit Follow Up - Inspector Comments:	Adjusted Score

4.13 Raise climbers

Subsection 4.13 raise climbers

Are the following in place for raise climbers

- *NDT inspection*
- *Safety checks by mechanics and operators*
- *Logbooks up to date*
- *Identification plate*
- *Brakes*
- *Emergency switch*
- *Communication device*
- *Fire extinguisher*
- *Emergency escape procedures in place*

Initial Audit - Inspector Comments:	Score
The annual inspection and NDT records were not complete for the entire rail assembly; all other requirements for this section appear to have been met.	4

Initial Audit - Manager's Reply:

Audit Follow Up – Inspector Comments:	Adjusted Score

Audit Follow Up - Manager's Reply:	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score

2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
4.14 Temporary Work Platforms	
Subsection4.14.1 *Is there scaffolding or temporary work platforms being used, are they being constructed and maintained in accordance with WCB Occupational Health and Safety Regulation 13?*	
Initial Audit - Inspector Comments: Scaffolding observed in use was properly set up and secure. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

4.18 Miscellaneous Hoisting Equipment

Subsection 4.18.6

Log book; defects noted, maintenance and repairs noted, supervisor has examined, dated and signed at least weekly by to verify that log book is being used. Is log book in place and current?

Initial Audit - Inspector Comments: Worker daily entries were not consistent and the supervisor weekly sign-off was not done every week, this was observed in the shop area. Click here to enter text.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.18.7 *Are the name, model, and serial number assigned by the manufacturer clearly visible and legible on every crane, hoist, and derrick?*	
Initial Audit - Inspector Comments: All of these devices checked met the requirements of the code. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 4.18.8

- A permanent, clearly visible, and legible sign shall be affixed to each crane, derrick, and hoist showing the safe working load.
- The safe working load shall be marked on the load block and superstructure of hoisting equipment.
- Is this signage in place and visible?

Initial Audit - Inspector Comments:	Score
All lifting devices checked met the requirements of this section. Click here to enter text.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 4.18.10 Controls

Are all the controls of the cranes, derrick, or hoist clearly marked to show its functions?

Initial Audit - Inspector Comments:	Score
All crane controllers checked met the requirements of this section. Click here to enter text.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.18.10 Controls *Are there signs on the crane structure, visible to an operator, clearly indicating the direction of the hook, bridge, and trolley motions, compatible with those marked on the controls?*	
Initial Audit - Inspector Comments: Many cranes in all areas of the mine do not have this control depiction. Click here to enter text.	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

4.20 Rigging

Subsection 4.20 Use of Riggings and Fittings
Are all the rigging and fittings used and assembled properly?

Initial Audit - Inspector Comments: Several lifting jigs and bins were found that did not display their rated load, some of these devices may not have been certified by an engineer (looked homemade). Click here to enter text.	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
4.21 Slings	
Subsection 4.21 Requirements *Are all the slings marked with the safe working load, have the manufacturer's identification, not damaged and in good working condition?*	
Initial Audit - Inspector Comments: Several fiber webbing slings were found that had sufficient damage to them that they should be taken out of service. These slings were removed from service at the time they were found. Click here to enter text.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Part 4 – Total out of 260	**218**
Part 4 – Percentage out of 100%	84%

Section 5.1.1 / 5.2.1 / 3.2.1 Application of Electrical Rules

Subsection 5.1.1 / 5.2.1 / 3.2.1 Codes and Standards

- *The Manager shall develop a plan, approved by a registered electrical engineer, for the use of electrical energy at any mine, and the plan shall be forwarded to the Chief Inspector prior to introduction of electricity to the mine. A plan shall also be required for any increase in capacity of an existing installation by more than 500KVA.*
- *The plan referred to shall show the area's at the mine where the energy is to be transmitted and used, including schematic drawings.*
- *Is there a copy of CSA M421-00 "Electricity in Mines" on the mining property?*

Initial Audit - Inspector Comments	Score
This mine has an electrical system that has been developed by utilizing some existing infrastructure, updating and installation of new equipment. Although not all drawings were reviewed during this audit there are sufficient and up to date electrical plans available. Most if not all the plans have been developed by professional engineers. Copies of M421-11 are available, however some workers interviewed were not aware of this CSA standard and how it applies to mining.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section 5.2.1 Notices and Information

Subsection 5.2.1 & 3.2.2 of M421-00 Notices and Information

All Mines:

- *Only authorized persons shall work on or be in charge of electrical equipment or systems.*
- *Only authorized persons undertake installation of and repairs, extensions, or changes to electrical equipment or systems.*
- *Have practices and procedures been developed, implemented and updated as needed to ensure employees are properly trained in electrical safe practices?*

Initial Audit - Inspector Comments:	Score
This operation has a well defined electrical department. Interviews with the maintenance superintendent, electrical general foreman and supervisors along with electrical workers were conducted. It is clear that only authorized and qualified workers are in charge of the electrical system and only these people undertake installation and repairs to the equipment and systems. There is no formal electrical safety program in place at the time of the audit. The plan as I understand is in draft and will contain practices and procedures when complete. Click here to enter text.	3

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Section 5.4.1 Isolating Switchgear	
Subsection 5.4.1 (1) (2) & 3.2.6 of M421-00 Isolating Underground Workings *Is the electrical switchgear installed?* • *Each circuit shall have a provision for locking and tagging of the disconnection means* • *Operate by a qualified person* • *Easily accessible for repairs or operation* • *Fixed in a vertical position* • *Recessed from haulage ways and protected from physical damage* • *Located where water cannot accumulate*	
Initial Audit - Inspector Comments: During the audit electrical switch gear installation was inspected all over the mine including surface and underground. The vast majority of the switchgear is new or reconditioned and is installed as required by the code. The only deficiency noted was the ventilation fan installations in the mill had disconnects mounted horizontally, high above any access point to workers without the use of a ladder. Click here to enter text.	Score 4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 5.5.1 / 5.5.3 Trailing Cable Use and Repair	
Subsection 5.5.1, 5.5.2 & 4.6.3 of M421-00 Protective Equipment and Defective Cables • *Whenever persons are handling energized trailing cables suitable protective equipment is being utilized* • *Damaged cables are inspected by qualified persons before they are returned to service* • *All permanent repairs to damaged trailing cables shall be made by qualified persons who shall examine and test the cables before they are allowed to go back into service* • *Trailing cables shall be routed to avoid damage and be kept visible by being mounted on suitable markers at regular intervals throughout the cable route. Cable couplers shall be suitably supported off the ground* • *Suitable strain relief shall be provided at the connection of the cables to machines*	
Initial Audit - Inspector Comments: The trailing cables used at this mine are primarily for mobile equipment underground. All the cables inspected appear to be repaired properly. Cables underground are primarily routed high on the back to prevent damage. Cables on the surface primarily are marked and mounted on cable stands. Strain relief protection at this mine in the underground workings should be reviewed. Additional strain relief could be utilized at some of the jumbo and Drill switchgear attachments as well as the mobile equipment. Click here to enter text.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 5.6.1 Submersible Pumps

Subsection 5.6.1 Ground Fault Protection

- *All submersible pumps supplied by portable training cable shall be provided with ground fault protection to limit ground fault current to a maximum of 25 amps and automatically isolate the supply in the event of a fault*
- *Submersible pumps operating at voltages in excess of 300 volts shall, (after Jan. 1, 2001) be supplied by shielded portable power cable and have ground fault protection and ground check monitoring*

Initial Audit - Inspector Comments: The inspector did not review a great number of submersible pumps during this audit but those that were looked at did not reveal any deficiencies. Click here to enter text.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section 5.7.1 / 5.7.2 Supply Systems for Mobile Electrical Equipment

Subsection 5.7.1 / 5.7.2 & 3.5.5, 3.5.6 of M421-00 System Testing and Record of Testing

- *Supply systems for mobile electrical equipment shall be tested before being put into service and at least once a year thereafter in order to prove the effectiveness of the ground fault tripping and the ground conductor monitoring circuits*
- *A record of the tests shall be kept at the mine and shall be available for examination*
- *The supply shall be grounded through a neutral grounding device that limits the ground-fault voltage to 100 volts or less and de-energizes in less than 1's if ground fault current exceeds 20% of the prospective ground fault current*
- *The ground conductor monitoring shall de-energize the supply in less than 0.5's if the ground check conductor opens, the ground return conductor opens, or the ground check conductor shorts to ground*

Initial Audit - Inspector Comments	Score
Documentation has been developed and maintained showing the regular testing of the supply systems for mobile equipment. All the installations inspected during this audit were fed from a supply that was grounded through a neutral grounding resistor. It could not be easily determined whether the NGR would limit the current as required or whether the monitoring of the supply would de-energize in the prescribed time, but the installed looked at appear to have the proper setting on the protective relays. Click here to enter text.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Section M421-00 Testing and Calibration of Protective Devices	
Subsection 3.5.4 of M421-00 Testing and calibration of Protective Devices • *Except for fuses, each protective device for an installation operating at a voltage in excess of 750 volts shall be tested to confirm that the device prevents the equipment from being operated in excess of its rating* • *These tests shall be performed before initial use and after every three years of use, and the result shall be recorded in a record book*	
Initial Audit - Inspector Comments All the protective relays looked at during this audit appear to be tested in accordance with 3.5.4. Click here to enter text.	Score 5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section M421-00 Movable Equipment

Subsection 4.6.1, 4.6.2 of M421-00

- *Movable Switch Houses*
  a. *Disconnecting means shall be manually operated three phase ganged visi-blade type. It shall be suitably rated, installed at the point of power entry and key interlocked with the circuit breaker or interrupter*
  b. *The circuit breaker shall be complete with devices necessary to provide overcurrent and ground fault protection*
  c. *Control devices requiring adjustment or reset shall not be located inside the high voltage section of the switch house enclosure*
- *Movable Substations*
  a. *The substation supporting structure must be suitable for moving over rough terrain, or shall be fitted with adequate lifting attachments to allow lifting onto other transport*
  b. *Power transformers shall be of the totally enclosed type or shall be enclosed within a substantial chain link fence. Warning signs must be posted at the entrance to the transformer enclosure with the words "DANGER: HIGH VOLTAGE"*
  c. *Protection of interconnecting cables to 2 or more movable structures must be protected by a circuit breaker and the cables must not exceed 5m in length*
  d. *The neutral grounding device shall be mounted as close as practical to the transformer neutral.*

Initial Audit - Inspector Comments:	Score
Substations were reviewed extensively during this audit and it is to be noted that stationary substations will be include in this section. Portable substations underground looked at during this audit did not reveal any deficiencies. The permanent substations at various locations on the surface will require more signage *"DANGER: HIGH VOLTAGE" posted on the fence.* Click here to enter text.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 4.6.2.2 & 4.6.2.3 of M421-00 Station Ground Electrodes and Resistances: • Each Movable Substation shall be grounded to a station ground electrode that meets the requirements of Rules 36-302 (1), (2), and (3) of CSA Standard C22.1 • The station ground electrode shall be designed and installed to prevent the transfer of potentials in excess of 100 volts from the station ground electrode to any connected mobile electrical equipment. The resistance of the station ground electrode shall be measured and the ground-fault protection tested after installation or relocation of the substation	
Initial Audit - Inspector Comments: The electrical system feeding the underground movable substations includes a separate grounding conductor carried to the surface. There is additional grounding installed at the substation locations underground.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection M421-00 Electrical Equipment Rooms

Subsection 4.2 M421-00 Electrical Equipment Rooms

- *Electrical equipment rooms must ensure the best practical protection against fire propagation, water and dust ingression and corrosive atmospheres*
- *They shall be sufficiently ventilated to maintain equipment at safe temperatures*
- *Lighting levels must be sufficient to enable all equipment to be easily distinguished and all instruments and labels to be easily read*
- *An emergency lighting system shall be provided*
- *A fire extinguishing device shall be provided at each electrical equipment room or vault*

Initial Audit - Inspector Comments: A significant number of electrical equipment rooms were looked at during this audit both on the surface and the underground. As most of the equipment rooms are new very few deficiencies were noted on the surface. The primary concern with the underground equipment rooms was the excessive heat developing at the main transformer distribution locations. Temperatures were noted at 4 locations with ambient being in the range of 95-115 degrees Fahrenheit. This over temperature condition must be addressed immediately. Click here to enter text.	Score 3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection M421-00 Quick Connect Cable Couplers	
Subsection 3.4.4 M421-00 **3.4.4.1** *A quick-connect coupler used to join portable power cables or a cable and a flange-mount receptacle, operating at a voltage in excess of 300 V, shall have* *(a) a mechanical fastening arrangement, to join the coupler, with a tensile strength greater than that of the portable power cable;* *(b) strain-relief devices suitable for the intended portable power cable;* *(c) a means to prevent the ingress of moisture;* *(d) a means to mechanically lock the coupler, where the circuit voltage exceeds 750 V;* *(e) a pin arrangement such that* *(i) the ground conductor makes before and breaks after the phase conductors; and* *(ii) the ground-check circuit makes after and breaks before the phase conductors; and* *(f) ground-fault protection and ground-conductor monitoring at the source of supply.* **3.4.4.2** *Notwithstanding Clause 3.4.4.1, if a disconnect switch is mechanically or electrically interlocked with a receptacle for a portable-power-cable plug, and if quick-connect couplers are not used downstream, ground-fault protection and ground-conductor monitoring shall not be required.*	
Initial Audit - Inspector Comments: This operation primarily uses UEE type couplers. These couplers are either mechanically or electrically interlocked. During this audit no deficiencies were noted with respect to the use of couplers. Click here to enter text.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Section M421-00 **5.4.1 General**	
Subsection: *Switchboards and switchgear shall* *a) be protected against physical damage;* *b) be guarded in such a manner that access by unauthorized persons can be prevented, if there are exposed live parts;* *c) be separated from an explosives storage area by at least 15 m when measured along mine workings;* *d) have clearances around them to permit safe access for inspection, maintenance, and repairs;* *e) be installed on a fire-resistant foundation; and* *f) be in such a location as to minimize the spread of fire.*	
Initial Audit - Inspector Comments: Switchboards and other electrical equipment inspected during this audit were in compliance with this subsection. Parking of mobile equipment in front of portable substations underground should be discouraged as several no post barriers were noted as being "bumped into" during the inspection. Click here to enter text.	Score 4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section M421-00 Conveyor Systems

4.4.3 Conveyor systems

4.4.3.1

An electrically driven conveyor shall have the following:
(a) pull-cords (see Clause 4.4.3.2) for stopping the conveyor at accessible locations along the conveyor. The pull-cords shall be within easy reach of persons at such locations;
(b) when the conveyor is started automatically by remote control, or when a portion or portions of the conveyor are not visible from the operator's position, a start-up warning device; and
(c) head, tail, drive, deflection, and tension pulleys guarded at any pinch point that is or can become accessible.

4.4.3.2

A pull-cord required by Clause 4.4.3.1 shall
(a) operate a manual-reset-type switch that stops the conveyor;
(b) be designed and arranged so that it operates the associated switching device and generates the emergency stop signal when
(i) the pull-cord is pulled in any direction;
(ii) a perpendicular pulling force of less than 200 N is applied to the pull-cord; and
(iii) a perpendicular deflection of the pull-cord of less than 400 mm occurs;
(c) be able to withstand, without breaking, a tension force ten times greater than is necessary to generate the emergency stop signal; and
(d) incorporate a visual indicator to show which device has been operated where more than one switching device is necessary.

Initial Audit - Inspector Comments:	Score
Conveyor systems were reviewed and inspected during this audit both on the surface and underground portions of this mine. All new installations are compliant with this section of the code with respect to installation of safety devices. The only area of concern was the varying degrees of tightness of the pull cords. Please note the requirements of this section in 4.4.3.2 (b) (ii) and (iii). Seasonal adjustment may be required to meet the criteria defined in this section. Click here to enter text.	4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section M421-00 Grounding

Subsection 5.6

5.6.1 Grounding Circuit

The grounding circuit from underground to surface shall consist of at least one copper conductor interconnected and bonded with metallic parts of the electrical system, unless equally effective means are provided.

5.6.2 Inspection

The grounding network shall be inspected periodically for continuity and assessed for adequate capacity.

Initial Audit - Inspector Comments:	Score
The separate grounding circuit from surface to underground was inspected at numerous locations and no deficiencies were noted. As discussed with electrical supervision a conscious effort is required to review and make visual inspections to this system on a continual basis to ensure its integrity and meet the requirement of 5.6.2. Click here to enter text.	4

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 3.5

3.5.5 Ground-Fault Protection

Where ground-fault protection is used, the supply shall be

a) grounded through a neutral-grounding device that limits ground-fault voltage to 100 V or less; and

b) de-energized in less than 1 s if ground-fault current exceeds 20% of the prospective ground-fault current (see Appendix A).

3.5.6 Ground-Conductor Monitoring

Where ground-conductor monitoring is used, the supply shall be de-energized by a fail-safe circuit in less than 0.5 s, and a de-energized supply shall not become energized if

a) the ground-check conductor opens;

b) the ground-return conductor opens; or

c) the ground-check conductor shorts to ground.

A ground-conductor monitoring system shall have an open-circuit voltage of less than 100 V and shall continuously indicate ground-circuit continuity.

3.6 Grounding

3.6.1 Circuit-Opening Devices in Grounding Conductors

A circuit-opening device shall be permitted in the neutral-to-ground connection on any star-connected generator whenever two or more generators are required to be operated in parallel. Procedures for opening and closing these devices shall be instituted to ensure operator safety.

3.6.2 Neutral-Grounding Devices

A neutral-grounding device shall be

a) continuously rated, except when ground-fault tripping is provided;

b) monitored so as to de-energize the supply in less than 60 s if the neutral-grounding device opens; and

c) *connected as close as practical to the supply neutral.*

3.6.3 Ground-Fault Indication

3.6.3.1

A device required by Rule 10-106 (2) of CSA Standard C22.1 shall be provided with

a) short-circuit protection; and

b) disconnecting means such as a general-use switch.

A ground fault shall be investigated and removed without delay.

3.6.3.2.

Where an audible or visible alarm is used to indicate a ground fault, such alarm shall continue signalling to indicate the fault until the fault is cleared.

Initial Audit - Inspector Comments:	Score
There is extensive use of ground fault protection and monitoring taking place at this operation both underground and on surface. All the equipment has been recently installed and all installations inspected met the requirements of this section.	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Section M421-00 Travelling Cranes

Subsection 3.4

3.4.6.1

Electric overhead travelling cranes shall meet the requirements of CSA Standard B167.

3.4.6.2

Each crane shall be equipped with

a) an upper-limit switch that prevents the crane block from reaching its upper limit of travel; and

b) a lower-limit switch if operation of the crane requires the hook to leave sight of the operator at its lower limit of travel.

3.4.6.3

A circuit breaker or load-break switch for interrupting the power supply to the crane shall be provided in the cab.

3.4.6.4

Each service crane shall be provided with a form of dead-man control.

Initial Audit - Inspector Comments:	Score
The surface cranes that this inspector reviewed were in compliance with this section with respect to electrical requirements. Click here to enter text.	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 3.3

3.3.6.1

Electrical supply lines shall be installed in accordance with CSA Standard CAN/CSA-C22.3 No. 1 or the applicable standard of the jurisdiction.

3.3.6.2

Overhead supply line clearances referred to in CSA Standard CAN/CSA-C22.3 No. 1 require additional clearances as noted in Clauses 4.3.1.1 and 4.3.1.2 of that Standard (see Clause B2 of this Standard).

3.3.6.3

Notwithstanding the requirements of Table 2 and Clause 4.3.1.1 of CSA Standard CAN/CSA-C22.3 No. 1, minimum vertical clearances in Table 3 of this Standard shall be increased where haulage vehicles are frequently used (see Clause B1 of this Standard). Minimum vertical clearances shall be increased by

a) the amount by which the combined vehicle and load height exceeds 4.15 m;
b) the amount of snow pack; and
c) the amount by which banked shoulders, crests, or road maintenance increases road elevation.

3.3.6.4

Vertical clearances specified in Clause 3.3.6.3 do not provide for the travelling of cranes, shovels, drills, and other oversized equipment having unusual dimensions. Clauses 3.3.6.5 and 3.3.6.6 relate to the movement of this special equipment underneath or alongside energized supply lines but are not intended as a procedure for working in the vicinity of energized supply lines.

3.3.6.5

When special equipment is moved, and where the equipment will encroach on the minimum clearances listed in Table 4, the supply lines shall be isolated and grounded. When the movement is under the supervision of qualified personnel, the clearances in Table 3 shall be permitted.

3.3.6.6

Personnel involved in the movement of special equipment in the vicinity of energized overhead supply lines shall minimize the electric-shock hazard in the event of accidental contact by

a) operating the equipment from a position on the equipment that is not in direct contact with earth;
b) having all grounds persons/safety watchers maintain a safe stand-off distance from the equipment;
c) using only prearranged visual signals or radio communications. Hard-wired communication systems shall not be used between the equipment and persons on the ground; and
d) *ensuring only persons required for the move are directly involved.*

Initial Audit - Inspector Comments:	Score
The electrical distribution overhead lines at this operation have primarily been installed by a qualified contractor. The assumption is and cannot be disputed by visual observation is that the overhead supply lines have been installed to meet the requirements of the code. The notwithstanding clauses defined in 3.3.6.3 through to 3.3.6.6 cannot be emphasized enough as there have been far too many occurrences of equipment coming into contact with high voltage lines at various other mining operations in the province in the last few years.	4
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	

Section M421-00 Work on Live Equipment

Subsection 3.2

3.2.5.1

With the exception of utility work and work on electric furnaces and plating tanks, repairs or alterations shall not be carried out on live equipment.

3.2.5.2

Notwithstanding Clause 3.2.5.1, if adjustments, tests, or calibrations are performed while equipment is live, all necessary precautions shall be taken to ensure that the work can be done safely.

3.2.8 Notices to Workers

Where a hazard exists from inadvertent access to or interference with electrical apparatus, durable notice signs of sufficient size shall be effectively posted that

- *a) prohibit unauthorized personnel from handling or interfering with electrical apparatus;*
- *b) warn of danger and indicate the highest voltage in use;*
- *c) provide instructions for communication with the supervisor of the electrical equipment;*
- *d) advise of the procedure to be followed in case of electrical fire; and*
- *e) contain directions for the procedure to be followed to rescue persons in contact with live electrical conductors, and for the resuscitation of persons from the effects of electrical shock.*

The requirements of Items (c), (d), and (e) are not obligatory where adequate mine emergency procedures are in place.

Z462 Workplace Electrical Safety

4.1.2 Purpose

The practices and procedures specified in this Standard are intended to provide for the safeguarding of workers relative to electrical hazards in the workplace.

Initial Audit - Inspector Comments:	Score
In discussion with management and workers during this audit it is apparent that the practice of working on live electrical equipment is discouraged. That being said there is not any formal training or a formal Workplace Electrical Safety program developed and implemented at this mine. There is a plan in place to provide training and a draft program is being developed.	2

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Section M421-00 Wiring Methods - Underground

Subsection 5.2

5.2.1 Conductors

Conductors, cables, or portable power cables supplying power to fixed equipment at voltages-to-ground in excess of 150 V shall be protected by armour, conduit, or other similar mechanical means or by suitable location.

5.2.2.2

Portable power cables shall meet the requirements for FT5 rating as specified in CSA Standard C22.2 No. 0.3.

5.2.2.3

Mine power cables without armour jackets, installed after January 1, 2001, shall meet the requirements for FT5 rating as specified in CSA Standard C22.2 No. 0.3.

Initial Audit - Inspector Comments:	Score
It is difficult if not impossible to determine if every piece of cable is in compliance but there was ample evidence that most of the cabling used underground at this mine is in compliance. Click here to enter text.	4

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section M421-00 Installation of Transformers and Capacitors

Subsection 5.3:

5.3.1 Surface Transformers — Flash Point Less than 275 degree C

A transformer containing a liquid having a flash point less than 275 degree C, and installed on the surface in the vicinity of the escapeway or entrance to an underground mine

a) shall be located at least 15 m from a headframe, shaft house, portal house, adit, or combustible building attached to such a structure;

b) shall be mounted on a non-combustible pad designed so as to contain the liquid from the largest transformer and prevent spill from seeping into and entering the mine, shaft house, portal house, adit, headframe, or other building; and

c) *may be located beside a fireproof building that is attached to the headframe, shaft house, adit, or portal house if there are no openings in the part of the building adjacent to the transformer through which smoke or heat can enter the building.*

5.3.2 Underground Transformers — General

A transformer installed in an underground mine shall

a) be protected against physical damage;

b) be guarded in such a manner that access by unauthorized persons can be prevented, if there are energized exposed parts;

c) be separated from an explosives storage area as follows:

i. when the transformer is over 5 kV•A, by a distance of at least 15 m of undisturbed rock or a distance of at least 60 m of open space; or

ii. when the transformer is 5 kV•A or less, by a distance of at least 15 m of open space;

d) be rated for the ambient temperature;

e) have clearances around it to permit safe access for inspection, maintenance, and repairs;

f) be mounted on a fireproof foundation and in such a location as to minimize the spread of fire;

g) not be used where flooding is likely to occur; and

h) *be provided with an enclosure that meets the requirements of Rule 2-400 of CSA Standard C22.1.*

Initial Audit - Inspector Comments:	Score
All the transformers inspected at this mine both on the surface and underground were compliant with this section. Of note this inspector is not able to confirm that the underground transformers are rated for the high ambient temperatures that are being experienced at some locations. Click here to enter text.	4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section M421-00 **Installation of Storage Batteries**

Subsection:

5.5.1 Location

Stationary-type storage batteries whose aggregate capacity is 5 kW at the 8 h discharge rate shall be located in storage-battery rooms or in areas with equivalent enclosures.

5.5.2 Installation

Storage-battery and battery-charging areas shall comply with the following:

a) they shall be located so as to prevent damage by mobile equipment;
b) they shall be ventilated by an adequate amount of fresh air to ensure the diffusion of hazardous gases that are produced;
c) battery-charging stations shall be equipped with adequate fire-fighting apparatus suitable for fighting Class C fires;
d) no open flame is permitted, except as defined in Item (g);
e) smoking shall be prohibited;
f) electrical apparatus shall be enclosed in an approved enclosure or otherwise located to ensure that no possibility for ignition exists; and
g) battery repairs may be undertaken after all due precautions to ensure the dissipation of flammable gases have been taken. Battery charging shall be discontinued for the duration of the time taken to effect the repair.

5.5.3 Disposal

The electrolyte of storage batteries shall be removed and neutralized before the batteries are scrapped or stored for salvage.

Initial Audit - Inspector Comments:	Score
The unit substation batteries were not reviewed properly during this audit. An internal audit of these installations should be undertaken to ensure proper ventilation is provided. No other deficiencies were noted by this inspector.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section M421-00 **Trackless Mobile Electrical Equipment**

Subsection5.10.2

5.10.2.1

Clause 5.10.2 applies to the source of power, isolation, ground-fault protection, ground-wire monitoring, portable power cable, multiphase bus system, slip rings, and take-up reel.

5.10.2.2

A transformer supplying power to mobile electrical equipment shall

a) *have a minimum kV•A rating of 25% of the maximum kV•A rating of the mobile electrical equipment; and*
b) *be supplied by load-break isolating devices for the primary supply to the transformer and by a secondary circuit supplying power to the mobile electrical equipment.*

5.10.2.3

Portable power cables used to supply ac power to mobile electrical equipment shall

a) *meet the requirements of CSA Standard CAN/CSA-C22.2 No. 96;*
b) *meet the requirements of Table 12A of CSA Standard C22.1 for the rated load current of the mobile electrical equipment. Voltage drop shall not exceed the design criteria for the system;*
c) *have cable-entry connectors and conductor terminations that will not be adversely affected by normal operation of the mobile electrical equipment;*
d) *have cable-entry connectors that prevent the entry of water, dust, and other environmental conditions to junction boxes and switch boxes;*
e) *be suspended or made secure when installed outside the radius of operation of the mobile equipment;*
f) *when spliced, have electrical and mechanical characteristics equivalent to that of the cable; and*
g) *when spliced, be subjected to an insulation voltage test equal to the rating of the cable.*

Initial Audit - Inspector Comments:	Score
Only two pieces of mobile equipment were inspected during this audit due to time constraints. Neither of these two installations revealed any deficiencies.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

5.10.2.5 continued

Electrical equipment installed on the vehicle shall meet the following requirements:

a) all enclosures shall meet the Type-4 requirements of CSA Standard CAN/CSA-C22.2 No. 94;
b) each motor or group of motors shall have separate disconnecting means, overload protection, and ground-fault protection. Acceptable specialized drives shall be exempt;
c) all motors shall be of the totally enclosed type;
d) all high-voltage and low-voltage ac wiring and terminations shall be clearly identified, separated by suitable barriers from automotive circuits and terminals, and have a flame-test rating of FT2 as specified in CSA Standard C22.2 No. 0.3; and
e) high-voltage or low-voltage ac supply shall not be used to power or drive any automotive electrical device such as lights, battery-charging circuits, gauges, horns, warning devices, solenoids, or radio control equipment.

5.10.2.5

Electrical equipment installed on the vehicle shall meet the following requirements:

a) all enclosures shall meet the Type-4 requirements of CSA Standard CAN/CSA-C22.2 No. 94;
b) each motor or group of motors shall have separate disconnecting means, overload protection, and ground-fault protection. Acceptable specialized drives shall be exempt;
c) all motors shall be of the totally enclosed type;
d) all high-voltage and low-voltage ac wiring and terminations shall be clearly identified, separated by suitable barriers from automotive circuits and terminals, and have a flame-test rating of FT2 as specified in CSA Standard C22.2 No. 0.3; and
e) *high-voltage or low-voltage ac supply shall not be used to power or drive any automotive electrical device such as lights, battery-charging circuits, gauges, horns, warning devices, solenoids, or radio control equipment.*

Initial Audit - Inspector Comments:	Score
Only two pieces of mobile equipment were inspected during this audit due to time constraints. Neither of these two installations revealed any deficiencies.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score Choose an item.
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Part 4 – Total out of 115	**94**
Part 4 – Percentage out of 100%	**82%**

6.1 Work System Apprioval

Subsection 6.1.1 Who is responsible for Ventilation

Has the manager appointed a qualified person to be responsible for all aspects of ventilation in the mine?

Initial Audit - Inspector Comments:	Score
Yes, Ahsan Chaudry Mining Engineer EIT.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Section 6.3 Manager - Underground

Subsection 6.3.1(2) Escape Plan

Is there an escape route plan for each level or working area showing the main routes of egress from the active workings, sites of all underground refuge stations, and ventilation as required in section 6.3.2(5)?

Initial Audit - Inspector Comments:	Score
Yes dated Sept 2012	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 6.3.1(1) Escape Plan

Are they posted in a conspicuous place accessible to all persons working underground?

Initial Audit - Inspector Comments:	Score
Yes	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.3.2(1) General *Are the following available for inspection:* • *An accurate and up-to-date copy of the plan of the underground workings?*	
Initial Audit - Inspector Comments: Yes, Oct 1, 2012 presentation Oct,16, 2012 to Audit team	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 6.3.2(2) Escape *Are the following available for inspection:* • *A copy of the current emergency and rescue plan required by 6.3.1(2)*

Initial Audit - Inspector Comments:	Score
Yes, Reviewed	4

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.
Subsection 6.3.2(3) *Are the following available for inspection:* • *A separate underground plan of every level showing all workings, including shafts, tunnels, diamond drill holes, dams, bulkheads, electrical substations, explosives storage, shop areas, permanent seals and stoppings,*

Initial Audit - Inspector Comments:	Score
Yes, Very detailed, drill holes on drive layout. Complete on many layers.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.3.2(4) *Are the following available for inspection:* • *Vertical mine sections at suitable intervals and azimuths, showing all shafts, tunnels, drifts, sloped roadways, rooms, stopes, diamond drill holes and the location of the top of the bedrock, surface of, and type of, the overburden and the bottom and surface of any known body of water or watercourse or material likely to flow,*	
Initial Audit - Inspector Comments: Daily with cave information from TDR and seismic data.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.3.2(5) *Are the following available for inspection:* • *A ventilation plan showing the normal direction and volume of the main air currents and the location of permanent fans, ventilation doors, fire doors, stoppings and connections with adjacent mines, and*	
Initial Audit - Inspector Comments: Yes ,information is on the drawings	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.3. Manager - Underground

Subsection 6.3.3 Shiftboss Plans

Does the shiftboss have current development plans for the assigned area of responsibility indicating the size, dip and length of all development headings?

Initial Audit - Inspector Comments:	Score
Yes, on daily sheets provided by engineering.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 6.3.3(1) Shiftboss Plans

Do they indicate adjacent or disused workings?

Initial Audit - Inspector Comments:	Score
Yes, Show old caved area, new development and new cave area.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.3.3(2) Shiftboss Plans *Are drill holes that are within 8m of a heading indicated on the map?*	
Initial Audit - Inspector Comments: Yes, Map inspected	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 6.3.3(3) Shiftboss Plans *Are the drill holes that extend into mine workings clearly marked?*	
Initial Audit - Inspector Comments:	Score
Yes, 10 M radius marked in maps	4
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 6.3.3(4) Shiftboss Plans *Are the collars of these drill holes whether on surface or underground located and plugged as required?*	
Initial Audit - Inspector Comments:	Score
Protocol is to plug but many historic surface holes not grouted.	3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.3.5 Effective Ground Support *Has the manager ensured that an effective ground support system has been properly installed and maintained?*	
Initial Audit - Inspector Comments: Yes, been audited by Michael Cullen P. Eng MEMNG consultant.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 6.3.5 Qualified Person Qualified Person *Is there a ground control plan developed by a qualified person?*	
Initial Audit - Inspector Comments:	Score
Yes, Andy Davies, Al Chan, Cory	5
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 6.3.5 Quality Control *Is there a quality control program in place to ensure that the ground control program or ground support systems are installed and maintained according to the directions of a qualified person?.*	
Initial Audit - Inspector Comments:	Score
Check surveys on Convergence in cave area, plus surface measurements.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.4 Mine Shift Boss – General Rules

Subsection 6.4.1(1)(2)
Does a certified shiftboss inspect all active headings at least twice per shift?

Initial Audit - Inspector Comments: Yes but record keeping needs improvement, could not track what heading had been inspected.	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.4.1(1)(2) Shiftboss • *Do the shift bosses have current tickets?* • *Are the first aid and transportation endorsements current?*	
Initial Audit - Inspector Comments: Yes, Reviewed	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 6.4.2 & 3 Log Book *Is there a shift log recording the activities in each heading that is signed by the examining shiftboss and countersigned by the corresponding shiftboss?*	
Initial Audit - Inspector Comments: Yes	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.8 Mine Plans

Subsection 6.8.1(1) Duty to Keep Plans - Surface

Are updated accurate mine plans prepared in accordance with the Code and good engineering practice as follows:
A surface plan showing the

- *claims, licences or leases on which mining is being carried out, and*
- *all lakes, watercourses,*
- *naturally unstable ground, such as peat bogs or sloughs,*
- *main roads,*
- *railways,*
- *power transmission lines,*
- *buildings,*
- *shaft openings, adits,*
- *surface workings,*
- *diamond drill holes collared on the surface,*
- *dumps,*
- *dams, tailings ponds and their overflow channels,*
- *topographic contours, and*
- *any abandoned, adjacent or historical workings.*

Initial Audit - Inspector Comments:	Score
Yes, in place Jane McCaw has this document	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.8.3 Failure to Post Plans: *Is the traffic control plan prepared and available, showing:* • *Maximum allowable speeds for the vehicles in use* • *Rules for passing, "STOP" and "Yield Rules"* • *Priority rules for various vehicles* • *Rules for the night operation* • *Maximum operating grades, emergency run-off protection, shoulder barriers* • *Other information to ensure the safe operation of all types of vehicles in the minesite including but not limited to, single lane traffic areas, X-over areas*	
Initial Audit - Inspector Comments: Yes in place for pit access.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.

6.10. Dumps

Subsection 6.10.1(4) Dumping at Open Holes

Has the manager required a qualified person to ensure:

(4) where material is to be dumped from a vehicle into a bin, raise, or other opening, provide and maintain a barrier of sufficient size and strength and anchored sufficiently to prevent the vehicle from inadvertently entering the bin, raise, or opening,

Initial Audit - Inspector Comments:	Score
Yes, a design is in place and designed to take the heaviest vehicle underground. Designed by Core Engineering .	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 6.10.1(5) Dumping Prohibited

Has the manager required a qualified person to ensure:

(5)where dumping is prohibited or hazardous, prevent dumping by placing across the entrance a barrier sufficient to prevent access and a sign that reads "No entry for dumping purposes,"

Initial Audit - Inspector Comments:	Score
No barrier or sign was noted	2

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

6.12 Mine Openings

Subsection 6.12.1 Two Exits

Prior to production has the mine provided a second exit?

Initial Audit - Inspector Comments:	Score
Yes, The access decline and the conveyor decline	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.12.2 Distance between Exits *An auxiliary exit shall not at any point be less than 30 m from the main entrance to underground workings of the mine and shall be separated by solid strata. Is this so?*	
Initial Audit - Inspector Comments: Yes, Access decline is the secondary access	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.
Subsection 6.12.4 Ease of Travel *Does the auxiliary exit afford easy passage and is it provided with good and substantial ladders from the deepest working to the surface, or with hoisting apparatus, which shall constantly be available for use?*

Initial Audit - Inspector Comments:	Score
All ramps at present time,	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.
Subsection 6.12.5 New Mine *Where an underground mine is being developed, have the shafts and raise openings to the surface been provided with a substantial collar secured to the bedrock, comprised of concrete or other material that will perform in the same manner as concrete and is not expected to deteriorate?*

Initial Audit - Inspector Comments:	Score
Yes, Concrete collars on all Vent Raises	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.13 Refuge Stations

Subsection 6.13.1 Location

Where a workplace in an underground mine is more than 300 m from a mine portal or from a shaft station which is used to access that workplace, has the manager provided and maintained, in a suitable location for that workplace, a refuge station in accordance withsection 6.13.3?

Initial Audit - Inspector Comments: Yes, all well equipped	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 6.13.3 Construction and Equipping

Is the underground refuge station

1) *clearly identified, constructed of non-combustible material, and of sufficient size to accommodate all*
2) *persons working in the vicinity,*
3) *equipped with a supply of air, a supply of water, a means of communicating with the surface, a means of sealing to prevent entry of gas, and first aid equipment,*
4) *equipped with a plan of the mine clearly showing all emergency exits, and*
5) *located*
    a. *100 metres from explosives magazines,*
    b. *100 metres from flammable materials storage, and*
6) *(c) constructed or located in such a manner to prevent inadvertent entrance or damage by vehicles, or*

Initial Audit - Inspector Comments: Yes locations are meeting requirements and meet and exceed requirements. Mine designed a independent means of supplying air, water and communications to the main refuge station. This is a first in BC	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.16 Underground Mobile Equipment

Subsection 6.16.1 Clearances

- *Where any mobile equipment is operating, has a minimum clearance of 2 m in excess of the maximum width of the vehicle been maintained? The vehicle shall be fitted with an approved roll-over-protective structure ROPS or falling object protection structure (FOPS).*
- *Has a minimum clearance of 300 mm above the ROPS or FOPS been maintained?*

Initial Audit - Inspector Comments: In some areas of the exploration decline, the clearance is not here but safety bays were developed during construction.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	

6.17 Safety Stations

Subsection 6.17.1 Safety Stations

Where the Inspector has allowed a reduction in the clearances in 6.15.2 and 6.16.1,do the safety stations meet the following criteria?

1) *be plainly marked,*
2) *be clean and free of obstructions,*
3) *be cut as close to perpendicular as is practical to the haulage way, and*
4) *if made after 1990, be at least*
    a. *1 m in depth, in addition to the clearance between the vehicle and the wall,*
    b. *the height of the roadway or 2 m whichever is least, and*
    c. *1.5 m in width?*

Initial Audit - Inspector Comments:	Score
Yes throughout the access decline and the conveyor decline, some housekeeping is required as garbage is accumulating is some.	3
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.19 Equipment Operation - General

Subsection 6.19.1 Operators Responsibility

Are the operators:

1. *using their seatbelts*
2. *driving with their lights on*
3. *where required, is the vehicle flashing light on at all times or does it have a flag equipped whip antenna light?*

Initial Audit - Inspector Comments: Yes good compliance	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 6.19.2 Log Book to be Maintained *Has the manager provided and maintained an effective logbook system for each unit of mobile equipment over 7000 kg gross vehicle weight where* *(a) the vehicle operator notes the operating condition prior to operating of the vehicle* *(b) note any unsafe conditions, and* *(c) a qualified person making repairs, notes any repairs made and if the vehicle is safe to operate?*

Initial Audit - Inspector Comments:	Score
Operator compliance 90% Mechanic compliance 50 % Mechanical dept need more training on Log books	3

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 6.19.3 Examination of Equipment *Does the operator do a pre-op check?*	
Initial Audit - Inspector Comments: Yes , several noted	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.19.4 Signing Logbook *Does every notation made in the logbook, maintenance record, and every other record relating to the condition of the equipment show the time and date of the entry and the name of the person who made the entry?*	
Initial Audit - Inspector Comments: Needs improvement	Score 2.5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.24 General Mine Rules

Subsection 6.24.2 Water Sprays

Wherever practicable, are water sprays or other dust suppression means and devices being used at every dusty place where work is carried out and where it is impractical to do so, is personal protective equipment supplied and worn by all persons working in that location?

Initial Audit - Inspector Comments: Yes, system need review and ongoing maintenance	Score 2.5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 6.24.3 Drilling Dry *Are powered rock drills being used in a mine without a water jet or other device capable of suppressing dust?*	
Initial Audit - Inspector Comments: None observed	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
6.25 General - Underground Rules	
Subsection 6.25.1(1) Scaling *Before any work is begun in an underground mine do the workers check their workplaces for hazardous or dangerous conditions and make it safe before continuing?*	
Initial Audit - Inspector Comments: Yes, in policy SOP 006, in work place inspection	Score 4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.25.2 Travel Ways *Are all work places, travel ways and other areas that may be frequented by mine personnel regularly inspected and maintained by check scaling as conditions warrant and re-supported asmay be prudent and that adequate tools and supplies are provided?*	
Initial Audit - Inspector Comments: Yes	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 6.25.3 Overhead Holes *Where persons are working in any location which is below and open to a haulage or travel way on the level above, is the workplace securely covered or otherwise closed off from the haulage or travel way?*

Initial Audit - Inspector Comments:	Score
Yes	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.
Subsection 6.25.3 Cover Holes *Are the tops of every millhole, manway, sump, drain hole or other opening covered or otherwise adequately protected to prevent inadvertent access?*

Initial Audit - Inspector Comments:	Score
Sump next to Fueling bay needs bumper block	3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.25.3 Working a Manway *Where manways are being repaired or in active use, are they closed offand are warning signs posted at all entrances?*	
Initial Audit - Inspector Comments: Manway between conveyor transfer CTC 3 -4 needs warning signage	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.
Subsection 6.25.4 Work Near Abandoned Areas *If required does the manager have an approved work procedure for work that is to be carried out within 30 m of abandoned or old workings, or any accumulation of water or unconsolidated material, or any other substance that may flow?*

Initial Audit - Inspector Comments:	Score
In progress with the cave and the break through to the pit.	3

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.
Subsection 6.25.5 Check Breakthroughs *No connection between mine workings shall be made through to until a thorough examination of the workings toward which the active heading is advancing has been made and has shown that the work can proceed in a safe manner. Where required, is there a procedure is in place?*

Initial Audit - Inspector Comments:	Score
Yes, procedure in place	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.25.6 Jumbo Drills *Are the drills stopped prior to persons proceeding beyond the front of the drill controls of an underground jumbo drill?*	
Initial Audit - Inspector Comments: Yes, procedure in place	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.

6.26 Rock Passes

Subsection 6.26.1 No Water

Has the Chief Inspector approved an operating procedure to introduce water into an ore or waste pass, a loading pocket, coal silo, hopper, storage bin or a completed large diameter borehole for any purpose?

Initial Audit - Inspector Comments:	Score
No procedure as this is not done	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 6.26.1 No Water

Is the operating procedure being followed?

Initial Audit - Inspector Comments:	Score
Yes	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.26.2 Procedure to Remove Water *Has the manager provided a plan for the safe removal of water or saturated Material from any ore or waste pass that contains water or saturated material that will flow?*	
Initial Audit - Inspector Comments: Yes, procedure in place for mucking bored raises	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
Subsection 6.27.4 Guardrail *Where a stairway ends in direct proximity to dangerous traffic or other hazards, have detour guardrails been installed?*	
Initial Audit - Inspector Comments:	Score
Yes, on conveyor transfer points	4
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	
Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	
6.30 Flammable Waste and Scrap - Underground	
Subsection 6.30.1 Scrap Removal *Is the waste, including waste timber, being removed from the underground mine on a regular basis and is not being piled up nor permitted to decay in the mine?*	
Initial Audit - Inspector Comments:	Score
No, there is waste material collecting underground, housekeeping needs to be improved	2

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.30.2 Flammable Scrap In an underground mine, or in or about a headframe or shaft-house, is the flammable refuse being 1) deposited in covered, fire-resistant containers, and *2)* removed at least weekly from the mine, headframe, or shaft-house?	
Initial Audit - Inspector Comments: No covered fire resistant containers were noted	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.31 Sulphide Dust

Subsection 6.31.1 Sulphide Dust

In any underground mine where the sulphur content of the ore is high and a sulphide dust explosion has occurred, has the manager implemented an approved scheme for minimizing the danger from a sulphide dust explosion that includes

1) *provision for ensuring that all persons are removed to a place of safety prior to blasting, taking into consideration the mine layout and the ventilation circuits, and if necessary, removed to the surface of the mine,*
2) *provision for ensuring that all accessible headings, raises, and other workplaces within 30 m of a blasting site are washed down to remove dust prior to blasting,and*
3) *any other measures that could reduce the risk of a dust explosion or lessen the consequences if one should occur.*

Initial Audit - Inspector Comments: Very little sulphides in the mine, ore very discriminated.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.33 Ventilation Standard

Subsection 6.33.1 Ventilation Standard

Is the return air from all working places, whenever practicable, routed directly to the return airway?

Initial Audit - Inspector Comments: Partially now and when VR 7 is complete air quality will improve.	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.35 Underground Mine Heating

Subsection 6.35.1 Mine Air Heaters

Has an Inspector given written permission for the mine to install the furnaces or devices for heating mine air?

Initial Audit - Inspector Comments: Yes, G MacDonald has given permission.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

6.36 Auxiliary Ventilation

Subsection 6.36.1 Auxiliary Ventilation

Has the manager ensured that all workings that are removed from the main ventilation circuit have an adequate supply of ventilating air?

Initial Audit - Inspector Comments:	Score
Yes aux ventilation in place and used where required and identified drive layouts, level plots all indicate ventilation flows	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 6.36.2 Manager's Rules

Where auxiliary ventilation systems are necessary, has the manager of the underground mine prepared rules and procedures for the installation and use of auxiliary ventilation systems and, in the case of a coal mine, for the degassing of headings. Is a copy of this procedure posted at a conspicuous location at the mine?

Initial Audit - Inspector Comments:	Score
Rules and procedures were not noted to be posted.	1

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 6.36.4 Exhaust from a Compressor *Is compressed air being used for ventilation other than clearing blast fumes and smoke since the exhaust from any compressed air machine shall not be considered as ventilation*	
Initial Audit - Inspector Comments: No	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.

6.37 Ventilation Monitoring

Subsection 3.37.1 Air Measurements

Has the manager of the underground mine ensured that the measurements of the quantity of air flowing are taken at the main fan, in all airways, and at all major ventilation splits at intervals not exceeding three months?

Initial Audit - Inspector Comments:	Score
Air measurements are taken weekly	5

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

Subsection 3.37.2 Diesel Equipment Ventilation

In a mine or part of a mine in which diesel equipment is operating underground

(1) are measurements of the quantity of air flowing being taken at intervals not exceeding once a week,

Initial Audit - Inspector Comments:	Score
Shifters take gas reading daily and record in shift log. Reported twice day on 5 point safety cards. It is also on Daily shifters pass down. Shift cross over record.	4

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection6.37.2 Diesel Equipment Ventilation

(1) are tests being made at least once a shift, in the general body of the air, on the exhaust side of the operating diesel equipment, for nitrogen dioxide or oxides of nitrogen and other gases specified by an inspector,

Initial Audit - Inspector Comments:	Score
Shifters take gas reading daily and record in shift log. Reported twice day on 5 point safety cards. It is also on Daily shifters pass down. Shift crossover record.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection6.37.3 Recording *Are the measurements required to be taken under sections 6.37.2(1) and 6.37.2(2) being recorded in a book kept for that purpose?*	
Initial Audit - Inspector Comments: Records are kept in the shift log. All on the electronic back up available for review.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.

6.38 Doors and Regulators

Subsection6.38.1 Door Closing

Do the doors used for regulating or controlling ventilation close automatically and are they provided with a suitable device for opening or closing them?

Initial Audit - Inspector Comments:	Score
Yes in place on doors that are in operation and will be installed on future doors	4

Initial Audit - Manager's Reply:
Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:
Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:
Click here to enter text.

6.40 Unventilated Workings

Subsection 6.40.1 Prevention of Access

Where any part of the underground mine that is not being ventilated has the manager ensured that these parts

1) *are effectively barricaded to prevent inadvertent entry*
2) *are posted with signs warning that entry is prohibited,*

Initial Audit - Inspector Comments:	Score
Yes, Barricades were noted	3

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 6.40.1 Ventilation

Where any part of the underground mine that is not being ventilated has the manager ensured that these parts:

1) *have been examined by a qualified person for the following prior to anyone entering or being permitted to enter these parts*
   a) *oxygen deficiency,*
   b) *t he presence of toxic or noxious gases, fumes, mists, vapours, or dust, and*
   c) *any other dangerous condition.*

Initial Audit - Inspector Comments:	Score
Yes by shift boss	3

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Part 6 – Total out of 320	**249**
Part 6 – Percentage out of 100%	**78%**

Section 8.1 Magazines

Subsection 8.1.1 (1) Permit Required

Has the Manager applied for and received an Explosives Storage and Use Permit from the Inspector before a magazine was put into service, or modified, or before carrying out any maintenance work including the installation of lighting or heating?

Initial Audit - Inspector Comments:	Score
The permit for the surface explosives magazine is: #BC-1081; mine #0300614, expires May 25, 2016. Detonators are not stored on surface.	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 8.1.1 (2) Permit Required

Has the Manager ensured that the magazine meets the current regulations and standards of the Explosives Act (Canada)?
Note: The new standards were established by NRCAN and upgrades must be completed by May 31, 2006?

Initial Audit - Inspector Comments:	Score
The magazine is a standard steel construction magazine. Mine security check the magazine twice per day for tampering and photograph the magazine each inspection.	5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.4 Flammable Material *Is there flammable material stored in a magazine, or nearer to a magazine than the distance required in NRC Explosives Branch "Blasting Explosives and Detonators Storage, Possession, Transportation, Destruction and Sale (8 meters)?*	
Initial Audit - Inspector Comments: The outside of the magazine was free of flammable material. Inside the magazine there was some scrap lumber and a few cases of loading hose which should be removed.	Score 1
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.5 Magazine Signs *Are the proper signs required in the Code in place?*	
Initial Audit - Inspector Comments: Proper warning signs were mounted on the fence surrounding the magazine compound.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 8.1.6 (1) Magazine Rules *Is there an authorized person in charge of the magazine, who inspects it on a weekly basis?*	
Initial Audit - Inspector Comments: Authorized persons check the magazine at least twice per week. Security inspect the magazine compound and around the magazine twice per day.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.6 (2) Magazine Rules *Is the magazine kept locked as required in the Code?*	
Initial Audit - Inspector Comments: The magazine is kept locked, as required. The mag. keys are kept in a lock box or locked desk in the office.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.6 (3) *Magazine Rules* *Is there an up-to-date inventory kept in a logbook with every entry signed by the authorized person in charge?*	
Initial Audit - Inspector Comments: The magazine inventory is current and signed by an authorized person.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 8.1.6 (4) Magazine Rules *Is the magazine clean, dry and free from grit?*	
Initial Audit - Inspector Comments: The magazine is clean and dry.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.6 (7) Magazine Rules *Is there any exposed iron or steel?*	
Initial Audit - Inspector Comments: There is no exposed iron or steel.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.6 (8) Magazine Rules *Is the stock rotated, with the oldest stock being utilized first?*	
Initial Audit - Inspector Comments: Stock is rotated regularly. There was a minimum of product in the surface magazine at the time of inspection.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 8.1.7 Posting Rules *Are the rules for magazine operation and maintenance posted inside every magazine?*	
Initial Audit - Inspector Comments: The magazine rules are posted inside. In surface and underground magazines.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.8 Storage of Detonators *Are the rules regarding detonators being met?*	
Initial Audit - Inspector Comments: Detonators are stored underground, in a sea-can container. The inside of the steel doors of the underground detonator storage are not covered with wood.	Score 1
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.9 No Smoking *Any sign of smoking while handling explosives?*	
Initial Audit - Inspector Comments: There were no signs of smoking near explosives.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 8.1.10 (1) Underground Explosive Storage *In an underground mine, other than a coal mine, does any magazine established for the storage of more than a 24 hour supply of explosives, have the written approval of the Inspector?*	
Initial Audit - Inspector Comments: The inspector has given his approval of the underground magazine.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 8.1.10 (2) Underground Explosive Storage *Are explosive storage boxes, holding not more than a 24 hour supply, clearly marked "Explosives?"* *Is there a current record of every magazine and explosive storage area?*	
Initial Audit - Inspector Comments: The contractor's boxes are marked "explosives". There is presently only one underground storage area.	Score 5

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 8.1.10 (3) (a-d) Underground Explosive Storage

In an underground mine are magazine, explosive container, or explosive storage areas:

a. *Located at least 60 meters from a shaft, hoist room, main access ramp, refuge station, transformer vault or a fuel storage or fuel transfer area?*
b. *Located so that there is no possibility of a vehicle colliding with a storage container?*
c. *Located so that in case of fire in the mine the explosives are not likely to become overheated?*
d. *Conspicuously marked by "Explosives" sign or signs?*

Initial Audit - Inspector Comments:	Score
The contractor's explosives boxes are not protected from accidental vehicle impact. The explosives storage is located an appropriate distance from mine infrastructure. It was reported that explosives are sometimes left on the loading truck between shifts. Unused explosives should be returned to the magazine or day box.	1

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Section 8.2 Blasting Certificates	
Subsection 8.2.1 through 8.2.7 Blasting Certificates *Are all persons, conducting blasts, certified as per sections 8.2.1 – 8.2.7 of the HSRC?*	
Initial Audit - Inspector Comments: Blasting certificates are current.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply:	
Click here to enter text.	
2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	
2nd Audit Follow Up - Manager's Reply:	
Click here to enter text.	

Section 8.3 Use, Care and Handling of Explosives

Subsection 8.3.2 (1) (2) (3) (4) Identification of Explosives

Do all explosives have plainly marked or printed on the exterior of every original package:

1. *The name and place of business of the manufacturer and the date of its manufacture?*
2. *The type and strength of the explosive, and the dimensions of the cartridge?*
3. *The UN Classification number and the dangerous goods classification?*
4. *When full cases of detonators, detonating cords, and boosters are received, the inner cartons are immediately marked with the magazine license number?*

Initial Audit - Inspector Comments:	Score
Explosives cases are properly marked. Cases are not opened on surface.	5
Initial Audit - Manager's Reply:	
Click here to enter text.	
Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 8.7 Drilling Near Explosives

Subsection 8.7.1 (1) Misfires
Is the use of equipment restricted within this 8 meter distance except as provide in section 8.7.1, or under a procedure approved by the Inspector 8.8.1. (1) (2)?

Initial Audit - Inspector Comments: There is a procedure, approved by an inspector, for pre-loading production blastholes, which allows equipment to work within 8 m of a loaded hole. Misholes are washed or blown out to neutralize them.	Score 5
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score

2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Section 8.8. Misfires	
Subsection 8.8.1 (1) Surface Misfires *Are misfired hole on the surface shall be clearly marked off for a distance of 8 meters around the collar of the hole and equipment restricted?*	
Initial Audit - Inspector Comments: N/A	Score
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Part 8 – Total out of 95	**83**
Part 8 – Percentage out of 100%	**87%**

Section 10.1 Mine Plan and Reclamation Program Information

Subsection 10.1.2 Producing Mines

Does the mine have a permit authorizing the work from the Chief Inspector?
Does it include information on the following:

- *Surface or underground development or production for coal and mineral mines, or major modification of existing producing coal and mineral mines of the buildings available on site*
- *Underground exploration requiring excavation, large pilot projects, bulk samples, trial cargos, test shipments*
- *Has work proceeded without the Chief Inspector granting a permit or authorization?*

Initial Audit - Inspector Comments:	Score
Yes permits are in place M229 and TSF M229A	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 10.1.4 Mine Plans

Does the mine have a plan that has the relevant information as requested by the Code?

- *Baseline information*

Initial Audit - Inspector Comments:	Score
All information is in the permit application document and the application	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 10.1.4 Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (3) (f)?

- *Designs and details for dumps, open pits, impoundments, underground workings including areas that may be affected by subsidence, stockpiles, processing facilities, water management structures, water storage and /or water treatment facilities, haulage roads, road construction and significant transportation or utilities infrastructure, compatible with environmental protection, reclamation and mine closure?*

Initial Audit - Inspector Comments:	Score
As builds are available for structures and reclamation report is due at year end.	4

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 10.1.4 Mine Plans Does the mine plan have the requirements of Part 10.1.4 (3) (g)? • Designs for material handling and waste disposal procedures	
Initial Audit - Inspector Comments: Waste disposal is handled by a contractor and dealt with off site. GFL waste oil, BFI waste for recycling. Storage of chemicals needs improvement, RheoTEC tank sitting in the yard with product still it exposed to the potential of being hit by a vehicle in winter conditions, also a tank of DELVO Stabilizer in the same condition. Waste oil storage area needs to be covered so it doesn't fill with water and float the hydrocarbons into the environment. Diesel fuel surface fueling station has diesel spilled on the ground and needs to have all contaminated soil removed and a system installed so it doesn't reoccur.	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 10.1.4 (3h) Mine Plans *Does the mine plan have the requirements of Part 10.1.4 (3) (h)?* • *Salvaging and stockpiling of surface soils and overburden materials*	
Initial Audit - Inspector Comments: The mine has stockpiled 170,000 m3 of topsoil and 300,000 m3 of till	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection: 10.1.4 (3i) Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (3) (i)?

- *Source, use and water balance for any water required in the operation*

Initial Audit - Inspector Comments:	Score
Fresh water comes from Kamloops Lake permit 139m3/min average is 124 m3 / min Water balance is not complete due to 3 different water balances and discussions on the water volume trapped in the tailings	2

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection10.1.4 (3j) Mine Plans

Does the mine plan have the requirements of Part 10.1.4 (3) (j)?

- *Overall site water balance*

Initial Audit - Inspector Comments:	Score
Still work in progress	3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection10.1.4 (4b) Mine Plans *Does the mine plan have the requirements of Part 10.1.4 (4) (b)?* *Plan for environmental Protection that includes:* • *Erosion control and sediment retention*	
Initial Audit - Inspector Comments: Yes, but some erosion channels need to be improved before water leaves the property	Score 3
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection10.1.4 (6) Mine Plans *Does the mine plan have operational reclamation plans for the next five years that shows the progressive development of structures?*	
Initial Audit - Inspector Comments: Work in progress due from consultant December 2012.	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection: 10.1.5 Design Standards *Are the impoundments, water management facilities and dams designed in accordance with the criteria provided in the Canadian Dam Association, Dam Safety Guidelines?*	
Initial Audit - Inspector Comments: Yes, audit by Geologic, Monte Christie still not complete	Score 2
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 10.1.6 Design Standards *Are the dumps designed in accordance with the Interim Guidelines of the British Columbia Mine Waste Rock Pile Research Committee?*	
Initial Audit - Inspector Comments: Present dump is in pit and will be effected by the cave	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 10.1.7 Design Standards *Are the dumps designed so as to allow for re-contouring such that final reclamation is consistent with the approved end land use?*	
Initial Audit - Inspector Comments: Not required as they are in pit	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Subsection 10.1.8 Design Standards *Are the Tailings impoundments, water management facilities, dams and waste dumps designed by a professional engineer?*	
Initial Audit - Inspector Comments: Yes Scott Elfen PE and stamped by Harry H. Kim P.eng	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 10.1.9 Design Standards *Are there plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage which shall be prepared in accordance with the Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia?*	
Initial Audit - Inspector Comments: Using MLARD program as laid out in permit and full data base on NG computer system.	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score

Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Subsection 10.1.11 *Has the Owner, Agent or Manager notified the Chief Inspector in writing of any intention to depart from the mine plan and reclamation program authorized under sections 10.1.1 or 10.2.1 of the Code to any substantial degree?* *Has the Manager received the written authorization of the Chief Inspector prior to implementing the proposed changes?*	
Initial Audit - Inspector Comments: No Changes at this time	Score 4
Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	

Section 10.5 Operations

Subsection 10.5.1 Operations

Did the operation of tailings or water management facility commence prior to an "as-built" report prepared by a professional engineer certifying that the facility was designed and constructed according to section 10.1.5 of this Code being submitted to the Chief Inspector and a permit to operate the facility was received?

Initial Audit - Inspector Comments:	Score
Yes ,Reviewed by George Warnock P. Eng. MEMNG and signed off	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 10.5.2 Operations

Does the mine have an Operation, Maintenance and Surveillance (OMS) manual?

Was this manual prepared and provided to an Inspector and to all employees involved in the operation of major dam or major impoundment, prior to commissioning?

- *Is the manual revised regularly during operations, decommissioning and closure of the structure?*

Initial Audit - Inspector Comments:	Score
Yes, In place	5

Initial Audit - Manager's Reply:

Click here to enter text.

Audit Follow Up – Inspector Comments:	Adjusted Score
Click here to enter text.	Choose an item.

Audit Follow Up - Manager's Reply:

Click here to enter text.

2nd Audit Follow Up - Inspector Comments:	Adjusted Score
Click here to enter text.	

2nd Audit Follow Up - Manager's Reply:

Click here to enter text.

Subsection 10.5.3 Operations

Has the Manager submitted an annual dam safety inspection report prepared by a professional engineer on the operation, maintenance and surveillance of the tailings and water management facilities and associated dams to the Chief Inspector?

Initial Audit - Inspector Comments:	Score
Not Due until March 31, 2013	3

Initial Audit - Manager's Reply: Click here to enter text.	
Audit Follow Up – Inspector Comments: Click here to enter text.	Adjusted Score
Audit Follow Up - Manager's Reply: Click here to enter text.	
2nd Audit Follow Up - Inspector Comments: Click here to enter text.	Adjusted Score
2nd Audit Follow Up - Manager's Reply: Click here to enter text.	
Part 10 – Total out of 90	**65**
Part 10 – Percentage out of 100%	**72%**

We believe that one of the most important aspects of your operation is to provide a safe and healthy work environment for all employees. To help us evaluate this goal, we asked your employees the following questions.

Y = YES, N = NO, NS = Not Sure

Company: New Afton

1) Does Management visibly demonstrate an interest in the safety and health of their employees?

   Percentage of those interviewed: Y = 97% / N=1% / NS= 2%

2) Does your supervisor show interest in the health and safety of the employees on your crew?

   Percentage of those interviewed: Y = 100% / N / NS

3) Are identified health and safety concerns or hazards addressed and or corrected in a timely manner.

   Percentage of those interviewed: Y = 95% / N = 1% / NS =4%

4) Have the Company health and safety rules and procedures been clearly explained to you.

   Percentage of those interviewed: Y = 98% / N / NS = 2%

5) Are all workplace accidents and/or near misses reported?

   Percentage of those interviewed: Y = 95% / N = 1% / NS = 4%

6) Does your supervisor conduct effective monthly safety meetings?

   Percentage of those interviewed: Y = 100% / N / NS

7) Have you been given enough training and information to do your job safely?

Percentage of those interviewed: Y = 98% / N = 2% / NS

8) Is positive feedback is given to increase health and safety awareness.

Percentage of those interviewed: Y = 99% / N / NS = 1%

9) Do you know what to do in case of an emergency (i.e. fire, injury, chemical spill, etc.).

Percentage of those interviewed: Y = 100% / N / NS

10) Do you have opportunities to provide input into the health and safety program?

Percentage of those interviewed: Y = 99% / N / NS = 1%

11) Are Health and Safety inspections of your work area conducted monthly?

Percentage of those interviewed: Y = 98% / N / NS = 2%

12) Is the Occupational Health and Safety Committee an active and effective group?

Percentage of those interviewed: Y = 95% / N = 1% / NS = 4%

13) Are all new employees given adequate safety orientation?

Percentage of those interviewed: Y = 98% / N / NS = 2%

14) Do you report every workplace injury or illness to your supervisor regardless of severity?

Percentage of those interviewed: Y = 98% / N = 1% / NS = 1%

15) Are safety rules sometimes disregard in order to get the job done?

Percentage of those interviewed: Y = 1% / N = 97% / NS = 2%

16) Is it possible to achieve a "Zero Accident Culture?"

Percentage of those interviewed: Y = 96% / N = 2% / NS = 2%

	Question #1	Question #2
	Provide one positive aspect of the Mines Health and Safety program?	If you could improve one thing in the Mines Health and Safety program what would it be?
	The Joint Occupational Health and Safety Committee	Continue with the positive feedback to all employees
	Concerns are always dealt with	Have Bi –Weekly meeting because of shift rotations
	Safety concerns are dealt with ASAP	More frequent meetings
	Refuge stations for emergencies	Ventilation needs to be checked in all aspects and areas of the mine on a regular basis
	It forces the company not to ignore health and safety. Routine checking of work.	Send out questionnaires periodically to get a feel for how the workplaces are doing.
	Access to all PPE necessary to complete the job safety	Better dust control underground and ventilation
	Open communications at daily meetings	Better availability of jack stands and booms support.

	Provide one positive aspect of the Mines Health and Safety program?	If you could improve one thing in the Mines Health and Safety program what would it be?
	Third party objective view by someone other than corporate looking at things	Clarity from M.H.S to work (sometimes middleman are misinformed or unsure)