AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 7530-93ZKPV
Issue Date: February 6, 2013

Xstrata Canada Corporation
1 Longyear Road
Falconbridge, Ontario
P0M 1S0

Site Location: Xstrata Nickel - Sudbury Smelter Complex
Lot 11, Concession 3
Greater Sudbury City, District of Sudbury
P0M 1S0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

Description Section

A nickel-copper smelting facility, consisting of the following processes and support units:

- Concentrate slurry feed preparation;
- Roasting operation;
- Sulphuric Acid Plant;
- Electric furnace operation;
- Converter operation;
- Matte granulating/crushing operations;
- Custom feed preparation; and
- *Calciner* operations;

including the *Equipment* and any other ancillary and support processes and activities, **operating at a *Facility Production Limit* of up to 135,000 tonnes of nickel and copper matte**, discharging to the air as described in the *Original ESDM Report.*

For the purpose of this environmental compliance approval, the following definitions apply:

(1) "*Acceptable Maximum Ground Level Concentration"* means a concentration accepted by the *Ministry,* as described in the *Guide to Applying for Approval (Air & Noise),* for a *Compound of Concern* listed in the *Original ESDM Report* that has no *Ministry Point of Impingement* Limit and no *Jurisdictional Screening Level,* or the concentration at a *Point of Impingement* exceeds the *Jurisdictional Screening Level.*

(2) "*Acoustic Assessment Report"* means the report, prepared in accordance with *Publication NPC-233* and Appendix A of the *Basic Comprehensive User Guide,* by Golder Associates Ltd., dated October 7, 2011 and signed by Paul Niejadlik submitted in support of the application, that documents all sources of noise emissions and *Noise Control Measures* present at the *Facility* and includes all up-dated *Acoustic Assessment Reports* as required by the Documentation Requirements conditions of this *Approval* to demonstrate continued compliance with the *Performance Limits* following the implementation of any Modification.

(3) "*Acoustic Assessment Summary Table"* means a table prepared in accordance with the *Basic Comprehensive User Guide* summarising the results of the *Acoustic Assessment Report,* up-dated as required by the Documentation Requirements conditions of this *Approval.*

(4) "*Acoustic Audit* " means an investigative procedure consisting of measurements and/or acoustic modelling of all sources of noise emissions due to the operation of the *Facility* , assessed to determine compliance with the *Performance Limits* for the *Facility* regarding noise emissions, completed in accordance with the procedures set in *Publication NPC-103* and reported in accordance with *Publication NPC-233.*

(5) "*Acoustic Audit Report* " means a report presenting the results of an *Acoustic Audit,* prepared in accordance with *Publication NPC-233.*

(6) "*Acoustical Consultant* " means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with *Ministry* noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a *Facility.*

(7) "*Air Standards Manager"* means the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, as those duties relate to the conditions of this *Approval.*

(8) "*Appendices"* means the following appendices attached to this *Approval* and forming part of this *Approval* namely:

Appendix 1 – Map of the Greater Sudbury Monitors.

(9) "*Approval* " means this entire *Approval* document and any *Schedules* and *Appendices* to it, including the application and *Supporting Documentation.*

(10) "*Area Emissions*" means, for the purposes of this *Approval* only, *Sulphur Dioxide* emissions from any emission sources, other than the 93-metre stack and 137-metre stack at the *Facility,* and includes emissions from roof vents, open or broken windows and doors, and any other points of egress.

(11) "*Basic Comprehensive User Guide*" means the *Ministry* document titled "Basic Comprehensive Certificates of Approval (Air) User Guide" dated March 2011, as amended.

(12) "*Best Management Practices Plan*" means the draft document titled "July 2011 Xstrata Nickel Best Management Practices Plan for the Control of Fugitive Dust Emissions, version 2.0", as amended.

(13) "*Calciner*" means the natural gas-fired rotary kiln to pre-treat *Kiln Feed* to the electric furnace described in the *ESDM Report,* this *Approval* and in the *Supporting Documentation* referred to herein and any other equipment or processes.

(14) "*Calcining Mode*" means the mode of operation of the *Calciner* when it is used as an incinerator to effectively destruct organic compounds in the *Kiln Feed* described in the *ESDM Report,* this *Approval* and in the *Supporting Documentation* referred to herein and any other equipment or processes.

(15) "*CALPUFF*" means the non-steady-state Lagrangian Gaussian puff model originally developed by Sigma Research Corporation (now part of TRC) including related models and programs and the CALMET meteorological model, approved by the *Ministry* in the s.7(1) and s.13(1) Notices issued on August 24, 2010 to the *Company* for calculation of one-hour and 24-hour average concentrations of a contaminant at a *Point of Impingement*, in accordance with the Notices and the *Company's* application.

(16) "*CEM System*" means the continuous emission monitoring system specified in Condition 11 and Schedule "F" of this *Approval*.

(17) "*Company*" means Xstrata Canada Corporation carrying on business under the name of Xstrata Nickel Canada that is responsible for the construction or operation of the *Facility* and includes any successors and assigns in accordance with section 19 of the *EPA.*

(18) "*Compound of Concern*" means a contaminant that, based on generally available information, may be emitted to the atmosphere in a quantity from the *Facility* that is non-negligible in accordance with section 8 of *O. Reg. 419/05* either in comparison to the relevant *Ministry Point of Impingement Limit* or if a *Ministry Point of Impingement Limit* is not available for the compound then, based on generally available toxicological information, the compound may cause an adverse effect as defined by the *EPA* at a *Point of Impingement.*

(19) "*Comprehensive Supplementary Emission Control System*" means the automated system in place at the *Facility* which is used by the central control room operators to obtain meteorological information, *Sulphur Dioxide* emission rates and monitored ground level concentrations of *Sulphur Dioxide.*

(20) "*Control Period*" means any period of time when emissions of *Sulphur Dioxide* need to be controlled or restricted in order for the *Company* to avoid exceeding the Measured Level(s) set out in Table 1 and/or Table 2 of Schedule "D" of this *Approval.*

(21) "*Description Section* " means the section on page one of this *Approval* describing the *Company* 's operations and the *Equipment* located at the *Facility* and specifying the *Facility Production Limit* for the *Facility.*

(22) "*Director"* means a person appointed by the Minister pursuant to section 5 of the *EPA.*

(23) "*District Manager"* means the District Manager of the appropriate local district office of the *Ministry,* where the *Facility* is geographically located.

(24) "*Drying Mode* " means the mode of operation of the *Calciner* at reduced operating temperatures and only to reduce the moisture contents of the *Kiln Feed* described in the *ESDM Report,* this *Approval* and in the *Supporting Documentation* referred to herein and any other equipment or processes.

(25) "*Emission Summary Table"* means the most updated table contained in the *ESDM Report,* which is prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* listing the appropriate *Point of Impingement* concentration for each *Compound of Concern* from the *Facility* and providing comparison to the corresponding *Ministry Point of Impingement Limit* or *Maximum Concentration Level Assessment,* or *Jurisdictional Screening Level.*

(26) "*Environmental Assessment Act"* means the Environmental Assessment Act, R.S.O. 1990, c.E.18, as amended.

(27) "*EPA"* means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended.

(28) "*Equipment"* means equipment or processes described in the *ESDM Report,* this *Approval* and in the *Supporting Documentation* referred to herein and any other equipment or processes.

(29) "*Equipment with Specific Operational Limits"* means the *Calciner* at *Calcining Mode* or any *Equipment* related to the thermal oxidation of waste or waste derived fuels, fume incinerators or any other *Equipment* that is specifically referenced in any published *Ministry* document that outlines specific operational guidance that must be considered by the *Director* in issuing an *Approval.*

(30) "*ESDM Report"* means the most current Emission Summary and Dispersion Modelling Report that describes the *Facility.* The *ESDM Report* is based on the *Original ESDM Report,* is prepared after the issuance of this *Approval* in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by the *Company* and/or its consultant, and is periodically updated to incorporate all *Modifications* to and changes on discharge from the *Facility,* as required by the Documentation Requirements conditions of this *Approval.*

(31) "*Facility"* means the entire operation located on the property where the *Equipment* is located.

(32) "*Facility Production Limit"* means the production limit placed by the *Director* on the main product(s) or raw materials used by the *Facility.*

(33) "*Independent Acoustical Consultant* " means an *Acoustical Consultant* who is not representing the *Company* and was not involved in preparing the *Acoustic Assessment Report* or the design/implementation of *Noise Control Measures* for the *Facility* and/or *Equipment.* The *Independent Acoustical Consultant* shall not be retained by the *Acoustical Consultant* involved in the noise impact assessment or the design/implementation of *Noise Control Measures* for the *Facility* and/or *Equipment.*

(34) "*Jurisdictional Screening Level"* means a screening level for a *Compound of Concern* that is listed in the *Ministry* publication titled "Jurisdictional Screening Level (JSL) List, A Screening Tool for Ontario Regulation 419: Air Pollution - Local Air Quality", dated February 2008, as amended.

(35) "*Kiln Feed* " means the materials to be treated by the *Calciner* described in the *ESDM Report,* this *Approval* and in the *Supporting Documentation* referred to herein and any other equipment or processes.

(36) "*Log"* means the up-to-date log that is used to track all *Modifications* to the *Facility* since the date of this *Approval* as required by the Documentation Requirements conditions of this *Approval.*

(37) "*Maximum Concentration Level Assessment"* means the Maximum Concentration Level Assessment for the purposes of an *Approval,* described in the *Basic Comprehensive User Guide,* prepared by a *Toxicologist* using currently available toxicological information, that demonstrates that the concentration at any *Point of Impingement* for a *Compound of Concern* that does not have a *Ministry Point of Impingement Limit* is not likely to cause an adverse effect as defined by the *EPA*. The concentration at *Point of Impingement* for a *Compound of Concern* must be calculated in accordance with *O. Reg. 419/05.*

(38) "*Ministry"* means the ministry of the government of Ontario responsible for the *EPA* and includes all officials, employees or other persons acting on its behalf.

(39) "*Ministry Point of Impingement Limit"* means the applicable Standard set out in Schedule 2 or 3 of *O. Reg. 419/05* or a limit set out in the *Ministry* publication titled "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution - Local Air Quality (including Schedule 6 of *O. Reg. 419/05* on Upper Risk Thresholds)", dated April 2012, as amended.

(40) "*Modification"* means any construction, alteration, extension or replacement of any plant, structure, equipment, apparatus, mechanism or thing, or alteration of a process or rate of production at the *Facility* that may discharge or alter the rate or manner of discharge of a *Compound of Concern* to the atmosphere or discharge or alter noise or vibration emissions from the *Facility.*

(41) "*Noise Abatement Action Plan"* means the proposed Noise Abatement Action Plan in Appendix I dated October 7, 2011 of the Acoustic assessment Xstrata Facility Falconbridge prepared by Golder Associates for Xstrata Nickel in October 2011, as amended.

(42) "*Noise Control Measures"* means measures to reduce the noise emissions from the *Facility* and/or *Equipment* including, but not limited to, silencers, acoustic louvres, enclosures, absorptive treatment, plenums and barriers.

(43) "*O. Reg. 419/05*" means the Ontario Regulation 419/05, Air Pollution – Local Air Quality, as amended.

(44) "*O. Reg. 347* " means the Ontario Regulation 347, General - Waste Management, as amended.

(45) "*Original ESDM Report*" means the Emission Summary and Dispersion Modelling Report which was prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by Golder Associates Ltd. and dated October 2011 submitted in support of the application, and includes any changes to the report made up to the date of issuance of this *Approval.*

(46) "*Performance Limits*" means the performance limits specified in Condition 3.2 of this *Approval* titled Performance Limits.

(47) "*Point of Impingement*" has the same meaning as in section 2 of *O. Reg. 419/05.*

(48) "*Point of Reception*" means Point of Reception as defined by *Publication NPC-205* and/or *Publication NPC-232,* as appropriate.

(49) "*Pre-Test Information* " means the information for *Source Testing* as outlined in Section 1 of the *Source Testing Code.*

(50) "*Procedure Document*" means *Ministry* guidance document titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated March 2009, as amended.

(51) "*Processes with Significant Environmental Aspects*" means the *Equipment* which, during regular operation, would discharge a contaminant or contaminants into the atmosphere at an amount which is not considered as negligible in accordance with section 8 of *O. Reg. 419/05* and the *Procedure Document.*

(52) "*Publication NPC-103* " means the *Ministry* Publication NPC-103 of the Model Municipal Noise Control By-Law, Final Report, August 1978, published by the *Ministry,* as amended.

(53) "*Publication NPC-205*" means the *Ministry* Publication NPC-205, “Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)”, October, 1995, as amended.

(54) "*Publication NPC-207*" means the *Ministry* draft technical publication “Impulse Vibration in Residential Buildings”, November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, published by the *Ministry,* August 1978, as amended.

(55) "*Publication NPC-232*" means the *Ministry* Publication NPC-232, "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)", October, 1995, as amended.

(56) "*Publication NPC-233*" means the *Ministry* Publication NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October, 1995, as amended.

(57) "*Real Time Data* " means data from the *Sudbury Monitoring System* which is available to the operators of the *Comprehensive Supplementary Emission Control System* quickly enough after a *Sulphur Dioxide* measurement to constitute a reliable representation of then current ground level concentrations and meteorological conditions.

(58) "*Relative Accuracy"* has the same meaning as in *Report EPS 1/PG/7.*

(59) *"Report EPS 1/PG7"* means Environment Canada Report EPS 1/PG/7, "Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Generation", December 2005 or latest version.

(60) "*Schedules"* means the following schedules attached to this *Approval* and forming part of this *Approval* namely:

Schedule "A" - *Supporting Documentation;*
Schedule "B" - *Calciner* Information;
Schedule "C" - *Comprehensive Supplementary Emission Control System* - Operation and Reporting;
Schedule "D" – *Sulphur Dioxide* Measured Levels - Notification and Reporting;
Schedule "E" - List of *Test Contaminants* ; and
Schedule "F" - Specifications of the *CEM System* .

(61) *"SDB Director"* means the Director of the *Ministry's* Standards Development Branch.

(62) *"Site-Specific Standard"* means an air standard, approved by a Director designated under section 35 of *O. Reg. 419/05* and has the same meaning as in section 32 and section 35 of *O. Reg. 419/05.*

(63) *"Source Testing"* means sampling and testing to measure emissions resulting from operating the *Targeted Sources* at a level of typical maximum production within the approved operating range of the *Targeted Sources* which satisfies paragraph 1 of subsection 11(1) of *O. Reg. 419/05.*

(64) "*Source Testing Code* " means the Source Testing Code, Version 2, Report No. ARB-66-80, dated November 1980 and prepared by the *Ministry,* as amended.

(65) "*Standard Operating Procedures* " means the standard operating procedures prepared by the *Company* and implemented for the crushing operations of the *Facility* to provide instructions on operating procedures to staff of the *Company.*

(66) "*Sudbury Monitoring System* " means a network of monitors and related equipment that measure ground level concentrations of *Sulphur Dioxide* within the City of Greater Sudbury and provides data to the *Company* and includes:

(a) any monitor identified in the Map in Appendix 1 which include the following monitors:

(i) Coniston, Garson, Hanmer, Skead, Wahnapitae, Sunderland, Edison and Parkinson (the monitors operated and maintained by the *Company);* and

(ii) Union, Kinsmen, Copper Cliff, Kelly Lake, Dozzi Park, Spruce, Algonquin Road, Rayside, New Sudbury and the mobile *Sulphur Dioxide* monitor (the monitors operated and maintained by Vale Canada Ltd.); and

(b) any other such monitor identified in writing by the *District Manager* or the *SDB Director.*

(67) "*Sulphur Dioxide* " means the contaminant identified by the Chemical Abstract System (CAS) number of 7446-09-5.

(68) *"Sulphur Mass Balance Procedure Manual"* means a manual describing the operations, methods, procedures and equipment used to demonstrate and provide a reliable means of verifying *Sulphur Dioxide* emissions data with an acceptable level of acceptance, as amended.

(69) *"Supporting Documentation"* means the documents listed in Schedule "A" of this *Approval* which forms part of this *Approval.*

(70) *"Targeted Sources"* means the Main Stack noted in Condition 9 and the Converter Aisle Roof Vent noted in Condition 10 of this *Approval.*

(71) *"Technology Standards Manager"* means the Manager, Technology Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Technology Standards Section, Standards Development Branch, as those duties relate to the conditions of this *Approval.*

(72) "*Test Contaminants* " means the compounds listed in Schedule "E" of this *Approval* to be measured during *Source Testing* (except isomers of dioxins and furans of concern) required by this *Approval.*

(73) "*Toxicologist* " means a qualified professional currently active in the field of risk assessment and toxicology that has a combination of formal university education, training and experience necessary to assess the *Compound of Concern* in question.

(74) "*Unfavourable Air Dispersion Conditions* " means any meteorological condition in which the atmosphere is unable to adequately mix or disperse *Sulphur Dioxide* emissions from the *Facility* such that elevated short-term ground level concentrations may occur in the City of Greater Sudbury.

(75) "*Written Summary Form* " means the electronic questionnaire form, available on the *Ministry* website, and supporting documentation, that documents the activities undertaken at the Facility in the previous calendar year that must be submitted annually to the *Ministry* as required by the section of this *Approval* titled Reporting Requirements.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL

1.1 Except as otherwise provided by this *Approval,* the *Facility* shall be designed, developed, built, operated and maintained in accordance with the terms and conditions of this *Approval* and in accordance with the following *Schedules* attached hereto:

Schedule 'A" - *Supporting Documentation* ;
Schedule "B" - *Calciner* Information;
Schedule "C" - *Comprehensive Supplementary Emission Control System* - Operation and Reporting;
Schedule "D" – *Sulphur Dioxide* Measured Levels - Notification and Reporting;
Schedule "E" - List of *Test Contaminants;* and
Schedule "F" - Specifications of the *CEM System.*

2. LIMITED OPERATIONAL FLEXIBILITY

2.1 Pursuant to section 20.6(1) of the *EPA* and subject to Conditions 2.2 and 2.3 of this *Approval,* future alterations, extensions or replacements are approved in this *Approval* if the future alterations, extensions or replacements are *Modifications* to the *Facility* that:

(a) are within the scope of the intended operations of the *Facility* as described in the *Description Section* of this *Approval;*

(b) do not result in an increase of the *Facility Production Limit* above the level specified in the *Description Section* of this *Approval;* and

(c) result in compliance with the *Performance Limits.*

2.2 Condition 2.1 does not apply to:

(a) the addition of any new *Equipment with Specific Operational Limits* or to the *Modification* of any existing *Equipment with Specific Operational Limits* at the *Facility;* or

(b) *Modifications* to the *Facility* that would be subject to the *Environmental Assessment Act.*

2.3 Condition 2.1 of this *Approval* shall expire ten (10) years from the date of this *Approval,* unless this *Approval* is revoked prior to the expiry date. The *Company* may apply for renewal of Condition 2.1 of this *Approval* by including an *ESDM Report* and an *Acoustic Assessment Report* that incorporate all *Modifications* made to the *Facility* as of the date of the renewal application in the application as supporting information.

3. REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT* AND *PERFORMANCE LIMITS*

3.1 Request for *Maximum Concentration Level Assessment*

3.1.1 If the *Company* proposes to make a *Modification* to the *Facility,* the *Company* shall determine if the proposed *Modification* will result in:

(a) a discharge of a *Compound of Concern* that was not previously discharged; or

(b) an increase in the concentration at a *Point of Impingement* of a *Compound of Concern.*

3.1.2 If a proposed *Modification* mentioned in Condition 3.1.1 will result in the discharge of a *Compound of Concern* that was not previously discharged, the *Company* shall submit a *Maximum Concentration Level Assessment* to the *Director* for review by the *Air Standards Manager* in the following circumstances:

(a) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level.*

(b) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

(c) Prior to the proposed *Modification,* a contaminant was discharged in a negligible amount and the proposed *Modification* will result in the discharge of the contaminant being considered a *Compound of Concern* and the *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level.*

(d) Prior to the proposed *Modification,* a contaminant was discharged in a negligible amount and the proposed *Modification* will result in the discharge of the contaminant being considered a *Compound of Concern.* Additionally, the *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level.*

3.1.3 If a proposed *Modification* mentioned in Condition 3.1.1 will result in an increase in the concentration at a *Point of Impingement* of a *Compound of Concern,* the *Company* shall submit a *Maximum Concentration Level Assessment* to the *Director* for review by the *Air Standards Manager* in the following circumstances:

(a) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level* and the concentration at a *Point of Impingement* will exceed the *Acceptable Maximum Ground Level Concentration.*

(b) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* or a *Jurisdictional Screening Level* and the concentration at a *Point of Impingement* will exceed the most recently accepted *Maximum Concentration Level Assessment* submitted under Condition 3.1.2 or this Condition.

(c) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level* and the *Acceptable Maximum Ground Level Concentration*.

(d) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level* and the most recently accepted *Maximum Concentration Level Assessment* submitted under Condition 3.1.2 or this Condition.

(e) The *Compound of Concern* does not have a *Ministry Point of Impingement Limit, Acceptable Maximum Ground Level Concentration* or a *Maximum Concentration Level Assessment* and the concentration at a *Point of Impingement* will exceed the *Jurisdictional Screening Level*.

3.1.4 Subject to the Operational Flexibility set out in Condition 2 of this *Approval,* the *Company* may make the *Modification* if the submission of a *Maximum Concentration Level Assessment* under Condition 3.1.2 or 3.1.3 is not required.

3.1.5 A *Company* that is required to submit an assessment under Condition 3.1.2 or 3.1.3 shall submit the assessment at least thirty (30) days before the proposed *Modification* occurs.

3.1.6 The *Ministry* shall provide to the *Company* written confirmation of the receipt of the assessment under Condition 3.1.2 or 3.1.3.

3.1.7 If the *Ministry* notifies the *Company* that it does not accept the assessment submitted under Condition 3.1.2 or 3.1.3, the *Company* shall:

(a) revise and resubmit the assessment; or

(b) notify the *Ministry* that the *Company* will not be modifying the *Facility*.

3.1.8 If an assessment is submitted under Condition 3.1.2 or 3.1.3, the *Company* shall not modify the *Facility* unless the *Ministry:*

(a) accepts the assessment; or

(b) does not respond to the *Company* with respect to the assessment within thirty (30) days from the date of the written confirmation mentioned in Condition 3.1.6.

3.1.9 The re-submission under Condition 3.1.7(a) is considered by the *Ministry* as a new submission.

3.2. ***Performance Limits***

3.2.1 Subject to Condition 3.2.2, the *Company* shall, at all times, ensure that all *Equipment* that is a source of a *Compound of Concern* is operated to comply with the following *Performance Limits:*

(a) for a *Compound of Concern* that has a *Ministry Point of Impingement Limit,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the corresponding *Ministry Point of Impingement Limit;*

(b) for a *Compound of Concern* that has an *Acceptable Maximum Ground Level Concentration* and no *Maximum Concentration Level Assessment,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the corresponding *Acceptable Maximum Ground Level Concentration; and*

(c) for a *Compound of Concern* that has a *Maximum Concentration Level Assessment,* the maximum concentration of that *Compound of Concern* at any *Point of Impingement* shall not exceed the most recently accepted corresponding *Maximum Concentration Level Assessment.*

3.2.2 If the *Company* has modified the *Facility* and was not required to submit a *Maximum Concentration Level Assessment* with respect to a *Compound of Concern* under Condition 3.1.2 or 3.1.3, the *Company* shall, at all times, ensure that all *Equipment* that is a source of the *Compound of Concern* is operated such that the maximum concentration of the *Compound of Concern* shall not exceed the concentration listed for the *Compound of Concern* in the most recent version of the *ESDM Report. ESDM Reports* are required to be updated to reflect all *Modifications* under Condition 4.1(a).

3.2.3 The *Company* shall, at all times, ensure that the noise emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-205* or *Publication NPC-232* after full implementation of the *Noise Abatement Action Plan,* as amended.

3.2.4 The *Company* shall, at all times, ensure that the vibration emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-207.*

3.2.5 The *Company* shall ensure that the *Noise Control Measures,* as proposed in the *Acoustic Assessment Report* prepared by Golder Associates Ltd., dated October 7, 2011 and signed by Paul Niejadlik are incorporated at the site no later than October 31, 2013.

3.2.6 The *Company* shall ensure that the *Noise Control Measures* are properly maintained and continue to provide the acoustical performance outlined in the *Acoustic Assessment Report.*

4. DOCUMENTATION REQUIREMENTS

4.1 The *Company* shall, at all times, maintain documentation that describes the current operations of the *Facility,* including but not limited to:

(a) a current *ESDM Report* that demonstrates compliance with the *Performance Limits* for the *Facility* regarding all *Compounds of Concern* and reflects all *Modifications* made at the *Facility;*

(b) a current *Acoustic Assessment Report* that demonstrates compliance with the *Performance Limits* for the *Facility* regarding noise emissions and the current *Noise Abatement Action Plan;*

(c) an up-to-date *Log* that describes each *Modification* to the *Facility;*

(d) a record of the changes to the *ESDM Report* and *Acoustic Assessment Report* that documents how each *Modification* is in compliance with the *Performance Limits;* and

(e) details of any custom feed which includes raw materials accepted from other facilities and their metal contents.

4.2 The *Company* shall, during regular business hours, make the current *Emission Summary Table* and *Acoustic Assessment Summary Table* available for inspection at the *Facility* by any interested member of the public.

4.3 Subject to Condition 4.5, the *Company* shall prepare and complete no later than June 1 of each year documentation that describes the activities undertaken at the *Facility* in the previous calendar year, including but not limited to:

(a) a list of all *Compounds of Concern* for which a *Maximum Concentration Level Assessment* was submitted to the *Director* for review by the *Air Standards Manager* pursuant to Condition 3.1.2 or 3.1.3 of this *Approval;*

(b) if the *Company* has modified the *Facility* and was not required to submit a *Maximum Concentration Level Assessment* with respect to a *Compound of Concern* under Condition 3.1.2 or 3.1.3, a list and concentration level of all such *Compounds of Concern;*

(c) a review of any changes to *Ministry Point of Impingement Limits* that affect any *Compounds of Concern* emitted from the *Facility;* and

(d) a table of the changes in the emission rate of any *Compound of Concern* and the resultant increase or decrease in the *Point of Impingement* concentration reported in the *ESDM Report.*

4.4 Subject to Condition 4.5, the *Company* shall, at all times, maintain the documentation described in Condition 4.3.

4.5 Conditions 4.3 and 4.4 do not apply if Condition 2.1 has expired.

4.6 The *Company* shall, within three (3) months after the expiry of Condition 2.1 of this *Approval,* update the *ESDM Report* and the *Acoustic Assessment Report* such that they describe the *Facility* as it was at the time that Condition 2.1 of this *Approval* expired.

5. REPORTING REQUIREMENTS

5.1 Subject to Condition 5.2, the *Company* shall provide the *Ministry* and the *Director* no later than June 1 of each year, a *Written Summary Form* that shall include the following:

(a) a declaration of whether the *Facility* was in compliance with section 9 of the *EPA, O. Reg. 419/05* and the conditions of this *Approval;*

(b) a summary of each *Modification* that took place in the previous calendar year that resulted in a change in the previously calculated concentration at the *Point of Impingement* for any *Compound of Concern* or resulted in a change in the sound levels reported in the *Acoustic Assessment Summary Table* at any *Point of Reception;* and

(c) a summary of each fugitive dust control measure installed that took place in the previous calendar year that resulted in the reduction of fugitive dust emissions, as required by the *Best Management Practices Plan,* and a description on the effectiveness of the *Best Management Practices Plan* in the reduction of fugitive dust emissions.

5.2 Condition 5.1 does not apply if Condition 2.1 has expired.

5.3 The *Company* shall conduct an audit of *Sulphur Dioxide* emissions as follows:

(a) *Sulphur Dioxide* emissions must be audited annually for each calendar year for accuracy by a third party. Each year, the *Company* shall retain an independent consultant, acceptable to the *District Manager,* to perform an audit of the *Sulphur Dioxide* emissions from the *Facility.* The costs of the audits shall be borne by the *Company.*

(b) Prior to each audit, the *Company* shall submit any required or proposed changes to the operations, methods, procedures and equipment referred to in the *Sulphur Mass Balance Procedure Manual* required to perform the Sulphur Mass Balance Calculations to estimate *Sulphur Dioxide* emissions, in tonnes per year, along with an implementation schedule, for review and acceptance by the *District Manager.*

(c) The *Company* shall submit the auditor's annual report to the *District Manager,* by March 31 of the following year.

5.4 The *Company* shall submit to the *District Manager,* on a quarterly basis, a written summary of each *Modification.* The written summary shall include the date when the *Modification* is implemented and a description of the *Modification.*

5.5 The *Company* shall prepare and retain on-site a monthly report summarizing the percent availability of the *CEM System* for the reporting period.

5.6 For any given month while the availability target of the *CEM System* as required in Schedule "F" of this

Approval is not met, the *Company* shall submit to the *District Manager* the calculated percent availability of the *CEM System,* as well as the reasons for not meeting the availability target, within twenty-one (21) days following the end of the month.

6. OPERATION AND MAINTENANCE

6.1 The *Company* shall prepare and implement, not later than three (3) months from the date of this *Approval,* operating procedures and maintenance programs for all *Processes with Significant Environmental Aspects,* which shall specify as a minimum:

(a) frequency of inspections and scheduled preventative maintenance;

(b) procedures to calibrate the *CEM System;*

(c) procedures to prevent upset conditions;

(d) procedures to minimize all fugitive dust emissions;

(e) procedures to prevent and/or minimize odorous emissions;

(f) procedures to prevent and/or minimize noise emission; and

(g) procedures for record keeping activities relating to the operation and maintenance programs.

6.2 The *Company* shall ensure that all *Processes with Significant Environmental Aspects* are operated and maintained at all times in accordance with this *Approval,* the operating procedures and maintenance programs.

6.3 The *Company* shall finalize the *Best Management Practices Plan* with the *District Manager* and the *Director*. Upon acceptance of the *Best Management Practices Plan* by the *District Manager,* the *Company* shall implement the *Best Management Practices Plan* immediately to control fugitive dust emissions and to provide effective dust suppression measures to any potential sources of fugitive dust emissions resulting from the operation of the *Facility.*

6.4 The *Company* shall operate and maintain the *CEM System* properly in accordance with the operating procedures and a maintenance program recommended by equipment suppliers.

6.5 The *Company* shall prepare and periodically update as necessary and implement the *Standard Operating Procedure* on the operation of the crushing operations in the *Facility* , including but not be limited to the restriction of the crushing operations to 7.30 a.m. to 3.30 p.m. and cessation of the operations when the wind at the site is blowing towards the Town of Falconbridge.

7. COMPLAINTS RECORDING AND REPORTING PROCEDURE

7.1 If at any time, the *Company* receives any environmental complaints from the public regarding the operation of the *Equipment* approved by this *Approval,* the *Company* shall respond to these complaints according to the following procedure:

(a) the *Company* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the time and date of the complaint and incident to which the complaint relates, the nature of the complaint, wind direction at the time and date of the incident to which the complaint relates and, if known, the address of the complainant;

(b) the *Company,* upon notification of a complaint, shall initiate appropriate steps to determine all possible causes of the complaint, and shall proceed to take the necessary actions to appropriately deal with the cause of the subject matter of the complaint; and

(c) the *Company* shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to appropriately deal with the cause of the subject matter of the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents**.**

7.2. The *Company* shall provide the *District Manager* with a quarterly summary report of all environmental complaints received by the *Company* and related to air emissions from the *Facility.* The report shall include all particulate fallout, odour and noise complaints. The summary report shall also include, as a minimum:

(a) a description of the nature of the complaint;

(b) the time, date and location of the incident to which the complaint relates;

(c) the wind direction and other weather conditions at the time of the incident to which the complaint relates;

(d) the name(s) of *Company* personnel responsible for handling the complaint; and

(e) the actions taken to deal with the complaint.

8. RECORD KEEPING REQUIREMENTS

8.1 Any information requested by any employee in or agent of the *Ministry* concerning the *Facility* and its operation under this *Approval,* including, but not limited to, any records required to be kept by this *Approval,* shall be provided to the employee in or agent of the *Ministry,* upon request**,** in a timely manner.

8.2 The *Company* shall record, in one or more logs, each time a specific preventative and control measure described in the *Best Management Practices Plan* is implemented and retain, for a minimum of seven (7) years from the date of their creation, all reports, records and information described in this *Approval* and shall include but not be limited to:

(a) the date when a fugitive dust control measure is installed, including a description of the control measure;

(b) the date when each new preventative measure or operating procedure to minimize emissions is implemented, including a description of the preventative measure or operating procedure;

(c) the date and time of the commencement and completion of each periodic activity conducted to minimize emissions, including a description of the measure/procedure and the name of the individual performing the periodic activity; and

(d) any related requirements for fugitive dust set out in a *Site-Specific Standard* approval.

8.3 The *Company* shall retain, for a minimum of seven (7) years from the date of their creation, except as noted below, all reports, records and information described in this *Approval* and shall include but not be limited to:

(a) If the *Company* has updated the *ESDM Report* in order to comply with Condition 4.1(a) of this *Approval,* a copy of each new version of the *ESDM Report;*

(b) If the *Company* has updated the *Acoustic Assessment Report,* in order to comply with Condition 4.1(b) of this *Approval,* a copy of each new version of the *Acoustic Assessment Report;*

(c) supporting information used in the emission rate calculations performed in the *ESDM Reports* and *Acoustic Assessment Reports* to document compliance with the *Performance Limits* (superseded information must be retained for a period of three (3) years after *Modification);*

(d) the *Log* that describes each *Modification* to the *Facility;*

(e) all documentation prepared in accordance with Condition 4.3 of this *Approval;*

(f) copies of any *Written Summary Forms* provided to the *Ministry* under Condition 5.1 of this *Approval;*

(g) the operating procedures and maintenance programs, including records on the maintenance, repair and inspection of the *Equipment* related to all *Processes with Significant Environmental Aspects;*

(h) all records related to the operation, maintenance and calibration of the *CEM System* as required by Condition 11 of this *Approval;*

(i) all records related to Condition 4 of Schedule “D” of this *Approval;*

(j) the *Source Testing* report as required by Condition 9.5 of this *Approval;* and

(k) the complaints recording procedure, including records related to all environmental complaints made by the public as required by Condition 7 of this *Approval.*

9. SOURCE TESTING

9. 1 The *Company* shall perform *Source Testing* to determine the rates of emissions of the *Test Contaminants* listed in Schedule "E" (except isomers of dioxins and furans of concern) of this *Approval* from the Main Stack (designated as S1).

9.2 The *Company* shall submit, not later than three (3) months from the date of this *Approval* , to the *Technology Standards Manager* a test protocol, including the *Pre-Test Information* for the *Source Testing* required by the *Source Testing Code.*

9.3 The *Company* shall finalize the test protocol in consultation with the *Technology Standards Manager* and shall not commence the *Source Testing* until the *Technology Standards Manager* has accepted the test protocol.

9.4 Following the acceptance by the *Technology Standards Manager,* the *Company* shall notify the *District Manager* and the *Technology Standards Manager* in writing of the location, date and time of any impending *Source Testing* required by this *Approval,* at least fifteen (15) days prior to the *Source Testing.*

9.5 The *Company* shall submit a report on the *Source Testing* to the *District Manager* and the *Technology Standards Manager* not later than four (4) months after completing the *Source Testing* . The report shall be in the format described in the *Source Testing Code,* and shall also include, but not be limited to:

(a) an executive summary;

(b) records of all operating conditions, including all records produced by the *CEM System,* as well as all operational problems that may have been encountered during the *Source Testing;* and

(c) the results of dispersion calculations in accordance with O. Reg. 419/05 using *CALPUFF* using the results of the *Source Testing* and the *Ministry* accepted emission rates indicating the maximum concentrations of the *Test Contaminants* (except isomers of dioxins and furans of concern) for which *Source Testing* indicates an increase in emissions compared to that reported in the current *ESDM Report.*

9.6 The *Director* may not accept the results of the *Source Testing* if:

(a) the *Source Testing Code* or the requirements of the *Technology Standards Manager* were not followed; or

(b) the *Company* did not notify the *District Manager* and the *Technology Standards Manager* of the *Source Testing;* or

(c) the *Company* failed to provide a complete report on the *Source Testing.*

9.7 The *Company* shall repeat the *Source Testing* on an annual basis. The *Company* may request the *District Manager* to alter the frequency of the *Source Testing* and/or the *Test Contaminants.* Upon approval by the *District Manager,* the *Company* shall repeat the *Source Testing* at the new frequency and/or with the new *Test Contaminants.*

9.8 If the *Director* does not accept the results of the *Source Testing,* the *Director* may require re-testing.

9.9 Where the analytical results indicate that the amount of a particular dioxin, furan or dioxin-like PCB is less than the detection limit reported by the laboratory analyzing the source testing samples, the *Company* shall determine the amount of dioxins, furans and dioxin-like PCBs to be reported as the toxicity equivalent concentration by using the reported detection limit as the amount present for that contaminant. The reported detection limits are to be determined by the laboratory at the time the source testing samples are analyzed based on analysis of appropriate replicate low level samples or blanks.

9.10 If the *Source Testing* indicates that the toxicity equivalent concentration of dioxins, furans and dioxin-like PCBs has remained consistently below 32 picograms per dry cubic metre normalized to11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals for five (5) consecutive years, then the *Company* may exclude dioxins, furans and dioxin-like PCBs from the annual *Source Testing* every second year as long as the toxicity equivalent concentration of dioxins and furans continues to remain below 32 picograms per dry cubic metre normalized to 11 percent oxygen at a reference temperature of 25 degrees C and a reference pressure of 101.3 kilopascals.

10. SOURCE MONITORING PLAN

10.1 The *Company* shall develop in consultation with the *Technology Standards Manager* and the *Director* a Source Monitoring Plan (SMP) to determine the emission rates of *Sulphur Dioxide,* Particulate and Metals listed in Schedule "E" of this *Approval* from the Converter Aisle Roof Vent (designated as CONV). This SMP shall include, but not be limited to:

(a) an executive summary of the SMP;

(b) detailed description of the SMP; and

(c) detailed description of the monitoring strategy to be used.

10.2 The *Company* shall submit the SMP to the *Director* not later than six (6) months after the date of this *Approval:*

(a) The *Director* may not accept the SMP if the minimum requirements described in Condition 10.1

were not included in the SMP; and

(b) If the SMP is not accepted by the *Director,* the *Company* shall submit a revised SMP acceptable to the *Director* not later than two (2) months after the date of the review of the initial SMP by the *Technology Standards Manager* and the *Director.*

10.3 Following acceptance by the *Director,* the *Company* shall immediately implement the SMP for the determination of emission rates of *Sulphur Dioxide,* Particulate and Metals.

10.4 The *Company* shall submit a report on the SMP to the *District Manager* and the *Technology Standards Manager* not later than four (4) months after completing the SMP. The report shall include, but not be limited to:

(a) an executive summary;

(b) records of all operating conditions, including all records produced by the *CEM System,* as well as all operational problems that may have been encountered during the *Source Testing;* and

(c) the results of dispersion calculations in accordance with O. Reg. 419/05 using *CALPUFF* using the results of the SMP, the *Source Testing* and the *Ministry* accepted emission rates indicating the maximum concentrations of *Sulphur Dioxide,* Particulate and Metals for which source testing indicates an increase in emissions compared to that reported in the current *ESDM Report.*

11. CONTINUOUS EMISSION MONITORING

11.1 The *Company* shall monitor the operation of the Sulphuric Acid Plant and the Sulphuric Acid Plant tailgas that exhausts through the Main Stack as follows:

(a) the *Company* shall operate the existing camera to monitor plume visibility for the above noted tailgas exhaust, and shall monitor the display in the Sulphuric Acid Plant Control Room, for plume observation;

(b) the *Company* shall notify the *District Manager* when there is an unacceptable release of sulphur trioxide (SO_3) from the Sulphuric Acid Plant within two (2) business days, describing the nature and cause of the SO_3 release and the measures taken to address the release and shall retain all these records for at least two (2) years; and

(c) the *Company* shall maintain and operate the above noted camera as recommended by the instrument supplier.

11.2 The *Company* shall maintain operational a *CEM System* to continuously monitor and record the operating temperatures in the Main Stack, the concentrations of *Sulphur Dioxide* from the Main Stack, the operating temperatures of the *Calciner* and the *Calciner* stack concentrations of oxygen and carbon monoxide at *Calcining Mode.* The locations and the specifications of the *CEM System* are outlined in

Schedule "F" of this *Approval.*

11.3 The *Company* shall conduct *Relative Accuracy* testing once every twelve (12) months to verify the operation of the *CEM System,* starting within two (2) months from the date of this *Approval.* The report shall be submitted to the *Technology Standards Manager* and the *District Manager* not later than three (3) months after completion of the test, one (1) copy shall be appended to the *Source Testing* report, and one (1) copy shall be maintained by the *Company* for at least two (2) years, and be made available for view by *Ministry* staff upon request.

12. ACOUSTIC ASSESSMENT

12.1 The *Company* shall carry out *Acoustic Audit* measurements on the actual noise emissions due to the operation of the *Facility.* The *Company:*

(a) shall carry out *Acoustic Audit* measurements in accordance with the procedures in *Publication NPC-103;* and

(b) shall submit an *Acoustic Audit Report* on the results of the *Acoustic Audit,* prepared by an *Independent Acoustical Consultant,* in accordance with the requirements of *Publication NPC-233,* to the *District Manager* and the *Director,* not later than nine (9) months after the full implementation of the *Noise Control Measures* identified in the current *Noise Abatement Action Plan,* as amended.

12.2 The *Director* :

(a) may not accept the results of the *Acoustic Audit* if the requirements of *Publication NPC-233* were not followed; and

(b) may require the *Company* to repeat the *Acoustic Audit* if the results of the *Acoustic Audit* are found unacceptable to the *Director.*

13. COMMUNITY ENGAGEMENT AND REPORTING

13.1 The *Company* shall take all reasonable steps to establish, maintain and participate in the Environmental Monitoring Team (EMT), and ensure that:

(a) The EMT includes at least one (1) representative from the *Company,* one (1) representative from the Ministry Sudbury District Office and at least three (3) representatives from the community;

(b) The EMT meets annually and serves as a forum for dissemination, consultation, review and exchange of information regarding the operation of the *Facility* , environmental issues such as air monitoring, analysis of relevant monitored data, complaint resolution, and any need for new approvals or amendments to existing approvals to reduce emissions of *Compounds of Concern* including contaminants with *Site-Specific Standards;*

(c) The following information is communicated with the public on the *Company* website:

(i) notice of *Unfavourable Air Dispersion Conditions* as soon as practicable after they occur, including the display of *Real Time Data,* when available, from the *Sudbury Monitoring System;*
(ii) despite the notice requirement under Condition 13.1(c)(i), if *Unfavourable Air Dispersion Conditions* occur more than once in a 24-hour period, notice need only be given once during that period; and
(iii) steps that the *Company* takes during periods of *Unfavourable Air Dispersion Conditions;* and

(d) The Central Control Room phone number is made publicly available to allow members of the public to register a complaint relating to air emissions.

13.2 An annual report, to be titled "Environmental Management System and Community Engagement Report", shall be prepared for the preceding calendar year by March 31 of each calendar year. The report shall be made available for public inspection at the *Facility* during office hours and shall include:

(a) documentation of all registered complaints and their resolutions;

(b) the written summary of Action Plan Implementation as required by any *Site-Specific Standard* approval issued to the *Company;*

(c) a summary of actions taken when there are two or more exceedances of Measured Levels of *Sulphur Dioxide* as required by any *Site-Specific Standard* approval; and

13.3 The following information shall be communicated with the public on an annual basis in the format of newsletters, presentations to the EMT, and annual postings on the *Company* website for the preceding calendar year by M**ay 31** of each calendar year:

(a) the Environmental Management System and Community Engagement Report;

(b) a summary of actions taken when triggered by an exceedance of the specified Measured Levels of *Sulphur Dioxide* set out in Table 1 or Table 2 of Schedule "D" of this *Approval;* and

(c) a report on the reduction of total annual *Sulphur Dioxide* emissions over time.

(d) the minutes of the EMT meetings and any related follow-up actions.

14. COMPREHENSIVE SUPPLEMENTARY EMISSION CONTROL SYSTEM

14.1 The *Company* shall have in place and operate a *Comprehensive Supplementary Emission Control System* as specified in Schedule "C" of this *Approval.*

14.2 The *Company* shall comply with the requirements specified in Schedule "D" of this *Approval* , in case the *Sulphur Dioxide* Measured Levels set out in Table 1 or Table 2 of Schedule “D” are exceeded.

15. REVOCATION OF PREVIOUS APPROVALS

15.1 This *Approval* replaces and revokes all Certificates of Approval (Air) issued under section 9 *EPA* and Environmental Compliance Approvals issued under Part II.1 EPA to the *Facility* and dated prior to the date of this *Approval.*

SCHEDULE "A"

Supporting Documentation

(a) Application for *Approval,* dated January 29, 2010, signed by Marc Butler and submitted by the *Company;*

(b) E-mail and attachment from Sean Capstick of Golder Associates Ltd. dated July 25, 2011*;*

(c) *Original ESDM Report,* prepared by Golder Associates Ltd. and dated October 2011;

(d) *Acoustic Assessment Report,* prepared by Golder Associates Ltd. and dated October 2011; and

(e) Additional information related to the application.

SCHEDULE "B"

Calciner Information

***Calciner* in *Calcining Mode* :**

Kiln Feed

1. The *Company* shall ensure that the *Kiln Feed* categories are limited to the following metal bearing materials:

    1.1 spent or off-specification catalysts from petroleum and edible oil industry;

    1.2 spent or off-specification nickel or cobalt based batteries and electronics, excluding all nickel cadmium batteries;

    1.3 sludges from plating industry;

    1.4 metal grindings and metal turnings from various industrial operations;

    1.5 slags and off specification materials from smelting, roasting, calcining and refining processes associated with the metallurgical industry;

    1.6 particulate matter collected in the *Calciner* Receiving Area Baghouse;

    1.7 tailings from mining and metallurgical industry; and

    1.8 any other *Kiln Feed* categories as approved in writing by the *District Manager*.

2. The *Company* shall ensure that each *Kiln Feed* meets the *Kiln Feed* criteria that each *Kiln Feed* category contains metals of interest at a concentration of at least one percent by weight of cobalt, nickel or copper or at least 25 parts per million by weight of gold, palladium, platinum, rhodium and/or silver and does not contain polychlorinated biphenyls at a concentration in excess of 2 parts per million by weight on dry basis.

3. Each *Kiln Feed* lot shall be recorded of its characterization such as its category and source(s) (such as sludge from plating industry), weight (tonnes), moisture content (percent), and descriptions (such as chrome plating for stainless steel).

4. Each *Kiln Feed* lot and records thereof shall be inspected and the *Kiln Feed* shall be sampled and analysed, as necessary, by trained *Company* representative prior to being accepted at the site and/ or prior to being designated as approved *Kiln Feed* to ensure that each *Kiln Feed* category complies with the *Kiln Feed* criteria.

5. The *Company* shall not dilute, mix or blend any *Kiln Feed* category that does not comply with the *Kiln Feed* criteria with another *Kiln Feed* category or anything else in order to comply with the said criteria.

6. The *Company* shall ensure that any refused lots of *Kiln Feed* and any waste generated on site are disposed of in accordance with *O. Reg. 347* unless these materials and wastes comply with the *Kiln Feed* criteria and are therefore fed into the kiln.

7. The Company shall not accept any Kiln Feed that does not comply with the Kiln Feed criteria.

***Calciner* Operation**

8. The *Calciner* and its secondary combustion chamber shall include primary and secondary air control systems, which are capable of automatically adjusting the distribution and the quantity of combustion air, in such a manner that changes in the *Kiln Feed* rate and/or composition or irregularities in the loading and/or combustion shall not adversely affect the performance of the *Calcine* r and the secondary combustion chamber.

9. The *Calcine* r and its secondary combustion chamber shall be capable of regulating, by means of auxiliary fuel control, the temperature at the outlet of the secondary combustion chamber, so as to ensure that a temperature of not less than 1,000 degrees Celsius is attained prior to introduction of any feed into the *Calciner* during any start-up, and that the said temperature maintained at all times when *Kiln Feed* is in the *Calciner.*

10. The secondary combustion chamber shall be operated to provide and maintain a high degree of gas turbulence and mixing.

11. The *Company* shall ensure that the *Kiln Feed* rate does not exceed 3 tonnes per hour on a wet weight basis.

Performance Requirements

12. The *Company* shall ensure that the design and operation of the *Calciner* complies with the following requirements:

    12.1 The concentration of oxygen, as recorded by the *CEM System* in the undiluted flue gas leaving the *Calciner,* shall not be less than 6 percent by dry volume calculated as the rolling arithmetic average of 4 hours of data.

    12.2 The concentration of carbon monoxide in the undiluted flue gas leaving the *Calciner* shall not exceed 35 parts per million by dry volume calculated as the rolling arithmetic average of 4 hours of data.

12.3 The concentration of total hydrocarbons, having a carbon content expressed as equivalent methane, being the rolling arithmetic average of ten measurements taken at approximately one minute intervals, in the undiluted flue gas leaving the *Calciner,* shall not exceed 50 parts per million by dry volume.

12.4 The operating temperatures of the *Calciner* in the secondary combustion chamber shall not be less than 1,000 degrees Celsius at a residence time of not less than 1 second.

12.5 The concentration of suspended particulate matter in the undiluted flue gas leaving the *Calciner* shall not exceed 17 milligrams per dry cubic metre normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

12.6 The concentration of mercury in the undiluted flue gas leaving the *Calciner* shall not exceed 50 micrograms per dry cubic metre normalized to11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

12.7 The concentration of isomers of dioxins and furans of concern in the undiluted flue gas leaving the *Calciner* shall not exceed 80 picograms per dry cubic metre in toxicity equivalent normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

12.8 The concentration of nitrogen oxides (as nitrogen dioxide) in the undiluted flue gas leaving the *Calciner* shall not exceed 110 parts per million by dry volume normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals and calculated as the rolling arithmetic average of 24 hours of data.

***Calciner* in *Drying Mode* :**

Kiln Feed

1. The *Company* shall ensure that the *Kiln Feed* categories are limited to the following metal bearing materials:

1.1 sludges from plating industry;

1.2 blended slags and other wet off specification materials from smelting, roasting, calcining and refining processes associated with the metallurgical industry, including particulate matter collected from dust collectors, vacuuming, road sweeper clean-up, etc.;

1.3 tailings from mining and metallurgical industry; and

1.4 any other *Kiln Feed* categories as approved in writing by the *District Manager.*

2. The *Company* shall ensure that each *Kiln Feed* meets the *Kiln Feed* criteria that each *Kiln Feed* category contains metals of interest at a concentration of at least one percent by weight of cobalt, nickel and/or copper or at least 25 parts per million by weight of gold, palladium, platinum, rhodium and/or silver and does not contain polychlorinated biphenyls at a concentration in excess of 2 parts per million by weight on dry basis.

3. Each *Kiln Feed* lot shall be recorded of its characterization such as its category (such as metal contents and contents of polychlorinated biphenyls), source(s) (such as sludge from plating industry), weight (tonnes), moisture content (percent), and descriptions (such as chrome plating for stainless steel) and shall be signed and dated by supervisory personnel of the *Company.*

4. Each *Kiln Feed* lot and records thereof shall be inspected and the *Kiln Feed* shall be sampled and analysed, as necessary, by trained *Company* representative prior to being accepted at the site and/ or prior to being designated as approved *Kiln Feed* to ensure that each *Kiln Feed* category complies with the *Kiln Feed* criteria.

5. The *Company* shall not dilute, mix or blend any *Kiln Feed* category that does not comply with the *Kiln Feed* criteria with another *Kiln Feed* category or anything else in order to comply with the said criteria.

6. The *Company* shall ensure that any refused lots of *Kiln Feed* and any waste generated on site are disposed of in accordance with *O. Reg. 347* unless these materials and wastes comply with the *Kiln Feed* criteria and are therefore fed into the kiln.

7. The *Company* shall not accept any *Kiln Feed* that does not comply with the *Kiln Feed* criteria.

***Calciner* Operation**

8. The *Company* shall ensure that the *Kiln Feed* rate does not exceed 7 tonnes per hour on a wet weight basis.

Performance Objective

9. The *Company* shall ensure that the *Calciner* is properly operated and shall use all reasonable effort to operate the *Calciner* in *Drying Mode* with the objective that the concentration of mercury in the undiluted gases at the outlet of the Dust Collector (DC-01) is less than 50 micrograms per dry cubic metre normalized to 11 percent oxygen at a reference temperature of 25 degrees Celsius and a reference pressure of 101.3 kilopascals.

SCHEDULE "C"

Comprehensive Supplementary Emission Control System - Operation and Reporting

1. The *Company* shall have in place and operate the predictive and reactive *Comprehensive Supplementary Emission Control System,* which must as a minimum:

   1.1 provide the central control room operators with information necessary to control *Sulphur Dioxide* emissions during periods when there are *Unfavourable Air Dispersion Conditions;*

   1.2 include meteorological instrumentation which will continuously record and transmit information on:

      (a) wind speed and direction; and

      (b) air temperature at an elevation of approximately 50 metres above the base of the Main Stack.

   1.3 include a method or system to determine local vertical profiles of:

      (a) temperature;

      (b) wind speed; and

      (c) wind direction.

2. The *Company* shall operate and maintain the *Company* operated monitors under the *Sudbury Monitoring System* and any other air monitoring stations for monitoring particulate and metals in particulate such as Edison and Pumphouse in accordance with the *Ministry* publication entitled "Operations Manual for Air Quality Monitoring in Ontario" dated March 2008, as amended, so that the monitored data can be used to demonstrate compliance with *Ministry* requirements. All aspects of the *Company* operated monitors under the *Sudbury Monitoring System* and any particulate air monitoring stations shall be acceptable to the *District Manager* and subject to audit at any time by *Ministry* designated personnel. Air quality monitoring data from these monitors shall be reported to the *District Manager* as recommended by the "Operations Manual for Air Quality Monitoring in Ontario" dated March 2008, as amended.

3. The *Company* shall have trained staff on site at all times who are responsible for the operation of the *Comprehensive Supplementary Emission Control System* and who shall monitor all available information, including *Real Time Data* from the *Sudbury Monitoring System,* 24 hours per day when the *Facility* is emitting *Sulphur Dioxide.*

4. The *Company* shall have a manual for the *Comprehensive Supplementary Emission Control System* and it shall be kept readily available for inspection by *Ministry* staff. This manual shall be updated as necessary and annually and shall include as a minimum:

4.1 a description of the duties and responsibilities of the central control room operators for monitoring data regarding ground level concentrations of *Sulphur Dioxide,* including a detailed description of the procedures for the collection of the required system input data;

4.2 instructions and procedures for ensuring that best management practices are taken by the central control room operators to stay within the *Sulphur Dioxide* emissions operating levels, which are based on modelling calculations for different air dispersion categories;

4.3 instructions and procedures detailing the control actions that the central control room operators must take to reduce *Sulphur Dioxide* emissions from the *Facility* when increasing ground level concentrations are predicted from the forecasted meteorological data or observed from the *Real Time Data;*

4.4 an outline of the *Facility* 's internal communication procedures for emission control coordination;

4.5 an outline of the instrument maintenance and calibration procedures for all equipment operated by the *Company* and forming part of the *Comprehensive Supplementary Emission Control System,* including the procedures for reporting equipment malfunctions to the *District Manager.*

5. The *Company* shall prepare monthly reports to be submitted on a semi-annual basis, by March 31 and September 30 of each year, in a format acceptable to the *District Manager,* indicating the total monthly *Sulphur Dioxide* emissions in kilotonnes, based on sulphur mass balance calculations, from the *Facility.*

6. The *Company* shall notify the *Ministry* forthwith of:

6.1 the failure of any systems or equipment related to this *Approval* , and operated by the *Company,* that may affect the reliability of the operation of the *Comprehensive Supplementary Emission Control System;*

6.2 the *Company* 's contingency plans to keep emissions within the limits of this *Approval* in the event that the system or equipment is out of service. A report detailing the schedule for repair of any failed system or equipment must be provided to the Ministry as soon as practicable. The *Company* shall notify the *Ministry* when the system is back in operation.

SCHEDULE "D"

Sulphur Dioxide Measured Levels - Notification and Reporting

1. The Measured Level is calculated as follows:

   1.1 To determine a measured concentration of *Sulphur Dioxide* over a one-hour averaging period, a person shall take the arithmetic average of any 12 consecutive five-minute averages, where the five-minute average is the average *Sulphur Dioxide* concentration measured by the *Sudbury Monitoring System* over a five-minute period.

   1.2 Despite 1.1, if the *Ministry* provides written notice to the *Company,* a *Sulphur Dioxide* measuring device other than the *Sudbury Monitoring System* may be used for the purposes of 1.1.

   1.3 Despite 1.1, a concentration of *Sulphur Dioxide* over a one-hour averaging period will be considered valid if at least 8 (not necessarily consecutive) of the 12 five-minute averages are available for the hour in question.

   1.4 To determine a concentration of *Sulphur Dioxide* over a one-hour averaging period in the circumstances in 1.3, a person shall sum the available five-minute average *Sulphur Dioxide* concentrations and divide the sum by the number of available five-minute averages.

2. If, as a result of *Sulphur Dioxide* emissions from all sources at the *Facility,* the measured concentrations of *Sulphur Dioxide* exceed the Measured Levels set out in Table 1 below or; as a result of *Sulphur Dioxide* from *Area Emissions* at the *Facility,* the measured concentrations of *Sulphur Dioxide* exceed the Measured Level set out in Table 2 below, at any of the monitoring stations in the *Sudbury Monitoring System,* the *Company* shall, unless otherwise specified in writing by the *District Manager:*

   2.1 As soon as practicable after becoming aware of the measured exceedance, notify the *District Manager.*

   2.2 Within seven days of becoming aware of the exceedance above the Measured Levels in Table 1 or Table 2 as applicable, submit a report in a format acceptable to the *District Manager* including but not limited to the following information:

      (a) A log of *Sulphur Dioxide* concentrations relevant to the exceedance;

      (b) Data from the Central Control Room log book relevant to the exceedance;

      (c) Meteorological data relevant to the exceedance, including relevant data from:

         (i) a log of wind speed and direction relevant to the exceedance;

(ii) weather forecasts; and
(iii) any other relevant meteorological data.

(d) All public complaints received by the *Company* on the day of the exceedance.

(e) An incident report, signed by the Facility Manager or his designate, detailing:

(i) the sequence of events that led to the exceedance;
(ii) the reason for the exceedance;
(iii) the remedial action taken; and
(iv) the production level at the time of the exceedance.

(f) A description of specific actions that, if taken, may reduce the likelihood of further exceedance of the Measured Level(s) of *Sulphur Dioxide* set out in Table 1 or Table 2 as required.

2.3 Ensure that all records required in Condition 2.2 of Schedule "D" that are of a temporal nature are recorded in Eastern Standard Time.

2.4 Acknowledge, in writing, the accuracy of the information required to be submitted in Condition 2.2 noted above.

2.5 Retain for seven years, any information required in any approval document that pertains to the emission of *Sulphur Dioxide* and control of ground level concentrations of *Sulphur Dioxide.*

2.6 Implement the actions described in Condition 2.2(f) noted above within sixty days of submitting the information.

3. Control Periods

3.1 Once a *Control Period* begins, the central control room operators shall control or restrict emissions of *Sulphur Dioxide* as may be necessary to avoid exceeding the Measured Levels of *Sulphur Dioxide* set out in Table 1 or Table 2 below and shall not allow an increase in emissions until:

(a) The measured *Sulphur Dioxide* readings from the *Sudbury Monitoring System* clearly indicate that values have been at or below Table 1 or Table 2 Measured Levels for at least 3 consecutive five-minute readings; and

(b) *Unfavourable Air Dispersion Conditions* no longer exist and are not predicted to occur over the next several hours.

4. The *Company* shall provide the *District Manager,* no later than March 31 of each year, a summary and analysis of the five-minute *Sulphur Dioxide* data for the previous year as measured by the *Company* operated monitors under the *Sudbury Monitoring System,* which includes the following:

4.1 A summary of the total number of five-minute *Sulphur Dioxide* readings at or above 0.1 parts per million (ppm), 0.25 ppm and 0.5 ppm. The number of monitoring stations and locations can be amended by the *Ministry* as necessary; and

4.2 For each of the five-minute reading categories identified in Condition 4.1, the Company shall also include the following information regarding each episode:

(a) the date;

(b) the time;

(c) the monitoring station;

(d) the peak intensity; and

(e) the duration of the episode.

Table 1: Measured Levels of *Sulphur Dioxide* (For all Facility sources), above which Action is Triggered

Contaminant	Contaminant Chemical Abstract System No.	Applicable Dates	Measured Level	Averaging Period
Sulphur Dioxide	7446-09-05	From the date of this Approval to December 31, 2015	938 µg/m^3 (0.34 ppm)	1-hour
Sulphur Dioxide	7446-09-05	From January 1, 2016	690 µg/m^3 (0.25 ppm)	1-hour

Table 2: Measured Levels of *Sulphur Dioxide* (For Area Emissions of the Facility), above which Action is Triggered

Contaminant	Contaminant Chemical Abstract System No.	Applicable Dates	Measured Level	Averaging Period
Sulphur Dioxide	7446-09-05	From the date of this approval to December 31, 2015	690 µg/m^3 (0.25 ppm)	1-hour

SCHEDULE "E"

List of Test Contaminants

1. Gases:

Hydrogen Chloride
Carbon Dioxide
Oxygen
Carbon Monoxide
Oxides of Nitrogen
Sulphur Dioxide

2. Particulate and Metals in Particulate:

Suspended particulate matter (< 44 micrometer diameter) and:

Aluminium, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Phosphorous, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Vanadium and Zinc.

3. Chlorinated Organics

Hexachlorobenzene
Total Dichlorobenzenes
Total Pentachlorophenols
Pentachlorobenzene
Total Dichlorophenols
Total Tetrachlorobenzenes

Total Tetrachlorophenols
Total Trichlorophenols
Total Trichlorobenzenes
Total Polychlorinated Biphenyls

4. Polycyclic Organic Matter

Acenaphthylene
Anthracene
Benzo(b)fluoranthene
Benzo(a)fluorine
Benzo(ghi)perylene
Benzo(e)pyrene
Biphenyl
Coronene
Dibenzo(a,h)anthracene
9,10 – Dimethylanthracene
Fluoranthene
Indeno(1,2,3 - Cd)
3 – Methylcholanthrene
2 – Methylnaphthalene
Acenaphthene
Benzo(a)anthracene
Benzo(k)fluoranthene
Benzo(b)fluorene
Benzo(a)pyrene
2-chloronaphthalene
Chrysene
Dibenzo(a,c)anthracene
Dibenzo(a,e)pyrene
7,12 - Dimethylbenzo(a)anthracene
Fluorene
2 - Methylanthracene
1 - Methylnaphthalene
1 - Methylphenanthrene

9 – Methylphenanthrene
Perylene
Picene
Quinoline
O-terphenyl
P-terphenyl
Naphthalene
Phenanthrene
Pyrene
Tetralin
M-terphenyl
Triphenylene

5. Volatile Organic Chemicals

Acetaldehyde
Acrolein
Bromodichloromethane
Bromomethane
Butanone, 2 -
Chloroform
Dibromochloromethane
Dichloroethane, 1,2 -
Dichloroethene, 1,1 -
Ethylbenzene
Formaldehyde
Methylene Chloride
Tetrachloroethene
Trichloroethane, 1,1,1 -
Trichloroethylene, 1,1,2 -
Trichlorotrifluoroethane
Xylenes, M-, P- and O-
Acetone
Benzene
Bromoform
Butadiene, 1,3 -
Carbon Tetrachloride
Cumene
Dichlorodifluoromethane
Dichloroethene, Trans - 1,2 -
Dichloropropane, 1,2 -
Ethylene Dibromide
Mesitylene
Styrene
Toluene
Trichloroethene
Trichlorofluoromethane
Vinyl Chloride

6. Isomers of Dioxins and Furans of concern

International toxicity equivalency factors (I-TEFs) are applied to 17 isomers of dioxins and furans of concern to convert them into 2,3,7,8-CDD (tetrachlorodibenzo-p-dioxin) toxicity equivalents (TEQs). The conversion involves multiplying the concentration of the isomer by the appropriate I-TEF to yield the TEQ for this isomer. Summing the individual TEQ values for each of the isomers of concern provides the total toxicity equivalent level for the sample mixture.

A table listing the 17 isomers of concern and their I-TEFs can be found in the MOE publication titled: Environmental Information - Dioxins & Furans; PIBS 681b, revised 08/91 or in the example provided below.

Example:

Isomers of Dioxins and Furans of Concern	International Toxicity Equivalency Factors (I-TEF's)	Concentration (pg/m3) (Analytically measured)	Toxicity Equivalent (TEQ) pg TEQ/m3
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.0	0.01	0.01
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	0.5	0.011	0.0055
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.1	0.006	0.0006
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.1	0.01	0.001
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.1	0.019	0.0019
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.01	0.15	0.0015
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	0.001	-	-
2,3,7,8-Tetrachlorodibenzofuran	0.1	0.11	0.011
2,3,4,7,8-Pentachlorodibenzofuran	0.5	0.033	0.165
1,2,3,7,8-Pentachlorodibenzofuran	0.05	0.024	0.0012
1,2,3,4,7,8-Hexachlorodibenzofuran	0.1	0.03	0.003
1,2,3,6,7,8-Hexachlorodibenzofuran	0.1	0.016	0.0016
1,2,3,7,8,9-Hexachlorodibenzofuran	0.1	0.016	0.0016
2,3,4,6,7,8-Hexachlorodibenzofuran	0.1	0.007	0.0007
1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.01	0.047	0.0047
1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.01	0.008	0.00008
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	0.001	-	-
TOTAL TOXICITY EQUIVALENT			**0.06088***

NOTE:

* Sum of toxicity equivalents of individual isomers

The I-TEF scheme is intended to be used with isomer specific analytical results. In cases where results are reported by congener group only, staff at MOE's Standards Development Branch should be contacted for appropriate procedures to convert non-isomer specific data to TEQs.

7. Dioxins, Furans and Dioxin-like PCBs (Polychlorinated Biphenyls)

Toxicity equivalency factors (TEFs) are applied to 29 isomers of dioxins, furans and dioxin-like PCBs to convert them into 2,3,7,8-CDD (tetrachlorodibenzo-p-dioxin) toxicity equivalents (TEQs). The conversion involves multiplying the concentration of the isomer by the appropriate TEF to yield the TEQ for this isomer. Summing the individual TEQ values for each of the isomers provides the total toxicity equivalent level for the sample mixture. Details of calculations are shown in Schedule “E”.

A table listing the 29 isomers and their TEFs can be found in the MOE publication titled: Summary of Standards and Guidelines to Support Ontario Regulation 416-05 – Air Pollution - Local Air Quality, PIBS 6569e01 dated April 2012 noted below.

No.	Dioxins, Furans, and Dioxin-like PCBs	CASRN	WHO_{2005} Toxic Equivalency Factors [TEFs]
1	2,3,7,8-Tetrachlorodibenzo-p-dioxin [2,3,7,8-TCDD	1746-01-6	1
2	1,2,3,7,8-Pentachlorodibenzo-p-dioxin [1,2,3,7,8-PeCDD]	40321-76-4	0.5
3	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin [1,2,3,4,7,8-HxCDD]	39227-28-6	0.1
4	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin [1,2,3,6,7,8-HxCDD]	57653-85-7	0.1
5	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin [1,2,3,7,8,9-HxCDD]	19408-74-3	0.1
6	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin [1,2,3,4,6,7,8-HpCDD]	35822-46-9	0.01
7	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin [1,2,3,4,6,7,8,9-OCDD]	3268-87-9	0.001
8	2,3,7,8-Tetrachlorodibenzofuran [2,3,7,8-TCDF]	51207-31-9	0.1
9	1,2,3,7,8-Pentachlorodibenzofuran [1,2,3,7,8-PeCDF]	57117-41-6	0.05
10	2,3,4,7,8-Pentachlorodibenzofuran [2,3,4,7,8-PeCDF]	57117-31-4	0.5
11	1,2,3,4,7,8-Hexachlorodibenzofuran [1,2,3,4,7,8-HxCDF]	70648-26-9	0.1
12	1,2,3,6,7,8-Hexachlorodibenzofuran [1,2,3,6,7,8-HxCDF]	57117-44-9	0.1
13	1,2,3,7,8,9-Hexachlorodibenzofuran [1,2,3,7,8,9-HxCDF]	72918-21-9	0.1
14	2,3,4,6,7,8-Hexachlorodibenzofuran [2,3,4,6,7,8-HxCDF]	60851-34-5	0.1
15	1,2,3,4,6,7,8-Heptachlorodibenzofuran [1,2,3,4,6,7,8-HpCDF]	67562-39-4	0.01
16	1,2,3,4,7,8,9-Heptachlorodibenzofuran [1,2,3,4,7,8,9-HpCDF]	55673-89-7	0.01
17	1,2,3,4,6,7,8,9-Octachlorodibenzofuran [1,2,3,4,6,7,8,9-OCDF]	39001-02-0	0.001
18	3,3',4,4'-Tetrachlorobiphenyl [3,3',4,4'-tetraCB (PCB 77)]	32598-13-3	0.0001
19	3,4,4',5- Tetrachlorobiphenyl [3,4,4',5-tetraCB (PCB 81)]	70362-50-4	0.0003
20	3,3',4,4',5- Pentachlorobiphenyl (PCB 126) [3,3',4,4',5-pentaCB (PCB 126)]	57465-28-8	0.1
21	3,3',4,4',5,5'- Hexachlorobiphenyl [3,3',4,4',5,5'-hexaCB (PCB 169)]	32774-16-6	0.03
22	2,3,3',4,4'- Pentachlorobiphenyl [2,3,3',4,4'-pentaCB (PCB 105)]	32598-14-4	0.00003
23	2,3,4,4',5- Pentachlorobiphenyl [2,3,4,4',5-pentaCB (PCB 114)]	74472-37-0	0.00003
24	2,3',4,4',5- Pentachlorobiphenyl [2,3',4,4',5-pentaCB (PCB 118)]	31508-00-6	0.00003
25	2',3,4,4',5- Pentachlorobiphenyl [2',3,4,4',5-pentaCB (PCB 123)]	65510-44-3	0.00003
26	2,3,3',4,4',5- Hexachlorobiphenyl [2,3,3',4,4',5-hexaCB (PCB 156)]	38380-08-4	0.00003
25	2,3,3',4,4',5'- Hexachlorobiphenyl [2,3,3',4,4',5'-hexaCB (PCB 157)]	69782-90-7	0.00003
28	2,3',4,4',5,5'- Hexachlorobiphenyl [2,3',4,4',5,5'-hexaCB (PCB 167)]	52663-72-6	0.00003
29	2,3,3',4,4',5,5'- Heptachlorobiphenyl [2,3,3',4,4',5,5'-heptaCB (PCB 189)]	39635-31-9	0.00003

The TEF scheme is intended to be used with isomer specific analytical results. In cases where results are reported by congener group only, staff at MOE's Standards Development Branch should be contacted for appropriate procedures to convert non-isomer specific data to TEQs.

SCHEDULE "F"

Specifications of the CEM System

F1. CEM at Main Stack

TEMPERATURE

Installation:

The continuous temperature monitor shall be installed at an accessible location where the measurements are representative of the actual temperatures of the flue gas in the Main Stack.

Performance:

The continuous temperature monitor shall meet the following minimum performance specifications for the following parameters:

	PARAMETERS	SPECIFICATION
1	Type:	shielded “K” type thermocouple or equivalent
2	Accuracy:	± 1.5 percent of the minimum gas temperature

Data Recorder:

The data recorder must be capable of registering continuously the measurement of the monitor without a significant loss of accuracy and with a time resolution of 1 minutes or better.

Reliability:

The monitor and the recorder shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.

SULPHUR DIOXIDE

Installation:

The continuous *Sulphur Dioxide* monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of *Sulphur Dioxide* in the undiluted gases leaving the Main Stack and shall meet the following installation specifications:

	PARAMETERS	SPECIFICATION
1	Range (parts per million, ppm):	0 - 2,500 (or highest concentration anticipated from the source)
2	Calibration Gas Ports:	close to the sample point

Performance:

The continuous *Sulphur Dioxide* monitor shall meet the following minimum performance specifications for the following parameters:

	PARAMETERS	SPECIFICATION
1	Span Value: (nearest ppm equivalent)	2 times the average normal concentration of the source
2	Relative Accuracy:	$\leq$ 10 percent of the mean value of the reference method test data or < 8 ppm average absolute difference whichever is greater
3	Calibration Error:	$\leq$ 2 percent of actual concentration
4	System Bias:	$\leq$ 5 percent of the full scale value or < 5 ppm average absolute difference whichever is greater
5	Procedure for Zero and Span Calibration Check:	all system components checked
6	Zero Calibration Drift (24-hour):	$\leq$ 2.5 percent of span value
7	Span Calibration Drift (24-hour):	$\leq$ 2.5 percent of span value
8	Response Time (90 percent of full scale):	$\leq$ 200 seconds
9	Operational Test Period :	$\geq$ 168 hours without corrective maintenance

Calibration:

Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

Data Recorder:

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

Reliability:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time annually during the first full year of operation, and 95 percent, thereafter.

F2: CEM at Calciner

TEMPERATURE

Installation:

The continuous temperature monitor shall be installed at an accessible location where the measurements are representative of the actual operating temperatures in the secondary combustion chamber of the *Calciner* at *Calcining Mode* are used to verify compliance of the *Approval.*

Performance:

The continuous temperature monitor shall meet the following minimum performance specifications for the following parameters:

	PARAMETERS	**SPECIFICATION**
1	Type:	shielded “K” type thermocouple or equivalent
2	Accuracy:	± 1.5 percent of the minimum gas temperature

Data Recorder:

The data recorder must be capable of registering continuously the measurement of the monitor without a significant loss of accuracy and with a time resolution of 1 minutes or better.

Reliability:

The monitor and the recorder shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.

OXYGEN

Installation:

The continuous oxygen monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of oxygen in the undiluted gases leaving the *Calciner* at *Calcining Mode* and shall meet the following installation specifications.

	PARAMETERS	**SPECIFICATION**
1	Range (percentage):	0 - 20 or 0 - 25
2	Calibration Gas Ports:	close to the sample point

Performance:

The continuous oxygen monitor shall meet the following minimum performance specifications for the following parameters:

	PARAMETERS	**SPECIFICATION**
1	Span Value (percentage):	2 times the average normal concentration of the source
2	Relative Accuracy:	$\leq$ 10 percent of the mean value of the reference method test data or < 0.5 percent average absolute difference whichever is greater
3	Calibration Error:	$\leq$ 0.25 percent O2
4	System Bias:	$\leq$ 5 percent of full scale value or < 0.5 percent average absolute difference whichever is greater
5	Procedure for Zero and Span Calibration Check:	all system components checked
6	Zero Calibration Drift (24-hour):	$\leq$ 0.5 percent O2
7	Span Calibration Drift (24-hour):	$\leq$ 0.5 percent O2
8	Response Time (90 percent of full scale):	$\leq$ 90 seconds
9	Operational Test Period:	$\geq$ 168 hours without corrective maintenance

Calibration:

Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the requirements of Report EPS 1/PG/7.

Data Recorder:

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

Reliability:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time annually during the first full year of operation, and 95 percent, thereafter.

CARBON MONOXIDE

Installation:

The continuous carbon monoxide monitor shall be installed at an accessible location where the measurements are representative of the actual concentration of carbon monoxide in the undiluted gases leaving the *Calciner* at *Calcining Mode* and shall meet the following installation specifications.

	PARAMETERS	**SPECIFICATION**
1	Range (parts per million, ppm):	0 to highest concentration anticipated from the source
2	Calibration Gas Ports:	close to the sample point

Performance:

The continuous carbon monoxide monitor shall meet the following minimum performance specifications for the following parameters:

	PARAMETERS	**SPECIFICATION**
1	Span Value: (nearest ppm equivalent):	2 times the average normal concentration of the source
2	Relative Accuracy:	$\leq$ 10 percent of the mean value of the reference method test data or < 8 ppm average absolute difference whichever is greater
3	Calibration Error:	$\leq$ 2 percent of actual concentration
4	System Bias:	$\leq$ 5 percent of full scale value or < 5 ppm average absolute difference whichever is greater
5	Procedure for Zero and Span Calibration Check:	all system components checked
6	Zero Calibration Drift (24-hour):	$\leq$ 5 percent of span value
7	Span Calibration Drift (24-hour):	$\leq$ 5 percent of span value
8	Response Time (90 percent of full scale):	$\leq$ 200 seconds
9	Operational Test Period:	$\geq$ 168 hours without corrective maintenance

Calibration:

Daily calibration drift checks on the monitor shall be performed and recorded in accordance with the

requirements of Report EPS 1/PG/7.

Data Recorder:

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

Reliability:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time annually during the first full year of operation, and 95 percent, thereafter.

Appendix 1: Map of the Greater Sudbury Monitors

The reasons for the imposition of these terms and conditions are as follows:

GENERAL

Condition No. 1 is included to require the *Approval* holder to build, operate and maintain the *Facility* in accordance with the *Supporting Documentation* considered by the *Director* in issuing this *Approval.*

LIMITED OPERATIONAL FLEXIBILITY, REQUEST FOR *MAXIMUM CONCENTRATION LEVEL ASSESSMENT* AND *PERFORMANCE LIMITS*

Conditions No. 2 and No. 3 are included to limit and define the *Modifications* permitted by this *Approval,* and to set out the circumstances in which the *Company* shall submit a *Maximum Concentration Level Assessment* prior to making *Modifications.* The holder of the *Approval* is approved for operational flexibility for the *Facility* that is consistent with the description of the operations included with the application up to the *Facility Production Limit.* In return for the operational flexibility the *Approval* places performance based limits that cannot be exceeded under the terms of this *Approval. Approval* holders will still have to obtain other relevant approvals required to operate the *Facility,* including requirements under other environmental legislation such as the *Environmental Assessment Act.*

DOCUMENTATION REQUIREMENTS

Condition No. 4 is included to require the *Company* to maintain ongoing documentation that demonstrates compliance with the *Performance Limits* of this *Approval* and allows the *Ministry* to monitor on-going compliance with these *Performance Limits.* The *Company* is required to have an up to date *ESDM Report* and *Acoustic Assessment Report* that describe the *Facility* at all times and make the *Emission Summary Table* and *Acoustic Assessment Summary Table* from these reports available to the public on an ongoing basis in order to maintain public communication with regard to the emissions from the *Facility.*

REPORTING REQUIREMENTS

Condition No. 5 is included to require the *Company* to provide a yearly *Written Summary Form* to the *Ministry* to assist the *Ministry* with the review of the site's compliance with the *EPA,* the regulations and this *Approval.*

OPERATION AND MAINTENANCE

Condition No. 6 is included to require the *Company* to properly operate and maintain the *Processes with Significant Environmental Aspects* to minimize the impact to the environment from these processes.

COMPLAINTS RECORDING PROCEDURE

Condition No. 7 is included to require the *Company* to respond to any environmental complaints regarding the operation of the *Equipment,* according to a procedure that includes methods for preventing recurrence of similar incidents and a requirement to prepare and retain a written report.

RECORD KEEPING REQUIREMENTS

Condition No. 8 is included to require the *Company* to retain all documentation related to this *Approval* and provide access to employees in or agents of the *Ministry,* upon request, so that the *Ministry* can determine if a more detailed review of compliance with the *Performance Limits* is necessary.

SOURCE TESTING/MONITORING AND CONTINUOUS EMISSION MONITORING

Conditions No. 9, No. 10 and No. 11 are included to require the *Company* to gather accurate information so that the environmental impact and subsequent compliance with the *EPA,* the regulations and this *Approval* can be verified.

ACOUSTIC ASSESSMENT

Condition No. 12 is included to require the *Company* to gather accurate information and submit an *Acoustic Audit Report* in accordance with procedures set in the *Ministry's* noise guidelines, so that the environmental impact and subsequent compliance with this *Approval* can be verified.

COMMUNITY ENGAGEMENT AND REPORTING

Condition No. 13 is included to require the *Company* to establish a forum for the exchange of information and public dialogue on activities carried out at the *Facility.* Open communication with the public and local authorities is important in helping to maintain high standards for the operation of the *Facility* and protection of the natural environment.

COMPREHENSIVE SUPPLEMENTARY EMISSION CONTROL SYSTEM

Condition No. 14 is included to require the *Company* to properly operate and maintain the *Processes with Significant Environmental Aspects* , monitor and record their emissions and report to the *Ministry* their emissions so that the environmental impact and subsequent compliance with this *Approval* can be verified.

REVOCATION OF PREVIOUS APPROVALS

Condition No. 15 is included to identify that this *Approval* replaces all Section 9 Certificate(s) of Approval and Part II.1 Approvals that have been previously issued for this *Facility.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 8-5060-96-988, 0199-5ELP2B, 2927-6QYPMA, 3068-6NCHUU, 6158-87BRW3, 8-5011-85-007, 6009-8B8SV4, 4192-6B5RLQ, 8-6006-99-006, 8-6008-99-006, 8-6021-99-006, 8-5097-95-006, 8-6079-99-016, 8-6074-97-007, 8-5075-87-898, 8-5032-77-979 issued on September 16, 1998, February 20, 1996, April 5, 2005, August 28, 1992, April 22, 1993, March 21, 1994, March 22, 1999, May 25, 1998, October 7, 2002, June 30, 2006.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ebr.gov.on.ca , you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 6th day of February, 2013

Ian Greason, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

KW/
c: District Manager, MOE Sudbury
Sean Capstick, P.Eng., Golder Associates Ltd.