



## Bureau of Air Pollution Control

901 South Stewart Street, Suite 4001 • Carson City, NV 89701-5249  
 phone: 775-687-9349 • www.ndep.nv.gov/bapc

**Facility ID No. A0002**

**Permit No. 1041-2219**

### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

**Issued to:** Nevada Gold Mines, LLC – Gold Quarry Operations (as Permittee)  
**Mailing Address:** 1655 Mountain City Highway, Elko, Nevada 89801  
**General Facility Location:** 6 Miles Northwest of Carlin, Nevada; off S.R. 766 (Interstate 80, Exit 280)  
**County:** Eureka  
**Hydrographic Basin (HA):** HA 51 – Maggie Creek Area  
**Section/Township/Range:** Sections 34, 35 & 36, Township 34N, Range 51E; Sections 1, 2, 3, 4, 10, 11, 12, 13, 14 & 15, Township 33N, Range 51E; Sections 29, 31 & 32, Township 34N, Range 52E; Sections 6, 7 & 18, Township 33N, Range 52E, M.D.B. & M.

**Facility UTM (NAD 83)**

**Coordinate (Zone 11):** North 4,512,620 meters – East 568,120 meters (approximate center of facility)

Emission Unit List: (17 Emission Units)		
<b>A. System 01 – Mill 6 Static Separator (ROTP Dry Grinding Static Separator Baghouses) (Reference System 42 in AQOP AP1041-0793)</b>		
TU	4.001	Double Rotator Air Preheater (S2.120)
<b>B. System 02 – CFB North and South Ore Preheaters (Reference System 43 in AQOP AP1041-0793)</b>		
TU	4.002	CFB North Ore Preheater (S2.126)
TU	4.003	CFB South Ore Preheater (S2.129)
<b>C. System 03 – CFB North and South Ore Roasters (Reference System 44 in AQOP AP1041-0793)</b>		
TU	4.004	CFB North Ore Roaster (S2.133)
TU	4.005	CFB South Ore Roaster (S2.145)
<b>D. System 04 – ROTP North Calcine Quench Circuit (Reference System 47 in AQOP AP1041-0793) (Normal Operations)</b>		
TU	4.006	Calcine Cooler (S2.158)
TU	4.007	Quench Tank
TU	4.008	Calcine Cooler (S2.159)
TU	4.009	Quench Tank
<b>E. System 05 – ROTP South Calcine Quench Circuit (Reference System 51 in AQOP AP1041-0793) (Normal Operations)</b>		
TU	4.010	Calcine Cooler (S2.160)
TU	4.011	Quench Tank
TU	4.012	Calcine Cooler (S2.161)
TU	4.013	Quench Tank
<b>F. System 06 – Carbon Stripping Circuit (Reference System 97 in AQOP AP1041-0793)</b>		
TU	4.014	Pregnant Tank (S2.228)
TU	4.015	Pregnant Tank (S2.229)



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<b>G. System 07 – Refinery Barren Tanks and Electrowinning Cells (Reference System 98 in AQOP AP1041-0793)</b>		
TU	4.016	Refinery Barren Tank (No reference in AQOP 1041-2971 or AQOP1041-0793)
TU	4.017	Electrowinning Cells (S2.230)
<b>H. System 08 - Removed</b>		
<b>I. System 09 – Electric Refinery Induction Furnaces (Reference System 78 in AQOP AP1041-0793)</b>		
TU	4.024	Electric Refinery Induction Furnace (S2.047)
TU	4.025	Electric Refinery Induction/Pour Furnace (S2.048)
TU	4.026	Bar Melt Furnace (S2.049)
<b>J. System 10 – Carbon Regeneration Kiln #1 (Zadra Process; Reference System 72 in AQOP AP1041-0793)</b>		
TU	4.027	Carbon Regeneration Kiln #1 (Zadra; S2.056)
<b>K. System 11 – Carbon Regeneration Kiln #2 (AARL Process; Reference System 73 in AQOP AP1041-0793)</b>		
TU	4.028	Carbon Regeneration Kiln #2 (AARL; S2.058)
<b>L. System 12 – Refinery Mercury Retort Circuit (Reference System 94 in AQOP AP1041-0793)</b>		
TU	4.029	Mercury Retort Furnace (510-FC-100) (S2.225)
<b>M. System 13 – Refinery Mercury Retort Circuit (Reference System 95 in AQOP AP1041-0793)</b>		
TU	4.030	Mercury Retort Furnace (510-FC-200) (S2.226)
<b>N. System 14 – Refinery Mercury Retort Circuit (Reference System 96 in AQOP AP1041-0793)</b>		
TU	4.031	Mercury Retort Furnace (510-FC-300) (S2.227)



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## 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) and NAC445B.3685.2(b)  
*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) and NAC445B.3685.2(c)  
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) and NAC445B.3685.2(d)  
*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) and NAC445B.3685.2(e)  
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) and NAC445B.3685.2(f)  
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) and NAC445B.3685.2(g)  
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) and NAC445B.3685.2(h)  
*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) and NAC445B.3685.2(i)  
*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.



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## Section I. General Conditions (continued)

- I. Certify True and Accurate NAC 445B.3679.2(i) and NAC445B.3685.2(j)  
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) and NAC445B.3685.3(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. E-mail to: [enotify@ndep.nv.gov](mailto:enotify@ndep.nv.gov).
  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.



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**Section I. General Conditions (continued)**

M. Construction Requirements NAC 445B.250

*The Permittee* shall provide the Director written notification of:

1. 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.
2. 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.
3. The actual date of initial startup of an affected facility, postmarked within 15 days after such date.

N. Testing and Sampling NAC 445B.252

1. To determine compliance with NAC 445B.001 to 445B.3689, inclusive, before the approval or the continuance of an operating permit or similar class of permits, the director may either conduct or order the owner of any stationary source to conduct or have conducted such testing and sampling as the director determines necessary. Testing and sampling or either of them must be conducted and the results submitted to the director within 60 days after achieving the maximum rate of production at which the affected facility will be operated, but not later than 180 days after initial startup of the facility and at such times as may be required by the director.
2. Tests of performance must be conducted and data reduced in accordance with the methods and procedures of the test contained in each applicable subsection of this section unless the director:
  - a. Specifies or approves, in specific cases, the use of a method of reference with minor changes in methodology;
  - b. Approves the use of an equivalent method;
  - c. Approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific stationary source is in compliance; or
  - d. Waives the requirement for tests of performance because the owner or operator of a stationary source has demonstrated by other means to the director's satisfaction that the affected facility is in compliance with the standard.
3. Tests of performance must be conducted 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 performance test. Operations during periods of startup, shutdown and malfunction must not constitute representative conditions of a performance test unless otherwise specified in the applicable standard.
4. Permittee shall 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.
5. Each test of performance must consist of at least three separate runs using the applicable method for that test. Each run must be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the runs apply. In the event of forced shutdown, failure of an irreplaceable portion of the sampling train, extreme meteorological conditions or other circumstances with less than three valid samples being obtained, compliance may be determined using the arithmetic mean of the results of the other two runs upon the director's approval.
6. All testing and sampling will be performed in accordance with recognized methods and as specified by the director.
7. The cost of all testing and sampling and the cost of all sampling holes, scaffolding, electric power and other pertinent allied facilities as may be required and specified in writing by the director must be provided and paid for by the owner of the stationary source.
8. All information and analytical results of testing and sampling must be certified as to their truth and accuracy and as to their compliance with all provisions of NAC 445B.001 to 445B.3689, inclusive, and copies of these results must be provided to the director no later than 60 days after the testing or sampling, or both.

O. SIP Article 2.5.4 Federally Enforceable SIP Requirement

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.



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**Section I. General Conditions (continued)**

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.

Q. Nevada Mercury Control Program Implementation NAC 445B.3679 and NAC445B.3685

1. The NvMACT for **TU4.001 – TU4.028**, 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 **TU4.018 – TU4.023** is **July 22, 2010**.
  - b. The issuance date for **TU4.002 – TU4.003** is **April 8, 2011**.
  - c. The issuance date for **TU 4.029 through TU 4.031** is **April 17, 2012**.
  - d. The issuance date for **TU4.001, TU4.004 – TU4.005, TU4.014 – TU4.017** and **TU4.024 – TU4.028** is **July 14, 2017**.
  - e. The issuance date for **TU4.006 – TU4.013** is **September 9, 2021**.
2. The Permittee shall provide the Director written notification of:
  - a. The date of implementation of NvMACT for **TU4.001 – TU4.028** each, pursuant to NAC 445B.3679.3(a)(2)(i) postmarked within 15 days after such date (NAC 445B.3679.2(g)).

R. Annual Reporting NAC 445B.3679 and NAC445B.3685

*The Permittee* shall:

1. Report mercury co-product on an annual basis.
2. Report the level of mercury emissions on an annual basis which must be based on mercury emissions test data.

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



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Section II. Specific Operating Conditions

A. Emission Unit # TU4.001 Location North 4,515,166 m, East 568,733 m, UTM (Zone 11, NAD 83)

System 01 – Mill 6 Static Separator		
TU	4.001	Double Rotator Air Preheater (6300-BU-01), manufactured by Pillard (burner only), model (not specified), serial # (not specified)

1. Air Pollution Equipment

- a. Emissions from TU4.001, shall be ducted to a control system consisting of four (4) Baghouses (6300-DC-006 through 6300-DC-009) with 100% capture and a combined maximum volume flow rate of 140,000 dry standard cubic feet per minute (DSCFM). At least three of the four baghouses will be functioning during operation of TU4.001. These baghouses operate in parallel with one (1) final exit stack (E6).
- b. Descriptive Stack Parameters
  - Stack height: 193 feet
  - Stack inside diameter: 8.28 feet
  - Stack temperature (nominal): 200° F

2. Operating Requirements

- a. Limitations of Operation. NAC 445B.3679.3
  - (1) The maximum allowable throughput for TU4.001 will not exceed 600.0 tons of ore and carbon fines per any one-hour period, nor more than 4,905,600 tons per year. The maximum allowable throughput for carbon fines shall not exceed 1 ton per day, nor more than 365 tons per calendar year.
    - (a) Carbon fines are defined as activated carbon fines from carbon-in-column, carbon-in-pulp, and carbon-in-leach systems for the purpose of gold stripping from a sodium cyanide or similar beneficiation elution that utilizes activated carbon.
  - (2) Mercury emissions from System 01 shall not exceed 3.06 x 10<sup>-6</sup> grains per dry standard cubic foot (gr/dscf).
  - (3) Hours
    - (a) TU4.001 may operate a total of 24 hours per day.
- b. Work Practices. NAC 445B.3679.3
  - (1) Double Rotator Air Preheater (TU4.001) (aka Hot Gas Generator)
    - (a) TU4.001 shall be equipped with an interlock that will shut off the heaters to TU4.001 if the discharge exhaust temperature from TU4.001 exceeds 240° F as measured prior to the baghouses (6300-DC-006 – 6300-DC-009).
  - (2) Baghouses (6300-DC-006 – 6300-DC-009)
    - (a) The differential pressure range for 6400-DC-006 through 6400-DC-009, combined, shall be between 2.0 – 13.0 inches of water column.

3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3)

- a. Compliance Testing
  - (1) Within 180 days of initial startup of TU4.001 and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of TU4.001 consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of 0.85 dry standard cubic meters (30 dscf).
  - (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from System 1. One representative sample shall be taken for 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).
  - (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.



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## Section II. Specific Operating Conditions (continued)

A. **Emission Unit # TU4.001** Location North 4,515,166 m, East 568,733 m, UTM (Zone 11, NAD 83)

b. Monitoring

The *Permittee*, upon the issuance date of this operating permit will:

- (1) Install, operate, calibrate and maintain discharge exhaust gas temperature interlocks on **TU4.001** that will shut off the heaters to **TU4.001** if the discharge exhaust temperature from **TU4.001** exceeds **240° F**.
- (2) Monitor the throughput rate of fed ore for **TU4.001** on a daily basis.
- (3) Monitor the hours of operation for **TU4.001** on a daily basis.
- (4) Monitor that the maintenance and operation of **Baghouses (6300-DC-006 through 6300-DC-009)**, for **TU4.001**, is in accordance with the manufacturer's or site developed maintenance and operation guidelines.
- (5) Monitor the differential pressure, in inches of water, for **6300-DC-006** and **6300-DC-009**, combined, once a week during operation.
- (6) Monitor the discharge exhaust temperature, in degrees Fahrenheit, from **TU4.001** once per day during operation.

c. Recordkeeping

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

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of fed ore in tons, for the corresponding date.
- (3) The total daily hours of operation for the corresponding date.
- (4) The corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section A.3.c.(2) through Section A.3.c.(3) above.
- (5) The results of the weekly differential pressure readings for **6300-DC-006 – 6300-DC-009**, combined for the corresponding date.
- (6) Record that the maintenance and operation of **Baghouses (6300-DC-006 through 6300-DC-009)**, for **TU4.001**, is in accordance with the manufacturer's or site developed maintenance and operation guidelines. Records must show that observations were made, and include any corrective actions taken.
- (7) The results of the daily measured value of the discharge exhaust temperature for **TU4.001**, for the corresponding date.

d. Reporting

- (1) The date, time and description of any interlock event and corresponding corrective action.
- (2) *The Permittee* will promptly report to the Director any emissions and or throughput exceedances from **System 01**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.





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Section II. Specific Operating Conditions

B. Emission Units # TU4.002 – TU4.003 Location North 4,515,202 m, East 568,820 m, UTM (Zone 11, NAD 83)

System 02 – CFB North and South Ore Preheaters manufactured by Thermal Transfer & Mark Steel., model # (Custom), serial # (not specified)		
TU	4.002	CFB North Ore Preheater (6400-PH-001)
TU	4.003	CFB South Ore Preheater (6400-PH-002)

1. Air Pollution Equipment

- a. Exhaust gases from TU4.002 – TU4.003, each shall be ducted to a control system with 100% capture consisting of:
  - 1. Baghouse (6400-DC-016)
  - 2. Baghouse (6400-DC-017)
  - 3. SO<sub>2</sub> Scrubber (Caustic) (6400-TW-013)
  - 4. Carbon Filter Pack (manufactured by Cameron Great Lakes) (CF-005)
- b. Stack parameters
  - Height: 182.0 ft.
  - Diameter: 9.33 ft.
  - Stack temperature: 120.0 °F
  - Flow: Maximum volume flow rate of 129,331 dry standard cubic feet per minute (dscfm).
  - TU4.002 is ducted to 6400-DC-017 and then into 6400-TW-013.
  - TU4.003 is ducted to 6400-DC-016 and then into 6400-TW-013.
  - Exhaust gases from 6400-TW-013 duct into CF-005 and then exit through stack E8.

2. Operating Requirements

- a. Limitations of Operation. (NAC 445B.3679.3)
  - (1) The maximum allowable throughput for TU4.002 – TU4.003 will not exceed 560.0 tons of ore and carbon fines per any one-hour period, nor more than 4,905,600 tons per year. The maximum allowable throughput for carbon fines shall not exceed 1 ton per day, nor more than 365 tons per calendar year.
    - (a) Carbon fines are defined as activated carbon fines from carbon-in-column, carbon-in-pulp, and carbon-in-leach systems for the purpose of gold stripping from a sodium cyanide or similar beneficiation elution that utilizes activated carbon.
  - (2) Mercury emissions from TU4.002 – TU4.003 combined shall not exceed 4.66 x 10<sup>-5</sup> grains per dry standard cubic foot (gr/dscf).
  - (3) Hours
    - TU4.002 – TU4.003, each may operate a total of 24 hours per day.



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**Section II. Specific Operating Conditions (continued)**

**B. Emission Units # TU4.002 – TU4.003** Location North 4,515,202 m, East 568,820 m, UTM (Zone 11, NAD 83)

b. Work Practices. (NAC 445B.3679.3)

(1) Baghouses (**6400-DC-016** and **6400-DC-017**)

(a) The differential pressure range for **6400-DC-016** and **6400-DC-017**, each, shall be between **0 – 15** inches of water column.

(2) SO<sub>2</sub> Scrubber (Caustic) (**6400-TW-013**)

(a) The exhaust gas temperature exiting **6400-TW-013** shall be maintained at or below **130° F** or an established standard (° F) based on initial performance monitoring with concurrence of the permitting authority.

(3) Carbon Filter Pack (**CF-005**) (five modules)

(a) The pre-filters in each module will be replaced if the differential pressure drop exceeds **10** inches of water column or an established standard (inches of water) based on initial performance monitoring with concurrence of the permitting authority, then pre-filter(s) will be replaced in the appropriate module(s) that are determined to be the cause of the excursion.

(b) **CF-005** shall be equipped with sulfur impregnated carbon contained in five modules. Each module is equipped with a first stage, a second stage and a third stage. Each stage shall consist of four trays equipped with 25 cartridges (100 cartridges total) filled with sulfur impregnated carbon. Each cartridge dimension is approximately 2 feet by 1.5 feet and contains approximately 22 pounds of sulfur impregnated carbon.

(c) Conduct an initial sampling of a randomly chosen carbon filter tray from the first stage of each module within **90** days after replacement of the carbon in the trays in a module or the movement of second stage trays to the first stage. Representative samples will be taken and analyzed using EPA Method 7471A. The exact tray location of each sample will be recorded. Periodical sampling of the first stage in each module will be undertaken every year after the initial sampling, until the carbon reaches **50%** mercury loading. Quarterly sampling of the first stage in each module will then commence until the carbon reaches **90%** loading. The trays in the first stage of each module will be replaced no later than **30** days after reaching **90%** loading to ensure the saturation limit of the carbon is not exceeded for each module.

(d) **CF-005** shall be equipped with **CGL CP48-SU** sulfurized bituminous coal based pelletized activated carbon or an equivalent performing activated carbon.

(e) **CF-005** must operate with five modules operating in parallel excluding only:

(1) Pre-filter or carbon replacement;

(2) Maintenance or repairs of a module, during which three modules must operate in parallel.

(f) If operation occurs with only three modules operating in parallel and exceeds 24 hours, the Director must be notified no later than 48 hours after the event.

(g) On an annual basis, perform a total loading analysis on the mercury removal media in **CF-005**.



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**Section II. Specific Operating Conditions (continued)**

**B. Emission Units # TU4.002 – TU4.003** Location North 4,515,202 km, East 568,820 km, UTM (Zone 11, NAD 83)

**3. Compliance Testing, Monitoring, Recordkeeping, Reporting and Testing (NAC 445B.3379.3)**

a. Compliance Testing

- (1) Within 180 days of initial startup of **System 02** and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of **TU4.002** and **TU4.003** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of **0.85** dry standard cubic meters (**30** dscf).
- (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from **System 02**. One representative sample shall be taken for 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).
- (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.

b. Monitoring

The *Permittee*, upon the issuance date of this operating permit will:

- (1) Prior to implementation of NvMACT for **TU4.002** and **TU4.003**, each, install, operate, calibrate and maintain instrumentation to measure the following:
  - (a) The outlet gas temperature from **6400-TW-013**, in degrees Fahrenheit.
  - (b) The differential pressure drop across **CF-005**, in inches of water column.
- (2) Monitor the throughput rate of ore in tons for **TU4.002 – TU4.003**, combined on a daily basis.
- (3) Monitor the hours of operation for **TU4.002 – TU4.003**, each, on a daily basis.
- (4) Monitor the differential pressure, in inches of water, for **6300-DC-016** and **6300-DC-017**, once each on a daily basis while **TU4.002 – TU4.003**, each is in operation.
- (5) Monitor the exhaust gas temperature, in degrees Fahrenheit, from **6400-TW-013**, once on a daily basis while **TU4.002 – TU4.003**, each, is in operation.
- (6) Monitor the differential pressure drop, in inches of water across **CF-005**, once on a daily basis while **TU4.002 – TU4.003**, each, is in operation.
- (7) Monitor the date of the sulfurized carbon replacement for each stage for each module from **CF-005**.
- (8) Monitor the number and movement or relocation of any trays from the second stage to the first stage for each module in **CF-005**.
- (9) Monitor the number of cartridges filled with sulfur impregnated carbon that is replaced for each stage for each module from **CF-005**.
- (10) Monitor the percentage mercury loading by weight on the sulfurized carbon sampled from the first stage of each module from **CF-005**.
- (11) Monitor the exact tray location that the sulfurized carbon sample was taken for each module from **CF-005**.
- (12) Monitor the hours of operation during the carbon replacement scenario of only three modules in operation.



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**Section II. Specific Operating Conditions (continued)**

**B. Emission Units # TU4.002 – TU4.003** Location North 4,515,202 km, East 568,820 km, UTM (Zone 11, NAD 83)

c. Recordkeeping

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

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of ore for **TU4.002** and **TU4.003** combined, in tons, for the corresponding date.
- (3) The total daily hours of operation for **TU4.002** and **TU4.003**, each, for the corresponding date.
- (4) The corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section B.3.c.(2) through Section B.3.c.(3) above.
- (5) The differential pressure drops for **6300-DC-016** and **6300-DC-017**, each, for the corresponding date.
- (6) The exhaust gas temperature from **6400-TW-013**, for the corresponding date.
- (7) The differential pressure drop across **CF-005**, for the corresponding date.
- (8) The amount of cartridges replaced for each module from **CF-005** and corresponding stage replaced, for the corresponding date.
- (9) The number and movement or relocation of second stage trays to the first stage for each module from **CF-005**, for the corresponding date.
- (10) The percentage mercury loading by weight from the tray sampled from the first stage for each module from **CF-005**, for the corresponding date.
- (11) The exact tray location sampled from each module from **CF-005**, for the corresponding date.
- (12) Carbon manufacturer specifications will be maintained on site for inspection.
- (13) The hours of operation under any scenario of three carbon module operation.

d. Reporting

*The Permittee* will promptly report to the Director any emissions and or throughput exceedances from **System 02**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.



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Section II. Specific Operating Conditions

C. Emission Units # TU4.004 – TU4.005 Location North 4,515,260 m, East 568,875 m, UTM (Zone 11, NAD 83)

Table with 2 columns: TU, Emission Unit Name. Row 1: TU 4.004, CFB North Roaster (6400-RO-001). Row 2: TU 4.005, CFB South Roaster (6400-RO-002).

1. Air Pollution Equipment

a. Emissions from TU4.004 and TU4.005 each, shall be controlled by a control system listed below, and consisting of the following: Gas Cooling and Cleaning and Sulfuric Acid Production Plant, rated at a maximum volume flow rate of 39,600 dry standard cubic feet per minute (DSCFM), with a final exit through the Regenerative Thermal Oxidizer to (Exhaust Stack – (E14A)), rated at a maximum volume flow rate of 19,800 dry standard cubic feet per minute (DSCFM). At any given time during operation, at least 1 of the 2 absorption towers (6600-TW-006 and 6600-TW-007) and at least 1 of the 2 Wet Electrostatic Precipitators (6500-EP-003 and 6500-EP-004) must be operated.

- (1) Gas Cooling and Cleaning
(a) Waste Heat Boiler (6400-WB-001)
(b) Waste Heat Boiler (6400-WB-002)
(c) Hot Gas Precipitator (6500-EP-001)
(d) Hot Gas Precipitator (6500-EP-002)
(e) Wash Tower (6500-TW-001)
(f) Gas Cooler/Heat Exchanger (6500-HX-004)
(g) Gas Cooler/Heat Exchanger (6500-HX-005)
(h) Wet Electrostatic Precipitator (6500-EP-003)
(i) Wet Electrostatic Precipitator (6500-EP-004)
(j) Fluorine Tower (6500-TW-002)
(k) Mercury Removal Tower (6500-TW-003)
(2) Sulfuric Acid Production Plant
(a) SO2 Drying Tower (6500-TW-005)
(b) Heat Exchanger (6600-HX-010)
(c) Heat Exchanger (6600-HX-011)
(d) SO2 Converter Vessel (6600-RE-001)
(e) Intermediate Adsorption Tower (6600-TW-006)
(f) Final Adsorption Tower (6600-TW-007)
(g) SO2 Scrubber (6600-TW-008)
(3) Final Exhaust
(a) Regenerative Thermal Oxidizer (6600-BU-011)

b. Descriptive Stack Parameters
Stack height – 80 feet
Stack inside diameter – 3.08 feet
Stack temperature (nominal) – 200° F



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## Section II. Specific Operating Conditions (continued)

C. Emission Units # TU4.004 – TU4.005 Location North 4,515,260 m, East 568,875 m, UTM (Zone 11, NAD 83)

### 2. Operating Requirements (NAC 445B.3679.3)

#### a. Limitations of Operation.

- (1) The maximum allowable throughput for TU4.004 – TU4.005 will not exceed 560.0 tons of ore and carbon fines per any one-hour period, nor more than 4,905,600 tons per year. The maximum allowable throughput for carbon fines shall not exceed 1 ton per day, nor more than 365 tons per calendar year.
  - (a) Carbon fines are defined as activated carbon fines from carbon-in-column, carbon-in-pulp, and carbon-in-leach systems for the purpose of gold stripping from a sodium cyanide or similar beneficiation elution that utilizes activated carbon.
- (2) Mercury emissions from TU4.004 – TU4.005 combined shall not exceed  $3.42 \times 10^{-5}$  grains per dry standard cubic foot (gr/dscf).
- (3) Hours  
TU4.004 – TU4.005, each may operate a total of 24 hours per day.

#### b. Work Practices.

- (1) Wet Electrostatic Precipitators (6500-EP-003 & 6500-EP-004)
  - (a) One Wet Electrostatic Precipitator (WESP) will be operating prior to starting the main fan.
- (2) Mercury Removal Tower (6500-TW-003)
  - (a) The average monthly mercuric ion concentration, based upon daily analyses, from 6500-TW-03 will range between 1.0 and 6.0 grams per liter (g/L).
  - (b) The recirculation solution flow for 6500-TW-003 sprays will maintain a line pressure greater than 4.0 pounds per square inch (PSI) when ore is being fed to either TU4.004 or TU4.005.
  - (c) The inlet temperature to 6500-TW-03 shall not exceed 110° F.
  - (d) The hourly average exhaust discharge pressure from 6500-TW-03 shall be between -0.1 and -37 inches of water column when ore is being fed to either TU4.004 or TU4.005.
- (3) Sulfuric Acid Production Plant
  - (a) The average monthly mercury concentration, based upon daily analyses, from the sulfuric acid production plant will not exceed 2.9 milligrams per liter (mg/L).

### 3. Compliance Testing, Monitoring, Recordkeeping, Reporting (NAC 445B.3679.3)

#### a. Compliance Testing

- (1) Within 180 days of initial startup of TU4.004 and TU4.005 and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of TU4.004 and TU4.005 consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of 0.85 dry standard cubic meters (30 dscf).
- (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from System 3. One representative sample shall be taken for 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).
- (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.

#### b. Monitoring

The Permittee, upon the issuance date of this operating permit will:

- (1) Monitor the throughput rate of ore in tons for TU4.004 – TU4.005, each on a daily basis.
- (2) Monitor the hours of operation for TU4.004 – TU4.005, each on a daily basis.
- (3) Monitor the exhaust discharge pressure from the 6500-TW-003 on an hourly basis during operation.
- (4) Monitor the inlet temperature, in degrees Fahrenheit, of 6500-TW-003 on a daily basis during operation.



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**Section II. Specific Operating Conditions (continued)**

C. **Emission Units # TU4.004 – TU4.005** Location North 4,515,260 m, East 568,875 m, UTM (Zone 11, NAD 83)

b. Monitoring (continued)

- (5) Monitor the average mercuric ion concentration, in grams per liter, of the scrubber solution in **6500-TW-003** on a daily basis during operation.
- (6) Monitor the line pressure, in pounds per square inch, for **6500-TW-003** on a daily basis during operation.
- (7) Monitor the average mercury concentration, in milligrams per liter, from the sulfuric acid production plant on a daily basis during operation.

c. Recordkeeping

The required monitoring established in Section C.3.above will be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of ore, in tons, for the corresponding date.
- (3) The total daily hours of operation for the corresponding date.
- (4) The corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section C.3.c.(2) through Section C.3.c.(3) above.
- (5) The hourly exhaust discharge pressure from **6500-TW-003**, for the corresponding date.
- (6) The daily temperature of the inlet exhaust for **6500-TW-003**, for the corresponding date.
- (7) The monthly average for mercuric ion concentration, based upon daily analyses, from **6500-TW-003**, for the corresponding date.
- (8) The daily line pressure for **6500-TW-003**, for the corresponding date.
- (9) The monthly average mercury concentration, based upon daily analyses of the sulfuric acid, in the sulfuric acid production plant, and the date of the monthly recording, for the corresponding date.

d. Reporting

*The Permittee* will promptly report to the Director any emissions and or throughput exceedances from **System 03**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.



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Section II. Specific Operating Conditions (continued)

D. Emission Units # TU4.006 – TU4.009

Table with 3 columns: TU ID, Equipment Name, and Manufacturer/Model/Serial info. Rows include TU 4.006 (Calcine Cooler), TU 4.007 (Quench Tank), TU 4.008 (Calcine Cooler), and TU 4.009 (Quench Tank).

1. Air Pollution Equipment

a. Emissions from TU4.006 – TU4.009, each shall be ducted to a control system with 100% capture consisting of:

Table comparing Train A and Train B equipment: High Efficiency Venturi Scrubber, Mist Eliminator, Heaters, and Carbon Filter Pack.

b. During operation of TU4.006 – TU4.009, emissions shall be ducted to at least one of the High Efficiency Venturi Scrubbers, one of the Mist Eliminators, one of the Heaters and through at least one of the Carbon Filter Packs before being released to atmosphere.

c. Train A Stack parameters

- 1. Height: 65.0 ft. (horizontal discharge)
2. Diameter: 2.5 ft.
3. Stack temperature: 130.0 - 190.0°F at design capacity
4. Flow: Maximum volume flow rate of 11,000 dry standard cubic feet per minute (dscfm).
5. UTM Coordinates (Zone 11) 4,515,255 N 568,814 E

d. Train B Stack parameters

- 1. Height: 65.0 ft. (horizontal discharge)
2. Diameter: 2.5 ft.
3. Stack temperature: 130.0 - 190.0°F at design capacity
4. Flow: Maximum volume flow rate of 11,000 dry standard cubic feet per minute (dscfm).
5. UTM Coordinates (Zone 11) 4,515,235 N 568,824 E

2. Construction Requirements (NAC 445B.250)

The Permittee shall provide the Director written notification of:

- a. The date that construction of Train A and Train B, is commenced postmarked no later than 30 days of such date.
b. The anticipated date of initial start-up of Train A and Train B, postmarked not more than 60 days nor less than 30 days prior to such date
c. The actual date of initial start-up of Train A and Train B, postmarked within 15 days after such date.





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**Section II. Specific Operating Conditions (continued)**

**D. Emission Units # TU4.006 – TU4.009**

**3. Operating Requirements (NAC 445B.3679.3)**

a. Limitations of Operation

- (1) The maximum allowable throughput for **TU4.006 – TU4.009** and **TU4.010-TU4.013** combined will not exceed **560.0** tons of calcine per hour, nor more than **4,905,600** tons per year.
- (2) The interim mercury emissions from **TU4.006 – TU4.009 combined** shall not exceed **1.0 x 10<sup>-3</sup>** grains per dry standard cubic foot (gr/dscf).
- (3) Hours
  - (a) **TU4.006 – TU4.009** each may operate a total of **24** hours per day.
  - (b) **Train A** and **Train B**, each are equipped with a process relief valve, located prior to the carbon filter packs. Any event where the carbon filter packs are bypassed through the process relief valve shall be limited to **100** hours per year.

b. Work Practices.

- (1) High Efficiency Venturi Scrubbers (**6400-DC-031** and **6400-DC-033**)
  - (a) The water flow rate for **6400-DC-031** and **6400-DC-033**, each will be at or above **52.5** gallons per minute (gpm).
- (2) Carbon Filter Packs (**6400-CF-031** and **6400-CF-033**)
  - (a) The differential pressure drop across **6400-CF-031** and **6400-CF-033**, each shall not exceed **8** inches of water.
  - (b) The inlet exhaust temperature to **6400-CF-031** and **6400-CF-033**, each will not exceed **250** degrees Fahrenheit.
  - (c) The relative humidity at the inlet exhaust to **6400-CF-031** and **6400-CF-033**, each shall not exceed **70%**.
  - (d) **6400-CF-031** and **6400-CF-033**, each shall be equipped with a minimum of **6,336** pounds of mercury removal media comprised of **144** trays containing approximately **44** pounds of sulfur impregnated carbon per trays
  - (e) Conduct an initial sampling of a randomly chosen carbon filter tray from the first stage and a randomly chosen carbon filter tray from the last stage of **6400-CF-031** and **6400-CF-033**, each within **90** days after replacement of the mercury removal media in the trays. Representative samples will be taken and analyzed using EPA Method 7471B. The exact tray location of each sample will be recorded. The mercury loading shall be averaged from the samples from the first stage and the last stage. Sampling of **6400-CF-031** and **6400-CF-033**, each shall be undertaken quarterly after the initial sampling, until the mercury removal media reaches **50%** mercury loading. Monthly sampling **6400-CF-031** and **6400-CF-033**, each will then commence until the mercury removal media reaches **90%** loading. The mercury removal media in the panels of **6400-CF-031** and **6400-CF-033**, each will be replaced no later than **30** days after reaching **90%** loading to ensure the saturation limit of the mercury removal media is not exceeded.
  - (f) **6400-CF-031** and **6400-CF-033**, each shall be equipped with **Camfill Farr CEX/J3** activated carbon or an equivalent performing mercury removal media.
  - (g) On an annual basis, perform a total loading analysis on the mercury removal media in **6400-CF-031** and **6400-CF-033**.



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**Section II. Specific Operating Conditions (continued)**

**D. Emission Units # TU4.006 – TU4.009**

**4. Compliance Testing, Monitoring, Recordkeeping, Reporting, and Performance Testing (NAC 445B.3679.3)**

**a. Compliance Testing**

- (1) Within 180 days of initial startup of **Train A** and **Train B**, and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of **Train A** and/or **Train B**, consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of **0.85** dry standard cubic meters (**30** dscf).
- (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from **System 04**. One representative sample shall be taken for 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).
- (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.

**b. Monitoring**

The **Permittee**, upon the issuance date of this operating permit will:

- (1) Monitor the throughput rate of calcine in tons for **TU4.006 – TU4.009**, combined on a daily basis.
- (2) Monitor the hours of operation for **TU4.006 – TU4.009**, each on a daily basis.
- (3) Monitor the water flow rate for **6400-DC-031** and **6400-DC-033**, each on a daily basis during operation.
- (4) Monitor the exhaust inlet temperature for **6400-CF-031** and **6400-CF-033**, each once per shift, during operation.
- (5) Monitor the pressure drop across **6400-CF-031** and **6400-CF-033**, each on a daily basis during operation.
- (6) Monitor the relative humidity at the inlet exhaust for **6400-CF-031** and **6400-CF-033**, each once per shift, during operation.
- (7) Monitor the date of the mercury removal media replacement for each stage from **6400-CF-031** and **6400-CF-033**.
- (8) Monitor the number and movement or relocation of any trays in **6400-CF-031** and **6400-CF-033**.
- (9) Monitor the number of trays filled with mercury removal media that are replaced for each stage from **6400-CF-031** and **6400-CF-033**.
- (10) Monitor the percentage mercury loading by weight on the mercury removal media sampled from the first stage and the last stage of **6400-CF-031** and **6400-CF-033**.
- (11) Monitor the exact tray location that the mercury removal media sample was taken for each stage from **6400-CF-031** and **6400-CF-033**.
- (12) Monitor the number of hours when any process relief valve is open for **System 04** (See Section D.4.d(1))



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**Section II. Specific Operating Conditions (continued)**

**D. Emission Units # TU4.006 – TU4.009**

**4. Compliance Testing, Monitoring, Recordkeeping, Reporting and Performance Testing (NAC 445B.3679.3) (continued)**

**c. Recordkeeping**

The required monitoring established in Section D.3.above will be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of calcine, in tons, for the corresponding date.
- (3) The total daily hours of operation for the corresponding date.
- (4) The corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section D.4.c.(2) through Section D.4.c.(3) above.
- (5) The water flow rate for **6400-DC-031** and **6400-DC-033**, each for the corresponding date.
- (6) The exhaust inlet temperature to **6400-CF-031** and **6400-CF-033**, each for the corresponding date.
- (7) The relative humidity at the exhaust inlet to **6400-CF-031** and **6400-CF-033**, each for the corresponding date.
- (8) The pressure drop across **6400-CF-031** and **6400-CF-033**, each for the corresponding date.
- (9) The date of the mercury removal media replacement for each stage from **6400-CF-031** and **6400-CF-033**.
- (10) The number and movement or relocation of any trays from each stage from **6400-CF-031** and **6400-CF-033**, each for the corresponding date.
- (11) The number of trays filled with mercury removal media that are replaced for each stage from **6400-CF-031** and **6400-CF-033**.
- (12) The percentage mercury loading by weight on the mercury removal media sampled from the first stage and the last stage of **6400-CF-031** and **6400-CF-033**.
- (13) The exact tray location that the mercury removal media sample was taken for each stage from **6400-CF-031** and **6400-CF-033**.
- (14) The number of hours when any process relief valve is open for **System 04**. (See Section D.4.d(1))

**d. Reporting**

- (1) **The Permittee** will promptly report to the Director any emissions and or throughput exceedances from **System 04**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.
- (2) The **Permittee** will report annually to the Director the aggregate total hours that any process relief valve for **System 04**, the calculated uncontrolled mercury emission rate based on 0.019 pounds per hour, and use the following calculation, hours any process relief valve open multiplied by the uncontrolled mercury emission rate.



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**Section II. Specific Operating Conditions (continued)**

**D. Emission Units # TU4.006 – TU4.009**

**4. Compliance Testing, Monitoring, Recordkeeping, Reporting and Performance Testing (NAC 445B.3679.3) (continued)**

**e. Performance Testing**

- (1) Upon the date of implementation of NvMACT, *the Permittee*, shall begin a performance demonstration period for the establishment of a mercury emissions limit for each thermal unit, which shall consist of (6) consecutive Method 29 source tests at approximate 6-month intervals. The performance demonstration period shall provide emissions data for the establishment of a final NvMACT mercury emission limit for each thermal unit.
- (2) *The Permittee* shall submit a test protocol and receive NDEP protocol approval for each performance demonstration test. Performance tests must be performed at conditions that the Director deems representative of normal operations. Only NDEP-validated tests may be used for the establishment of a final NvMACT mercury emission limit for each thermal unit.
- (3) *The Permittee* shall provide in each validated performance test report the records of all operating parameters and work practice standards required in the Phase-2 Mercury Operating Permit to Construct as monitored and recorded during each corresponding test of performance. Material sampling must be performed pursuant to the NDEP approved protocol.
- (4) Within 30-days of receiving a complete stack test report, the Director shall complete a review of the stack test report and provide written notification to *the Permittee* with determination of applicability for the performance demonstration, pursuant to the NDEP approved test protocol.
- (5) The final NvMACT mercury emission limit shall be calculated as the maximum test value from the (6) corresponding NDEP-validated performance demonstration tests plus one standard deviation in gr/dscf mercury. The standard deviation value shall be calculated from the (6) corresponding NDEP-validated performance demonstration test values.
- (6) The final NvMACT mercury emission limit shall be the applicable mercury emission limit permit requirement for the Phase-2 Mercury Operating Permit to Construct expressed as gr/dscf mercury.
- (7) A validated performance demonstration test may be used for the purpose of annual mercury emissions testing upon prior approval by the Director.



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Section II. Specific Operating Conditions

E. Emission Units # TU4.010 – TU4.013

Table with 3 columns: TU ID, Equipment Name, and Description. Rows include TU 4.010 (Calcine Cooler), TU 4.011 (Quench Tank), TU 4.012 (Calcine Cooler), and TU 4.013 (Quench Tank).

1. Air Pollution Equipment

a. Emissions from TU4.010 – TU4.013, each shall be ducted to a control system with 100% capture consisting of:

Table comparing Train A and Train B equipment: High Efficiency Venturi Scrubber, Mist Eliminator, Heaters, and Carbon Filter Pack.

b. During operation of TU4.010 – TU4.013, emissions shall be ducted to at least one of the High Efficiency Venturi Scrubbers, one of the Mist Eliminators, one of the Heaters and through at least one of the Carbon Filter Packs before being released to atmosphere.

c. Train A Stack parameters

- 1. Height: 65.0 ft. (horizontal discharge)
2. Diameter: 2.5 ft.
3. Stack temperature: 130.0 - 190.0°F at design capacity
4. Flow: Maximum volume flow rate of 11,000 dry standard cubic feet per minute (dscfm).
5. UTM Coordinates (Zone 11) 4,515,228 N 568,827 E

d. Train B Stack parameters

- 1. Height: 65.0 ft. (horizontal discharge)
2. Diameter: 2.5 ft.
3. Stack temperature: 130.0 - 190.0°F at design capacity
4. Flow: Maximum volume flow rate of 11,000 dry standard cubic feet per minute (dscfm).
5. UTM Coordinates (Zone 11) 4,515,214 N 568,833 E

2. Construction Requirements (NAC 445B.250)

The Permittee shall provide the Director written notification of:

- a. The date that construction of Train A and Train B, is commenced postmarked no later than 30 days of such date.
b. The anticipated date of initial start-up of Train A and Train B postmarked not more than 60 days nor less than 30 days prior to such date
c. The actual date of initial start-up of Train A and Train B postmarked within 15 days after such date.



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**Section II. Specific Operating Conditions (continued)**

**E. Emission Units # TU4.010 – TU4.013**

**3. Operating Requirements (NAC 445B.3679.3)**

a. Limitations of Operation

- (1) The maximum allowable throughput for **TU4.006 – TU4.009** and **TU4.010-TU4.013** combined will not exceed **560.0** tons of calcine per hour, nor more than **4,905,600** tons per year.
- (2) The interim mercury emissions from **TU4.010 – TU4.013 combined** shall not exceed **1.0 x 10<sup>-3</sup>** grains per dry standard cubic foot (gr/dscf).
- (3) Hours
  - (a) **TU4.010 – TU4.013** each may operate a total of **24** hours per day.
  - (b) **Train A** and **Train B**, each are equipped with a process relief valve, located prior to the carbon filter packs. Any event where the carbon filter packs are bypassed through the process relief valve shall be limited to **100** hours per year.

b. Work Practices

- (1) High Efficiency Venturi Scrubbers (**6400-DC-032** and **6400-DC-034**)
  - (a) The water flow rate for **6400-DC-032** and **6400-DC-034**, each will be at or above **52.5** gallons per minute (gpm).
- (2) Carbon Filter Packs (**6400-CF-032** and **6400-CF-034**)
  - (a) The differential pressure drop across **6400-CF-032** and **6400-CF-034**, each shall not exceed **8** inches of water.
  - (b) The inlet exhaust temperature to **6400-CF-032** and **6400-CF-034**, each will not exceed **250** degrees Fahrenheit.
  - (c) The relative humidity at the inlet exhaust to **6400-CF-032** and **6400-CF-034**, each shall not exceed **70%**.
  - (d) **6400-CF-032** and **6400-CF-034**, each shall be equipped with a minimum of **6,336** pounds of mercury removal media comprised of **144** trays containing approximately **44** pounds of sulfur impregnated carbon per trays
  - (e) Conduct an initial sampling of a randomly chosen carbon filter tray from the first stage and a randomly chosen carbon filter tray from the last stage of **6400-CF-032** and **6400-CF-034**, each within **90** days after replacement of the mercury removal media in the trays. Representative samples will be taken and analyzed using EPA Method 7471B. The exact tray location of each sample will be recorded. The mercury loading shall be averaged from the samples from the first stage and the last stage. Sampling of **6400-CF-032** and **6400-CF-034**, each shall be undertaken quarterly after the initial sampling, until the mercury removal media reaches **50%** mercury loading. Monthly sampling **6400-CF-032** and **6400-CF-034**, each will then commence until the mercury removal media reaches **90%** loading. The mercury removal media in the panels of **6400-CF-032** and **6400-CF-034**, each will be replaced no later than **30** days after reaching **90%** loading to ensure the saturation limit of the mercury removal media is not exceeded.
  - (f) **6400-CF-032** and **6400-CF-034**, each shall be equipped with **Camfill Farr CEX/J3** activated carbon or an equivalent performing mercury removal media.
  - (g) On an annual basis, perform a total loading analysis on the mercury removal media in **6400-CF-032** and **6400-CF-034**.



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**Section II. Specific Operating Conditions (continued)**

**E. Emission Units # TU4.010 – TU4.013**

**4. Compliance Testing, Monitoring, Recordkeeping, Reporting, and Performance Testing (NAC 445B.3679.3)**

**a. Compliance Testing**

- (1) Within 180 days of initial startup of **Train A** and **Train B**, and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of **Train A** and/or **Train B**, consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of **0.85** dry standard cubic meters (**30** dscf).
- (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from **System 05**. One representative sample shall be taken for 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).
- (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.

**b. Monitoring**

The **Permittee**, upon the issuance date of this operating permit will:

- (1) Monitor the throughput rate of calcine in tons for **TU4.010 – TU4.013**, combined on a daily basis.
- (2) Monitor the hours of operation for **TU4.010 – TU4.013**, each on a daily basis.
- (3) Monitor the water flow rate for **6400-DC-032** and **6400-DC-034**, each on a daily basis during operation.
- (4) Monitor the exhaust inlet temperature for **6400-CF-032** and **6400-CF-034**, each once per shift, during operation.
- (5) Monitor the pressure drop across **6400-CF-032** and **6400-CF-034**, each on a daily basis during operation.
- (6) Monitor the relative humidity at the inlet exhaust for **6400-CF-032** and **6400-CF-034**, each once per shift, during operation.
- (7) Monitor the date of the mercury removal media replacement for each stage from **6400-CF-032** and **6400-CF-034**.
- (8) Monitor the number and movement or relocation of any trays in **6400-CF-032** and **6400-CF-034**.
- (9) Monitor the number of trays filled with mercury removal media that are replaced for each stage from **6400-CF-032** and **6400-CF-034**.
- (10) Monitor the percentage mercury loading by weight on the mercury removal media sampled from the first stage and the last stage of **6400-CF-032** and **6400-CF-034**.
- (11) Monitor the exact tray location that the mercury removal media sample was taken for each stage from **6400-CF-032** and **6400-CF-034**.
- (12) Monitor the number of hours when any process relief valve is open for **System 05** (See Section E.4.d(1))



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**Section II. Specific Operating Conditions (continued)**

**E. Emission Units # TU4.010 – TU4.013**

**4. Compliance Testing, Monitoring, Recordkeeping, Reporting and Performance Testing (NAC 445B.3679.3) (continued)**

**c. Recordkeeping**

The required monitoring established in Section E.3.above will be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of calcine, in tons, for the corresponding date.
- (3) The total daily hours of operation for the corresponding date.
- (4) The corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section E.4.c.(2) through Section E.4.c.(3) above.
- (5) The water flow rate for **6400-DC-032** and **6400-DC-034**, each for the corresponding date.
- (6) The exhaust inlet temperature to **6400-CF-032** and **6400-CF-034**, each for the corresponding date.
- (7) The relative humidity at the exhaust inlet to **6400-CF-032** and **6400-CF-034**, each for the corresponding date.
- (8) The pressure drop across **6400-CF-032** and **6400-CF-034**, each for the corresponding date.
- (9) The date of the mercury removal media replacement for each stage from **6400-CF-032** and **6400-CF-034**.
- (10) The number and movement or relocation of any trays from each stage from **6400-CF-032** and **6400-CF-034**, each for the corresponding date.
- (11) The number of trays filled with mercury removal media that are replaced for each stage from **6400-CF-032** and **6400-CF-034**.
- (12) The percentage mercury loading by weight on the mercury removal media sampled from the first stage and the last stage of **6400-CF-032** and **6400-CF-034**.
- (13) The exact tray location that the mercury removal media sample was taken for each stage from **6400-CF-032** and **6400-CF-034**.
- (14) The number of hours when any process relief valve is open for **System 05**. (See Section E.4.d(1))

**d. Reporting**

- (1) The **Permittee** will promptly report to the Director any emissions and or throughput exceedances from **System 05**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.
- (2) The **Permittee** will report annually to the Director the aggregate total hours that any process relief valve for **System 05**, the calculated uncontrolled mercury emission rate based on 0.019 pounds per hour, and use the following calculation, hours any process relief valve open multiplied by the uncontrolled mercury emission rate.





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**Section II. Specific Operating Conditions (continued)**

**E. Emission Units # TU4.006 – TU4.009**

**4. Compliance Testing, Monitoring, Recordkeeping, Reporting and Performance Testing (NAC 445B.3679.3) (continued)**

**e. Performance Testing**

- (1) Upon the date of implementation of NvMACT, *the Permittee*, shall begin a performance demonstration period for the establishment of a mercury emissions limit for each thermal unit, which shall consist of (6) consecutive Method 29 source tests at approximate 6-month intervals. The performance demonstration period shall provide emissions data for the establishment of a final NvMACT mercury emission limit for each thermal unit.
- (2) *The Permittee* shall submit a test protocol and receive NDEP protocol approval for each performance demonstration test. Performance tests must be performed at conditions that the Director deems representative of normal operations. Only NDEP-validated tests may be used for the establishment of a final NvMACT mercury emission limit for each thermal unit.
- (3) *The Permittee* shall provide in each validated performance test report the records of all operating parameters and work practice standards required in the Phase-2 Mercury Operating Permit to Construct as monitored and recorded during each corresponding test of performance. Material sampling must be performed pursuant to the NDEP approved protocol.
- (4) Within 30-days of receiving a complete stack test report, the Director shall complete a review of the stack test report and provide written notification to *the Permittee* with determination of applicability for the performance demonstration, pursuant to the NDEP approved test protocol.
- (5) The final NvMACT mercury emission limit shall be calculated as the maximum test value from the (6) corresponding NDEP-validated performance demonstration tests plus one standard deviation in gr/dscf mercury. The standard deviation value shall be calculated from the (6) corresponding NDEP-validated performance demonstration test values.
- (6) The final NvMACT mercury emission limit shall be the applicable mercury emission limit permit requirement for the Phase-2 Mercury Operating Permit to Construct expressed as gr/dscf mercury.
- (7) A validated performance demonstration test may be used for the purpose of annual mercury emissions testing upon prior approval by the Director.



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Section II. Specific Operating Conditions (continued)

F. Emission Units # TU4.014 – TU4.015 location North 4,514,900 m East 568,500 m, UTM (Zone 11, NAD 83)

<b>System 06 – Carbon Stripping Circuit</b> manufactured by AARL., model # (Custom), serial # (not specified)		
TU	4.014	Pregnant Tank (S2.228)
TU	4.015	Pregnant Tank (S2.229)

1. Air Pollution Equipment

- a. Exhaust gas from **TU4.014 and TU4.015** shall be ducted to a control system with 100% capture, consisting of a **Mercury Removal Media Filter Pack (CF-004)**.
- b. Descriptive Stack Parameters for CF-004  
 Stack Height (ft): 25 (Horizontal Discharge)  
 Stack Diameter (ft): 0.5  
 Stack Temperature (°F): 140°  
 Exhaust Flow (DSCFM): 300

2. Schedule for Compliance (NAC445B.3685.3(e) and NAC445B.273)

- a. The **Permittee** shall, design and implement gas conditioning devices for **System 06** within 18 months of the issuance date of this mercury operating permit to construct.
- b. The **Permittee** shall notify the Director within 15 days of implementation of Section F.2.a. of this mercury operating permit to construct.
- c. The **Permittee** shall submit a revision to this mercury operating permit to construct within 90 days of implementation of Section F.2.a. of this mercury operating permit to construct.
- d. The provisions listed in this Schedule for Compliance take effect on **November 29, 2023**.

3. Operating Requirements (NAC445B.3679.3)

- a. Limitations of Operation
  - (1) The maximum allowable throughput for **TU4.014 – TU4.015** each will not exceed **9,600** gallons per hour (gph) of precious metal concentrate
  - (2) The mercury emission limit for **TU4.014 – TU4.015**, combined, shall not exceed **3.0 x 10<sup>-3</sup>** grains per dry standard cubic foot (gr/dscf).
  - (3) Hours  
**TU4.014 – TU4.015**, each, may operate a total of **24** hours per day.



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## Section II. Specific Operating Conditions (continued)

F. Emission Units # TU4.014 – TU4.015 location North 4,514,900 m East 568,500 m, UTM (Zone 11)

### 3. Operating Requirements (NAC445B.3679.3) (continued)

#### b. Work Practices

##### (1) Pregnant Tanks (TU4.014 – TU4.015)

- (a) TU4.014 and TU4.015 shall be ducted directly to CF-004.
- (b) TU4.014 and TU4.015 shall be inspected for damage and/or leakage quarterly.

##### (2) Sulfur Impregnated Carbon Filter Packs (CF-004)

- (a) The differential pressure drop across CF-004 shall be maintained between 0 to 4 inches of water column (in w.c.).
- (b) CF-004 shall be equipped with 309 pounds of sulfur impregnated carbon configured in a single stage comprised of 36 panels containing approximately 8.58 pounds of sulfur impregnated carbon per panel.
- (c) Conduct an initial sampling of a randomly chosen carbon filter panels from CF-004 within 90 days after replacement of the carbon in the trays. Representative samples will be taken and analyzed using EPA Method 7471A. The exact panel location of each sample will be recorded. Sampling of CF-004 shall be undertaken quarterly after the initial sampling, until the carbon reaches 50% mercury loading. Monthly sampling of CF-004 will then commence until the carbon reaches 90% loading. The sulfur impregnated carbon in all the panels of CF-004 will be replaced no later than 30 days after reaching 90% loading to ensure the saturation limit of the carbon is not exceeded.
- (d) CF-004 shall be equipped with AddSorb VQ1 sulfurized bituminous coal based pelletized activated carbon or an equivalent performing mercury removal media.
- (e) On an annual basis, perform a total loading analysis on the mercury removal media in CF-004.

### 4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3)

#### a. Compliance Testing

- (1) Within 180 days of initial startup of TU4.014 – TU4.015 and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of TU4.014 – TU4.015 consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of 0.85 dry standard cubic meters (30 dscf) or be conducted for up to two hours in an effort to collect this sample volume.
- (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from System 6. One representative sample shall be taken for 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).
- (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.

#### b. Monitoring

The Permittee shall:

- (1) Monitor the flow rate of precious metal concentrate in gallons for TU4.014 – TU4.015 combined on a daily basis.
- (2) Monitor the hours of operation for TU4.014 – TU4.015 combined on a daily basis.
- (3) Monitor the differential pressure across CF-004 once on a daily basis while TU4.014 – TU4.015, each are in operation.
- (4) Monitor the number of panels filled with sulfur impregnated carbon in CF-004 upon each replacement.
- (5) Monitor the percentage mercury loading by weight on the sulfur impregnated carbon sampled from CF-004.
- (6) Monitor the exact panel location that the sulfur impregnated carbon sample was taken from CF-004.
- (7) Monitor the amount of sulfur impregnated carbon replaced for CF-004.



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**Section II. Specific Operating Conditions (continued)**

F. Emission Units # TU4.014 – TU4.015 location North 4,514,900 m East 568,500 m, UTM (Zone 11)

4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3) (continued)

c. Recordkeeping

The required monitoring established in Section F.4.b. above will be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of precious metal concentrate, in gallons, for the corresponding date.
- (3) The total daily hours of operation for the corresponding date.
- (4) The corresponding average hourly throughput rate in gallons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section F.4.c.(2) through Section F.4.c.(3) above.
- (5) The results of the quarterly inspection of **TU4.014** and **TU4.015**.
- (6) The differential pressure drop across **CF-004**, in inches of water, for the corresponding date.
- (7) The date of the replacement of sulfur impregnated carbon in **CF-004**.
- (8) The number of panels filled with sulfur impregnated carbon in **CF-004**, for the corresponding date.
- (9) The exact panel location of the panel sampled for the sulfur impregnated carbon sample in **CF-004**, for the corresponding date.
- (10) Monitor the amount of sulfur impregnated carbon replaced for **CF-004**, for the corresponding date.
- (11) The manufacturer specifications for the sulfur impregnated carbon shall be kept on site for inspection.

d. Reporting

The *Permittee* will promptly report to the Director any emissions and or throughput exceedances from **System 06**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.



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Section II. Specific Operating Conditions (continued)

G. Emission Units # TU4.016 – TU4.017 location North 4,514,800 m East 568,800 m, UTM (Zone 11 NAD 83)

<b>System 07 – Refinery Barren Tank and Electrowinning Cells</b> manufactured by Nedpac., model # (Custom), serial # (not specified)		
TU	4.016	Refinery Barren Tank
TU	4.017	Electrowinning Cells (16 total, 4 banks of four EW cells, operating in parallel acting as a single emission unit)

1. Air Pollution Equipment

- a. Exhaust gas from TU4.016 – TU4.017 shall be ducted to a control system with 100% capture, consisting of the following control devices in series, listed in the order of placement in the exhaust system:
  - (1) Mist Eliminator (ME-001A and ME-001B), operating in parallel (manufacturer not specified)
  - (2) Duct Heater (DH-001)
  - (3) Mercury Removal Media Filter Pack (CF-001A and CF001B) operating in parallel (manufacturer not specified)
  - (4) Wet Scrubber (WS-001) (Tri-mer) (emissions combined from Acid Wash Dilution Tank)
- b. Descriptive Stack parameters
  - Height: 38.0 ft.
  - Diameter: 1.17 ft.
  - Stack temperature: 76.0 °F
  - Flow: Nominal volume flow rate of 8,000 dry standard cubic feet per minute (dscfm).

2. Construction Requirements (NAC 445B.250)

The Permittee shall provide the Director written notification of:

- a. The date that construction of ME-001A, ME-001B, DH-001, CF-001A and CF-001B, is commenced postmarked no later than 30 days of such date.
- b. The anticipated date of initial start-up of ME-001A, ME-001B, DH-001, CF-001A and CF-001B postmarked not more than 60 days nor less than 30 days prior to such date
- c. The actual date of initial start-up of ME-001A, ME-001B, DH-001, CF-001A and CF-001B postmarked within 15 days after such date.

3. Operating Requirements (NAC 445B.3679.3)

- a. Limitations of Operation
  - (1) The maximum allowable throughput for System 07 will not exceed 9,600 gallons per hour (gph) of precious metal concentrate solution per any one hour period.
  - (2) The mercury emission limit for TU4.016 – TU4.017 combined shall not exceed 5.3 x 10<sup>-4</sup> grains per dry standard cubic foot (gr/dscf).
  - (3) Hours
    - TU4.016 – TU4.017, each, may operate a total of 24 hours per day.



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**Section II. Specific Operating Conditions (continued)**

**G. Emission Units # TU4.016 – TU4.017** location North 4,514,800 m East 568,800 m, UTM (Zone 11 NAD 83)

b. Work Practices

(1) Refinery Barren Tank (**TU4.016**)

(a) **TU4.016** shall be ducted directly to **ME-001A** and **ME-001B**.

(2) Electrowinning Cells (**TU4.017**)

(a) **TU4.017** consists of four banks of four cells, each cell operating in series.

(b) Each bank shall operate in parallel to each other.

(c) **TU4.017** shall be ducted directly to **ME-001A** and **ME-001B**.

(d) The lids for **TU4.017** must be closed during operation.

(3) Mist Eliminators (**ME-001A** and **ME-001B**)

(a) The internal components **ME-001A** and **ME-001B** shall be visually inspected every quarter.

(4) Sulfur Impregnated Carbon Filter Packs (**CF-001A** and **CF-001B**)

(a) The differential pressure drop across **CF-001A** and **CF-001B** shall be maintained at or below **10** inches of water column (in w.c.).

(b) **CF-001A** and **CF-001B** shall consist of two units operating in parallel, each equipped with **2,800** pounds of sulfur impregnated carbon.

(c) The inlet exhaust temperature to **CF-001A** and **CF-001B** shall not exceed **250°** Fahrenheit.

(d) Sample and replace the carbon in **CF-001A** and **CF-001B** according to the following schedule:

Sample the carbon at the inlet and outlet of the carbon filter **CF-001A** and **CF-001B** and record the depth of each sample probe within 90 days after replacement of the carbon. The sampled carbon shall be analyzed using EPA Method 7471B for mercury and the average percentage, by weight, shall be calculated. The loading capacity of the sulfur impregnated carbon is 20% by weight. A sample of carbon shall be analyzed quarterly until 50% of the carbon loading capacity is reached. Upon reaching 50% of the carbon loading capacity, the sampling shall occur monthly until 90% of the carbon loading capacity is reached. The carbon in **CF-001A** and **CF-001B**, each shall be replaced no later than 30 days after reaching 90% of the carbon loading capacity.

(e) Any sulfur-impregnated carbon replaced in **CF-001A** and **CF-001B** shall be replaced with only the original manufacturer's design specification sulfur-impregnated carbon or with equivalent, or better performing mercury removal media.

(f) On an annual basis, perform a total loading analysis on the mercury removal media in **CF-001A** and **CF-001B**.

**4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3)**

a. Compliance Testing

(1) Within 180 days of initial startup of **TU4.016 – TU4.017** and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of **TU4.016 – TU4.017** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of **0.85** dry standard cubic meters (**30** dscf).

(2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from **System 07**. One representative sample shall be taken for 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).

(3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.



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**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

**Section II. Specific Operating Conditions (continued)**

**G. Emission Units # TU4.016 – TU4.017** location North 4,514,800 m East 568,800 m, UTM (Zone 11 NAD 83)

b. Monitoring

The *Permittee*, upon the issuance date of this operating permit will:

- (1) Monitor the throughput rate of precious metal concentrate solution in gallons per hour for **System 07**, on a daily basis.
- (2) Monitor the hours of operation for **System 07**, each, on a daily basis.
- (3) Monitor the date of the replacement of sulfur impregnated carbon in **CF-001A** and **CF-001B**.
- (4) Monitor the differential pressure drop, in inches of water column, across **CF-001A** and **CF-001B** once daily while **TU4.016 – TU4.017**, each are in operation.
- (5) Monitor the inlet exhaust temperature to **CF-001A** and **CF-001B**, once per shift, during operation.
- (6) Monitor the mercury loading by weight for the sulfur impregnated carbon sampled in **CF-001A** and **CF-001B**.

c. Recordkeeping

The required monitoring established in Section G.4.b above will be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of precious metal concentrate solution in gallons, for the corresponding date.
- (3) The total daily hours of operation for the corresponding date.
- (4) The corresponding average hourly throughput rate in gallons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section G.4.c.(2) through Section G.4.c.(3). above.
- (5) The results of the differential pressure drop across **CF-001A** and **CF-001B**, for the corresponding date.
- (6) The date and weight of each sulfur-impregnated carbon replacement for **CF-001A** and **CF-001B**.
- (7) The inlet exhaust temperature to **CF-001A** and **CF-001B**, for the corresponding shift.
- (8) The mercury loading by weight of the sulfur impregnated carbon sampled in **CF-001A** and **CF-001B**, for the corresponding date.
- (9) The manufacturer specifications for the sulfur impregnated carbon or equivalent performing mercury removal media shall be kept on site for inspection.
- (10) The results of the quarterly internal component inspection for **ME-001A** and **ME-001B**.

d. Reporting

*The Permittee* will promptly report to the Director any emissions and or throughput exceedances from **System 07**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.



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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

I. Emission Units # TU4.024 – TU4.026 Location North 4,515,004 m, East 568,488 m, UTM (Zone 11, NAD 83)

<b>System 09 – Electric Refinery Induction Furnaces</b> manufactured by Inductotherm Corp., model # (Custom), serial # (not specified)		
TU	4.024	Electric Refinery Induction Furnace (500-FC-16)
TU	4.025	Electric Refinery Induction/Pour Furnace (500-FC-17)
TU	4.026	Bar Melt Furnace (500-FC-05)

1. Air Pollution Equipment

- a. Emissions from **TU4.024 and TU4.025**, each, shall be ducted to a control system consisting of **Baghouse (BH-001) and Carbon Filter Pack (500-DC-012)** with 100% capture and a maximum volume flow rate of **16,000** dry standard cubic feet per minute (DSCFM).
- b. Emissions from **TU4.026** shall be ducted to a control system consisting of **Carbon Filter Pack (500-DC-012)** with 100% capture and a maximum volume flow rate of **16,000** dry standard cubic feet per minute (DSCFM).

b. Stack parameters

Height: 35.0 ft. (horizontal discharge)

Diameter: 2.00 x 1.50 ft. (rectangular)

Stack temperature: 90 °F

Flow: Maximum volume flow rate of **16,000** dry standard cubic feet per minute (dscfm).

2. Operating Requirements

a. Limitations of Operation. NAC 445B.3679.3

(1) The maximum allowable throughput for **TU4.024 – TU4.026**, combined, will not exceed **3.0** tons of precious metal laden material and flux per any one hour period.

(2) The mercury emission limit for **TU4.024 – TU4.026** combined shall not exceed **6.3 x 10<sup>-4</sup>** grains per dry standard cubic foot (gr/dscf).

(3) Hours

(a) **TU4.024 – TU4.026** combined may operate a total of **2,200** hours per calendar year.





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### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

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## Section II. Specific Operating Conditions (continued)

### I. Emission Units # TU4.024 – TU4.026 Location North 4,515,004 m, East 568,488 m, UTM (Zone 11, NAD 83)

#### b. Work Practices. NAC 445B.3679.3

##### (1) Baghouse (BH-001)

(a) The differential pressure drop across BH-001 will be maintained between 0 to 20 inches of water column (in. w.c.).

##### (2) Sulfur Impregnated Carbon Filter Packs (500-DC-012)

(a) The differential pressure drop across 500-DC-012 shall be maintained between 0 to 13 inches of water column (in. w.c.)

(b) The maximum inlet exhaust temperature entering 500-DC-12 shall not exceed 200° Fahrenheit.

(c) 500-DC-012 shall be equipped with 4,123 pounds of sulfur impregnated carbon configured in five stages comprised of 96 panels per stage containing approximately 8.58 pounds of sulfur impregnated carbon per panel.

(d) Conduct an initial sampling of a randomly chosen carbon filter panel from the first stage and a randomly chosen carbon filter panel from the last stage of 500-DC-012 within 90 days after replacement of the carbon in the trays. Representative samples will be taken and analyzed using EPA Method 7471A. The exact panel location of each sample will be recorded. The mercury loading shall be averaged from the samples from the first stage and the last stage. Sampling of 500-DC-012 shall be undertaken quarterly after the initial sampling, until the carbon reaches 50% mercury loading. Monthly sampling of 500-DC-012 will then commence until the carbon reaches 90% loading. The sulfur impregnated carbon in the panels of 500-DC-012 will be replaced no later than 30 days after reaching 90% loading to ensure the saturation limit of the carbon is not exceeded.

(e) 500-DC-012 shall be equipped with AddSorb VQ1 sulfurized bituminous coal based pelletized activated carbon or an equivalent performing mercury removal media.

(f) On an annual basis, perform a total loading analysis on the mercury removal media in 500-DC-012.

### 3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3)

#### a. Compliance Testing

(1) Within 180 days of initial startup of TU4.024 through TU4.026 and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of TU4.024 through TU4.026 consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of 0.85 dry standard cubic meters (30 dscf).

(2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from System 09. One representative sample shall be taken for 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).

(3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.

#### b. Monitoring

The Permittee, upon the issuance date of this permit will:

(1) Monitor the throughput rate of precious metal laden materials and flux for TU4.024 – TU4.026, each on a daily basis.

(2) Monitor the hours of operation for TU4.024 – TU4.026, each on a daily basis.

(3) Monitor the differential pressure drop across BH-001 once daily while TU4.024 – TU4.026 are in operation.

(4) Monitor the differential pressure drop across 500-DC-012 once daily while TU4.024 – TU4.026 are in operation.

(5) Monitor the number of panels filled with sulfur impregnated carbon in 500-DC-012 upon each replacement.

(6) Monitor the percentage mercury loading by weight on the sulfur impregnated carbon sampled from 500-DC-012.

(7) Monitor the exact panel location that the sulfur impregnated carbon sample was taken from 500-DC-012.

(8) Monitor the inlet exhaust temperature entering 500-DC-12, once daily while TU4.024 – TU4.026 are in operation.



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**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

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**Section II. Specific Operating Conditions (continued)**

**I. Emission Units # TU4.024 – TU4.026** Location North 4,515,004 m, East 568,488 m, UTM (Zone 11, NAD 83)

c. Recordkeeping

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

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of precious metal concentrate and flux in tons, for the corresponding date.
- (3) The total daily hours of operation for **TU4.024 – TU4.026**, each, for the corresponding date.
- (4) The results of the differential pressure drop across **BH-001**, for the corresponding date.
- (5) The results of the differential pressure drop across **500-DC-012**, for the corresponding date.
- (6) The date of the replacement of sulfidized carbon in **500-DC-012**.
- (7) The number of filters, filled with sulfidized carbon, in **500-DC-012**, for the corresponding date.
- (8) The mercury loading by weight of the sulfidized carbon sampled in **500-DC-012**, for the corresponding date.
- (9) The manufacturer specifications for the sulfidized carbon shall be kept on site for inspection.
- (10) The inlet exhaust temperature entering **500-DC-12**, for the corresponding date.

d. Reporting

*The Permittee* will promptly report to the Director any emissions and or throughput exceedances from **System 09**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.



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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

Section II. Specific Operating Conditions (continued)

J. Emission Unit # TU4.027 location North 4,515,029 m, East 568,463 m, UTM (Zone 11)

System 10 – Carbon Regeneration Kiln #1 (Zadra Process) manufactured by Boliden-Allis., model # (Custom), serial # (not specified)		
TU	4.027	Carbon Regeneration Kiln #1 (500-DC-014)

1. Air Pollution Equipment

- a. Emissions from TU4.027 shall be ducted to a control system with 100% capture consisting of:
  - (1) Venturi Scrubber System (500-DC-014) (Reynolds Air Products) consisting of:
    - a. Quench Stage (500-DC-014Q)
    - b. Venturi Stage (500-DC-014V)
    - c. Demister Stage (500-DC-014D)
    - d. Cyclones (500-DC-014C) (two cyclones operating in parallel)
  - (2) Carbon Pre-Filter/Moisture Pack (MP-001) (equipped with stainless steel mesh)
  - (3) Sulfur Impregnated Carbon Filter Packs (CF-002)
- b. Stack parameters
  - Height: 52.0 ft.
  - Diameter: 0.67 ft.
  - Stack temperature: 95.0 °F
  - Flow: Maximum volume flow rate of 1,237 dry standard cubic feet per minute (dscfm).

2. Schedule for Compliance (NAC445B.3685.3(e) and NAC445B.273)

- a. The Permittee shall investigate, report, design (if necessary) and implement (if necessary) optimized gas conditioning devices for System 10 within 18 months of the issuance date of this mercury operating permit to construct.
- b. The Permittee shall investigate, report, (if necessary) and implement (if necessary) an optimized mercury removal control device for System 10 within 18 months of the issuance date of this mercury operating permit to construct.
- c. The Permittee shall notify the Director within 15 days of implementation of Section J.2.a. and J.2.b. of this mercury operating permit to construct.
- d. The Permittee shall submit a revision (if necessary) to this mercury operating permit to construct within 90 days of implementation of Section J.2.a. and J.2.b. of this mercury operating permit to construct.
- e. The provisions listed in this Schedule for Compliance take effect on November 29, 2023.

3. Operating Requirements (NAC445B.3679.3)

- a. Limitations of Operation.
  - (1) The maximum allowable throughput for TU4.027 will not exceed 1.25 tons of stripped carbon per any one hour period, nor more than 10,950 tons per year.
  - (2) The mercury emission limit for System 10 shall not exceed 3.1 x 10<sup>-3</sup> grains per dry standard cubic foot (gr/dscf).
  - (3) Hours
    - TU4.027 may operate a total of 24 hours per day.



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### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

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## Section II. Specific Operating Conditions (continued)

J. Emission Unit # TU4.027 location North 4,515,029 m, East 568,463 m, UTM (Zone 11)

### 3. Operating Requirements (NAC445B.3679.3) (continued)

#### b. Work Practices.

##### (1) Carbon Regeneration Kiln #1 (TU4.027)

(a) The inside of the kiln shell shall be inspected quarterly for cracks. If cracks are identified, the cracks shall be repaired immediately prior to restart of TU4.027.

##### (2) Venturi Scrubber System (500-DC-014)

(a) The temperature of the exhaust gas exiting 500-DC-014 will be maintained at or below **95° Fahrenheit** during the operation of TU4.027 or the heat to TU4.027 will automatically be shut off via interlock.

(b) The combined water flow rate to 500-DC-014Q and 500-DC-014V shall be above **30** gallons per minute.

(c) The differential pressure across 500-DC-014 and all its components shall be maintained at or below **9** inches of water column (in.w.c.).

(d) Condensed mercury from 500-DC-014Q and 500-DC-014V shall be collected quarterly.

##### (3) Carbon Pre-Filter/Moisture Pack (MP-001)

(a) The internal components of MP-001 shall be inspected quarterly and replaced if necessary.

##### (4) Sulfur Impregnated Carbon Filter Packs (CF-002)

(a) The differential pressure drop across CF-002 shall be maintained between **0** to **13** inches of water column (in w.c.).

(b) CF-002 shall be equipped with **618** pounds of sulfur impregnated carbon configured in a single stage comprised of **72** panels containing approximately **8.58** pounds of sulfur impregnated carbon per panel.

(c) Conduct an initial sampling of a randomly chosen carbon filter panel from the first stage and a randomly chosen carbon filter panel from the last stage of CF-002 within **90** days after replacement of the carbon in the trays.

Representative samples will be taken and analyzed using EPA Method 7471A. The exact panel location of each sample will be recorded. Sampling of CF-002 shall be undertaken quarterly after the initial sampling, until the carbon reaches **50%** mercury loading. Monthly sampling of CF-002 will then commence until the carbon reaches **90%** loading. The sulfur impregnated carbon in the panels of CF-002 will be replaced no later than **30** days after reaching **90%** loading to ensure the saturation limit of the carbon is not exceeded.

(d) CF-002 shall be equipped with **AddSorb VQ1** sulfurized bituminous coal based pelletized activated carbon or an equivalent performing mercury removal media.

(e) On an annual basis, perform a total loading analysis on the mercury removal media in CF-002.

### 4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3)

#### a. Compliance Testing

(1) Within 180 days of initial startup of **System 10** and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of TU4.027 consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of **0.85** dry standard cubic meters (**30** dscf).

(2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from **System 10**. One representative sample shall be taken for 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).

(3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.



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**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

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**Section II. Specific Operating Conditions (continued)**

J. Emission Unit # TU4.027 location North 4,515,029 m, East 568,463 m, UTM (Zone 11)

**4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3) (continued)**

b. Monitoring

The *Permittee*, upon the issuance date of this operating permit will:

- (1) Install, operate, calibrate, and maintain instrumentation to measure the following:
  - (a) The exhaust gas temperature for **500-DC-014**, in degrees Fahrenheit.
  - (b) The combined water flow rate to **500-DC-014Q** and **500-DC-014V**, in gallons per minute.
  - (c) The differential pressure across all the components of **500-DC-014**.
- (2) Install, operate, calibrate, and maintain an exhaust gas temperature interlock that will shut off the heating source to **TU4.027** if the exhaust gas temperature from **500-DC-014** reaches **95° F**.
- (3) Monitor the throughput rate of stripped carbon in tons for **TU4.027** on a daily basis.
- (4) Monitor the hours of operation for **TU4.027** on a daily basis.
- (5) Monitor the exhaust gas temperature of **500-DC-014** once per shift while **TU4.027** is in operation.
- (6) Monitor the differential pressure drop across **CF-002** once daily while **TU4.027** is in operation.
- (7) Monitor the number of panels filled with sulfur impregnated carbon in **CF-002** upon each replacement.
- (8) Monitor the percentage mercury loading by weight on the sulfur impregnated carbon sampled from **CF-002**.
- (9) Monitor the exact panel location that the sulfur impregnated carbon sample was taken from **CF-002**.
- (10) Monitor the combined water flow to **500-DC-014Q** and **500-DC-014V**, once per shift while **TU4.027** is in operation.
- (11) Monitor the differential pressure across **500-DC-014**, once per shift while **TU4.027** is in operation.

c. Recordkeeping

The required monitoring established in Section J.4.b. above will be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of stripped carbon, in tons, for the corresponding date.
- (3) The total daily hours of operation for the corresponding date.
- (4) The corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section J.4.c.(2) through Section J.4.c.(3) above.
- (5) The results of the quarterly kiln shell inspection for **TU4.027**, for the corresponding date.
- (6) The results of the exhaust gas temperature for **500-DC-014**, for the corresponding date.
- (7) The results of the differential pressure drop across **CF-002**, for the corresponding date.
- (8) The date of the replacement of sulfidized carbon in **CF-002**.
- (9) The number of filters, filled with sulfidized carbon, in **CF-002**, for the corresponding date.
- (10) The mercury loading by weight of the sulfidized carbon sampled in **CF-002**, for the corresponding date.
- (11) The manufacturer specifications for the sulfidized carbon shall be kept on site for inspection.
- (12) The results of the combined water flow to **500-DC-014Q** and **500-DC-014V**, for the corresponding date.
- (13) The results of the differential pressure across **500-DC-014**, for the corresponding date.
- (14) The results of the inspection of the internal components of **MP-001**, for the corresponding date.
- (15) The amount of mercury drained from **500-DC-014Q** and **500-DC-014V**, for the corresponding date.



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**Section II. Specific Operating Conditions (continued)**

**J. Emission Unit # TU4.027** location North 4,515,029 m, East 568,463 m, UTM (Zone 11)

**4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3) (continued)**

d. Reporting

- a. The *Permittee* will promptly report to the Director any emissions and or throughput exceedances from **System 10**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.
- b. The *Permittee* will report to the Director the results of the investigations as described in Section **J.2.a.** and **J.2.b** of this mercury operating permit to construct within 60 days following the end of the 18-month timeline.



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Section II. Specific Operating Conditions (continued)

K. Emission Units # TU4.028 location North 4,515,183 m, East 568,420 m, UTM (Zone 11)

System 11 – Carbon Regeneration Kiln #2 (AARL Process) manufactured by Boliden-Allis., model # (Custom), serial # (not specified)		
TU	4.028	Carbon Regeneration Kiln #2 (2550-DC-03)

1. Air Pollution Equipment

- a. Emissions from TU4.028 shall be ducted to a control system with 100% capture consisting of:
  - 1) Venturi Scrubber System (2550-DC-03) (Reynolds Air Products) consisting of:
    - a. Quench Stage (2550-DC-03Q)
    - b. Venturi Stage (2550-DC-03V)
    - c. Demister Stage (2550-DC-03D)
    - d. Cyclones (2550-DC-03C) (two cyclones operating in parallel)
  - (2) Carbon Pre-Filter/Moisture Pack (MP-002) (equipped with stainless steel mesh)
  - (3) Sulfur Impregnated Carbon Filter Packs (CF-003)
- b. Stack parameters
  - Height: 52.0 ft.
  - Diameter: 0.67 ft.
  - Stack temperature: 95.0 °F
  - Flow: Maximum volume flow rate of 1,234 dry standard cubic feet per minute (dscfm).

2. Schedule for Compliance (NAC445B.3685.3(e) and NAC445B.273)

- a. The Permittee shall investigate, report, design (if necessary) and implement (if necessary) optimized gas conditioning devices for System 11 within 18 months of the issuance date of this mercury operating permit to construct.
- b. The Permittee shall investigate, report, (if necessary) and implement (if necessary) an optimized mercury removal control device for System 11 within 18 months of the issuance date of this mercury operating permit to construct.
- c. The Permittee shall notify the Director within 15 days of implementation of Section K.2.a. and K.2.b. of this mercury operating permit to construct.
- d. The Permittee shall submit a revision (if necessary) to this mercury operating permit to construct within 90 days of implementation of Section K.2.a. and K.2.b. of this mercury operating permit to construct.
- e. The provisions listed in this Schedule for Compliance take effect on November 29, 2023.

3. Operating Requirements (NAC445B.3679.3)

- a. Limitations of Operation.
  - (1) The maximum allowable throughput for TU4.028 will not exceed 1.25 tons of stripped carbon per any one hour period, nor more than 10,950 tons per year.
  - (2) The mercury emission limit for System 11 shall not exceed 3.0 x 10<sup>-3</sup> grains per dry standard cubic foot (gr/dscf).
  - (3) Hours
    - TU4.028 may operate a total of 24 hours per day.



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**Section II. Specific Operating Conditions (continued)**

**K. Emission Unit # TU4.028** location North 4,515,183 m, East 568,420 m, UTM (Zone 11)

**3. Operating Requirements (NAC445B.3679.3) (continued)**

**b. Work Practices.**

**(1) Carbon Regeneration Kiln #1 (TU4.028)**

(a) The inside of the kiln shell shall be inspected quarterly for cracks. If cracks are identified, the cracks shall be repaired immediately prior to restart of **TU4.028**

**(2) Wet Scrubber (2550-DC-03)**

(a) The temperature of the exhaust gas exiting **2550-DC-03** will be maintained at or below **95° Fahrenheit** during the operation of **TU4.028** or the heat to **TU4.028** will automatically be shut off via interlock.

(b) The combined water flow rate to **2550-DC-03Q** and **2550-DC-03V** shall be above **30** gallons per minute.

(c) The differential pressure across **2550-DC-03** and all its components shall be maintained at or below **9** inches of water column (in.w.c.).

(d) Condensed mercury from **2550-DC-03Q** and **2550-DC-03V** shall be collected quarterly.

**(3) Carbon Pre-Filter/Moisture Pack (MP-002)**

(a) The internal components of **MP-002** shall be inspected quarterly and replaced if necessary.

**(4) Sulfur Impregnated Carbon Filter Packs (CF-003)**

(a) The differential pressure drop across **CF-003** shall be maintained between **0** to **13** inches of water column (in w.c.).

(b) **CF-003** shall be equipped with **618** pounds of sulfur impregnated carbon configured in a single stage comprised of **72** panels containing approximately **8.58** pounds of sulfur impregnated carbon per panel.

(c) Conduct an initial sampling of a randomly chosen carbon filter panel from the first stage and a randomly chosen carbon filter panel from the last stage of **CF-003** within **90** days after replacement of the carbon in the trays. Representative samples will be taken and analyzed using EPA Method 7471A. The exact panel location of each sample will be recorded. Sampling of **CF-003** shall be undertaken quarterly after the initial sampling, until the carbon reaches **50%** mercury loading. Monthly sampling of **CF-003** will then commence until the carbon reaches **90%** loading. The sulfur impregnated carbon in the panels of **CF-003** will be replaced no later than **30** days after reaching **90%** loading to ensure the saturation limit of the carbon is not exceeded.

(d) **CF-003** shall be equipped with **AddSorb VQ1** sulfurized bituminous coal based pelletized activated carbon or an equivalent or better performing mercury removal media.

(e) On an annual basis, perform a total loading analysis on the mercury removal media in **CF-003**.

**4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3)**

**a. Compliance Testing**

(1) Within 180 days of initial startup of **System 11** and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of **TU4.028** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of **0.85** dry standard cubic meters (**30** dscf).

(2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from **System 11**. One representative sample shall be taken for 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).

(3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.





**Bureau of Air Pollution Control**

**Facility ID No. A0002**

**Permit No. AP1041-2219**

**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

**Section II. Specific Operating Conditions (continued)**

**K. Emission Unit # TU4.028** location North 4,515,183 m, East 568,420 m, UTM (Zone 11)

**4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3) (continued)**

**b. Monitoring**

The *Permittee*, upon the issuance date of this operating permit will:

- (1) Install, operate, calibrate, and maintain instrumentation to measure the following:
  - (a) The exhaust gas temperature for **2550-DC-03**, in degrees Fahrenheit.
  - (b) The combined water flow rate to **2550-DC-03Q** and **2550-DC-03V**, in gallons per minute.
  - (c) The differential pressure across all the components of **2550-DC-03**.
- (2) Install, operate, calibrate, and maintain an exhaust gas temperature interlock that will shut off the heat source to **TU4.028** if the exhaust gas temperature from **2550-DC-03** reaches **95° F**.
- (3) Monitor the throughput rate of stripped carbon in tons for **TU4.028** on a daily basis.
- (4) Monitor the hours of operation for **TU4.028** on a daily basis.
- (5) Monitor the exhaust gas temperature of **2550-DC-03** once per shift while **TU4.028** is in operation.
- (6) Monitor the differential pressure drop across **CF-003** once daily while **TU4.028** is in operation.
- (7) Monitor the number of panels filled with sulfur impregnated carbon in **CF-003** upon each replacement.
- (8) Monitor the percentage mercury loading by weight on the sulfur impregnated carbon sampled from **CF-003**.
- (9) Monitor the exact panel location that the sulfur impregnated carbon sample was taken from **CF-003**.
- (10) Monitor the combined water flow to **2550-DC-03Q** and **2550-DC-03V**, once per shift while **TU4.027** is in operation.
- (11) Monitor the differential pressure across **2550-DC-03**, once per shift while **TU4.027** is in operation.

**c. Recordkeeping**

The required monitoring established in Section K.4.b. above will be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total daily throughput rate of stripped carbon, in tons, for the corresponding date.
- (3) The total daily hours of operation for the corresponding date.
- (4) The corresponding average hourly throughput rate in tons per hour. The average hourly throughput rate will be determined from the total daily throughput rate and the total daily hours of operation recorded in Section K.4.c.(2) through Section K.4.c.(3) above.
- (5) The results of the quarterly kiln shell inspection for **TU4.028**, for the corresponding date.
- (6) The results of the exhaust gas temperature for **2550-DC-03**, for the corresponding date.
- (7) The results of the differential pressure drop across **CF-003**, for the corresponding date.
- (8) The date of the replacement of sulfidized carbon in **CF-003**.
- (9) The number of filters, filled with sulfidized carbon, in **CF-003**, for the corresponding date.
- (10) The mercury loading by weight of the sulfidized carbon sampled in **CF-002**, for the corresponding date.
- (11) The manufacturer specifications for the sulfidized carbon shall be kept on site for inspection.
- (12) The results of the combined water flow to **2550-DC-03Q** and **2550-DC-03V**, for the corresponding date.
- (13) The results of the differential pressure across **2550-DC-03**, for the corresponding date.
- (14) The results of the inspection of the internal components of **MP-002**, for the corresponding date.
- (15) The amount of mercury drained from **2550-DC-03Q** and **2550-DC-03V**, for the corresponding date.



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**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

**Section II. Specific Operating Conditions (continued)**

**K. Emission Unit # TU4.028** location North 4,515,183 m, East 568,420 m, UTM (Zone 11)

**4. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3679.3) (continued)**

d. Reporting

- a. The *Permittee* will promptly report to the Director any emissions and or throughput exceedances from **System 11**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.
- b. The *Permittee* will report to the Director the results of the investigations as described in Section **K.2.a.** and **K.2.b** of this mercury operating permit to construct within 60 days following the end of the 18-month timeline.



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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

Section II. Specific Operating Conditions

L. Thermal Units # TU4.029 location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

L. System 12 – Refinery Mercury Retort Circuit		
TU	4.029	Mercury Retort Furnace (510-FC-100) (S2.225)

1. Air Pollution Equipment

- a. Exhaust gases from TU4.029 shall be ducted to a control system with 100% capture consisting of:
  - (1) Mercury Condenser (MC-001), manufactured by Lochhead – Haggerty, (operation in series with MC-002).
  - (2) Mercury Condenser (MC-002), manufactured by Lochhead – Haggerty, (operation in series with MC-001).
  - (3) Chiller, manufactured by Carrier.
  - (4) Condensation Vessel (CV-001), manufactured by Lochhead – Haggerty.
  - (5) After Cooler with Mist Eliminator (AC-001), manufactured by Lochhead – Haggerty.
  - (6) Carbon Filter Column with Sulfur-Impregnated Carbon (CF-006), manufactured by Lochhead – Haggerty, (operation in parallel with CF-007).
  - (7) Carbon Filter Column with Sulfur-Impregnated Carbon (CF-007), manufactured by Lochhead – Haggerty, (operation in parallel with CF-006).
- b. Stack parameters
  - Height: 32.0 ft
  - Diameter: 0.17 ft
  - Max Stack temperature: 125°F
  - Flow: Maximum volume flow rate of 31.2 dry standard cubic feet per minute (dscfm).
  - TU4.029 is ducted to a single stack.

2. Operating Requirements (NAC 445B.3685.3)

- a. Limitations of Operation
  - (1) The maximum allowable batch weight of precious metal bearing material or concentrate for TU4.029 shall not exceed 1.65 tons per batch. “Precious metal precipitate” shall consist only of the following:
    - (a) Material loaded with precious metals such as gold and silver, along with various other metals that is produced by electrowinning, the Merrill-Crowe process, flotation and gravity separation processes, and other gold concentration or precipitation processes.
    - (b) Material collected from the wash-down of any equipment or surfaces contacted with precious metals that have been concentrated through the various concentration methods employed by precious metal mines.
  - (2) Mercury emissions from TU4.029 shall not exceed 1.0 x 10<sup>-4</sup> grains per dry standard cubic foot (gr/dscf).
  - (3) Precious metal bearing material or concentrate shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.
  - (4) Hours
    - (a) TU4.029 may operate a total of 24 hours per day.



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### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

## Section II. Specific Operating Conditions (continued)

L. Thermal Units # TU4.029 (continued) location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

### 2. Operating Requirements NAC445B.3685.3 (continued)

#### b. Work Practice Standards

- (1) TU4.029, MC-001, MC-002, CV-001, AC-001, CF-006, and CF-007 shall be operated in accordance with the manufacturer's recommendations at all times during operation, including start-up and shut-down periods.
- (2) During heating TU4.029 shall be placed under negative gauge pressure between 1 to 24 inches of mercury.
- (3) TU4.029 shall automatically shut off when the negative gauge pressure is below 1 inches of mercury.
- (4) The cooling water flow rate entering MC-001, MC-002, and AC-001 shall be maintained at or above 15 gallons per minute.
- (5) TU4.029 shall automatically shut off if the condenser water flow is absent.
- (6) The water temperature exiting the chiller shall be maintained at or below 60°F.
- (7) Condensed mercury from MC-001 and MC-002 shall be collected monthly.
- (8) The exhaust gas temperature leaving AC-001 shall be maintained at or below 100°F.
- (9) TU4.029 shall automatically shut off if the exhaust gas temperature reaches 125°F.
- (10) CF-006 shall contain no less than 100 pounds of sulfur-impregnated carbon.
- (11) CF-007 shall contain no less than 100 pounds of sulfur-impregnated carbon.
- (12) Replace the sulfur-impregnated carbon in CF-006 and CF-007, each, according to the following schedule:
  - (a) Conduct an initial sampling of the sulfur-impregnated carbon within 90 days after the startup of the retort. A representative sample shall be taken and analyzed. The depth of the sample location shall be recorded. Using this sample the percentage of mercury by weight shall be calculated. If more than one sample is taken, calculate an average loading from the samples. Sampling will continue quarterly, at the same sample depth location, until reaching 50% of the carbon loading capacity. Upon reaching 50% of the carbon loading capacity, sampling of the carbon will occur monthly until 90% of the carbon loading capacity is reached. The carbon will be replaced with an equivalent performing sulfur impregnated carbon no later than 30 days after reaching 90% of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:
    1. EPA method 6020-Inductively Coupled Plasma-Mass Spectrometry;
    2. EPA method 7471B- Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique); or
    3. An alternative test method as approved in advance by the Director.
- (13) Any sulfur impregnated carbon replaced in CF-006 and CF-007 shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon, or equivalent.
- (14) On an annual basis, perform a total loading analysis on the mercury removal media in CF-006 and CF-007.

### 3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3685.3)

#### a. Compliance Testing

- (1) Within 180 days of initial startup of System 12 and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of TU4.029 consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of 0.85 dry standard cubic meters (30 dscf).
- (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from System 12. One representative sample shall be taken for 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).
- (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.



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**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

**Section II. Specific Operating Conditions (continued)**

L. Thermal Units # TU4.029 (continued) location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

3. Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.3685.3) (continued)

b. Monitoring

The *Permittee*, upon the issuance date of this operating permit will:

- (1) Prior to commencement of TU4.029, install, operate, calibrate, and maintain instrumentation to continuously measure and record the following:
  - (a) The gauge pressure of TU4.029, in inches of mercury.
  - (b) The cooling water flow rate entering MC-001, MC-002, and AC-001 in gallons per minute.
  - (c) The exhaust gas temperature exiting AC-001, in degrees Fahrenheit.
  - (d) The cooling water temperature exiting the chiller, in degrees Fahrenheit.
- (2) Prior to commencement of TU4.029, install, operate, calibrate, and maintain a vacuum interlock that shall shut off the retort heating element if the retort gauge pressure is less than 1 inches of Hg of vacuum.
- (3) Prior to commencement of TU4.029, install, operate, calibrate, and maintain a condenser water flow interlock which shall shut off the retort heating element if condenser water flow is not present.
- (4) Prior to commencement of TU4.029, install, operate, calibrate, and maintain an exhaust gas temperature alarm which shall notify the operator when the exhaust gas from AC-001 equals a temperature of 100°F or more.
- (5) Prior to commencement of TU4.029, install, operate, calibrate, and maintain an exhaust gas temperature interlock which shall shut off the retort heating element if the temperature equals a temperature of 125°F or more.
- (6) Monitor the daily batch weight of **precious metal bearing material or concentrate**, in tons, for each batch.
- (7) Monitor the daily hours for each batch, during each day of operation.
- (8) Monitor the gauge pressure on TU4.029, continuously per batch during operation.
- (9) Monitor the cooling water flow rate entering MC-001, MC-002, and AC-001 continuously per batch during operation.
- (10) Monitor the water temperature exiting the chiller, continuously per batch during operation.
- (11) Monitor the amount of mercury drained from MC-001 and MC-002 monthly.
- (12) Monitor the exhaust gas temperature exiting AC-001, continuously per batch during operation.
- (13) Monitor CF-006 and CF-007 for percentage of mercury by weight, quarterly until reaching 50 percent capacity and then monthly until reaching 90 percent capacity.



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**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

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**Section II. Specific Operating Conditions (continued)**

**L. Thermal Units # TU4.029 (continued)** location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

**3. Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.3685.3) (continued)**

**c. Recordkeeping**

The required monitoring, established in Section L.3.b.above shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total batch weight of **precious metal bearing material or concentrate** per batch, in tons, for the corresponding date.
- (3) The total daily hours of operation per batch, for the corresponding date.
- (4) The gauge pressure on **TU4.029**, based on a one-hour period, for the corresponding date.
- (5) The cooling water flow entering **MC-001, MC-002, and AC-001** based on a one-hour period, for the corresponding date.
- (6) The water temperature exiting the chiller, based on a one-hour period, for the corresponding date.
- (7) The amount of mercury collected from **MC-001 and MC-002**, monthly for the corresponding date.
- (8) The exhaust gas temperature exiting **AC-001**, based on a one-hour period, for the corresponding date.
- (9) The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-006**.
- (10) The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-007**.
- (11) The original manufacturer's design specifications for the sulfur impregnated carbon used in **CF-006** and **CF-007** shall be kept on site.
- (12) The manufacturer's specified heating temperature profiles for the **TU4.029** shall be kept on site.
- (13) The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- (14) The depth of the sample location, in each carbon column, for the corresponding date.
- (15) The date, time, and weight of each of each sulfur-impregnated carbon replacement.
- (16) The date, time, and corrective action taken for an alarm notification or an interlock shut-down, for the corresponding date.

**d. Reporting**

**The Permittee** will promptly report to the Director any emissions and or throughput exceedances from **System 12**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.



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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

Section II. Specific Operating Conditions (continued)

M. Thermal Units # TU4.030 location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

M. System 13 – Refinery Mercury Retort Circuit	
TU	4.030 Mercury Retort Furnace (510-FC-200) (S2.226)

1. Air Pollution Equipment

- a. Exhaust gases from TU4.030 shall be ducted to a control system with 100% capture consisting of:
  - (1) Mercury Condenser (MC-003), manufactured by Lochhead – Haggerty, (operation in series with MC-004).
  - (2) Mercury Condenser (MC-004), manufactured by Lochhead – Haggerty, (operation in series with MC-003).
  - (3) Chiller, manufactured by Carrier.
  - (4) Condensation Vessel (CV-002), manufactured by Lochhead – Haggerty.
  - (5) After Cooler with Mist Eliminator (AC-002), manufactured by Lochhead – Haggerty.
  - (6) Carbon Filter Column with Sulfur-Impregnated Carbon (CF-008), manufactured by Lochhead – Haggerty, (operation in parallel with CF-009).
  - (7) Carbon Filter Column with Sulfur-Impregnated Carbon (CF-009), manufactured by Lochhead – Haggerty, (operation in parallel with CF-008).
- b. Stack parameters
  - Height: 32.0 ft
  - Diameter: 0.17 ft
  - Max Stack temperature: 125°F
  - Flow: Maximum volume flow rate of 31.2 dry standard cubic feet per minute (dscfm).
  - TU4.030 is ducted to a single stack.

2. Operating Requirements (NAC445.3685.3)

- a. Limitations of Operation
  - (1) The maximum allowable batch weight of precious metal bearing material or concentrate for TU4.030 shall not exceed 1.65 tons per batch. “Precious metal precipitate” shall consist only of the following:
    - (a) Material loaded with precious metals such as gold and silver, along with various other metals that is produced by electrowinning, the Merrill-Crowe process, flotation and gravity separation processes, and other gold concentration or precipitation processes.
    - (b) Material collected from the wash-down of any equipment or surfaces contacted with precious metals that have been concentrated through the various concentration methods employed by precious metal mines.
  - (2) Mercury emissions from TU4.030 shall not exceed 1.0 x 10<sup>-4</sup> grains per dry standard cubic foot (gr/dscf).
  - (3) Precious metal bearing material or concentrate shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.
  - (4) Hours
    - (a) TU4.030 may operate a total of 24 hours per day.



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Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

**Section II. Specific Operating Conditions (continued)**

**M. Thermal Units # TU4.030 (continued)** location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

**2. Operating Requirements (NAC445B.3685.3) (continued)**

**b. Work Practice Standards**

- (1) **TU4.030, MC-003, MC-004, CV-002, AC-002, CF-008, and CF-009** shall be operated in accordance with the manufacturer's recommendations at all times during operation, including start-up and shut-down periods.
- (2) During heating **TU4.030** shall be placed under negative gauge pressure between 1 to 24 inches of mercury.
- (3) **TU4.030** shall automatically shut off when the negative gauge pressure is below 1 inches of mercury.
- (4) The cooling water flow rate entering **MC-003, MC-004, and AC-002** shall be maintained at or above 15 gallons per minute.
- (5) **TU4.030** shall automatically shut off if the condenser water flow is absent.
- (6) The water temperature exiting the chiller shall be maintained at or below 60°F.
- (7) Condensed mercury from **MC-003 and MC-004** shall be collected monthly.
- (8) The exhaust gas temperature leaving **AC-002** shall be maintained at or below 100°F.
- (9) **TU4.030** shall automatically shut off if the exhaust gas temperature reaches 125°F.
- (10) **CF-008** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- (11) **CF-009** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- (12) Replace the sulfur-impregnated carbon in **CF-008 and CF-009**, each, according to the following schedule:
  - (a) Conduct an initial sampling of the sulfur-impregnated carbon within **90** days after the startup of the retort. A representative sample shall be taken and analyzed. The depth of the sample location shall be recorded. Using this sample the percentage of mercury by weight shall be calculated. If more than one sample is taken, calculate an average loading from the samples. Sampling will continue quarterly, at the same sample depth location, until reaching **50%** of the carbon loading capacity. Upon reaching **50%** of the carbon loading capacity, sampling of the carbon will occur monthly until **90%** of the carbon loading capacity is reached. The carbon will be replaced with an equivalent performing sulfur impregnated carbon no later than **30** days after reaching **90%** of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:
    1. EPA method 6020-Inductively Coupled Plasma-Mass Spectrometry;
    2. EPA method 7471B- Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique); or
    3. An alternative test method as approved in advance by the Director.
- (13) Any sulfur impregnated carbon replaced in **CF-008 and CF-009** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon, or equivalent.
- (14) On an annual basis, perform a total loading analysis on the mercury removal media in **CF-008 and CF-009**.

**3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3685.3)**

**a. Compliance Testing**

- (1) Within 180 days of initial startup of **System 13** and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of **TU4.030** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of **0.85** dry standard cubic meters (**30** dscf).
- (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from **System 13**. One representative sample shall be taken for 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).
- (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.





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**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

**Section II. Specific Operating Conditions (continued)**

**M. Thermal Units # TU4.030 (continued)** location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

**3. Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.3685.3) (continued)**

**b. Monitoring**

The *Permittee*, upon the issuance date of this operating permit will:

- (1) Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain instrumentation to continuously measure and record the following:
  - (a) The gauge pressure of **TU4.030**, in inches of mercury.
  - (b) The cooling water flow rate entering **MC-003, MC-004, and AC-002** in gallons per minute.
  - (c) The exhaust gas temperature exiting **AC-002**, in degrees Fahrenheit.
  - (d) The cooling water temperature exiting the chiller, in degrees Fahrenheit.
- (2) Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain a vacuum interlock that shall shut off the retort heating element if the retort gauge pressure is less than 1 inches of Hg of vacuum.
- (3) Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain a condenser water flow interlock which shall shut off the retort heating element if condenser water flow is not present.
- (4) Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain an exhaust gas temperature alarm which shall notify the operator when the exhaust gas from **AC-002** equals a temperature of 100°F or more.
- (5) Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain an exhaust gas temperature interlock which shall shut off the retort heating element if the temperature equals a temperature of 125°F or more.
- (6) Monitor the daily batch weight of **precious metal bearing material or concentrate**, in tons, for each batch.
- (7) Monitor the daily hours for each batch, during each day of operation.
- (8) Monitor the gauge pressure on **TU4.030**, continuously per batch during operation.
- (9) Monitor the cooling water flow rate entering **MC-003, MC-004, and AC-002** continuously per batch during operation.
- (10) Monitor the water temperature exiting the chiller, continuously per batch during operation.
- (11) Monitor the amount of mercury drained from **MC-003 and MC-004** monthly.
- (12) Monitor the exhaust gas temperature exiting **AC-002**, continuously per batch during operation.
- (13) Monitor **CF-008 and CF-009** for percentage of mercury by weight, quarterly until reaching 50 percent capacity and then monthly until reaching 90 percent capacity.



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Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

**Section II. Specific Operating Conditions (continued)**

**M. Thermal Units # TU4.030 (continued)** location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

**3. Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.36785.3) (continued)**

c. Recordkeeping

The required monitoring, established in Section M.3.b. above shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total batch weight of **precious metal bearing material or concentrate** per batch, in tons, for the corresponding date.
- (3) The total daily hours of operation per batch, for the corresponding date.
- (4) The gauge pressure on **TU4.030**, based on a one-hour period, for the corresponding date.
- (5) The cooling water flow entering **MC-003, MC-004, and AC-002** based on a one-hour period, for the corresponding date.
- (6) The water temperature exiting the chiller, based on a one-hour period, for the corresponding date.
- (7) The amount of mercury collected from **MC-003 and MC-004**, monthly for the corresponding date.
- (8) The exhaust gas temperature exiting **AC-002**, based on a one-hour period, for the corresponding date.
- (9) The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-008**.
- (10) The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-009**.
- (11) The original manufacturer's design specifications for the sulfur impregnated carbon used in **CF-008** and **CF-009** shall be kept on site.
- (12) The manufacturer's specified heating temperature profiles for the **TU4.030** shall be kept on site.
- (13) The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- (14) The depth of the sample location, in each carbon column, for the corresponding date.
- (15) The date, time, and weight of each of each sulfur-impregnated carbon replacement.
- (16) The date, time, and corrective action taken for an alarm notification or an interlock shut-down, for the corresponding date.

d. Reporting

**The Permittee** will promptly report to the Director any emissions and or throughput exceedances from **System 13**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.



Bureau of Air Pollution Control

Facility ID No. A0002

Permit No. AP1041-2219

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

Section II. Specific Operating Conditions (continued)

N. Thermal Units # TU4.031 location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

N. System 14 – Refinery Mercury Retort Circuit		
TU	4.031	Mercury Retort Furnace (510-FC-300) (S2.227)

1. Air Pollution Equipment

- a. Exhaust gases from TU4.031 shall be ducted to a control system with 100% capture consisting of:
  - (1) Mercury Condenser (MC-005), manufactured by Lochhead – Haggerty, (operation in series with MC-006).
  - (2) Mercury Condenser (MC-006), manufactured by Lochhead – Haggerty, (operation in series with MC-005).
  - (3) Chiller, manufactured by Carrier.
  - (4) Condensation Vessel (CV-003), manufactured by Lochhead – Haggerty.
  - (5) After Cooler with Mist Eliminator (AC-003), manufactured by Lochhead – Haggerty.
  - (6) Carbon Filter Column with Sulfur-Impregnated Carbon (CF-010), manufactured by Lochhead – Haggerty, (operation in parallel with CF-011).
  - (7) Carbon Filter Column with Sulfur-Impregnated Carbon (CF-011), manufactured by Lochhead – Haggerty, (operation in parallel with CF-010).
- b. Stack parameters
  - Height: 32.0 ft
  - Diameter: 0.17 ft
  - Max Stack temperature: 125°F
  - Flow: Maximum volume flow rate of 31.2 dry standard cubic feet per minute (dscfm).
  - TU4.031 is ducted to a single stack.

2. Operating Requirements (NAC445B.3685.3)

- a. Limitations of Operation
  - (1) The maximum allowable batch weight of precious metal bearing material or concentrate for TU4.031 shall not exceed 1.65 tons per batch. “Precious metal precipitate” shall consist only of the following:
    - (a) Material loaded with precious metals such as gold and silver, along with various other metals that is produced by electrowinning, the Merrill-Crowe process, flotation and gravity separation processes, and other gold concentration or precipitation processes.
    - (b) Material collected from the wash-down of any equipment or surfaces contacted with precious metals that have been concentrated through the various concentration methods employed by precious metal mines.
  - (2) Mercury emissions from TU4.031 shall not exceed 1.0 x 10<sup>-4</sup> grains per dry standard cubic foot (gr/dscf).
  - (3) Precious metal bearing material or concentrate shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.
  - (4) Hours
    - (a) TU4.031 may operate a total of 24 hours per day.



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### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

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## Section II. Specific Operating Conditions (continued)

N. Thermal Units # TU4.031 (continued) location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

### 2. Operating Requirements (NAC445B.3685.3) (continued)

#### b. Work Practice Standards

- (1) TU4.031, MC-005, MC-006, CV-003, AC-003, CF-010, and CF-011 shall be operated in accordance with the manufacturer's recommendations at all times during operation, including start-up and shut-down periods.
- (2) During heating TU4.031 shall be placed under negative gauge pressure between 1 to 24 inches of mercury.
- (3) TU4.031 shall automatically shut off when the negative gauge pressure is below 1 inches of mercury.
- (4) The cooling water flow rate entering MC-005, MC-006, and AC-003 shall be maintained at or above 15 gallons per minute.
- (5) TU4.031 shall automatically shut off if the condenser water flow is absent.
- (6) The water temperature exiting the chiller shall be maintained at or below 60°F.
- (7) Condensed mercury from MC-005 and MC-006 shall be collected monthly.
- (8) The exhaust gas temperature leaving AC-003 shall be maintained at or below 100°F.
- (9) TU4.031 shall automatically shut off if the exhaust gas temperature reaches 125°F.
- (10) CF-010 shall contain no less than 100 pounds of sulfur-impregnated carbon.
- (11) CF-011 shall contain no less than 100 pounds of sulfur-impregnated carbon.
- (12) Replace the sulfur-impregnated carbon in CF-010 and CF-011, each, according to the following schedule:
  - (a) Conduct an initial sampling of the sulfur-impregnated carbon within 90 days after the startup of the retort. A representative sample shall be taken and analyzed. The depth of the sample location shall be recorded. Using this sample the percentage of mercury by weight shall be calculated. If more than one sample is taken, calculate an average loading from the samples. Sampling will continue quarterly, at the same sample depth location, until reaching 50% of the carbon loading capacity. Upon reaching 50% of the carbon loading capacity, sampling of the carbon will occur monthly until 90% of the carbon loading capacity is reached. The carbon will be replaced with an equivalent performing sulfur impregnated carbon no later than 30 days after reaching 90% of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:
    1. EPA method 6020-Inductively Coupled Plasma-Mass Spectrometry;
    2. EPA method 7471B- Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique); or
    3. An alternative test method as approved in advance by the Director.
- (13) Any sulfur impregnated carbon replaced in CF-010 and CF-011 shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon, or equivalent.
- (14) On an annual basis, perform a total loading analysis on the mercury removal media in CF-010 and CF-011.

### 3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3685.3)

#### a. Compliance Testing

- (1) Within 180 days of initial startup of System 14 and annually thereafter, the Permittee shall conduct and record a performance test for mercury on the exhaust stack of TU4.031 consisting of three valid runs utilizing US EPA Method 29 of 40 CFR Part 60 Appendix A. Each of the three test runs must collect a sample volume of 0.85 dry standard cubic meters (30 dscf).
- (2) Simultaneously, during the Method 29 compliance test, conduct and record a material assay from System 14. One representative sample shall be taken for 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).
- (3) The Permittee shall comply with the requirements in Section I.N of this operating permit for all compliance testing.



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**Section II. Specific Operating Conditions (continued)**

N. Thermal Units # TU4.031 (continued) location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3685.3) (continued)

b. Monitoring

The *Permittee*, upon the issuance date of this operating permit will:

- (1) Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain instrumentation to continuously measure and record the following:
  - (a) The gauge pressure of **TU4.031**, in inches of mercury.
  - (b) The cooling water flow rate entering **MC-005, MC-006, and AC-003** in gallons per minute.
  - (c) The exhaust gas temperature exiting **AC-003**, in degrees Fahrenheit.
  - (d) The cooling water temperature exiting the chiller, in degrees Fahrenheit.
- (2) Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain a vacuum interlock that shall shut off the retort heating element if the retort gauge pressure is less than 1 inches of Hg of vacuum.
- (3) Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain a condenser water flow interlock which shall shut off the retort heating element if condenser water flow is not present.
- (4) Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain an exhaust gas temperature alarm which shall notify the operator when the exhaust gas from **AC-003** equals a temperature of 100°F or more.
- (5) Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain an exhaust gas temperature interlock which shall shut off the retort heating element if the temperature equals a temperature of 125°F or more.
- (6) Monitor the daily batch weight of **precious metal bearing material or concentrate**, in tons, for each batch.
- (7) Monitor the daily hours for each batch, during each day of operation.
- (8) Monitor the gauge pressure on **TU4.031**, continuously per batch during operation.
- (9) Monitor the cooling water flow rate entering **MC-005, MC-006, and AC-003** continuously per batch during operation.
- (10) Monitor the water temperature exiting the chiller, continuously per batch during operation.
- (11) Monitor the amount of mercury drained from **MC-005 and MC-006** monthly.
- (12) Monitor the exhaust gas temperature exiting **AC-003**, continuously per batch during operation.
- (13) Monitor **CF-010 and CF-011** for percentage of mercury by weight, quarterly until reaching 50 percent capacity and then monthly until reaching 90 percent capacity.



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**Section II. Specific Operating Conditions (continued)**

N. Thermal Units # TU4.031 (continued) location North 4,514,994 m, East 568,493 m, UTM (Zone 11)

3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3685.3) (continued)

c. Recordkeeping

The required monitoring, established in Section N.3.b. above shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- (1) The calendar date of any required monitoring.
- (2) The total batch weight of **precious metal bearing material or concentrate** per batch, in tons, for the corresponding date.
- (3) The total daily hours of operation per batch, for the corresponding date.
- (4) The gauge pressure on **TU4.031**, based on a one-hour period, for the corresponding date.
- (5) The cooling water flow entering **MC-005, MC-006, and AC-003** based on a one-hour period, for the corresponding date.
- (6) The water temperature exiting the chiller, based on a one-hour period, for the corresponding date.
- (7) The amount of mercury collected from **MC-005 and MC-006**, monthly for the corresponding date.
- (8) The exhaust gas temperature exiting **AC-003**, based on a one-hour period, for the corresponding date.
- (9) The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-010**.
- (10) The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-011**.
- (11) The original manufacturer's design specifications for the sulfur impregnated carbon used in **CF-010** and **CF-011** shall be kept on site.
- (12) The manufacturer's specified heating temperature profiles for the **TU4.031** shall be kept on site.
- (13) The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- (14) The depth of the sample location, in each carbon column, for the corresponding date.
- (15) The date, time, and weight of each of each sulfur-impregnated carbon replacement.
- (16) The date, time, and corrective action taken for an alarm notification or an interlock shut-down, for the corresponding date.

d. Reporting

**The Permittee** will promptly report to the Director any emissions and or throughput exceedances from **System 14**. The report to the Director will include probable cause and any action taken to correct the exceedance. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L of this operating permit.

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



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Section III. Amendments

Aircase 10106 – KM: 07/09/2019 Administrative Amendment changing owner to Nevada Gold Mines, LLC

Aircase 10457 – KM: 08/27.2020 Throughput modification allowing facility to process carbon fines from the CIL, CIC or CIP process for the ROTP (Systems 01 through Systems 03); added Annual Carbon Test for Carbon Controls.

Aircase 10733 – KM: 09/09/2021 Revised Phase-2 Application for System 04 and System 05, Permittee opted for TUTD to establish a permanent mercury emission rate, instead of requested emission rate.

Aircase 11207 – KM: 11/2023 TUTD Protocol finished, and facility requested mercury emission limits for Systems 06, 07, 09, 10 and 11. Final mercury emission limits were established, with Permittee undergoing internal investigations into Systems 06, 10 and 11 to evaluate potential gas control and mercury air control improvement.

Aircase 11645 – KM: 11/2023 Revision to System 07, adds gas conditioning and a new carbon filter pack.

Aircase 11745 – KM: 11/2023 Revision to throughput for System 01 from 560.0 tons per hour to 570 tons per hour and updates the UTM Coordinates.

Aircase 11805 – KM: 01/2024 Revision to System 03 (Roasters) work practice for measuring the differential pressure across the Gas Cooling and Cleaning Plant be revised to monitor one location after the Mercury Removal Tower and measure the vacuum generated by Fan #30 as the discharge exhaust pressure with the range of -0.1 and -37 inches of water column.

Aircase 12105 – TS: 9/2024 Increased throughput in System 1 from 570 tons/hr to 600 tons/hr. Increased stack flow rate in System 2 to 129,331 dscfm. In System 3 increased the mercury concentration in the sulfuric acid produced by the sulfuric acid production plant from 1.0 mg/L to 2.9 mg/L.

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.890).

Signature: \_\_\_\_\_

Issued by: Tanya Soleta
Supervisor, Permitting Branch
Bureau of Air Pollution Control

Phone: (775) 687-9540 Date: \_\_\_\_\_

km 7/2017 km 7/2019 km 8/2020 km 09/2021 km 11/2023 km 01/2024 ts 9/2024



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**MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2**

Issued to: Nevada Gold Mines, LLC, Gold Quarry Operations Area

**De Minimis Unit(s)**

- A. Pursuant to NAC 445B.3657 the Director has determined a De Minimis emission limit of 5.0 lbs/yr for each facility. In addition, the Director may designate thermal units as De Minimis on a case-by-case basis. The *Permittee* has provided the following thermal units with the potential to emit mercury as De Minimis and/or the following thermal units have been designated as De Minimis by the Director:

Unit #	Unit Description	Mercury PTE (lb/yr)
<b>Assay Laboratory</b>		
DM3.001	Sample Dryer #1 (850-DR-142)	0.0112193
DM3.002	Sample Dryer #2 (850-DR-143)	0.0112193
DM3.003	Sample Dryer (850-DR-743)	0.0112193
DM3.004	Furnace (850-FC-721)	0.046956
<del>DM3.005</del>	<del>AA Spectrometer (850-AA-08)</del>	<del>Removed 6/4/2012</del>
DM3.006	AA Spectrometer (850-AA-10)	0.026384
DM3.007	AA Spectrometer (850-AA-11)	0.026384
DM3.008	AA Spectrometer (850-AA-12)	0.026384
DM3.009	AA Spectrometer (850-AA-17)	0.026384
DM3.010	AA Spectrometer (850-AA-18)	0.026384
DM3.011	Oven A (850-EH-337)	0*
<del>DM3.012</del>	<del>Water Bath A</del>	<del>Removed 10/23/2014</del>
DM3.013	Furnace (850-FC-321)	0.017313
DM3.014	Furnace (850-FC-322)	0.017313
DM3.015	Furnace (850-FC-323)	0.017313
DM3.016	Furnace (850-FC-324)	0.017313
DM3.017	Furnace (850-FC-325)	0.017313
DM3.018	Furnace (850-FC-326)	0.017313
DM3.019	Furnace (850-FC-327)	0.017313
DM3.020	Hot Plate A (858-LB-36)	0*
DM3.021	Hot Plate B (858-LB-37)	0*
DM3.022	Oven B	0*
DM3.023	Oven (850-FC-425)	0*
DM3.024	Oven (850-FC-426)	0*
DM3.025	Hot Plate C (Water Bath) (850-FA-433.1)	0*
DM3.026	Hot Plate D (Water Bath) (850-FA-433.2)	0*
DM3.027	Hot Plate E (Water Bath) (850-FA-432)	0*
DM3.028	Hot Plate F (850-HP-463)	0*
DM3.029	Oven C	0*
DM3.030	Microwave A	0*
DM3.031	Microwave B	0*
DM3.032	Furnace (850-CS-001)	0.0011444
DM3.033	Furnace (850-CS-002)	0.0011444
DM3.034	Furnace (850-CS-003)	0.0011444
DM3.076	Furnace (850-CS-005)	0.0011444
DM3.035	Furnace (850-CS-004)	0.0011444
<del>DM3.036</del>	<del>Furnace</del>	<del>Removed 10/23/2014</del>
DM3.073	Deena Digestion #1	0*
DM3.074	Deena Digestion #2	0*





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<b>Metallurgical Lab</b>		
DM3.037	Sample Dryer (856-DR-141)	0.0112193
DM3.038	Sample Dryer (856-DR-241)	0.0112193
DM3.039	Sample Dryer (856-DR-242)	0.0112193
DM3.040	Sample Dryer (856-DR-341)	0.0112193
DM3.041	Sample Dryer (856-DR-445)	0.0112193
DM3.042	Bench Scale Roaster (856-RO-01)	0.0064765
DM3.043	Bench Scale Roaster (856-RO-02)	0.0064765
DM3.044	Hot Plate G	0*
DM3.065	Sample Dryer (850-CS-005)	Removed 10/13/2022
<b>Integrated Lab</b>		
DM3.045	Sample Dryer (858-DR-02)	0.0112193
DM3.046	Sample Dryer (858-DR-01)	0.0112193
DM3.047	Sample Dryer (858-DR-04)	0.0112193
DM3.048	Fusion Furnace (858-FC-01)	0.0626598
DM3.049	Fusion Furnace (858-FC-02)	0.0626598
DM3.050	Cupellation Furnace (858-FC-08)	0.0626598
DM3.051	Cupellation Furnace (858-FC-06)	0.0626598
DM3.052	Optical Emission Spectrometer (ICP) (5300-DV)	0.000232
DM3.053	AA Spectrometer (858-AA-13)	0.026384
DM3.054	AA Spectrometer (858-AA-14)	0.026384
DM3.055	AA Spectrometer (858-AA-15)	0.026384
DM3.056	AA Spectrometer (858-AA-16)	0.026384
DM3.057	<del>Water Bath B</del>	Removed 10/23/2014
DM3.058	<del>Water Bath e</del>	Removed 10/23/2014
DM3.059	Oven D	0*
DM3.060	Hot Plate H (Water Bath) (858-LB-36)	0*
DM3.061	Hot Plate I (858-LB-37)	0*
DM3.062	Oven E	0*
DM3.066	Block Heater (858-LB-35)	0*
DM3.067	Deena Digestion AUFA 1 (858DS104)	0*
DM3.068	Deena Digestion AUFA 2 (858DS105)	0*
DM3.069	Deena Digestion AUFA 3 (858DS106)	0*
DM3.070	Deena Digestion AUFA 4 (858DS107)	0*
DM3.071	Deena Digestion AUFA 5 (858DS108)	0*
DM3.072	Fusion Furnace (858-FC-004)	0.0626598
DM3.075	Optical Emission Spectrometer (858-IP-04)	0.000232
<b>Mills</b>		
DM3.063	AA Spectrometer	0.026384
DM3.064	AA Spectrometer	0.026384
	Total	0.908

\* These units follow lab thermal units that assume 100% volatilization of mercury

**B. Annual Demonstration Requirement** NAC 445B.3665(1)(b)

1. An owner or operator of a tier-3 thermal unit:

- (a) Shall submit documentation to the Director on an annual basis which certifies that the thermal unit satisfies the criteria to be a tier-3 thermal unit.



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### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

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#### Amendments:

6/2/2009 – KM: The following units were added:

- DM3.063 – AA Spectrometer
- DM3.064 – AA Spectrometer

6/14/2012 – NL: The following unit was removed:

- DM3.005 – AA spectrometer (850-AA-08)

10/23/2014 – TS: Removed the following units

- DM3.012 – Water Bath A
- DM3.036 – Furnace
- DM3.057 – Water Bath B
- DM3.057 – Water Bath C

Added the following units

- DM3.065 Sample Dryer
- DM3.066 Block Heater
- DM3.067 – DM3.071 – 5 Deena Digestion Units for the integrated lab
- DM3.072 – Fusion Furnace
- DM3.073 and DM3.074 – 2 Deena Digestion Units for the Assay lab

6/15/2017 – KM: Revised calculations for most De Minimis Units, based on new calculations provided by Gold Quarry.

10/13/22 – KM: Aircase 9704, Removes DM3.066 (Block Heater) and adds DM3.075 Optical Emission Spectrometer (858-IP-04) and removes DM3.065 (Sample Dryer) and adds DM3.076 a Furnace (850-CS-005), also revises furnace emissions for the Assay Laboratory.