APPROVAL TO OPERATE

I-7107

Pursuant to paragraph 5 (3) (a) of the *Air Quality Regulation* - *Clean Air Act*, this Approval to Operate is hereby issued to:

XSTRATA CANADA CORPORATION

for the operation of the

Belledune Lead Smelter and Bulk Handling Facility

Description of Source:	**LEAD SMELTER AND BULK HANDLING FACILITY**
Source Classification:	**Air Quality Regulation** **Class 1A**
Parcel Identifier:	**20278339, 50078294, 20252680, 20444840, 20252318, 20801619, 20443255, 20443156, 20443172, 20443198, 20443149**

Mailing Address:	**692 Main St.** **Belledune, NB E8G 2M1**
Conditions of Approval:	**See attached Schedule "A" of this Approval**
Supersedes Approval:	**I-4757**
Valid From:	**November 15, 2010**
Valid To:	**November 14, 2015**

Recommended by: _____

Community Planning & Environmental Protection Division

Issued by: _____ _____

Minister of Environment Date

SCHEDULE "A"

A. DESCRIPTION AND LOCATION OF SOURCE

Xstrata Canada Corporation operates a Lead Smelter and Bulk Handling Facility at a site in Belledune. The Smelter produces up to 120,000 tonnes of refined lead per year from lead concentrate, other lead-bearing materials and recyclables. The Bulk Handling Facility handles up to 750,000 tonnes of bulk products including lead and zinc concentrates, coke, sulphuric acid and recycled batteries.

The lead concentrate contains sulphur which is removed during sintering as sulphur dioxide, and converted into sulphuric acid in the Acid Plant. The acid is pumped to the Bulk Handling Facility where it is stored prior to shipment. In general, the site consists of a Sinter Plant, Blast Furnace, Lead Refinery, Acid Plant and Bulk Handling Facility.

There exist *potential* environmental impacts to the atmosphere from:

i) the emission of air contaminants principally sulphur dioxide, particulate matter (containing heavy metals) and carbon dioxide from approximately 30 stacks of various dimensions located throughout the Smelter and Bulk Handling Facility and associated with various process operations including the Proportioning Plant, Sinter Plant, Lead Refinery, Furnaces, Bulk Storage Domes, Conveyor System and Water Supply; and

ii) fugitive dust emissions from the unloading, handling and storage of concentrate ore, coke, and silica and limerock fluxes from the lead smelter.

The Operation of the Smelter and Bulk Handling Facility located in the Town of Belledune, County of Gloucester, Province of New Brunswick, and identified as Property Identification Numbers 20252680, 20278339, 20444840, 20252318, 20801619, 20443255, 20443156, 20443172, 20443198, 20443149 and 50078294, the latter being in Restigouche County **is hereby approved under the *Air Quality Regulation - Clean Environment Act* subject to the following Definitions, Terms and Conditions:**

B. DEFINITIONS

1. **"Approval Holder"** means Xstrata Canada Corporation.

2. "**Department**" means the New Brunswick Department of Environment.

3. **"Minister"** means the Minister of Environment and includes any person designated to act on the Minister's behalf.

4. **"Director"** means the Director of the Impact Management Branch of the Department of Environment and includes any person designated to act on the Director's behalf.

5. **"Inspector"** means an Inspector designated under the *Clean Air Act*, the *Clean Environment Act*, or the *Clean Water Act.*

6. **"environmental emergency"** means a situation where there has been or will be a release, discharge, or deposit of a contaminant or contaminants to the atmosphere, soil, surface water, and/or groundwater environments of such a magnitude or duration that it could cause significant harm to the environment or put the health of the public at risk.

7. **“Normal business hours”** means the hours when the Department's offices are open. These include the period between 8:15 a.m. and 4:30 p.m. from Monday to Friday excluding statutory holidays.

8. **"after hours"** means the hours when the Department's offices are closed. These include statutory holidays, weekends, and the hours before 8:15 a.m. and after 4:30 p.m. from Monday to Friday.

9. **"statutory holiday"**, for the purpose of this approval, means the following days: New Year's Day, Good Friday, Easter Monday, Victoria Day, Canada Day, New Brunswick Day, Labour Day, Thanksgiving Day, Remembrance Day, Christmas Day and Boxing Day. If the statutory holiday falls on a Sunday, the following day shall be considered to be the statutory holiday.

10. **"Facility"** means the property, buildings, and equipment as identified in the Description of Source above, and all contiguous property in the title of the Approval Holder at that location, including but not limited to:

LEAD SMELTER

a) Proportioning Plant where lead bearing materials such as concentrates, dross, battery paste and recyclables are combined with sand and limestone in proportions appropriate for sintering, and conveyed to the Sinter Plant.

b) Sinter Plant where the feed from the Proportioning Plant is mixed and then fed into the Sinter Machine where it is roasted to remove sulphur as sulphur dioxide, and to form appropriately sized sintered material which when combined with coke is fed to the Blast Furnace. Sulphur dioxide offgas containing 2 to 4 percent sulphur dioxide is piped to the Hot Gas Precipitator. Ducon Scrubbers are used to remove particulate from the recirculated sinter return bin and discharge, and the sinter cooling drum.

c) Hot Gas Precipitator which removes particulate from the sinter machine offgas. Cleaned offgas is directed to the Acid Plant; removed particulate is returned to the Sinter Plant.

d) Acid Plant where sulphur dioxide laden offgas from the Sinter Plant is dried, catalytically converted to sulphur trioxide and dissolved in absorber grade sulphuric acid creating metallurgical grade sulphuric acid.

e) Lead Blast Furnace where sinter, coke and when available, recyclables are combined with oxygen enriched air to produce lead bullion. The Blast Furnace has a capacity of 1,100 tonnes per day of sinter; the lead bullion is directed to the Lead Refinery.

f) Lead Refinery where lead bullion is separated into refined lead and other metallic co-products such as copper, antimony, bismuth and silver. The refinery is divided into several metal specific operating units including:

i) Copper Dross Plant with five kettles and a reverberatory furnace.

ii) Antimony Section with two kettles.

iii) Silver Section with five kettles, four liquation kettles, one vacuum induction retort and one bottom-blown oxygen cupel.

iv) Bismuth Section with four kettles.

v) Final Clean-up Section with 2 kettles producing refined lead.

g) Short Rotary Furnaces where custom materials such as antimonial slag, battery plates and other lead bearing materials are converted into lead bullion.

BULK HANDLING FACILITY

a) Concentrate Handling Facility where lead and bulk concentrates are received, stored and shipped to the smelter or the wharf and including:

i) Seven concentrate storage domes

ii) Truck and railcar unloading building

iii) Radial stacking conveyor

iv) Underground concentrate conveying system

v) Graded stormwater catchment area and containment lagoon

b) Wharf Unloading Facility at the Port of Belledune, managed by the Approval Holder under contract with Belledune Port Authority, and capable of handling concentrate, metallurgical coke, and sulphuric acid. The Port is also equipped to ship out sulphuric acid, refined lead bullion, concentrate ore and other bulk materials.

c) Battery Recycling Plant where used lead acid batteries are recycled for their component parts including lead grid, lead paste, plastic and sulfuric acid.

d) Sulphuric Acid Storage and Handling system consisting of two 30,000 tonne storage tanks, pipelines from the smelter and to the wharf, and associated pumping and containment areas.

JACQUET RIVER WATER SUPPLY

Containing a diesel-fired back-up pump used only when the electric water pumps are not operational or during periods when testing of the system is conducted.

FERTILIZER PLANT

Phosphoric Acid Plant and Diammonium Phosphate Plant, neither of which is operating.

11. **"normal cubic metre"** or **"Nm^3"** means, in respect of a gas, the quantity of gas occupying a volume of one cubic metre at 25°C and at a pressure of 101.3 kPa.

C. EMERGENCY REPORTING

12. Initial Notification

Immediately following the discovery of an environmental emergency, a designate representing the Approval Holder shall notify the Department in the following manner:

During normal business hours, telephone the Department's Bathurst Regional Office **until personal contact is made** (i.e. no voice mail messages will be accepted) and provide as much information that is known about the environmental emergency. The telephone number for the Bathurst Regional Office is provided below:

Bathurst Regional Office (506) 547-2092

After hours, telephone the Canadian Coast Guard **until personal contact is made** and provide as much information that is known about the environmental emergency. The telephone number for the **Canadian Coast Guard** is **1-800-565-1633.**

13. Follow-Up

Within 24-hours of the time of initial notification, a faxed copy of a **Preliminary Emergency Report** shall be filed by a designate representing the Approval Holder to the Department's Bathurst Regional Office *as well as* to the Department's Central Office using the fax numbers provided below. The Preliminary Emergency Report shall clearly communicate all information available at the time about the environmental emergency.

Within five (5) days of the time of initial notification, a faxed copy of a **Detailed Emergency Report** shall be filed by a designate representing the Approval Holder to the Department's Bathurst Regional Office *as well as* to the Department's Central Office using the fax numbers provided below:

Bathurst Regional Office (fax): (506) 547-7655

Central Office (fax): (506) 457-7805

The **Detailed Emergency Report** shall include, as a minimum, the following:

i) a description of the problem that occurred;

ii) a description of the impact that occurred;

iii) a description of what was done to minimize the impact; and

iv) a description of what was done to prevent recurrence of the problem.

D. GENERAL INFORMATION

14. The Approval Holder shall operate the Facility in compliance with the *Air Quality Regulation 97-133* filed under the *Clean Air Act* of the Province of New Brunswick. Violation of this Approval or any condition herein stated constitutes a violation of the *Clean Air Act.*

15. The issuance of this Approval does not relieve the Approval Holder from compliance with any other applicable federal or provincial acts and regulations as well as local by-laws.

16. The terms and conditions of this Approval are severable. If any term or condition of this Approval is held invalid, is revoked or is modified, the remainder of the Approval shall not be affected.

17. If, in the opinion of the Minister, the environmental impact of the Facility is unacceptable, the Minister reserves the right to cancel this Approval and issue a new Approval as deemed necessary.

18. An Inspector, at any reasonable time, has the authority to inspect the Facility and carry out such duties as defined in the *Clean Air Act*, the *Clean Environment Act* or the *Clean Water Act*.

E. TERMS AND CONDITIONS

GENERAL CONDITIONS

19. This Facility has been classified as a **Class 1A** Facility, pursuant to the *Air Quality Regulation, New Brunswick Regulation 97-133* filed under the *Clean Air Act*. The Approval Holder shall pay the appropriate fee **on or before April 1 of each year.**

20. In addition to any requirements under the *Environmental Impact Assessment Regulation - Clean Environment Act*, the Approval Holder shall make application in writing for an Approval at least **two hundred and seventy (270) days** prior to construction or modification of the source. No Approval is required for any modification which does not increase the emissions from the source or result in the emission of any air contaminant which was not previously emitted from the source. The Approval Holder shall make application on a form provided by the Minister.

21. **Prior to April 15, 2015**, the Approval Holder shall make application in writing for a renewal of this Approval in a form acceptable to the Minister and advise of any changes in the construction or operation of the source, including full documentation of the operation of the Facility with respect to its ability to meet all requirements listed herein.

22. In the event of Facility closure, the Approval Holder shall, in addition to any requirements under the *Environmental Impact Assessment Regulation - Clean Environment Act*, prepare plans for complete site rehabilitation. The plans shall be submitted to the Department for review at least six (6) months before the planned closure date. The documentation shall include but not be limited to updated site plans as well as an engineering proposal for the site rehabilitation and closure.

EMISSION LIMITS

23. The Approval Holder shall operate the equipment such that the emission rate of particulate matter to the atmosphere from the Facility may achieve the design criteria of:

a) less than 46 mg/Nm^3 for the Ducon scrubbers

b) less than 22 mg/Nm^3 for the baghouses

24. The Approval Holder shall operate the acid plant and sinter plants so that emissions from these stacks are targeted for the following:

a) Less than 1100 ppmv over a 24-hour rolling average (2883 mg/Nm^3) for the acid plant.

b) Less than 800 ppmv over a 24-hour rolling average (2097 mg/Nm^3) for the sinter plant baghouse.

Based on these emission targets and flow rate ratios of 5(sinter):1(acid), the emission limit for the stacks will be the combined weighted average of the two:

$$\frac{\{Sinter\ stack(ppmv)x\ 5\} + \{Acid\ stack(ppmv)x\ 1\}}{6}$$

$$\frac{\{800\ ppmv\ x\ 5\} + \{1100\ ppmv\ x\ 1\}}{6} = \mathbf{850\ ppmv\ combined\ 24\ hour\ average\ (2226\ mg/Nm^3)}$$

Following shutdowns the sinter and acid plants shall be brought to steady state conditions as quickly as possible and in a manner, which minimizes sulphur dioxide emissions.

25. The Approval Holder shall ensure that the total emission of sulphur dioxide to the atmosphere from the Facility is less than 13,000 tonnes per calendar year.

26. The Approval Holder shall ensure that the emissions originating from the operation of the Facility are controlled to prevent the exceedance of the maximum permissible ground level concentrations outlined in the Schedule B of the *Air Quality Regulation - Clean Air Act* of the province of New Brunswick.

EPISODE CONTROL

27. The Approval Holder shall ensure that all air pollution control equipment, including but not limited to the scrubbers, baghouses, and associated equipment are functional and in operation at all times during which the Facility is in operation.

28. The Approval Holder shall continue to implement the **Air Quality Action Plan** dated March 23, 2005 or latest approved revision.

TESTING AND MONITORING

29. The Approval Holder shall conduct performance tests on atmospheric emissions of contaminants from the Facility and on ambient air quality at such times and in such manner as the Minister may in writing require.

30. The Approval Holder shall ensure that all performance tests required under this Approval are conducted in accordance with the Department's of Guidance Document for Source Testing dated January 2003 or latest revision.

31. The Approval Holder shall continuously monitor the temperature and concentration of sulphur dioxide from the Acid Plant and Sinter Plant baghouse stacks using techniques acceptable to the Department. Records of the hourly averages of these parameters shall be kept and available for review by an Inspector, quality-assured and retained for a period of three years.

32. The Approval Holder shall continuously monitor particulate matter emissions from the baghouse stacks using opacity meters for the Sinter Plant baghouse stack, Furnace, Short Rotary and Silver Refinery baghouse stacks. Records of the hourly average emissions shall be kept and be available for review by an Inspector, quality-assured and retained for a period of three years.

33. Tests shall be undertaken at least once per year to develop the emission rates for particulate matter from all major emission sources within the Facility. Particulate matter samples shall be analyzed for the concentrations of heavy metals such that estimates may be made of the emission rates of lead, zinc, arsenic, copper, cadmium, bismuth, antimony, thallium, tin, selenium, silver, chromium, tellurium, nickel, beryllium and rhobidium. Source testing shall be carried out as a minimum on the stacks associated with the following units; Furnace, Sinter Plant, Short Rotary Furnace, and the Silver Refinery baghouses, and the P-27, P-50 and P-52 Ducon scrubbers. The methodology used shall be equivalent to that described in the Environment Canada Publication "Standard Reference Methods for Source Testing: Measurement of Emissions of Particulate from Stationary Sources EPS 1/RM/8".

34. The Approval Holder shall conduct a yearly audit of the sulphur dioxide continuous emission monitors to verify the accuracy of the concentrations and mass discharges of the sulphur dioxide.

35. The Approval Holder shall conduct annual performance tests to determine the emission rate and concentration of sulphuric acid from the Facility. As a minimum these tests shall be conducted on the Acid Plant stack. The tests shall be conducted in accordance with U.S. EPA Method 8 "Determination of Sulfuric Acid and Sulfur Dioxide Emissions from Stationary Sources" or alternative method(s) approved by the Department.

36. The Approval Holder shall conduct annual performance tests to determine the emission rate and concentration of mercury and its compounds from the Facility. As a minimum these tests shall be conducted on the Acid Plant stack and on any other stacks where the expected emissions of mercury are greater than 5 kg per year. The tests shall be conducted in accordance with U.S. EPA Reference Method 101 "Mercury from Chlor-Alkali Plants" or alternative method(s) approved by the Department.

37. The Approval Holder shall conduct annual performance tests to determine the emission rates and concentrations of chlorinated dioxins and furans, chlorobenzenes and volatile organic compounds from the short rotary furnace, furnace and sinter plant baghouse stacks. These tests shall be conducted in accordance with methods acceptable to the Department.

The tests for chlorinated dioxin and furan and chlorobenzene shall be conducted in accordance with Environment Canada Publication "Reference Method For Source Testing: Measurement of Releases of Selected Semi-volatile Organic Compounds from Stationary Sources EPS Method 1/RM/2" or alternative method(s) approved by the Department.

The tests for volatile organic compounds shall be conducted in accordance with U.S. EPA Method 0030 "Test methods for evaluating solid waste. Volume 2. Field manual physical/chemical methods (3rd edition)" or alternative method(s) approved by the Department.

38. The Approval Holder shall continue to implement the Environmental Effects Monitoring Program as per the Environmental Quality Assurance Manual and update the Program, if necessary, as follows:

a) Each year prior to November 30, the Approval Holder shall submit to the Director for review and approval an updated Environmental Effects Monitoring Plan for the following year.

b) Following approval of any element of the Plan, the Approval Holder shall implement the revised Environmental Effects Monitoring Program.

39. The Approval Holder shall carry out Environmental Effects Monitoring (EEM) to monitor the effects of the operation of the Facility on the environment. The EEM shall be conducted in accordance with the Xstrata Zinc, Brunswick Smelter Environmental Quality Assurance Manual (QAM), Section 6.0 Standard Operating Procedures dated April, 2010 or latest approved revision. All results developed under this program shall be quality assured and maintained indefinitely. The EEM shall include, but not necessarily be limited to, the following sub programs:

a) continuous monitoring of the ambient sulphur dioxide concentration at the three existing monitoring stations (Boulay, Townsite #2, and Chalmers).

b) monitoring of ambient suspended particulate concentrations at the three existing locations (Boulay, Townsite #2, and Chalmers). The three Hi-Vol particulate samplers shall be operated for twenty four continuous hours every sixth day according to the National Air Pollution Surveillance Network High-Volume Sampling Schedule. The sampler filters shall be retained and analysed for concentrations of total suspended particulate, lead, zinc, cadmium, arsenic, thallium and sulphates.

c) soil samples once per year at locations described in the QAM Section 6.6. The soil samples shall be analysed for concentrations of lead, zinc, cadmium, arsenic and thallium.

d) forage samples to be collected twice per year at twenty existing locations described in the QAM Section 6.3. The forage samples shall be analysed for concentrations of lead, zinc, cadmium, arsenic and thallium.

e) garden produce samples to be collected once per year from local growers, locations of which are described in the QAM Section 6.3. Where samples from a grower are not available, the Approval Holder shall attempt to obtain samples from a similar location and shall note the change in sampling location. Samples collected shall be analysed for concentrations of lead, zinc, cadmium, arsenic and thallium.

f) continue to operate the Xstrata Zinc meteorological tower, located on the roof of the lab building, measuring wind speed and wind direction.

40. The Approval Holder shall handle and manage internal waste dust at the Facility as per the approved Dust Removal Management Plan.

REPORTING

41. Two weeks prior to the commencement of any performance testing required under this Approval, the Approval Holder shall submit a pre-test plan to the Department for approval.

42. **Within 30 days of the end of each month**, the Approval Holder shall submit to the Department in electronic form a "Monthly Air Quality Report" which is to provide information relating to all significant events relating to air emissions, ambient air quality and compliance with air quality standards and the limits outlined in this Approval. The report shall contain as a minimum the following information:

a) Date and time of measurements taken.

b) Hourly wind speed (km/hr) and direction (degrees) from on-site meteorological station.

c) Hourly average and 24-hour rolling average ambient concentrations of sulphur dioxide from the three ambient monitoring stations.

d) Hourly and 24-hour rolling average stack concentrations of sulphur dioxide from the Acid Plant and Sinter Plant Baghouse stacks.

e) Monthly average concentrations and mass emissions of sulphur dioxide from the Acid Plant and Sinter Plant Baghouse stacks.

f) Hourly particulate matter concentrations and mass emissions of particulate matter from the Sinter Plant Baghouse stack.

g) Monthly average concentrations and mass emissions of particulate matter from the Sinter Plant Baghouse stack.

h) Hourly opacity from the Furnace Baghouse stack.

i) 24 hour average ambient concentrations of Total Suspended Particulate, lead, cadmium, zinc, arsenic, thallium, and sulphates as determined through Hi-Vol sampling at the three ambient monitoring stations.

j) Summary of any exceedances of the individual stack limits or ambient standards along with explanations as to cause and mitigative action taken or to be taken to prevent a recurrence.

k) Monthly inventory of each waste dust, as per the Dust Removal Management Plan.

The final report for the year i.e. the December report shall be submitted to the Department in hard copy and electronic form.

43. **By January 31 of each year**, the Approval Holder shall submit to the Department in hard copy and electronic form an "Annual Air Quality Report". The report shall include, as a minimum, a description of any process changes, a summary of abnormal operating conditions, and a summary of the in-plant and ambient results provided in the monthly reports, including the total release to the atmosphere of sulphur dioxide, particulate matter, lead, cadmium, arsenic, thallium, copper and zinc, and the consumption and sulphur content of fuels utilized in the preceding calendar year.

44. **By January 31 of each year**, the Approval Holder shall submit to the Department the results of the yearly audit of sulphur dioxide continuous emission monitors.

45. **By May 31 of each year**, the Approval Holder shall submit to the Department in hard copy and electronic form an update to the "Environmental Effects Monitoring Program".

Prepared by: _____

Sheryl Johnstone, P.Eng.

Industrial Approvals Engineer, Industrial Processes

Reviewed by: _____

Greg Shanks,

Director, Impact Management Branch

AMENDMENT No. 1

Made to Approval to Operate No. I-7107 issued to:

XSTRATA CANADA CORPORATION

for the operation of

Belledune Lead Smelter and Bulk Handling Facility

The Approval to Operate with identification number I-7107, issued under the *Air Quality Regulation - Clean Air Act*, **is hereby amended by:**

Replacing 10 under DEFINITIONS of Schedule "A" with the following

10. **"Facility"** means the property, buildings, and equipment as identified in the Description of Source above, and all contiguous property in the title of the Approval Holder at that location, including but not limited to:

LEAD SMELTER

a) Proportioning Plant where lead bearing materials such as concentrates, dross, battery paste and recyclables are combined with sand and limestone in proportions appropriate for sintering, and conveyed to the Sinter Plant.

b) Sinter Plant where the feed from the Proportioning Plant is mixed and then fed into the Sinter Machine where it is roasted to remove sulphur as sulphur dioxide, and to form appropriately sized sintered material which when combined with coke is fed to the Blast Furnace. Sulphur dioxide offgas containing 2 to 4 percent sulphur dioxide is piped to the Hot Gas Precipitator. Ducon Scrubbers are used to remove particulate from the recirculated sinter return bin and discharge, and the sinter cooling drum.

c) Hot Gas Precipitator which removes particulate from the sinter machine offgas. Cleaned offgas is directed to the Acid Plant; removed particulate is returned to the Sinter Plant.

d) Acid Plant where sulphur dioxide laden offgas from the Sinter Plant is dried, catalytically converted to sulphur trioxide and dissolved in absorber grade sulphuric acid creating metallurgical grade sulphuric acid.

e) Lead Blast Furnace where sinter, coke and when available, recyclables are combined with oxygen enriched air to produce lead bullion. The Blast Furnace has a capacity of 1,100 tonnes per day of sinter; the lead bullion is directed to the Lead Refinery.

f) Lead Refinery where lead bullion is separated into refined lead and other metallic co-products such as copper, antimony, bismuth and silver. The refinery is divided into several metal specific operating units including:

    i) Copper Dross Plant with five kettles and a reverberatory furnace.

    ii) Antimony Section with two kettles.

iii) Silver Section with five kettles, five liquation kettles, two vacuum induction retort, one bottom-blown oxygen cupel and one induction furnace.

iv) Bismuth Section with four kettles.

v) Final Clean-up Section with 2 kettles producing refined lead.

g) Short Rotary Furnaces where custom materials such as antimonial slag, battery plates and other lead bearing materials are converted into lead bullion.

BULK HANDLING FACILITY

a) Concentrate Handling Facility where lead and bulk concentrates are received, stored and shipped to the smelter or the wharf and including:

i) Seven concentrate storage domes

ii) Truck and railcar unloading building

iii) Radial stacking conveyor

iv) Underground concentrate conveying system

v) Graded stormwater catchment area and containment lagoon

b) Wharf Unloading Facility at the Port of Belledune, managed by the Approval Holder under contract with Belledune Port Authority, and capable of handling concentrate, metallurgical coke, and sulphuric acid. The Port is also equipped to ship out sulphuric acid, refined lead bullion, concentrate ore and other bulk materials.

c) Battery Recycling Plant where used lead acid batteries are recycled for their component parts including lead grid, lead paste, plastic and sulfuric acid.

d) Sulphuric Acid Storage and Handling system consisting of two 30,000 tonne storage tanks, pipelines from the smelter and to the wharf, and associated pumping and containment areas.

JACQUET RIVER WATER SUPPLY

Containing a diesel-fired back-up pump used only when the electric water pumps are not operational or during periods when testing of the system is conducted.

FERTILIZER PLANT

Phosphoric Acid Plant and Diammonium Phosphate Plant, neither of which is operating.

Adding the following under TERMS AND CONDITIONS of Schedule "A"

46. The Approval Holder shall construct the Silver Refinery Modification Project in accordance with the Approval of a Source application document dated July 29th, 2011.

Replacing 24, 28, 42 and 43 under TERMS AND CONDITIONS of Schedule "A" with the following

24. The Approval Holder shall operate the acid plant and sinter plants so that emissions from these stacks are targeted for the following sulphur dioxide concentrations:

a) Less than 1100 ppmv over a 24-hour rolling average (2883 mg/Nm^3) for the acid plant.

b) Less than 800 ppmv over a 24-hour rolling average (2097 mg/Nm^3) for the sinter plant baghouse.

Based on these emission targets and flow rate ratios of 5(sinter):1(acid), the emission limit for the stacks will be the combined weighted average of the two:

$$\frac{\{Sinter\ stack(ppmv)x\ 5\} + \{Acid\ stack(ppmv)x\ 1\}}{6}$$

$$\frac{\{800\ ppmv\ x\ 5\} + \{1100\ ppmv\ x\ 1\}}{6} = \mathbf{850\ ppmv\ combined\ 24\ hour\ average\ (2226\ mg/Nm^3)}$$

Following shutdowns the sinter and acid plants shall be brought to steady state conditions as quickly as possible and in a manner, which minimizes sulphur dioxide emissions.

28. The Approval Holder shall continue to implement the **Air Quality Action Plans,** dated July 6th, 2010 for **Particulate Matter** and December 16th, 2010 for **Sulphur Dioxide**, or the latest approved revision.

42. **Within 30 days of the end of each month**, the Approval Holder shall submit to the Department in electronic form a "Monthly Air Quality Report" which is to provide information relating to all significant events relating to air emissions, ambient air quality and compliance with air quality standards and the limits outlined in this Approval. The report shall contain as a minimum the following information:

a) Date and time of measurements taken.

b) Hourly wind speed (km/hr) and direction (degrees) from on-site meteorological station.

c) Hourly average and 24-hour rolling average ambient concentrations of sulphur dioxide from the three ambient monitoring stations.

d) Hourly and 24-hour rolling average stack concentrations of sulphur dioxide from the Acid Plant and Sinter Plant Baghouse stacks.

e) Monthly average concentrations of sulphur dioxide from the Acid Plant and Sinter Plant Baghouse stacks.

f) Hourly opacity from the Furnace Baghouse stack, Silver Refinery Baghouse stack, Short Rotary Furnace stack and the Sinter Baghouse stack.

g) 24 hour average ambient concentrations of Total Suspended Particulate, lead, cadmium, zinc, arsenic, thallium, and sulphates as determined through Hi-Vol sampling at the three ambient monitoring stations.

h) Summary of any exceedances of the individual stack limits or ambient standards along with explanations as to cause and mitigative action taken or to be taken to prevent a recurrence.

i) Monthly inventory of each waste dust, as per the Dust Removal Management Plan.

The final report for the year i.e. the December report shall be submitted to the Department in hard copy and electronic form.

43. **By January 31 of each year**, the Approval Holder shall submit to the Department in hard copy and electronic form an "Annual Air Quality Report". The report shall include, as a minimum, a description of any process changes, a summary of abnormal operating conditions, and a summary of the in-plant and ambient results provided in the monthly reports, including the total release to the atmosphere of sulphur dioxide, particulate matter, lead, cadmium, arsenic, thallium, copper and zinc, and the consumption and sulphur content of fuels utilized in the preceding calendar year.

The Report shall also include the annual mass emissions of particulate matter and sulphur dioxide from individual stacks, including the Sinter Plant Baghouse, Silver Refinery, Short Rotary Furnace, Furnace Baghouse, Acid Plant and the wet scrubbers.

All other terms and conditions of the Approval to Operate No. I-7107, issued under the *Air Quality Regulation - Clean Air Act*, remain in effect.

Recommended by: _____

Community Planning & Environmental Protection Division

Authorized by: _____

Minister of Environment