

BUREAU OF AIR POLLUTION CONTROL

901 South Stewart Street, Suite 4001 • Carson City, Nv 89701-5249
phone: 775-687-9350 • www.ndep.nv.gov/baqp • fax: 775-687-6396

Facility ID No. A0675

Permit No. AP1041-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

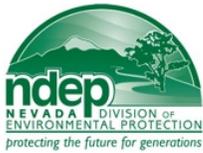
Issued to: BOREALIS MINING COMPANY (HEREINAFTER REFERRED TO AS *THE PERMITTEE*)

Mailing Address: 420 3RD STREET, SUITE C, HAWTHORNE, NV 89415

Physical Address: 12 MILES SOUTHWEST OF HAWTHORNE, NV

General Facility Location: SECTIONS 8 - 10 AND 16, T6N, R29E, MDB&M (HA 109, EAST WALKER AREA)
(MINERAL COUNTY)

Emission Unit List: 6 Thermal Units		
A. System 01 – Deep Bed Carbon Scrubber		
TU	4.001	Carbon Regeneration Kiln
TU	4.002	Mercury Retort Furnace
TU	4.003	Smelting Furnace
TU	4.004	Electrowinning Circuit
TU	4.005	Pregnant Tank
TU	4.006	Barren Tank



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section I. General Conditions

The Permittee must comply with, but is not limited to, all conditions of Nevada Administrative Code (NAC) 445B.3611-3689 “*Nevada Mercury Air Emissions Control Program*”, inclusive.

A. Records Retention. NAC 445B.3679.2(a)

The Permittee of a Mercury Operating Permit to Construct shall retain records of all required monitoring data and support information for (5) years after the date of the sample collection, measurement, report or analysis. Supporting information includes, without limitation, all records regarding calibration and maintenance of the monitoring equipment and all original strip-chart recordings for continuous monitoring instrumentation.

B. Severability. NAC 445B.3679.2(b)

Each of the conditions and requirements of the Mercury Operating Permit to Construct is severable and, if any are held invalid, the remaining conditions and requirements continue in effect.

C. Compliance/Noncompliance. NAC 445B.3679.2(c)

The Permittee must comply with all conditions of the Mercury Operating Permit to Construct. Any noncompliance constitutes a violation and is grounds for:

1. An action for noncompliance;
2. The revoking and reissuing, or the terminating of the Mercury Operating Permit to Construct by the Director; or
3. The reopening or revising of the Mercury Operating Permit to Construct by the holder of the Mercury Operating Permit to Construct as directed by the Director.

D. Defense to Noncompliance. NAC 445B.3679.2(d)

The need to halt or reduce activity to maintain compliance with the conditions of the Mercury Operating Permit to Construct is not a defense to noncompliance with any conditions of the Mercury Operating Permit to Construct.

E. Cause. NAC 445B.3679.2(e)

The Director may revise, revoke and reissue, reopen and revise, or terminate the Mercury Operating Permit to Construct for cause.

F. Property Rights/Exclusive Privilege. NAC 445B.3679.2(f)

The Mercury Operating Permit to Construct does not convey any property rights or any exclusive privilege.

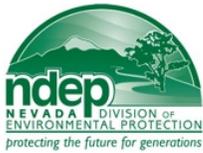
G. Information Request from Director. NAC 445B.3679.2(g)

The Permittee shall provide the Director, in writing and within a reasonable time, with any information that the Director requests to determine whether cause exists for revoking or terminating the Mercury Operating Permit to Construct or to determine compliance with the conditions of this Mercury Operating Permit to Construct.

H. Right to Entry. NAC 445B.3679.2(h)

The Permittee shall allow the Director or any authorized representative of the Director, upon the presentation of credentials, to:

1. Enter upon the premises of *the Permittee* where:
 - a. The thermal unit that emits mercury is located;
 - b. Activity related to mercury emissions is conducted; or
 - c. Records are kept pursuant to the conditions of the Mercury Operating Permit to Construct.
2. Have access to and copy, during normal business hours, any records that are kept pursuant to the conditions of the Mercury Operating Permit to Construct;
3. Inspect, at reasonable times, any facilities, practices, operations, or equipment, including any equipment for monitoring or controlling air pollution, that are regulated or required pursuant to the Mercury Operating Permit to Construct; and
4. Sample or monitor, at reasonable times, substances or parameters to determine compliance with the conditions of the Mercury Operating Permit to Construct or applicable requirements.



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section I. General Conditions (continued)

I. Certify True and Accurate. NAC 445B.3679.2(i)

A responsible official of the stationary source shall certify that, based on information and belief formed after reasonable inquiry, the statements made in any document required to be submitted by any condition of the Mercury Operating Permit to Construct are true, accurate and complete.

J. Yearly Reporting. NAC 445B.3679.3(b)(c)(d)

The Permittee will submit yearly reports including, but not limited to, throughput, production, fuel consumption, hours of operation, emissions and mercury co-product. These reports will be submitted on the form provided by the Bureau of Air Pollution Control for all emission units/systems specified on the form. The completed form must be submitted to the Bureau of Air Pollution Control no later than March 1 annually for the preceding calendar year, unless otherwise approved by the Bureau of Air Pollution Control.

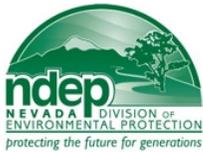
K. Facilities Operation. NAC 445B.227

The Permittee may not:

1. Operate a stationary source of air pollution unless the control equipment for air pollution that is required by applicable requirements or conditions of the Mercury Operating Permit to Construct are installed and operating.
2. Disconnect, alter, modify or remove any of the control equipment for air pollution or modify any procedure required by an applicable requirement or condition of the Mercury Operating Permit to Construct.

L. Excess Emissions. NAC 445B.232

1. Scheduled maintenance or testing or scheduled repairs which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.3689, inclusive, must be approved by the Director and performed during a time designated by the Director as being favorable for atmospheric ventilation.
2. The Director must be notified in writing of the time and expected duration at least 24 hours in advance of any scheduled maintenance which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.3689, inclusive.
3. The Director must be notified in writing or by telephone of the time and expected duration at least 24 hours in advance of any scheduled repairs which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.3689, inclusive.
4. The Director must be notified of any excess emissions within 24 hours after any malfunction or upset of the process equipment or equipment for controlling pollution or during startup or shutdown of such equipment. The telephone number for the notification is (775) 687-9350.
5. *The Permittee*, as the owner or operator of an affected facility, shall provide the Director, within 15 days after any malfunction, upset, startup, shutdown, or human error which results in excess emissions, sufficient information to enable the Director to determine the seriousness of the excess emissions. The information must include at least the following:
 - a. The identity of the stack or other point of emission, or both, where the excess emissions occurred.
 - b. The estimated magnitude of the excess emissions expressed in units of the applicable limitation on emission and the operating data and methods used in estimating the magnitude of the excess emissions.
 - c. The time and duration of the excess emissions.
 - d. The identity of the equipment causing the excess emissions.
 - e. If the excess emissions were the result of a malfunction, the steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of the malfunction.
 - f. The steps taken to limit the excess emissions.
 - g. Documentation that the equipment for controlling air pollution, process equipment, or processes were at all times maintained and operated, to a maximum extent practicable, in a manner consistent with good practice for minimizing emissions.



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section I. General Conditions (continued)

M. Construction Requirements. NAC 445B.250

1. Early Reduction Credit (ERC), New, or Modified Thermal Units

The Permittee shall provide the Director written notification of:

- a. The date that construction or reconstruction of an affected facility is commenced, postmarked no later than 30 days after such date. This requirement shall not apply to mass-produced facilities which are purchased in completed form.
- b. The anticipated date of initial startup of an affected facility, postmarked not more than 60 days and not less than 30 days prior to such date.
- c. The actual date of initial startup of an affected facility, postmarked within 15 days after such date.

N. Annual Testing. NAC 445B.3679.3

Before the conclusion of each calendar year, **the Permittee** shall:

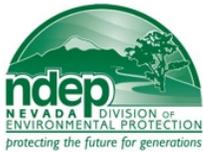
1. Conduct and record a Method 29 (or alternative test method approved by the Director) compliance test for mercury on the exhaust stack of **System 01** consisting of three valid runs. Each of the three test runs must collect a sample volume of 1.7 dry standard cubic meters (60 dscf) or be conducted for up to two hours in an effort to collect this sample volume (NAC 445B.3679.3).
2. Simultaneously, during the Method 29 (or alternative test method approved by the Director) compliance test, conduct and record a material assay from **System 01**. One representative sample shall be taken during each test run. Total mercury content shall be determined using EPA Method 7471B (cold vapor atomic adsorption analysis) (or alternative test method approved by the Director) (NAC 445B.3679.3).
3. Conduct tests of performance under such conditions as the Director specifies to the operator of the plant based on representative performance of the affected facility. The owner or operator shall make available to the Director such records as may be necessary to determine the conditions of the test of performance. Operations during periods of startup, shutdown and malfunction must not constitute representative conditions of a test of performance unless otherwise specified in the applicable standard (NAC 445B.252.3).
4. Give notice to the Director 30 days before the test of performance to allow the Director to have an observer present. A written testing procedure for the test of performance must be submitted to the Director at least 30 days before the test of performance to allow the Director to review the proposed testing procedures (NAC 445B.252.4).
5. Furnish the Director within 60 days after completing the performance tests a written and electronic report of the results of the performance tests. All information and analytical results of testing and sampling must be certified as to the truth and accuracy and as to their compliance with NAC 445B.001 to 445B.3689 (NAC 445B.252.8).

O. SIP Article 2.5.4 (Federally Enforceable SIP Requirement)

1. Breakdown or upset, determined by the Director to be unavoidable and not the result of careless or marginal operations, shall not be considered a violation of these regulations.

P. Expiration and Extension. NAC 445B.3687

1. If construction will occur in one phase, a mercury operating permit to construct for a new or modified thermal unit that emits mercury expires if construction is not commenced within 18 months after the date of issuance thereof or construction of the thermal unit that emits mercury is delayed for 18 months after initiated. The Director may extend the date on which the construction may be commenced upon a showing that the extension is justified.
2. If construction will occur in more than one phase, the projected date of the commencement of construction of each phase of construction must be approved by the Director. A mercury operating permit to construct expires if the initial phase of construction is not commenced within 18 months after the projected date of the commencement of construction approved by the Director. The Director may extend only the date on which the initial phase of construction may be commenced upon a showing that the extension is justified.



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

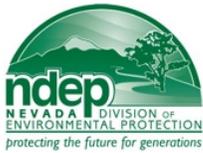
MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Q. Nevada Mercury Control Program Implementation Requirements

1. The NvMACT for **TU4.001 – TU4.006**, each must be implemented not later than 24 months after the issuance of this mercury operating permit to construct (NAC 445B.3679.3(a)(2)(I)).
 - a. The issuance date for **TU4.001 – TU4.006** is **month date year**.
2. The Permittee shall provide the Director written notification of:
 - a. The date of implementation of NvMACT for **TU4.001 – TU4.006** each, pursuant to NAC 445B.3679.3(a)(2)(i) postmarked within 15 days after such date (NAC 445B.3679.2(g)).

******* End of General Conditions *******



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section II. Specific Operating Conditions

A. Emission Units #TU4.001- 4.006 location North 4,250.130 km, East 345.762 km, UTM (Zone 11)

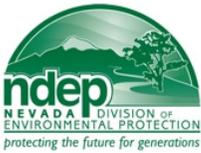
Table with 3 columns: TU, ID, Description. Rows include Carbon Regeneration Kiln, Mercury Retort, Smelting Furnace, Electrowinning Circuit, Pregnant Tank, and Barren Tank.

1. Air Pollution Equipment

- a. Emissions from TU4.004 – TU4.006 shall be ducted to a control system with 100% capture consisting of:
i. Deep Bed Carbon Scrubber (DBCS-001)
ii. Mercury Condenser with Chiller (MC-001)
iii. Deep Bed Carbon Scrubber (DBCS-001)
c. Emissions from TU4.001 and TU4.003 shall be ducted to a control system with 100% capture consisting of:
i. Wet Scrubber (WS-001)
ii. Deep Bed Carbon Scrubber (DBCS-001)
d. Stack parameters
i. Height: 30 feet 6 inches
ii. Diameter: 0.83 feet
iii. Stack Temperature: 120°F
iv. Flow: maximum volume flow rate of 2,000 actual cubic feet per minute (acfm).
v. Thermal Units TU4.004 – 4.006 shares common control and all emissions exhaust through the Deep Bed Carbon Scrubber (DBCS-001); the exhaust gas from TU4.002 vents through MC-001 and then through DBCS-001; and the exhaust gases from TU4.001 and TU4.003 are ducted into WS-001 and then through DBCS-001.

2. Operating Requirements

- a. Limitations of operation which affect mercury emissions. NAC 445B.3671(4)
i. Carbon Regeneration Kiln (TU4.001)
(a) The maximum allowable throughput for TU4.001 will not exceed 1.5 ton of stripped carbon per batch.
(b) Mercury emissions from TU4.001 shall not exceed 5.0 x 10-5 grains per dry standard cubic foot (gr/dscf)
(c) Hours
(i) TU4.001 shall not operate in excess of 24 hours per day.
(ii) TU4.001 may operate a total of 8,760 hours per calendar year.
ii. Mercury Retort (TU4.002)
(a) The maximum throughput for TU4.002 will not exceed 0.25 ton of precious metal concentrate per batch, nor more than 13 tons a calendar year.
(b) Mercury emissions from TU4.002 shall not exceed 1.0 x 10-4 grains per dry standard cubic foot (gr/dscf)
(c) Hours
(i) TU4.002 shall not operate in excess of 24 hours per day.
(ii) TU4.002 may operate a total of 8,760 hours per calendar year.



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

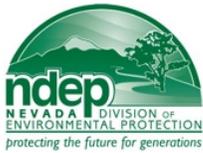
MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section II. Specific Operating Conditions (continued)

A. Emission Units #TU4.001 – 4.006 (continued)

- iii. Smelting Furnace (TU4.003)
 - (a) The maximum throughput for TU4.003 will not exceed **0.255** ton of retorted precious metal bearing concentrate per batch, nor more than **13.0** tons per calendar year.
 - (b) Mercury emissions from TU4.003 shall not exceed **5.0 x 10⁻⁵** grains per dry standard cubic foot (gr/dscf)
 - (c) Hours
 - (i) TU4.003 shall not operate in excess of **24** hours per day.
 - (ii) TU4.003 may operate a total of **8,760** hours per calendar year.
- iv. Solutions Circuit (TU4.004, TU4.005 and TU4.006)
 - (a) The **Solution Circuit** is comprised of the Electrowinning Cells (TU4.004), Pregnant Tank (TU4.005) and the Barren Tank (TU4.006).
 - (b) The maximum operating throughput for the **Solutions Circuit** will not exceed **20** gallons per minute of precious metal-bearing solution.
 - (c) Mercury emissions from the **Solutions Circuit** shall not exceed **1.0 x 10⁻⁴** grains per dry standard cubic foot (gr/dscf)
 - (d) Hours
 - (i) The **Solutions Circuit** shall not operate in excess of **24** hours per day.
 - (ii) The **Solutions Circuit** may operate a total of **8,760** hours per calendar year.
- b. Work practices which affect mercury emissions. NAC 445B.3671(4)
 - i. Carbon Regeneration Kiln (TU4.001)
 - (a) TU4.001 shall be automatically shut off via interlock if the temperature reaches **1,400 °F**.
 - (b) TU4.001 shall be automatically shut off via interlock if the negative gauge pressure is below **0.1** inches of water column at the discharge vent of TU4.001.
 - ii. Mercury Retort (TU4.002)
 - (a) During heating, TU4.002 shall be placed under negative gauge pressure between **11** and **13** inches of mercury.
 - (b) TU4.002 shall be automatically shut off via interlock when the negative gauge pressure is below **11** inches of mercury.
 - (c) Precious metal bearing concentrate fed into the retort is defined as the following:
 1. Precious metal bearing concentrate recovered from the process of electrowinning;
 2. Precious metal bearing concentrate recovered from the Merrill-Crowe process;
 3. Precious metal bearing concentrate recovered from flotation and gravity separation, and;
 4. Precious metal bearing concentrate recovered from the wash-down of equipment or surfaces that have been in contact with precious metal bearing concentrate.
 - iii. Smelting Furnace (TU4.003)
 - (a) Only precious metal bearing concentrate that has been retorted shall be fed into TU4.003.



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

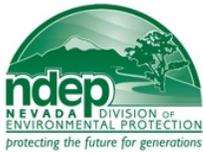
MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section II. Specific Operating Conditions (continued)

A. Emission Units #TU4.001 – 4.006 (continued)

- iv. Electrowinning Circuit (**TU4.004**)
 - (a) Lids for **TU4.004** shall be closed during operation.
- v. Pregnant Tank (**TU4.005**)
 - (a) **TU4.005** shall be visually inspected for solution leaks and corrosion on a daily basis.
- vi. Barren Tank (**TU4.006**)
 - (a) **TU4.006** shall be visually inspected for solution leaks and corrosion on a daily basis.
- vii. Mercury Condenser (**MC-001**)
 - (a) The water temperature exiting the chiller shall be maintained at or below **60° F**.
 - (b) The cooling water flow rate entering **MC-001** shall be maintained at or above **5.0** gallons per minute.
 - (c) **TU4.002** shall automatically shut off via interlock if the water flow to **MC-001** is absent.
 - (d) The exhaust temperature exiting **MC-001** shall be maintained at or below **75° F**.
 - (e) **TU4.002** shall automatically shut off via interlock if the exhaust temperature exiting **MC-001** is greater than **90° F**.
- viii. Wet Scrubber (**WS-001**)
 - (a) The differential pressure drop across **WS-001** shall be between **2.0** and **10.0** inches of water column.
 - (b) The water flow rate for **WS-001** shall be maintained at or above **5** gallons per minute.
- ix. Deep Bed Carbon Scrubber (**DBCS-001**)
 - (a) **DBCS-001** shall be equipped with a minimum of **4.0** tons of sulfur impregnated carbon
 - (b) Replace all of the sulfur-impregnated carbon in **DBCS-001** according to the following schedule:
 - 1. The sulfur-impregnated carbon in **DBCS-001** shall be sampled **90** days after the initial replacement and every subsequent replacement of the sulfur impregnated carbon thereafter. The depth of the sample probe will be recorded, and the average carbon loading will be calculated. Sampling will commence quarterly thereafter. When the average carbon loading reaches **50%** of the design capacity of the carbon, monthly sampling will commence until **90%** of the average carbon loading is reached. The sulfur impregnated carbon will be replaced within **30** days of reaching **90%** of the average mercury carbon loading. The required mercury analysis shall be performed utilizing one of the following methods:
 - a. EPA method 6020-Inductively Coupled Plasma-Mass Spectrometry;
 - b. EPA method 7471B- Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique); or
 - c. An alternative test method as approved in advance by the Director.
 - (c) Any sulfur-impregnated carbon replaced in **DBCS-001** shall be replaced with only the original manufacturer's design specification sulfur-impregnated carbon or with equivalent performing sulfur-impregnated carbon.
 - (d) The original manufacturer's design specifications for the sulfur-impregnated carbon used in **DBCS-001** shall be kept on site.
 - (e) The differential pressure drop across **DBCS-001** shall be maintained between **4.5 – 14.0** inches of water column.



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section II. Specific Operating Conditions (continued)

A. Emission Units #TU4.001 – 4.006 (continued)

3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3365(3))

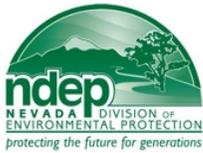
a. Compliance Testing

Within 180 days of the implementation of NvMACT for **System 01** as required in Section I.Q., the Permittee shall conduct and record a performance test for mercury on the exhaust stack of **System 01** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

b. Monitoring

The *Permittee* shall:

- i. Prior to implementation of NvMACT for **TU4.001 – TU4.006**, install, operate, calibrate and maintain instrumentation to continuously measure and record the following:
 - (a) The negative gauge pressure for **TU4.002**, measured in inches of water column (in. w.c.).
 - (b) The water temperature exiting **MC-001**, measured in degrees Fahrenheit (° F).
 - (c) The cooling water flow rate entering **MC-001**, measured in gallons per minute (gpm).
 - (d) The exhaust temperature from **MC-001**, measured in degrees Fahrenheit (° F).
 - (e) The differential pressure drop across **WS-001**, measured in inches of water column (in. w.c.).
 - (f) The differential pressure drop across **DBCS-001**, measured in inches of water column (in. w.c.).
- ii. Prior to implementation of NvMACT for **TU4.001**, install, operate and maintain an interlock that will shut down **TU4.001** if the temperature is greater than **1,400 ° F**.
- iii. Prior to implementation of NvMACT for **TU4.001**, install, operate and maintain an interlock that will shut down **TU4.001** if the negative gauge pressure is below **-0.2** inches of water column.
- iv. Prior to implementation of NvMACT for **TU4.002**, install, operate and maintain an interlock that will shut down **TU4.002** if the exhaust temperature exiting **MC-001** is greater than **90° F**.
- v. Prior to implementation of NvMACT for **TU4.002**, install, operate and maintain an interlock that will shut down **TU4.002** if the negative gauge pressure is below **11** inches of water column.
- vi. Prior to implementation of NvMACT for **MC-001**, install, operate and maintain an interlock that will shut down **TU4.002** if the cooling water flow to **MC-001** is absent.
- vii. Carbon Regeneration Kiln (**TU4.001**)
 - (a) Monitor the total daily hours of operation for **TU4.001**.
 - (b) Monitor the total daily throughput of stripped carbon, in tons, for **TU4.001**.
- viii. Mercury Retort (**TU4.002**)
 - (a) Monitor the total daily hours of operation of **TU4.002**.
 - (b) Monitor the total batch weight of each batch of precious metal bearing concentrate, in tons, for **TU4.002**.
 - (c) Monitor the negative gauge pressure for **TU4.002** in inches of water column continuously during the operation.
- ix. Smelting Furnace (**TU4.003**)
 - (a) Monitor the total daily hours of operation of **TU4.003**.
 - (b) Monitor the total batch weight of each batch of retorted precious metal bearing ore, in tons, for **TU4.003**.
- x. Solutions Circuit (**TU4.004, TU4.005 and TU4.006**)
 - (a) Monitor the total daily hours of operation of the **Solutions Circuit**.
 - (b) Monitor the throughput rate of strip solution for the **Solutions Circuit** in gallons per minute once daily while in operation.



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

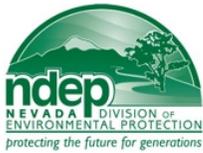
Section II. Specific Operating Conditions (continued)

A. Emission Units #TU4.001 – 4.006 (continued)

- xi. Mercury Condenser (**MC-001**)
 - (a) Monitor the cooling water temperature exiting **MC-001**, in degrees Fahrenheit, continuously during operation.
 - (b) Monitor the cooling water flow rate to **MC-001**, in gallons per minute, continuously during operation.
 - (c) Monitor the exhaust temperature from **MC-001**, in degrees Fahrenheit, continuously during operation.
- xii. Wet Scrubber (**WS-001**)
 - (a) Monitor the differential pressure drop across **WS-001**, in inches of water column, continuously during operation.
 - (b) Monitor the water flow rate for **WS-001**, in gallons per minute, continuously during operation.
- xiii. Deep Bed Carbon Scrubber (**DBCS-001**)
 - (a) Monitor the differential pressure drop across **DBCS-001**, in inches of water column, continuously during operation.
 - (b) Monitor the sulfur impregnated carbon in **DBCS-001** for percentage mercury by weight, monthly until reaching 90 percent capacity.
- c. Recordkeeping

The required monitoring established in Section A.3.b.i. through Section A.3.b.xv. above will be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

 - i. The calendar date of any required monitoring.
 - ii. Carbon Regeneration Kiln (**TU4.001**)
 - (a) The total daily hours of operation for **TU4.001**, for the corresponding date.
 - (b) The throughput rate of stripped carbon for **TU4.001**, in tons, for the corresponding date.
 - (c) The corresponding average hourly throughput rate of stripped carbon, in tons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and total daily hours of operation recorded in Section A.3.c.ii.(a) through Section A.3.c.ii.(b) above.
 - (d) The results of the six month inspection of the inside of the kiln shell, for the corresponding date.
 - iii. Mercury Retort (**TU4.002**)
 - (a) The total daily hours of operation for **TU4.002**, for the corresponding date.
 - (b) The total batch weight of precious metal bearing concentrate for **TU4.002**, in tons, for the corresponding date.
 - (c) The negative gauge pressure for **TU4.002**, in inches of water column continuously, based on a one hour period, during operation for the corresponding date.
 - iv. Smelting Furnace (**TU4.003**)
 - (a) The total daily hours of operation for **TU4.003**, for the corresponding date.
 - (b) The total batch weight of retorted precious metal bearing concentrate for **TU4.003**, in tons, for the corresponding date.
 - v. Solutions Circuit (**TU4.004, TU4.005 and TU4.006**)
 - (a) The total daily hours of operation for the **Solutions Circuit**, for the corresponding date.
 - (b) The throughput rate of strip solution for the **Solutions Circuit**, in gallons per minute, once daily during operation, for the corresponding date.
 - (c) The results of the daily inspection for solution leaks and corrosion for **TU4.005**, for the corresponding date.
 - (d) The results of the daily inspection for solution leaks and corrosion for **TU4.006**, for the corresponding date.



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section II. Specific Operating Conditions (continued)

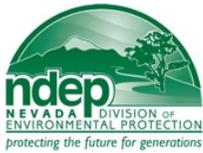
A. Emission Units #TU4.001 – 4.006 (continued)

- vi. Mercury Condenser (**MC-001**)
 - (a) The cooling water temperature exiting the chiller, in degrees Fahrenheit continuously, based on a one hour period, during operation for the corresponding date.
 - (b) The cooling water flow rate entering **MC-001**, in gallons per minute continuously, based on a one hour period, during operation for the corresponding date.
 - (c) The exhaust temperature exiting **MC-001**, in degrees Fahrenheit continuously, based on a one hour period, during operation for the corresponding date.
- vii. Wet Scrubber (**WS-001**)
 - (a) The differential pressure drop across **WS-001**, in inches of water column continuously, based on a one hour period, during operation for the corresponding date.
 - (b) The water flow rate for **WS-001**, in gallons per minute continuously, based on a one hour period, during operation for the corresponding date.
- viii. Deep Bed Carbon Scrubber (**DBCS-001**)
 - (a) The differential pressure drop across **DBCS-001**, in inches of water column continuously, based on a one hour period, during operation for the corresponding date.
 - (b) The percentage of mercury by weight of the sulfur impregnated carbon in **DBCS-001**, for the corresponding date.
 - (c) The depth of the sample location in **DBCS-001**, for the corresponding date.
 - (d) The date, time and weight of each carbon replacement for **DBCS-001**, for the corresponding date.
- ix. The date, time and corrective action for an interlock shutdown, for the corresponding date.

d. Reporting

Permittee will promptly report to the Director any deviations from the requirements of the Operating Permit to Construct. The report to the Director will include probable cause of all deviations and any action taken to correct deviations. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of the deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC445B.232 and under condition I.L. of this permit.

******* End of Specific Operating Conditions *******



BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0675

Permit No. AP0141-2228

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Borealis Mining Company

Section III. Amendments

This permit:

1. Is non-transferable. (NAC 445B.287.3)
2. Will be posted conspicuously at or near the stationary source. (NAC 445B.318.5)
3. Any party aggrieved by the Department's decision to issue this permit may appeal to the State Environmental Commission (SEC) within ten days after the date of notice of the Department's action. (NRS 445B.340)

Signature _____

Issued by: Rob Bamford
Supervisor, Permitting Branch
Bureau of Air Quality Planning

Phone: (775) 687-9359

Date: _____

Km
05/10/2011