PROVINCE OF BRITISH COLUMBIA MINISTRY OF ENERGY AND MINES

PERMIT

APPROVING WORK SYSTEM AND RECLAMATION PROGRAM

(Issued pursuant to Section 10 of the Mines Act R.S.B.C. 1996, c.293)

Permit: C-224

Mine #: 1640340

Issued to: Peace River Coal Inc. PO Box 919 Tumbler Ridge, British Columbia V0C 2W0

for work located at the:

Trend Mine

This permit contains the following sub-sections:

<u>Issue Date</u>	<u>Permit</u>
March 18, 2005	Approving Work System
March 18, 2005	Approving Reclamation Program
January 25, 2007	Approving Work System & Reclamation Program

Amendments

As listed on the attached.

Amended at Victoria, British Columbia this 7th day of August in the year 2913.



Al Hoffman, P. Eng. Chief Inspector of Mines

spector of Mines

Amendments

March 6, 2006

April 18, 2006 December 8, 2006 June 29, 2011 February 23, 2012 August 7, 2013 Approving Power Line Construction and Automated Rail Loadout Facility Approving Fine Coal Wash Circuit Addition Change of Name Approving Selenium Water Treatment Pilot Test Work Approving PAG Waste Management Plan Revision Approving Roman Phase I Construction

PERMIT AMENDMENT

APPROVING ROMAN PHASE 1 EARLY CONSTRUCTION WORKS

Permit: C-224

Mine #: 1640340

Issued to: Peace River Coal Inc. PO Box 919 Tumbler Ridge, British Columbia V0C 2W0

for work located at the:

Trend-Roman Mine

Amended at Victoria, British Columbia this 7th day of August in the year 2013.

an, P.Eng. AH

Chief Inspector of Mines

PREAMBLE

An application for amendment of Permit C-224, entitled "Phase 1 Trend-Roman Mine Application for Amendment to *Mines Act* Permit C-224 to Incorporate Minor Amendments for Early Works" (Document 1) dated March 15, 2013 was filed with the Chief Inspector of Mines (Chief Inspector) on April 4, 2013 in accordance with Section 10(6) of the *Mines Act*.

Notice of such filing was published in the British Columbia Gazette on May 23, 2013.

The following information was also filed with the Chief Inspector and forms part of the application:

- Report entitled "Trend Roman Project, Water Management Construction, Site Specific Surface Erosion and Sediment Control Plan", by Anglo American Metallurgical Coal, dated July 12, 2013 (Document 2).
- Revised section 10.3 of the Mines Act Application entitled "Wildlife Protection and Monitoring Plan", by Anglo American, by Peace River Coal Inc. dated July 15, 2013 (Document 3).
- Report entitled "Trend-Roman Project, Water Management Construction Procedure for Field Identification of Suitable Rock Fill Materials", by Anglo American, dated July 12, 2013 (Document 4).
- Report entitled "Trend-Roman Water Management Project: RP2 Dyke & Sedimentation Pond", by Norwest Corporation, dated July 16, 2013 (Document 5).
- Report entitled "Trend-Roman Water Management Project: RP1 Dyke & Sedimentation Pond" by Norwest Corporation, dated July 17, 2013 (Document 6).

Environmental Assessment Certificate #M12-02 was issued for this project by the Environmental Assessment Office under the authority of the *Environmental Assessment Act* S B C 2002, C.43 (Act), on December 14, 2012 for this project.

The application was referred to other agencies on May 9, 2013 in accordance with Part 10.3.1 of the Code. Several meetings of the Roman Mine Review Committee (RMRC) were held to review the application: June 26, 2013, July 5, 2013 and July 8, 2013 in Fort St. John, July 4, 2013 in Prince George, and July 10, 2013 by conference call.

This permit contains the requirements of the Ministry of Energy and Mines. It also is compatible, to the extent possible, with the requirements of other provincial ministries. The amount of security required by this permit and the manner, to which this security may be applied, will also reflect the requirements of those ministries. However, nothing in this permit limits the authority of other provincial ministries to set other conditions, or to act independently, under their respective permits and legislation.

Decisions made pursuant to this permit by staff of the Ministry of Energy and Mines will be made in consultation with other provincial ministries and federal departments and agencies, within reasonable timeframes. Where these decisions directly affect the Ministry of Environment or the Ministry of Forests, Lands and Natural Resource Operations, all decisions will be made in concurrence with the appropriate Manager or Director.

The mine is located in the Treaty 8 Territory of BC established under section 35(1) of the Constitution Act, 1982. It lies in the consultative area of the West Moberly First Nations, Saulteau First Nations, and McLeod Lake Indian Band ("First Nations"). The province also consulted with the Doig River First Nation, Prophet River First Nation and Halfway River First Nation.

These First Nations have expressed their interests regarding potential impacts to their asserted or established rights during pre-permit consultations between the First Nations and the Province. Those issues that Peace River Coal Inc. was not able to resolve through discussion with First Nations have been resolved through commitments by Anglo American/Peace River Coal Inc. to implement additional studies or management plans. These commitments are described in a letter entitled "Commitments of Anglo American/Peace River Coal Inc. to Treaty 8 First Nations With Respect to Phase One Trend-Roman Mine Amendment Permit" dated July 17, 2013.

CONDITIONS

The Chief Inspector hereby approves the application subject to compliance with the following conditions:

A. General

1. <u>Compliance with Mines Act and Code</u>

All work shall be in compliance with all sections and parts of the *Mines Act* and Code, and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or designate.

2. Departure from Approval

The Permittee shall notify the Chief Inspector and the district Inspector of Mines, in writing of any intention to materially depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.

3. Limitations of Approval

This permit approves the construction of sediment ponds RP1 and RP2, water collection ditches RN1, RN2 and RN3, as well as soil salvaging from these areas and associated access road development.

4. <u>Mineral Tenures</u>

Development, including surface disturbance and works, encompassing approximately 1875 ha (includes rail load-out) held by Peace River Coal Inc. (Figures 1 and 2) is authorized under permit C-224.

5. <u>Mine Permit</u>

This Permit is not transferable or assignable.

6. <u>Planned Commitments</u>

The Permittee shall provide to the Chief Inspector and First Nations, an update of the commitments made by the Permittee to address First Nations issues, as described in a letter addressed to the Chief Inspector dated July 17, 2013, entitled "Commitments of Anglo American/Peace River Coal Inc. to Treaty 8 First Nations With Respect to Phase One Trend-Roman Mine Amendment Permit". The reporting shall be included in the Annual Reclamation Report and in any other format and frequency defined in the commitments.

B. Mine Plan

1. <u>Sedimentation Ponds RP1 and RP2</u>

- (a) <u>Design</u>
 - (i) The designs of RP1 to the 1449.5m elevation and RP2 to the 1353.5m elevation are approved. Sealed "For Construction" drawings shall be maintained on-site during construction and made available to any Inspector of Mines upon request.
 - (ii) In accordance with Section 10.1.5 of the Health, Safety and Reclamation Code, Sediment Pond RP2 is declared a major impoundment and shall be designed and operated in accordance with the Canadian Dam Association Dam Safety Guidelines for a high consequence structure.
 - (iii) Sediment pond RP2 shall be fully lined with a geomembrane to minimize seepage of contaminant loadings to the environment.
- (b) <u>Construction</u>
 - (i) Engineering supervision of sediment pond construction shall include sufficient field reviews to ensure that the ponds RP1 and RP2 are constructed in general conformance with the design.
 - (ii) The prepared foundation of embankments shall be inspected by the geotechnical engineer of record prior to the placement of fill.

(c) Operation, Monitoring and Reporting

- (i) Prior to the operation of sedimentation pond RP2, the Permittee shall develop and submit to the Chief Inspector, a final Operation, Maintenance, and Surveillance (OMS) Manual and a final Emergency Preparedness Plan (EPP). The OMS shall include thresholds and response criteria for the piezometers. The EPP shall incorporate the results of an inundation study. The OMS and EPP shall be updated periodically as required.
- (ii) An "as-built" report shall be submitted to the Chief Inspector for sedimentation ponds RP1 and RP2 within 3 months of the completion of construction. The "as-built" report shall include results of QA/QC monitoring and sampling data.
- (iii) Both RP1 and RP2 sedimentation ponds shall be included in the sitewide annual inspections of dam embankments. The inspections shall be submitted to the Chief Inspector by March 31 of the year following the inspection. Any recommendations relating to health and safety or geotechnical stability shall be promptly responded to in writing to the Chief Inspector.
- (iv) Dam safety reviews for the RP2 sedimentation pond shall be conducted in accordance with the Canadian Dam Association Dam Safety Guidelines. The first Dam Safety Review shall be conducted by December 31, 2021.
- (d) <u>Closure</u>

When RP1 and RP2 are no longer needed to meet water quality requirements, both ponds shall be decommissioned in accordance with the recommendations of a qualified professional engineer.

2. Water Collection Ditches RN1, RN2 and RN3

- (a) <u>Design</u>
 - (i) The Permittee shall construct RN-1, RN-2, and RN-3 in accordance with the design.
 - (ii) To minimize seepage of contaminant loadings to the environment, the portion of the water collection ditch RN1 conveying elevated contaminant loadings shall be lined with a geomembrane.

(b) <u>Construction</u>

Construction of the water collection ditches shall be overseen by the engineer of record to ensure they are constructed in accordance with the design and that any recommendations arising from the geotechnical review are fully implemented.

- (c) <u>Operation, Monitoring and Reporting</u>
 - (i) The Permittee shall submit "as-built" drawings of all erosion and sediment control and water management features within 3 months of completion.
 - (ii) Water collection ditches shall be included in the site wide annual inspections of dam embankments and water management infrastructure.

3. Access Roads

Cut slopes and fill slopes in excess of 5 metres in height shall be inspected by a qualified geotechnical engineer prior to putting the road into use.

4. <u>Soil Stockpiles</u>

Soil stockpiles shall be constructed in accordance with the design.

C. Protection of the Land and Watercourses

- 1. Waste Rock Handling and Mitigation
 - (a) Cut materials with the potential for acid rock drainage (PAG) shall not be used for construction purposes.
 - (b) All cut materials from RP2 excavation shall be classified using the procedures outlined in the "Trend –Roman Project Water Management Construction Procedure for Field Identification of Suitable Rock Fill Materials".
 - (c) Prior to construction, analytical testing of representative rock samples from the area shall be completed to determine the classification of rock strata across the planned excavation zone.

- (d) PAG materials shall be handled in accordance with the approved PAG Waste Management Plan, dated July 2011, and the conditions of the February 23, 2012 *Mines Act* permit amendment.
- (e) All analytical data and a material handling summary shall be included in the Annual Reclamation report.

2. Water Management and Water Treatment

- Water collection ditches shall not be connected to sediment ponds RP1 and RP2 until authorized by the Chief Inspector.
- (b) The Permittee shall have initial selenium water treatment works operating effectively by June 30, 2014.
- (c) Installation of additional water treatment works shall be completed in time to ensure protection of environmental quality.
- (d) All water treatment works must be approved by the Chief Inspector.

3. Sediment and Erosion Control

- (a) <u>General</u>
 - (i) Grubbing shall be limited to the water management and sediment control features, access roads and soil stockpile areas that are approved by this permit.
 - (ii) The Permittee shall implement progressive reclamation where possible to control erosion on all areas of the mine.
 - (iii) Longer-term erosion control shall be achieved through landform configuration, the development of maintenance-free vegetation covers, and self-sustaining drainage control features and watercourses.
 - (iv) The site-specific severity of compaction shall be assessed and surface preparation shall occur in a manner that minimizes the severity of compaction prior to and after placement of reclamation medium, unless there is a need to inhibit water infiltration to avoid metal leaching.

 (v) All roads not being retained for the designated end land use shall be fully re-configured to conform to adjacent landscape unless long-term stability requirements dictate otherwise.

(b) Erosion and Sediment Control Plan

- (i) At least 15 days prior to the initiation of construction activities, excluding timber clearing, the Permittee shall submit to the Chief Inspector for review and approval, a detailed Erosion and Sediment Control Plan. The plan shall contain information on the following:
 - extent of clearing,
 - riparian and vegetative buffers that will remain adjacent to affected tributaries
 - schedule of grubbing, and construction activities and implementation of erosion and sediment control prescriptions,
 - site-specific prescriptions for all construction activities,
 - site-specific prescriptions for soil and overburden stockpiles,
 - pre- and post-construction drainage pathways,
 - temporary water and sediment control management measures,
 - road run-off management,
 - contingency plans,
 - monitoring plans for erosion and sediment control effectiveness, and,
 - inspection, maintenance, and reporting plans.
- (ii) The frequency of regular monitoring and inspection shall be specified in the Erosion and Sediment Control Plan. The monitoring frequency shall be increased during periods of increased risk.
- (iii) Implementation of the Erosion and Sediment Control Plan shall be overseen by a qualified third-party professional and construction progress reports, which include information on site conditions and monitoring results, shall be submitted to the Ministry of Environment and to the Chief Inspector monthly.

4. <u>Soil Salvage and Storage</u>

(a) The Permittee shall salvage and stockpile soil, overburden and till materials, to the extent practical, for use in reclamation activities. Stockpiled materials shall not be used as fill unless approved by the Chief Inspector prior to disposal.

- (b) Salvage stockpiles shall be located in areas that minimize disturbance and handling requirements during site preparation and mine operations. Stockpiles shall be clearly marked to ensure that they are protected during construction and mining activities. The locations, origins and quantities of materials stockpiled shall be documented and reported in the Annual Reclamation Report.
- (c) To reduce the potential for erosion and establishment of invasive plant species during the storage period, stockpiled materials shall be re-vegetated using a certified weed-free seed mix consisting of native or annual agronomic species.
- (d) Surface preparation of stockpiles shall minimize compaction prior to placement of medium being placed during final reclamation.
- (e) During final placement of reclamation materials, surface preparation shall occur in a manner that promotes end land use objectives.
- 5. <u>Vegetation Management</u>
 - (a) The Permittee shall limit vegetation disturbance to those areas approved in the permit application. Where only tree falling without grubbing is required, efforts shall be made to reduce ground disturbance to minimize soil erosion and maximize the regeneration potential of the site.
 - (b) Woody debris, including stumps, roots, limbs and rotting logs, that is generated during clearing and grubbing operations shall be stockpiled to the extent practical in designated stockpile areas for subsequent use in the reclamation program.
 - (c) Woody debris may be chipped or burned only if it can be shown that the quantity of woody debris is not required for reclamation purposes or that burning is needed due to insect hazards.
 - (d) Coarse chipping, mulching and burying of large woody debris is acceptable if required by other regulations. If woody debris is not intimately incorporated in the replaced soil, nutrient levels shall be monitored to determine if other amendments, such as fertilizer, are necessary for maintenance of nutrient levels in the soil.
 - (e) The Invasive Plant Management Plan shall be implemented at the initiation of construction activities. Purchased seed that is used for reclamation shall be certified weed-free.

- (f) Revegetation programs shall be designed to restore wildlife habitat and traditional aboriginal uses where appropriate. Revegetation practices shall be conducted to provide appropriate species and densities that are similar to naturally occurring ecosites at similar elevations and climatic conditions. Riparian areas shall be revegetated with appropriate riparian species.
- (g) Reclamation procedures shall be supervised by fully trained, qualified personnel to ensure that appropriate revegetation techniques are followed.
- (h) The Permittee shall submit to the Chief Inspector for review, a detailed sitewide vegetation monitoring program that specifies the sampling parameters and performance criteria that will be used to evaluate the success of revegetation, and addresses how the reclamation program will achieve end land use objectives. Monitoring of predicted secondary succession in cleared but non-grubbed areas shall be included in the monitoring program. The vegetation monitoring program shall be submitted to the Chief Inspector as a standalone report by March 31, 2014.
- 6. <u>Wildlife Protection</u>
 - (a) The Permittee shall implement the Caribou Mitigation and Monitoring Plan at the start of construction to prevent and mitigate impacts to Caribou and other wildlife.
 - (b) The Permittee shall during the site reclamation period ensure linear corridors, not otherwise required for operations of the site, are managed and reclaimed in a manner that minimizes wildlife movement from area of low elevation to alpine environments.
 - (c) The Permittee shall, where reasonably possible, avoid wildlife sensitive periods during construction activities.
 - (d) Pursuant to Part 1.6.9 of the Code, the Mine Manager shall incorporate into the mine safety program, a no fishing, hunting or shooting policy for the mine permit area (Figure 1). The Permittee shall implement this policy for all employees and contractors at the site.

D. Reclamation Program

1. <u>Reclamation Security</u>

Permit conditions Reclamation Security 1.(a) of the January 25, 2007 *Mines Act* permit amendment are hereby replaced with the following conditions:

(a) Within 60 days of issuance of this permit, the Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Eleven Million Six Hundred Thousand dollars (\$11,600,000.00), bringing the total security for this permit to Eighteen Million Four Hundred Thousand dollars (\$18,400,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector.

All other terms and conditions remain the same.

Date: August 7, 2013







Figure 2

PROVINCE OF BRITISH COLUMBIA MINISTRY OF ENERGY AND MINES

PERMIT

APPROVING WORK SYSTEM AND RECLAMATION PROGRAM

(Issued pursuant to Section 10 of the Mines Act R.S.B.C. 1996, c.293)

Permit: C-224

Mine #: 1640340

Issued to: Peace River Coal Inc. PO Box 919 Tumbler Ridge, British Columbia V0C 2W0

for work located at the:

Trend-Roman Mine

This permit contains the following sub-sections:

Issue Date	Permit	
March 18, 2005	Approving Work System	
March 18, 2005	Approving Reclamation Program	
January 25, 2007	Approving Work System & Reclamation Program	

Amendments

As listed on the attached.

Amended at Victoria, British Columbia this 28th day of March in the year, 20,14/



Al Hoffman, P. Eng

Chief Inspector of Mines

Amendments

March 6, 2006	Approving Power Line Construction and Automated Rail Loadout Facility	
April 18, 2006	Approving Fine Coal Wash Circuit Addition	
December 8, 2006	Change of Name	
June 29, 2011	Approving Selenium Water Treatment Pilot Test Work	
February 23, 2012	Approving PAG Waste Management Plan Revision	
August 7, 2013	Approving Roman Phase I Construction	
October 2, 2013	Approval to Construct 25kV Powerline and Preliminary Treatment Plant Infrastructure	
March 28, 2014	Approving Phase 2 Trend-Roman Mine Plan and Reclamation Program	

PERMIT AMENDMENT

APPROVING PHASE 2 TREND-ROMAN MINE PLAN AND RECLAMATION PROGRAM

Permit: C-224

Mine #: 1640340

Issued to: Peace River Coal Inc. PO Box 919 Tumbler Ridge, British Columbia V0C 2W0

for work located at the:

Trend-Roman Mine

Amended at Victoria, British Columbia this 28th day of March in the year 2014.

Al Hoffman, P.E Chief Inspector of Mines

PREAMBLE

An application for amendment of Permit C-224, entitled "Phase 2 Trend-Roman Mine Application for Amendment to *Mines Act* Permit C-224 to Incorporate Refinements of the Mine Plans for the South and Extension Blocks and the Addition of the Roman Block" (Document 1) dated June 9, 2013 was filed with the Chief Inspector of Mines (Chief Inspector) on August 8, 2013 in accordance with Section 10(6) of the *Mines Act*.

Notice of such filing was published in the British Columbia Gazette on December 5, 2013.

The following information was also filed with the Chief Inspector and forms part of the application:

- Table entitled "Response to Issue 61: List of Dump Locations and Heights in Excess of 50m", prepared by AngloAmerican, undated (Document 2);
- Memorandum entitled "Seepage Analysis of RN1 Ditch/Roman Trend Water Management Project – RP-2 Pond", by Norwest Corporation, dated September 8, 2013 (Document 3);
- Figure entitled "PRC –Trend Water Balance and Loading Study, Study Area and Monitoring Network" by Lorax Environmental, dated December 12, 2013 (Document 4);
- Memorandum entitled "Roman Mountain Weathering Potential of Moosebar Strata", prepared by Norwest Corporation, dated December 13, 2013 (Document 5);
- PowerPoint Presentation entitled "Trend Roman MAPA Response Backfilling of Roman Phase 1 Pit", prepared by Norwest Corporation, dated December 13, 2013 (Document 6);
- Memorandum entitled "Roman Mountain Phase 1 and 2 Instrumentation Plan", prepared by Norwest Corporation, dated December 18, 2013 (Document 7);
- Memorandum entitled "Roman Mountain Revised Phase 1 Endwall Guidelines", prepared by Norwest Corporation, dated December 18, 2013 (Document 8);
- Memorandum entitled "Roman Mountain RP-2 Pond Capacity Following Cessation of Mining Operations", by Norwest Corporation, dated December 18, 2013 (Document 9)
- Memorandum entitled "Issues F38 Active Treatment Plant Summary", by AngloAmerican, undated, received December 20, 2013 (Document 10);
- Table entitled "Issue C8 Roman Dump Volumes with Pond Catchments", by AngloAmerican, undated, received December 20, 2013 (Document 11);
- Report entitled "Trend Mine Demonstration Water Treatment Facility Technical Assessment Report", by AngloAmerican, undated, received December 23, 2013 (Document 12)
- Report entitled "Roman MAPA Water Balance and Load Model Technical Data Report (Updated Final Appendix 12-D)", by Lorax Environmental, dated June 2013, Final Version Received (Document 13);
- Figure entitled "Phase 2 Trend-Roman Mine Permit C-224 Boundary, Figure 1", by AngloAmerican, dated January 21, 2014 (Document 14);
- Figure entitled "Phase 2 Trend-Roman Mine Permit C-224 Boundary, Figure 2", by AngloAmerican, dated January 21, 2014 (Document 15);
- Memorandum entitled "Response to Issue 133: Selenium Sulphate Ratios", by Lorax Environmental, dated January 21, 2014 (Document 16);
- Memorandum entitled "Issue 123 Waste Release Schedule from 2013 through to 2029", prepared by AngloAmerican, undated, received January 24, 2014 (Document 17);

- Memorandum entitled "Issue 160 Future Sulphate Management Work Plan and Schedule", by AngloAmerican, undated, received January 24, 2014 (Document 18);
- Memorandum entitled "Response to MRC Major Issue Bypass Uncertainty v2" by Lorax Environmental, dated January 31, 2014 (Document 19);
- Letter entitled "Phase 2 Trend-Roman Mine Mines Act Permit Amendment Application: Development of a Trigger Action Response Plan Framework", by Golder Associates, dated February 3, 2014 (Document 20);
- Memorandum entitled "Response to Issue 143: Potential for Streambed Calcite Precipitation" by Lorax Environmental, dated February 5, 2014 (Document 21)
- Memorandum entitled "RMDRC Request: Preliminary WQ Model Verification Comparison of 2013 Model Estimates to 2013 Observations (Issue 132)", by Lorax Environmental, dated February 5, 2014 (Document 22);
- Memorandum entitled "RMDRC Request: WQ Model Sensitivity Analysis" by Lorax Environmental, dated February 5, 2014 (Document 23);
- Report entitled "Design Specification Document for Roman Phase 1 Access Road" by Norwest Corporation, dated March 4, 2014 (Document 24);
- Report entitled "Roman Phase 1 Access Design" by Norwest Corporation, dated March 4, 2014, including 24 design diagrams (Documents 25a to 25y);
- Report entitled "Trend-Roman Project, Roman Phase 1 Access Road Site Specific Surface Erosion and Sediment Control Plan" by AngloAmerican, dated February 25, 2014, submitted March 4, 2014 (Document 26); and,
- Report entitled "Trend-Roman Project, Water Management Construction Sediment Control and Freshet Plan 2013/2014" by AngloAmerican, dated March 4, 2014 (Document 27).

Where more than one version of information exists in the application, the most recent version shall be considered the approved version unless otherwise stated or determined by the Chief Inspector.

Environmental Assessment Certificate #M12-02 was issued for this project by the Environmental Assessment Office under the authority of the *Environmental Assessment Act* S B C 2002, C.43 (Act), on December 14, 2012.

The application was referred to other agencies on October 21, 2013 in accordance with Part 10.3.1 of the Code. Several meetings of the Roman Mine Review Committee (RMRC), including technical meetings on water quality, were held to review the application. Meetings were held on December 2-3, 2013 (Prince George), January 14-15, 2014 (Vancouver), and January 30, 2014, February 25, 2014 by conference call.

This permit contains the requirements of the Ministry of Energy and Mines. It also is compatible, to the extent possible, with the requirements of other provincial ministries. The amount of security required by this permit and the manner, to which this security may be applied, will also reflect the requirements of those ministries. However, nothing in this permit limits the authority of other provincial ministries to set other conditions, or to act independently, under their respective permits and legislation.

Decisions made pursuant to this permit by staff of the Ministry of Energy and Mines will be made in consultation with other provincial ministries and federal departments and agencies, within reasonable timeframes. Where these decisions directly affect the Ministry of Environment or the Ministry of Forests, Lands and Natural Resource Operations, all decisions will be made in concurrence with the appropriate Manager or Director.

The mine is located in the Treaty 8 Territory of BC established under section 35(1) of the Constitution Act, 1982. It lies in the consultative area of the West Moberly First Nations, Saulteau First Nations, and McLeod Lake Indian Band ("First Nations"). The province also consulted with the Doig River First Nation, Prophet River First Nation and Halfway River First Nation.

These First Nations have expressed their interests regarding potential impacts to their asserted or established rights during pre-permit consultations between the First Nations and the Province. Those issues that Peace River Coal Inc. was not able to resolve through discussion with First Nations have been resolved through commitments by Anglo American/Peace River Coal Inc. to implement additional studies or management plans. These commitments are described in a letter entitled "Anglo American Peace River Operations' Letter of Commitment as Part of the First Nation Environmental Review for the Phase Two Mines Act Permit Amendment Application of the Trend-Roman Coal Mine Project" dated February 20, 2014.

CONDITIONS

The Chief Inspector hereby approves the application subject to compliance with the following conditions:

Α. General

1. Compliance with Mines Act and Code

All work shall be in compliance with all sections and parts of the Mines Act and Code, and the owner, agent or manager (herein called the Permittee) shall comply with all orders issued by the Chief Inspector or designate.

2. Departure from Approval

The Permittee shall notify the Chief Inspector and the district Inspector of Mines, in writing of any intention to materially depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.

3. Limitations of Approval

- (a) This permit approves the integrated Trend-Roman mine plan and reclamation program, along with the construction of the Demonstration Water Treatment Facility located at SP4.
- (b) The annual production rate of clean coal shall not exceed 2.5 million tonnes per year based on a calendar year.

4. Mineral Tenures

Development, including surface disturbance and works, encompassing approximately 2178 ha (includes rail load-out) held by Peace River Coal Inc. (Figures 1 and 2) is authorized under permit C-224.

5. <u>Mine Permit</u>

This Permit is not transferable or assignable.

6. First Nations Reporting Requirements

Unless otherwise agreed to by the First Nations and the Permittee, the Permittee shall provide the First Nations the Annual Reclamation Report and information on any material changes to the approved Reclamation Plan.

7. <u>Planned Commitments</u>

The Permittee shall provide to the Chief Inspector and First Nations, an update of the commitments made by the Permittee to address First Nations issues, as described in a letter addressed to the Chief Inspector dated February 20, 2014, entitled "Anglo American Peace River Operations' Letter of Commitment as Part of the First Nation Environmental Review for the Phase Two Mines Act Permit Amendment Application of the Trend-Roman Coal Mine Project". The reporting shall be included in the Annual Reclamation Report and in any other format and frequency defined in the commitments.

B. Health and Safety

1. <u>Safe Work Procedures</u>

- (a) No degassing emissions shall occur from the Demonstration Water Treatment Facility until a Management Plan for H_2S and CO_2 which demonstrates the protection of workers has been submitted to the satisfaction of the Chief Inspector.
- (b) The Permittee shall prepare a safe work procedure that addresses the detection of H₂S and low oxygen conditions and the training and protection of workers. This plan shall include measures for monitoring, alarms, provision of suitable breathing apparatus and an evacuation plan.
- (c) The Permittee shall provide safety equipment and procedures to prevent risk of drowning for workers working in and around water management structures, consistent with Section 3.3.3 of the Code.
- (d) The Permittee shall ensure the safe storage and handling of chemicals consistent with Section 2.3.1 of the Code.

C. Mine Plan

- 1. Open Pits
 - (a) <u>Design</u>
 - (i) The Roman pit wall designs and the revised Extension pit wall designs are approved subject to an annual review by a qualified Professional Engineer with experience in the design of pit slopes. The pit walls shall be constructed in accordance with the design.
 - (ii) Pit slope design modifications that would result in walls that are steeper or higher than those proposed in the application shall be submitted to the Chief Inspector for review and approval prior to implementation.
 - (b) <u>Construction</u>
 - During the operating life of the each pit, unless authorized by the Chief Inspector, surface drainage shall be diverted away from the pit slopes in accordance with good engineering practice.

- (ii) Dewatering measures shall be implemented in accordance with the design engineer's recommendations, and shall be modified only in accordance with the recommendations of a qualified professional geotechnical engineer, and only as needed to achieve the stability objectives of the wall design.
- (iii) Where 40m quadruple benches are contemplated, the operational guidelines recommended by the design consultant shall be incorporated into a safe work plan by the site geotechnical engineer and implemented. A qualified professional geotechnical engineer shall inspect the triple bench wall before development of the fourth bench.
- (iv) Prior to excavating the final endwall of the Roman Gates Phase 1 Pit, a safe work plan shall be developed and implemented. The safe work plan shall include the required width and sequencing of the phased excavations, and the height, width, and location of any necessary buttresses. The safe work plan shall be approved by a qualified professional geotechnical engineer and shall be made available to any Mines Inspector upon request.
- (v) A safe work plan shall be developed and implemented prior to salvage of the bottom bench of J Seam Coal in the Roman Pit Endwall. The safe work plan shall be approved by a qualified professional geotechnical engineer and shall be made available to any Mines Inspector upon request.
- (c) <u>Operation</u>

Controlled blasting shall be utilized on all final walls and on any interim walls that will be in place for a period exceeding 12 months. Final pit walls shall be carefully scaled during pit development to limit the potential for rock fall. If access cannot be gained to clean a catchment berm and a danger exists to any person working below, a safe work procedure shall be developed and implemented before work proceeds.

- (d) <u>Monitoring</u>
 - (i) Regular geological mapping, geotechnical mapping and evaluation of pit wall performance shall be undertaken.

- (ii) A visual inspection and instrumentation monitoring plan shall be established to detect early evidence of any potentially dangerous pit wall instability or unacceptable water pressures. The monitoring program shall include the instrument type, spacing, monitoring frequency, and appropriate thresholds and response criteria. The plan shall be updated as needed to reflect the status of pit wall development.
- (iii) Piezometers shall be installed to monitor pore water pressure behind the pit footwalls to confirm design assumptions and where high water pressures could be anticipated to affect stability. Placement of piezometers shall be made in consultation with a qualified professional geotechnical engineer.
- (e) <u>Reporting</u>
 - (i) Annual inspections of pit slopes shall be undertaken by a qualified Professional Engineer. Observations made during the inspection, along with the results of pit slope performance monitoring, shall be summarized in an annual report and submitted to the Chief Inspector by March 31 of the year following the inspection. The report shall include a discussion with respect to the adequacy of pit wall instrumentation (including piezometers). Recommendations relating to health and safety or geotechnical stability shall be followed unless a suitable alternative course of action is approved in writing by the professional undertaking the review, or by a third party Professional Engineer.
 - (ii) A report shall be submitted to the Regional Inspector of Mines in the event of a single bench failure resulting in a dangerous occurrence (as defined by the Health, Safety and Reclamation Code for Mines in BC (Code) and in the event of a multi-bench failure, regardless of consequence.
- 2. <u>Waste Rock Spoils</u>
 - (a) <u>Design</u>
 - (i) The designs of the Roman, South Block and expanded Extension waste rock spoils are approved subject to an annual review by a qualified Professional Engineer with experience in the design of waste rock spoils.
 - (ii) Factors of safety for the interim and final spoil slopes shall satisfy design criteria from the Interim Guidelines of the BC Mine Waste Rock Pile Research Committee.

(b) <u>Construction</u>

- (i) In accordance with the design engineer's recommendation, boulder rollout catchment berms shall be constructed prior to the placement of initial spoil lifts. The catchment berms shall be a minimum of 3m in height between the dump toes and haul roads. A procedure for the removal of accumulated rock debris shall be included in the spoil Operation, Maintenance, and Surveillance (OMS) Manual.
- (ii) Cover soil, including organic cover and topsoil, shall be stripped from the spoil footprints. Any areas where stripping of organics or topsoil is not planned shall be approved in writing by a qualified professional geotechnical engineer prior to dump construction.
- (iii) Foundation preparation shall be completed in the areas of greater than 15° , identified in the design report, in accordance with the design engineer's recommendations. In these areas, surficial soils shall be removed 20m upslope and 10m downslope of the ultimate dump toe where foundation slopes exceed 15° .
- (iv) Final foundation footprints shall be inspected by a qualified professional geotechnical engineer prior to waste rock placement. Soft, wet, or liquefiable materials shall be removed from any areas that could affect the integrity of the dumps.
- (v) No snow, wet or weak materials, coarse coal rejects, or tailings shall be placed in the outer 30m shell of any waste rock spoil. Criteria for blending these materials with waste rock (similar to those already used for dewatered coal wastes) shall be adopted for disposal of weak or saturated materials within the spoils and these blending criteria shall be included in the updated OMS Manual.
- (vi) Where the natural ground is steep, or where dumping is required in gully areas, the toe of the dump shall be constructed on a flat platform. Where such a platform does not exist, it shall be constructed by cut and fill to ensure that the toe of the dump is "keyed" into the natural slope.

(c) <u>Operation and Monitoring</u>

- (i) The existing OMS Manual for the spoils shall be updated within 90 days of the date of this permit amendment. The updated OMS shall include preliminary locations, installation schedules, monitoring frequencies, safe access plans, and initial threshold and response criteria for all proposed piezometers, surface monuments, wirelines, slope indicators, and any other required instrumentation. Spoil monitoring and management shall be conducted in accordance with the OMS Manual, the design engineer's recommendations, and good engineering practice. The OMS Manual shall be reviewed on a regular basis and updated as required.
- (ii) The updated OMS Manual shall include a summary of areas identified by the design engineer as requiring low lifts, progressive resloping, special foundation treatment, or other mitigation measures necessary to reduce or eliminate the risk of flow slide failure or to satisfy factor of safety design criteria.
- (iii) Entry into the potential run-out zone of any spoil, whether of short or extended duration, shall comply with Section 6.10.1(7) of the Code. Access restrictions based on rock roll-out and flowslide run-out shall be documented in the updated OMS Manual. The locations of these restricted zones, as well as the monitoring requirements, thresholds, and other mitigation measures shall be assessed during the third party annual reviews.

(d) <u>Reporting</u>

Any active or high risk spoils shall be inspected annually by a qualified professional geotechnical engineer, with a summary report submitted to the Chief Inspector by March 31 of the year following the inspection. The summary report shall include a review of monitoring data, and recommendations shall be made with respect to any necessary OMS updates. A discussion of areas requiring additional foundation preparation, lower lift heights, or immediate resloping shall also be included. Any recommendations with respect to health and safety or geotechnical stability shall be followed unless a suitable alternative course of action is approved in writing by the professional undertaking the review, or by a third party Professional Engineer.

(e) <u>Closure</u>

With the exception of slopes immediately above the inlet or outlet of rock drain structures the waste rock spoil slopes shall be resloped to satisfy stability and reclamation objectives at closure.

3. Mine Waste Impoundment RP3

(a) <u>Design</u>

The conceptual design of the RP3 coal rejects impoundment is approved. Backfilling of the Roman Phase I pit shall be conducted in accordance with the recommendations of the geotechnical design consultant.

- (b) Operation and Monitoring
 - (i) If a wet cover is to be maintained during operations, the RP3 facility shall be operated as an impoundment, and an OMS Manual shall be prepared in accordance with Section 10.5.2 of the Code. Given the nature of the facility, this requirement may be satisfied by including relevant information in the OMS Manual for the waste rock spoils.
 - (ii) The OMS shall include inspections of the pit walls where failure of the walls could have an impact on worker safety. The OMS shall also include any measures that may be required to safely place the material.
- (c) <u>Reporting</u>

While operational, the facility shall be included in the annual inspection of waste rock spoils, and a copy of the inspection report shall be submitted to the Chief Inspector by March 31 of the year following the inspection. Any recommendations relating to health & safety or geotechnical stability shall be followed unless a suitable alternative course of action is approved in writing by the professional undertaking the review, or by a third party Professional Engineer.

(d) <u>Closure</u>

The final surface of the RP3 backfill shall be sloped to prevent the development of ponds.

4. Sediment Pond SP6B

(a) <u>Design</u>

The conceptual design of the SP6B embankment is approved to the 1492.7m elevation. A detailed design of the SP6B Pond shall be submitted to the Chief Inspector for approval at least 30 days prior to the commencement of construction. Provided that sediment and erosion control measures are in place, clearing, grubbing, stripping, and foundation preparation may proceed. Detailed designs for the pond and emergency spillway shall be consistent with the BC Dam Safety Regulation and the CDA Dam Safety Guidelines including, but not limited to, the inflow design flood, earthquake design ground motion, and factors of safety.

- (b) <u>Construction</u>
 - (i) Construction shall be completed under the supervision of the design engineer and is to include sufficient field reviews to allow the designer to confirm that the structure was built in general conformance with the design.
 - (ii) The Permittee shall ensure that any weathered bedrock or loose soil, and any organic soil or debris is removed from the footprint of the dam embankment. Suitability of the prepared foundation shall be confirmed by a qualified professional geotechnical engineer.
- (c) <u>Operation</u>

A minimum freeboard of 1.0 m above the Inflow Design Flood level shall be maintained.

- (d) <u>Monitoring</u>
 - A water level gauge or other suitable pond level monitoring system shall be installed to monitor water level and freeboard.

- Instrumentation shall be installed and monitored in accordance with the (ii) recommendations of the design engineer. Changes to the instrumentation installation and monitoring plan shall be approved by the design engineer or by a 3rd party professional geotechnical engineer who is retained as the engineer of record for the facility. Changes shall only be made to adapt to unforeseen circumstances and only as needed to maintain or improve the suitability of the monitoring data.
- (iii) Inspection and instrumentation records shall be maintained on site.
- (e) Reporting
 - (i)An annual dam safety inspection of all dams on the mine site, including the SP6B pond dam, shall be completed by a registered Professional Engineer and a copy of the inspection report shall be submitted to the Chief Inspector by March 31 of the year following the inspection. Any recommendations relating to health & safety or geotechnical stability shall be followed unless a suitable alternative course of action is approved in writing by the professional undertaking the review, or by a third party Professional Engineer. The preliminary "Low" consequence classification for the SP6B pond shall be reviewed and confirmed during each annual inspection.
 - Details of dam construction shall be included in an as-built report and (ii) submitted to the Chief Inspector prior to operation of the facility. The as-built report is to include a QA/QC summary and sample data.
 - (iii) The OMS Manual for the existing sediment ponds shall be updated to include SP6B.
- (f) Closure

A low-level channel through the embankment shall be established following closure (i.e. when the pond is no longer needed to meet water quality objectives). Decommissioning of the facility shall be conducted in accordance with the recommendations of a qualified professional engineer.

- 5. Demonstration Water Treatment Facility
 - (a) Design and Construction

The design and construction of the Demonstration Water Treatment Facility at SP4 is approved.

(b) Monitoring and Reporting

- (i) By December 31, 2014, the Permittee shall submit to the Chief Inspector an Operational Management Plan, for the operation, monitoring and maintenance of all aspects of the Demonstration Active Water Treatment Facility and associated infrastructure including the SP4 Pond and biosolids management.
- (ii) The Permittee shall update the Operational Management Plan over time as procedures are modified.

6. <u>Equalization Pond</u>

The detailed design for Stage One of the Equalization Pond shall be submitted to the Chief Inspector for review and approval by March 31, 2016. The design shall be prepared by a qualified professional engineer in accordance with the Canadian Dam Association Dam Safety Guidelines. The report shall also include a conceptual design for Stage Two of the Equalization Pond.

7. <u>Water Collection Ditches</u>

- (a) <u>Design and Construction</u>
 - (i) The ditches shall be designed to convey the design flood without overtopping, without side slope failure, and with adequate armour or lining to prevent significant erosion. The Permittee shall construct all water collection ditches in accordance with the design.
 - (iii) Construction of the water collection ditches shall be overseen by the engineer of record with sufficient field reviews to ensure that they are constructed in general conformance with the design.
- (b) Operation, Monitoring, and Reporting
 - As-built drawings of the collection ditches shall be prepared and maintained on-site. The as-built drawings shall be made available to any Mines Inspector upon request.
 - (ii) Water collection ditches shall be included in the site wide annual inspections of dam embankments and water management infrastructure.

8. <u>Topsoil and Overburden Stockpiles</u>

(a) Design and Construction

Soil stockpiles shall be constructed in lifts from the bottom up, to a height recommended by the site geotechnical engineer, in consultation with the Environmental Site Manager, and with side slopes of not steeper than 2H:1V or less in accordance with the site geotechnical engineer's recommendations. Soil stockpiles greater than 15m in height shall be included in the annual reviews of waste rock spoils completed by a qualified professional geotechnical engineer.

(b) <u>Monitoring</u>

The Permittee shall ensure regular visual inspections of the dump crests and slopes are undertaken to ensure stability and erosion control are maintained.

9. <u>Mine Roads</u>

- (a) <u>Design and Construction</u>
 - (i) All mine roads shall be designed and constructed in accordance with the application, current engineering standards, and the Code.
 - (ii) In accordance with the recommendations of the design engineer, the foundations of road fills shall be inspected for weak, loose, or saturated materials and these materials shall be removed prior to fill placement.
 - (iii) Cuts and fills in excess of 5m height shall be inspected by a qualified professional geotechnical engineer before the road is put into use.
- (b) <u>Monitoring</u>

Road headings that are developed in fill shall be monitored in accordance with the mine's Standard Practices and Procedures, including procedures for spoil monitoring and inspection where appropriate.

(c) <u>Closure</u>

Mine site roads that are no longer required for mining purposes shall be reclaimed to meet long-term slope stability objectives and the end land use.

D. Protection of the Land and Watercourses

- 1. Environmental Management Plans
 - (a) The Permittee shall update and maintain their Environmental Management System (EMS) consisting of Environmental Management Plans and Operating Procedures. The EMS shall reference relevant policies and establish proactive procedures to provide direction for operational management and monitoring, and shall include the following plans:
 - Air Quality and Dust Control Plan
 - Wildlife Protection and Monitoring Plan
 - Caribou Monitoring and Mitigation Plan
 - Invasive Plants Management Plan
 - Surface Erosion Prevention and Sediment Control Plan
 - Best Management Practices
 - Site Specific Best Management Practices
 - Flocculant Management Plan
 - Groundwater Monitoring and Management Plan
 - Receiving Water Quality Monitoring Plan
 - Selenium Management Plan
 - o Demonstration Water Treatment Facility Effluent Management Plan
 - o Biosolids Management Plan
 - Metal Leaching and Acid Rock Drainage Management Plan
 - Fish and Fish Habitat Protection Plan
 - Archeology Site Protection Plan
 - Solid Waste Management Plan
 - Chemical Management Plan
 - Fuel Storage, Handling and Transportation
 - Nitrogen Management Plan
 - Emergency Response Plan
 - Routine Environmental Site Inspection Plan
 - Access Management and Traffic Management Plan
 - (b) The EMS shall be available at any time at the mine site to any Mines Inspector.
 - (c) The Permittee shall ensure that all mine site employees and contractors are knowledgeable and accountable to act consistently with the requirements of the EMS and plans.

2. Environmental Site Manager

- (a) The Permittee shall designate a qualified professional with applicable experience to be the Environmental Site Manager and shall identify this person in writing to the Chief Inspector. The Permittee shall ensure that an Environmental Site Manager or their designate is on site at the commencement, and for the duration, of the construction and operational mining phases.
- (b) The Environmental Site Manager shall have the authority to implement remedial actions as may be necessary to ensure maintenance of environmental standards and permit requirements. If suspension of construction or operations occurs due to environmental concerns, the Permittee or Environmental Site Manager shall immediately notify the Chief Inspector.

3. Mine Waste Handling, Mitigation, and Monitoring

- (a) Potentially ARD generating (PAG) mining waste materials (including waste rock, tailings and coal refuse) shall be geochemically classified, handled and monitored in accordance with the approved PAG Waste Management Plan, dated July 2011, and the conditions of the February 23, 2012 and January 27, 2007 *Mines Act* permit amendments.
- (b) The Permittee shall prioritize the backfilling of PAG waste rock, coarse coal refuse and tailings into the Roman Phase 1 open pit for permanent flooding at closure.
- (c) Backfilled PAG wastes that will be placed below the 1432m elevation and fully flooded at closure do not require layering or mixing with Non-PAG materials.

4. <u>Surface Water Management</u>

- (a) Diversion structures shall be engineered to minimize seepage bypass. Ditching structures that have yet to be constructed (i.e. GT33#2, GT33 (permanent) and GT16E diversions) shall be engineered with synthetic liners or naturally impervious materials to minimize by-pass contact with waste rock.
- (b) Seepage collection ditches and ponds shall be engineered to minimize seepage loss. Structures that have yet to be constructed (such as SP6B ditch) shall be engineered with synthetic liners or naturally impervious materials.
- (c) The Permittee shall ensure that collection ditches, sumps and pumping capacity are monitored, maintained and upgraded as necessary to effectively collect and convey mine-influenced water to water storage and water treatment facilities.

(d) Water with elevated selenium concentrations, shall not be used after September 30, 2014 for dust suppression on roads that are outside of the containment area of the mine water management and treatment system.

5. <u>Groundwater Management</u>

- (a) <u>Groundwater Bypass Assessment</u>
 - (i) The Permittee shall develop and implement a refined groundwater monitoring and investigation program to assess groundwater flow paths and quantify contaminant loading bypass of mine water management systems. The Permittee shall submit this plan to the Chief Inspector by June 30, 2014. Updates to the plan over time shall also be filed with the Chief Inspector.
 - (ii) The program shall be designed to assess bypass of ditches, seepage sumps (including BT11, BT13 and GT42), sediment ponds and open pits (for example bypass of RP3 abutment towards Babcock Creek).
 - (iii) A ground survey and accretion study on Babcock and Gordon Creeks shall be conducted during the summer of 2014.
 - (iv) Data collected from the groundwater investigation and monitoring information (including the seepage surveys in permit condition D.5.(b)) shall be used to validate assumptions, refine hydrogeology and water quality modeling, inform additional investigations, quantify bypass and design mitigation measures as required.
 - (v) The Permittee shall proactively implement additional contingency mitigation measures, including the lining of existing water management structures, as required to prevent and collect groundwater bypass from mine structures sufficient to ensure protection of environmental quality.
- (b) Seepage and Groundwater Discharge Assessment
 - A seepage and bypass survey shall be undertaken to establish summer baseflow conditions in 2014.

- (ii) Seepage surveys of the water management system shall be undertaken annually during early summer to identify any new seeps and assess whether significant changes to seepage flows or chemistry have occurred. GPS tracks shall be filed for each seepage survey. New monitoring locations shall be established for new seeps that are identified
- (iii) Individual seepages from waste rock and other mine sources, including BT11, BT13 and GT42, shall be monitored on a monthly basis for flow and chemistry when flowing conditions exist.
- (iv) At a minimum, monitoring parameters shall be consistent with the requirements of the January 25, 2007 permit amendment.

6. <u>Monitoring and Reporting</u>

- (a) Results and interpretation of surface water quality monitoring, waste rock seepage monitoring, calcite monitoring, groundwater monitoring, hydrological monitoring, ML/ARD analytical testwork (including raw data and sample descriptions), and materials inventories shall be included in the Annual Reclamation Report. Any significant changes or trends in monitored parameters shall be discussed, and those that require additional evaluation and management actions shall be identified.
- (b) The Annual Reclamation Report shall include an up to date schedule of the anticipated water management, water treatment, and groundwater bypass mitigation requirements based on the most up to date water and load balance and modeling available for surface and groundwater. Major milestones for the next 5 years shall be outlined, as well as activities to be undertaken in the following year.
- (c) The Permittee shall ensure that the Annual Reclamation Report includes a comparison of relevant monitoring and testwork data to source term concentrations used in water quality predictions (including tracking and verifications of Se:SO₄ ratios). The implications of the results for source term refinement, water quality mitigation and adaptive management shall be discussed in the report.
- (d) The Annual Reclamation Report shall include information on research and development activities related to mitigation of water quality including interim and final reporting of results.

7. <u>Updated Water Quality Predictions</u>

- (a) During operations, the Permittee shall track water quality and flow monitoring data to enable updating and refinement of the inputs and assumptions to the water and load balance based on results of investigations and site-specific performance information.
- (b) The Permittee shall update and refine surface and ground water quality modeling and mitigation plans, including the timing and capacity of water treatment, on a regular basis as necessary to inform mine planning and mitigation design and engineering, and as necessary to ensure protection of environmental quality.
- (c) A report presenting the results of the updated water and load balance and water quality modeling shall be submitted to the Chief Inspector by June 30, 2014. This 2014 Update Report shall incorporate:
 - observed 2012 and 2013 surface flow and water quality data;
 - complete model verification;
 - 2014 winter baseflow bypass survey results;
 - Gordon Creek calibration;
 - evaluation and refinement of loading delay response;
 - refinement based on existing lined ditches and ponds;
 - refinement of bypass flowpaths and quantities based on conceptual and numerical groundwater modeling; and,
 - refinement based on updated seepage estimates from existing ponds and ditches.
- (d) The Permittee shall submit a report to the Chief Inspector by December 31, 2014, outlining mitigation options, plans for the next phase of water balance and load modeling, and refinement of mitigation designs and schedule for implementation.
- (e) A 2015 Update Report on the water quality model shall be submitted to the Chief Inspector by December 31, 2015.
- 8. <u>Water Treatment</u>
 - (a) <u>General</u>
 - (i) All drainage collection and treatment facilities shall be operated and maintained for as long as is necessary to achieve environmental protection requirements, as required by the Chief Inspector.

- (ii) No discharge from the Demonstration Water Treatment Facility shall occur until all necessary approvals and authorizations are in place.
- (iii) The Permittee shall not discharge to the environment from the Demonstration Water Treatment Facility until a Phosphorus Management Plan has been submitted to the Chief Inspector.
- (iv) The Permittee shall implement heating of influent to the treatment plant and/or cooling of effluent from the treatment plant if required to achieve the necessary plant performance and effluent discharge requirements.
- (v) The Permittee shall implement additional measures if required to mitigate nitrate, phosphorus, dissolved oxygen and biological oxygen demand concentrations in effluent discharge.
- (vi) Contingency plans and triggers for implementation shall be developed to ensure adequate delivery and on-site storage of nutrients and reagents for the water treatment plant. These procedures shall be developed and filed with the Chief Inspector by July 31, 2015 and shall be incorporated into the OMS Manual.
- (b) <u>Future Water Treatment Works</u>
 - (i) The Permittee shall ensure that all phases of water treatment, including sulphate and TDS treatment, are designed, constructed and operated in sufficient time to assure protection of environmental quality.
 - (ii) The Permittee shall implement the Sulphate Management Work Plan and Schedule that includes sulphate and TDS water treatment at treatment plants TP3 and TP4. A report with updated water quality and load balance, results of pilot testing, and options for secondary waste disposal shall be submitted to the Chief Inspector by December 31, 2027, unless modification to the plan is supported by future assessment work and agreed to by the Chief Inspector.
 - (iii) All water treatment works shall be approved by the Chief Inspector.
 - (iv) All field trials and on-site piloting work for mitigation strategies and water treatment strategies other than ABMET, shall be discussed with the Chief Inspector to determine whether they will require permit amendments before proceeding.

(c) <u>Biosolids Management and Disposal Plan</u>

All biosolids from the Demonstration Water Treatment Facility shall be transported offsite to a secure landfill. Temporary on-site storage of biosolids shall utilize secured and covered containers.

- (d) <u>Monitoring and Reporting</u>
 - By July 31, 2015 or within 1 year of commissioning of the Demonstration Water Treatment Facility, the Permittee shall submit a Monitoring and Operational Performance report to the Chief Inspector. Information comparing plant performance to pilot treatment results shall be included.
 - (ii) The Permittee shall monitor and track the volume and water quality of drainage inputs and outputs of the Demonstration Water Treatment Facility. The Permittee shall also monitor and report on the water collection and water treatment system, including water balance and volumes of recirculation and surface water discharging from the SP4 pond without treament, downstream water quality, volumes of reagents used, volumes of waste generated, the overall operational performance of the water treatment system, and information on any process changes. This information shall be reported in the Annual Reclamation Report.
 - (iii) The Permittee shall track all costs associated with construction and operation of the selenium active water treatment facility. By July 31, 2015, the Permittee shall submit a detailed breakdown of capital and operating costs for the Demonstration Water Treatment Facility to the Chief Inspector. This submission shall include all major cost items including labour, electricity, waste handling, and delivered costs for nutrients, reagents, etc.

9. <u>Calcite Monitoring and Management Plan</u>

- (a) The Permittee shall submit a Calcite Monitoring and Management Plan, acceptable to the Chief Inspector, by June 30, 2014. The plan shall include a proactive monitoring program for early detection with defined triggers for additional monitoring and management actions.
- (b) The Permittee shall promptly notify the Chief Inspector if calcite precipitation/formation is detected at any location on the minesite.

- (c) If calcite formation is detected, samples shall be analysed for mineralogy and chemical content.
- 10. Erosion and Sediment Control
 - (a) <u>General</u>
 - Sediment control and water management structures shall be constructed and identified as being operational by a qualified professional prior to commissioning.
 - (ii) Grubbing shall be limited to the water management and sediment control features, waste rock dumps, open pit pre-stripping, access roads and soil stockpile areas that are approved by this permit.
 - (iii) The Permittee shall implement progressive reclamation where possible to control erosion on all areas of the mine.
 - (b) <u>Construction</u>
 - (i) At least 30 days prior to the initiation of construction activities, excluding timber clearing, the Permittee shall submit a detailed sitespecific Erosion and Sediment Control Plan for the Roman Early Access Haul Road to the satisfaction of the Chief Inspector.
 - (ii) At least 30 days prior to re-commencement of construction activities, the Permittee shall submit a revised Erosion and Sediment Control Plan for the Roman Phase 1 Water Management Construction to the satisfaction of the Chief Inspector.
 - (iii) Implementation of the construction Erosion and Sediment Control Plans shall be overseen by a qualified professional and construction progress reports, which include information on site conditions and monitoring results, shall be submitted to the Chief Inspector at a frequency described in the plan.
 - (c) <u>Operations</u>
 - (i) Within 3 months of issuance of this permit, the Permittee shall submit a site-wide Trend-Roman operational Erosion and Sediment Control Plan to the satisfaction of the Chief Inspector. All roads utilized and maintained by the Permittee shall be included in the plan.

- (ii) Implementation and adaptation of the site-wide Erosion and Sediment Control Plan shall be overseen by a qualified professional.
- (iii) A procedure for removal and disposal of sediment from the sedimentation ponds shall be developed and submitted to the Chief Inspector by September 30, 2014 and prior to any dredging or materials.
- (iv) The Permittee shall ensure that the site-wide Erosion and Sediment Control Plan is reviewed at least annually and updated to reflect adaptive management implications, changing site conditions, and site-specific freshet-related considerations. Annual updates shall be reported in the Annual Reclamation Report. Substantive revisions shall be provided to the Chief Inspector prior to implementation.
- (d) <u>Monitoring</u>

All Erosion and Sediment Control Plans shall include appropriate effectiveness monitoring programs that specify the locations and frequency of regular monitoring, inspection, and reporting. The monitoring frequency shall be increased during periods of increased risk. Significant releases of sediment or sediment-laden water to the receiving environment shall be appropriately characterized and reported to the Chief Inspector.

11. Soil Salvage and Storage

- (a) At least 30 days prior to the initiation of construction activities, excluding timber clearing, the Permittee shall submit a detailed Soil Salvaging, Stockpiling, Replacement and Monitoring Plan to the satisfaction of the Chief Inspector. The monitoring component shall specify the sampling parameters and performance criteria to be used for evaluation.
- (b) The Soil Salvaging, Stockpiling, Replacement and Monitoring Plan shall reflect the Permittee's commitment to salvage and stockpile soil and till to meet reclamation requirements as specified in the detailed reclamation plan and to move and direct place soil and mats of vegetation where and when feasible to optimize reclamation success.
- (c) Stripping operations shall be monitored and directed by qualified personnel familiar with the soil handling plan and knowledgeable in soil identification and characteristics. To ensure accurate replacement, equipment operators shall also be trained and supervised to ensure that they have knowledge of the characteristics of soil/overburden layers and required soil/overburden depths

- (d) Soil stockpiles shall be located in areas that minimize disturbance and handling requirements during site preparation and mine operations. Stockpiles shall be clearly marked to ensure that they are protected during construction activities; the locations, origins and quantities of material shall be documented and reported in the Annual Reclamation Report.
- (e) Soil shall be stockpiled in a manner that will prevent slumping and erosion of the stockpile.
- (f) Stockpiled soil, overburden and organic materials shall be re-vegetated using a certified weed-free seed mix consisting of annual agronomic species, to reduce erosion during the storage period.
- (g) The Permittee shall monitor soil replacement depths during reclamation activities, with the results presented in the Annual Reclamation Report, to ensure that the minimum depths proposed in the Reclamation Plan have been achieved.
- (h) Stockpiled soil, suitable for reclamation, shall not be used as fill.
- (i) All severely compacted areas shall be deeply ripped prior to placement of growth media and/or vegetation.

12. Vegetation Management

- (a) The Permittee shall limit vegetation disturbance to those areas approved in the permit application. Where only tree falling without grubbing is required, efforts shall be made to reduce ground disturbance to minimize soil erosion and maximize the regeneration potential of the site.
- (b) Woody debris including stumps, roots, limbs and rotting logs generated during clearing and grubbing operations shall be stockpiled in designated soils stockpile areas to the extent practical for subsequent use in the reclamation program. Woody debris may be chipped or burned for disposal only if it can be shown that the quantity of woody debris it is not required for reclamation or the wood needs to be burned because of insect hazards. Coarse chipping, mulching and burying is acceptable. If buried, soil nutrient levels shall be monitored following reclamation soil placement to determine if fertilizer amendments are necessary for maintenance of nutrient levels in the soil.

- (c) The Permittee must implement the Vegetation Management Plan contained in the application. The plan shall be updated annually to reflect any adjustments to the species included in the Northeast Invasive Plant Management List. To reduce the potential for caribou predation, clearing and brushing of linear features shall only be undertaken where essential.
- (d) The details of the proposed revegetation programs shall be specified in the site Reclamation Plan and shall be designed support the approved end land use, specifically restoration of caribou habitat. Revegetation practices shall be conducted to provide appropriate species and densities that are similar to naturally occurring ecosites at similar elevations and climatic conditions. Riparian areas shall be revegetated with appropriate riparian species.
- (e) The Permittee shall utilize an adaptive management approach and incorporate findings from the site research programs to update and modify the site reclamation plan. The results of the research programs shall be provided in the Annual Reclamation Reports.
- (f) By December 31, 2014, the Permittee shall submit a detailed vegetation monitoring program to the satisfaction of the Chief Inspector, which specifies the sampling parameters and performance criteria that will be used to evaluate the success of revegetation. The monitoring program shall include appropriate climate monitoring instrumentation to be installed and monitored in locations representative of the research and reclamation habitats.

13. Reclamation Research

The Permittee shall develop a reclamation research program to determine effective reclamation treatments for the restoration of functional values for caribou in the high elevation Alpine and Parkland habitats. Details of proposed reclamation research programs including objectives, research design, monitoring and plans for additional work shall be submitted to the Chief Inspector prior to implementation of the program. Monitoring frequency is expected to be greater at the initial stages of the research programs for early assessment of program status. Results of the continuing research programs shall be documented in Annual Reclamation Reports.

14. Caribou Mitigation and Monitoring Plan/Wildlife Protection

(a) The Permittee shall implement their Roman Mine Caribou Mitigation and Monitoring Plan at the start of construction to prevent and mitigate impacts to Caribou and other wildlife.

- (b) The Permittee shall take measures to ensure infrequently used linear corridors during operations and all linear corridors at closure, are managed and reclaimed in a manner that restricts wildlife movement from low elevation to alpine environments.
- (c) The Permittee shall, where reasonably possible, avoid wildlife sensitive periods for construction activities.
- (d) Pursuant to Part 1.6.9 of the Code, the Mine Manager shall incorporate in the mine safety program, a no hunting and shooting policy for the mine permit area (Figure 1).
- (e) The Permittee shall implement a policy of no fishing and hunting for all employees and contractors while on mine property.

E. Reclamation Program

1. <u>Reclamation Security</u>

Permit condition Reclamation Security D.1.(a) of the August 7, 2013 *Mines Act* permit amendment is hereby replaced with the following conditions:

(a) The Permittee shall cause to be deposited with the Minister of Finance, additional security in the amount of Eighty Four Million Four Hundred Thousand dollars (\$84,400,000.00), bringing the total security for the C-224 permit to One Hundred Two Million Eight Hundred Thousand dollars (\$102,800,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of the C-224 permit in a manner satisfactory to the Chief Inspector.

<u>Date</u>	<u>\$</u>	<u>Cumulative</u>
Existing security as of i	March 28, 2014	18,400,000.00
June 30, 2014	10,500,000.00	28,900,000.00
April 1, 2015	15,000,000.00	43,900,000.00
April 1, 2016	10,000,000.00	53,900,000.00
June 30, 2017	20,000,000.00	73,900,000.00
December 1, 2017	5,900,000.00	79,800,000.00
June 30, 2018	23,000,000.00	102,800,000.00

- (b) If the reclamation of 86.4 hectares of mining disturbance is completed to the satisfaction of the Chief Inspector by December 1, 2017, the Permittee shall not be required to post the additional security installment in the amount of Five Million Nine Hundred Thousand dollars (\$5,900,000.00) that would otherwise be due on that date.
- (c) Updated current liability costing shall be submitted to the Chief Inspector by March 31 every year.
- (d) In the March 31, 2015 updated liability costing, the Permittee shall include the 3rd party decommissioning and salvage costs of the rail load out facility prepared by a qualified salvage firm.
- (e) The Permittee shall conform to all MOE and Ministry of Agriculture and Lands approval, license, and permit conditions including the *Environmental Management Act*, Contaminated Sites and Hazardous Waste regulations, as well as requirements under the *Wildlife Act*. Should the Permittee not conform to these conditions, then all or part of the security may be used to fulfill those requirements.
- (f) Over the life of the mine the security will be adjusted to cover all the costs associated with carrying out all the conditions of this permit. Upon application by the Permittee, the amount of security in condition E.1(a) may be reduced if initial mining or development work will create less disturbance and liability, or to reflect reduced liability due to reclamation work completed.

2. Five Year Mine Plan and Reclamation Plan Update

On or before March 31, 2017, and every 5 years thereafter, the Permittee shall submit an updated Mine Plan and Reclamation Plan, providing the current status of the mine plan and reclamation obligations, a compilation and interpretation of all monitoring including ML/ARD prediction, water quality, closure and maintenance activities, any changes to the reclamation program that affect long-term mitigation, reclamation research program, contingency plans, schedule for completion of reclamation works, and a breakdown of outstanding liabilities and associated costs.

3. Closure Management Manual

Six months prior to planned closure, or within one month after an unplanned closure, the Permittee shall submit a Closure Management Manual which describes and documents key aspects of the operational surveillance and monitoring requirements used to track important changes that could affect long-term mitigation performance, monitoring and maintenance requirements. This document shall be a living document with updates submitted to the Chief Inspector whenever material changes occur.

4. <u>Closure Plan</u>

Six months prior to final closure, the Permittee shall submit a final Closure Plan describing closure objectives and criteria for each mine component, provide the current status of the mine plan and reclamation obligations, a compilation and interpretation of all monitoring including ML/ARD prediction, water quality, closure and maintenance activities, any changes to the reclamation program that affect long-term mitigation, reclamation research program, contingency plans, schedule for completion of reclamation works, and a breakdown of outstanding liabilities and associated costs.

All other terms and conditions remain the same.







Figure 2