

## BUREAU OF AIR QUALITY PLANNING

901 South Stewart Street, Suite 4001 • Carson City, NV 89701-5249  
 phone: 775-687-9350 • [www.ndep.nv.gov/baqp](http://www.ndep.nv.gov/baqp) • fax: 775-687-6396

**Facility ID No. A0003**

**Permit No. AP1041-2218**

### MERCURY OPERATING PERMIT TO CONSTRUCT

**Issued to:** NEWMONT MINING CORPORATION – TWIN CREEKS MINE (HEREINAFTER REFERRED TO AS *THE PERMITTEE*)

**Mailing Address:** P.O. BOX 69, GOLCONDA, NEVADA 89414

**Physical Address:** 35 MILES NE OF GOLCONDA, NEVADA

**General Facility Location:** SECTIONS 12, 13, 24, 25 AND 36, T 39N, R 42E  
 SECTIONS 3 – 10, 15 – 22, AND 27 – 33, T 39N, R 43E  
 SECTIONS 3, 5, 9, AND 15, T 38N, R 43E  
 SECTIONS 31 AND 32, T 40N, R 43E  
 MDB&M (HA 66 KELLEY CREEK AREA) (HUMBOLDT COUNTY)

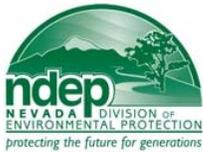
**Thermal Unit List: (2 Thermal Units)**

**C. System 03 – Mercury Retort 1**

TU	4.004	Mercury Retort, manufactured by Lochhead - Haggerty, model number MR-15E
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**D. System 04 – Mercury Retort 2**

TU	4.005	Mercury Retort, manufactured by Lochhead - Haggerty, model number MR-15E
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## BUREAU OF AIR QUALITY PLANNING

Facility ID No. A0003

Permit No. AP1041-2218

# MERCURY OPERATING PERMIT TO CONSTRUCT

## Section I. General Conditions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

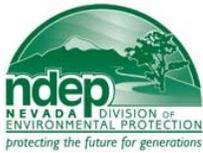
G. Information Request from Director. NAC 445B.3679.2(g)

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

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

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

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



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### MERCURY OPERATING PERMIT TO CONSTRUCT

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

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

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

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

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

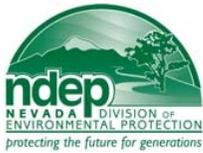
K. Facilities Operation. NAC 445B.227

**The Permittee** may not:

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

L. Excess Emissions. NAC 445B.232

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



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**MERCURY OPERATING PERMIT TO CONSTRUCT**

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

**M. Construction Requirements. NAC 445B.250**

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

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

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

**N. Annual Testing. NAC 445B.3679.3**

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

1. Conduct and record a Method 29 (or alternative test method approved by the Director) compliance test for mercury on the exhaust stack of **System 03 and System 04** consisting of three valid runs. Each of the three test runs must collect a sample volume of 1.7 dry standard cubic meters (60 dscf) or be conducted for up to two hours in an effort to collect this sample volume (NAC 445B.3679.3).
2. Simultaneously, during the Method 29 (or alternative test method approved by the Director) compliance test, conduct and record a material assay from **System 03 and System 04**. Three representative samples shall be taken prior to the test, for the corresponding test. Total mercury content shall be determined using EPA Method 7471B (cold vapor atomic adsorption analysis) (or alternative test method approved by the Director) (NAC 445B.3679.3).
3. Conduct tests of performance under such conditions as the Director specifies to the operator of the plant based on representative performance of the affected facility. The owner or operator shall make available to the Director such records as may be necessary to determine the conditions of the test of performance. Operations during periods of startup, shutdown and malfunction must not constitute representative conditions of a test of performance unless otherwise specified in the applicable standard (NAC 445B.252.3).
4. Give notice to the Director 30 days before the test of performance to allow the Director to have an observer present. A written testing procedure for the test of performance must be submitted to the Director at least 30 days before the test of performance to allow the Director to review the proposed testing procedures (NAC 445B.252.4).
5. Furnish the Director within 60 days after completing the performance tests a written and electronic report of the results of the performance tests. All information and analytical results of testing and sampling must be certified as to the truth and accuracy and as to their compliance with NAC 445B.001 to 445B.3689 (NAC 445B.252.8).

**O. Annual Reporting.**

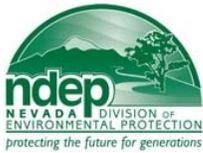
**The Permittee** shall:

1. Report mercury co-product on an annual basis (NAC 445B.3679(3)(d)).
2. Report the level of mercury emissions on an annual basis which must be based on mercury emissions test data (NAC 445B.3679(3)(c)).

**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.

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



BUREAU OF AIR QUALITY PLANNING

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MERCURY OPERATING PERMIT TO CONSTRUCT

Section II. Specific Operating Conditions

C. Thermal Unit #TU 4.004 location North 4,570.17 km, East 486.93 km, UTM (Zone 11)

C. System 03 – Mercury Retort		
TU	4.004	Mercury Retort, manufactured by Lochhead - Haggerty, model number MR-15E

1. Air Pollution Equipment

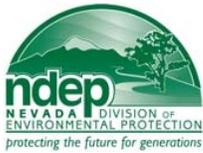
- a. Exhaust gases from TU 4.004 shall be ducted to a control system with 100% capture consisting of:
  - i. Mercury Condenser (MC-001), manufactured by Lochhead – Haggerty, (operation in series with MC-002).
  - ii. Mercury Condenser (MC-002), manufactured by Lochhead – Haggerty, (operation in series with MC-001).
  - iii. Chiller, manufactured by Lochhead – Haggerty.
  - iv. Condensation Vessel (CV-001), manufactured by Lochhead – Haggerty.
  - v. After Cooler with Mist Eliminator (AC-001), manufactured by Lochhead – Haggerty.
  - vi. Carbon Filter Column with Sulfur-Impregnated Carbon (CF-001), manufactured by Lochhead – Haggerty, (operation in parallel with CF-002).
  - vii. Carbon Filter Column with Sulfur-Impregnated Carbon (CF-002), manufactured by Lochhead – Haggerty, (operation in parallel with CF-001).
- b. Stack Parameters
  - i. Height: 32.0 ft
  - ii. Diameter: 0.17 ft
  - iii. Stack temperature: 80-160°F
  - iv. Flow: Maximum volume flow rate of 40 dry standard cubic feet per minute (dscfm).
  - v. TU 4.004 is ducted to a single stack.

2. Construction Requirements (NAC 445B.250)

- The Permittee shall provide the Director written notification of:
- a. The date that construction of TU 4.004 is commenced, postmarked no later than 30 days after such date.
  - b. The anticipated date of initial startup of TU 4.004, postmarked not more than 60 days and not less than 30 days prior to such date.
  - c. The actual date of initial startup of TU 4.004, postmarked within 15 days after such date.

3. Operating Requirements

- a. Limitations of Operation NAC 445B.3679.3
  - i. The maximum allowable throughput rate of precious metal laden material for TU 4.004 shall not exceed 0.7 ton per batch. "Precious metal laden material" shall consist only of the following:
    - (a) Precious metal bearing sludge and precipitate from the electro winning cells and zinc precipitate from the Merrill Crowe circuit; and
    - (b) Mercury laden, precious metal bearing sulfonated carbon for recycling of the carbon in the CIL circuit.
  - ii. Mercury emissions from TU4.004 shall not exceed 5.0 x 10<sup>-3</sup> grains per dry standard cubic foot (gr/dscf).
  - iii. Precious metal laden material shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.
  - iv. Hours
    - (a) TU 4.004 may operate a total of 24 hours per day.
    - (b) TU 4.004 may operate a total of 8,760 hours per calendar year.



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## Section II. Specific Operating Conditions (continued)

### C. Thermal Unit #TU 4.004 (continued)

#### b. Work Practice Standards NAC 445B.3679.3

- i. **TU 4.004, MC-001, MC-002, CV-001, AC-001, CF-001, and CF-002** shall be operated in accordance with the manufacturer's recommendations at all times during operation, including start-up and shut-down periods.
- ii. During heating **TU 4.004** shall be placed under negative gauge pressure between 2 to 8 inches of mercury.
- iii. **TU 4.004** shall automatically shut off when the negative gauge pressure is below 2 inches of mercury.
- iv. The cooling water flow rate entering **MC-001, MC-002, and AC-001** shall be maintained at or above 15 gallons per minute.
- v. **TU 4.004** shall automatically shut off if the condenser water flow is absent.
- vi. The water temperature exiting the chiller shall be maintained at or below 60°F.
- vii. Condensed mercury from **MC-001 and MC-002** shall be collected weekly.
- viii. The exhaust gas temperature leaving **AC-001** shall be maintained at or below 110°F.
- ix. **TU 4.004** shall automatically shut off if the exhaust gas temperature reaches 160°F.
- x. **CF-001** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xi. **CF-002** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xii. Replace the sulfur-impregnated carbon in **CF-001 and CF-002**, each, according to the following schedule:
  - (a) Conduct an initial sampling of the sulfur-impregnated carbon every calendar quarter. 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. Sampling will continue quarterly, at the same sample depth location, until reaching 14% by weight of the carbon loading capacity. Upon reaching 14% by weight of the carbon loading capacity, sampling of the carbon will occur monthly until 15% by weight 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 15% by weight of the carbon lading 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.
  - (b) *The Permittee* may request to the Director an alternative sampling and replacement schedule, wherein carbon may be replaced every 3,060 hours of **TU 4.004** operation.
- xiii. Any sulfur impregnated carbon replaced in **CF-001 and CF-002** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon, or equivalent.

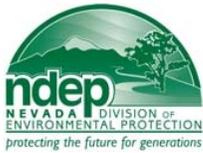
### 4. **Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.3379.3)**

#### a. Compliance Testing

- i. Within 180 days of the notification of initial startup of **TU 4.004** as required in C.2.a through c, of this section, **the Permittee** shall conduct and record a performance test for mercury on the exhaust stack of **TU 4.004** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

#### b. Performance Testing

- i. Upon the date of commencement of operations, **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 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.



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## Section II. Specific Operating Conditions (continued)

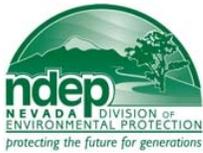
### C. Thermal Unit #TU 4.004 (continued)

- ii. *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.
- iii. *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.
- iv. 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. The notification shall include the test run values in gr/dscf mercury, for each thermal unit test event.
- v. The final NvMACT mercury emission limit shall be calculated as the weighted average of all test runs' mercury emission values in gr/dscf-mercury, weighted by the mercury loading in lb/hr-mercury from each corresponding NDEP-validated performance demonstration test run, plus one standard deviation, calculated from all the corresponding NDEP-validated performance demonstration test runs.
- vi. 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.
- vii. A validated performance demonstration test may be used for the purpose of annual mercury emissions testing upon prior approval by the Director.

### b. Monitoring

*The Permittee*, upon issuance date of this permit, for **TU4.004** shall:

- i. Prior to commencement of **TU 4.004**, install, operate, calibrate, and maintain instrumentation to continuously measure and record the following:
  - (a) The gauge pressure of **TU 4.004**, 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.
- ii. Prior to commencement of **TU 4.004**, install, operate, calibrate, and maintain a vacuum interlock that will shut off the retort heating element if the retort gauge pressure equals 2 inches of mercury of vacuum or less.
- iii. Prior to commencement of **TU 4.004**, install, operate, calibrate, and maintain a condenser water flow interlock which will shut off the retort heating element if condenser water flow is not present.
- iv. Prior to commencement of **TU 4.004**, install, operate, calibrate, and maintain an exhaust gas temperature alarm which will notify the operator when the exhaust gas from **AC-001** equals a temperature of 110°F or more.



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## Section II. Specific Operating Conditions (continued)

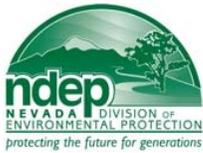
### C. Thermal Unit #TU 4.004 (continued)

- v. Prior to commencement of **TU 4.004**, install, operate, calibrate, and maintain an exhaust gas temperature interlock which will shut off the retort heating element if the temperature equals a temperature of 160°F or more.
- vi. Monitor the daily batch weight of **precious metal laden material**, in tons, for each batch.
- vii. Monitor the daily hours for each batch, during each day of operation.
- viii. Monitor the gauge pressure on **TU 4.004**, continuously per batch during operation.
- ix. Monitor the cooling water flow rate entering **MC-001, MC-002, and AC-001** continuously per batch during operation.
- x. Monitor the water temperature exiting the chiller, continuously per batch during operation.
- xi. Monitor the amount of mercury drained from **MC-001 and MC-002** weekly.
- xii. Monitor the exhaust gas temperature exiting **AC-001**, continuously per batch during operation.
- xiii. Monitor **CF-001 and CF-002** for percentage of mercury by weight, quarterly until reaching 14 percent capacity and then monthly until reaching 15 percent capacity.

### c. Recordkeeping

The required monitoring, established in Section C.4.c.i through xiii, shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- i. The calendar date of any required monitoring.
- ii. The total daily weight of **precious metal laden material** per batch, in tons, for the corresponding date.
- iii. The total daily hours of operation per batch, for the corresponding date.
- iv. The gauge pressure on **TU 4.004**, based on a one-hour period, for the corresponding date.
- v. The cooling water flow entering **MC-001, MC-002, and AC-001**, based on a one-hour period, for the corresponding date.
- vi. The water temperature exiting the chiller, based on a one-hour period, for the corresponding date.
- vii. The amount of mercury collected from **MC-001 and MC-002** weekly for the corresponding date.
- viii. The exhaust gas temperature exiting **AC-001**, based on a one-hour period, for the corresponding date.
- ix. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-001**.
- x. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-002**.
- xi. The original manufacturer's design specifications for the sulfur impregnated carbon used in **CF-001 and CF-002** shall be kept on site.
- xii. The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- xiii. The depth of the sample location, for each carbon column, for the corresponding date.
- xiv. The manufacturer's specified heating temperature profiles for the **TU 4.004** shall be kept on site.
- xv. The date, time, and corrective action taken for an alarm notification or an interlock shut-down, for the corresponding date.



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Section II. Specific Operating Conditions (continued)

D. Thermal Unit #TU 4.005 location North 4,570.17 km, East 486.93 km, UTM (Zone 11)

D. System 04 – Mercury Retort		
TU	4.005	Mercury Retort, manufactured by Lochhead - Haggerty, model number MR-15E

1. Air Pollution Equipment

- a. Exhaust gases from TU 4.005 shall be ducted to a control system with 100% capture consisting of:
  - i. Mercury Condenser (MC-003), manufactured by Lochhead – Haggerty, (operation in series with MC-004).
  - ii. Mercury Condenser (MC-004), manufactured by Lochhead – Haggerty, (operation in series with MC-003).
  - iii. Chiller, manufactured by Lochhead – Haggerty.
  - iv. Condensation Vessel (CV-002), manufactured by Lochhead – Haggerty.
  - v. After Cooler with Mist Eliminator (AC-002), manufactured by Lochhead – Haggerty.
  - vi. Carbon Filter Column with Sulfur-Impregnated Carbon (CF-003), manufactured by Lochhead – Haggerty, (operation in parallel with CF-004).
  - vii. Carbon Filter Column with Sulfur-Impregnated Carbon (CF-004), manufactured by Lochhead – Haggerty, (operation in parallel with CF-003).
- b. Stack Parameters
  - i. Height: 32.0 ft
  - ii. Diameter: 0.17 ft
  - iii. Stack temperature: 80-160°F
  - iv. Flow: Maximum volume flow rate of 40 dry standard cubic feet per minute (dscfm).
  - v. TU 4.005 is ducted to a single stack.

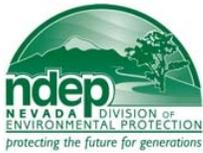
2. Construction Requirements (NAC 445B.250)

The Permittee shall provide the Director written notification of:

- a. The date that construction of TU 4.005 is commenced, postmarked no later than 30 days after such date.
- b. The anticipated date of initial startup of TU 4.005, postmarked not more than 60 days and not less than 30 days prior to such date.
- c. The actual date of initial startup of TU 4.005, postmarked within 15 days after such date.

3. Operating Requirements

- a. Limitations of Operation NAC 445B.3679.3
  - i. The maximum allowable throughput rate of precious metal laden material for TU 4.005 shall not exceed 0.7 ton per batch. "Precious metal laden material" shall consist only of the following:
    - (a) Precious metal bearing sludge and precipitate from the electro winning cells and zinc precipitate from the Merrill Crowe circuit; and
    - (b) Mercury laden, precious metal bearing sulfonated carbon for recycling of the carbon in the CIL circuit.
  - ii. Mercury emissions from TU4.005 shall not exceed 5.0 x 10<sup>-3</sup> grains per dry standard cubic foot (gr/dscf).
  - iii. Precious metal laden material shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.
  - iv. Hours
    - (a) TU 4.005 may operate a total of 24 hours per day.
    - (b) TU 4.005 may operate a total of 8,760 hours per calendar year.



## BUREAU OF AIR QUALITY PLANNING

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# MERCURY OPERATING PERMIT TO CONSTRUCT

## Section II. Specific Operating Conditions (continued)

### D. Thermal Unit # TU 4.005 (continued)

#### b. Work Practice Standards NAC 445B.3679.3

- i. **TU 4.005, MC-003, MC-004, CV-002, AC-002, CF-003, and CF-004** shall be operated in accordance with the manufacturer's recommendations at all times during operation, including start-up and shut-down periods.
- ii. During heating **TU 4.005** shall be placed under negative gauge pressure between 2 to 8 inches of mercury.
- iii. **TU 4.005** shall automatically shut off when the negative gauge pressure is below 2 inches of mercury.
- iv. The cooling water flow rate entering **MC-003, MC-004, and AC-002** shall be maintained at or below 15 gallons per minute.
- v. **TU 4.005** shall automatically shut off if the condenser water flow is absent.
- vi. The water temperature exiting the chiller shall be maintained at or below 60°F.
- vii. Condensed mercury from **MC-003 and MC-004** shall be collected weekly.
- viii. The exhaust gas temperature leaving **AC-002** shall be maintained at or below 110°F.
- ix. **TU 4.004** shall automatically shut off if the exhaust gas temperature reaches 160°F.
- x. **CF-003** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xi. **CF-004** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xii. Replace the sulfur-impregnated carbon in **CF-003 and CF-004**, each, according to the following schedule:
  - (a) Conduct an initial sampling of the sulfur-impregnated carbon every calendar quarter. 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. Sampling will continue quarterly, at the same sample depth location, until reaching 14% by weight of the carbon loading capacity. Upon reaching 14% by weight of the carbon loading capacity, sampling of the carbon will occur monthly until 15% by weight 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 15% by weight 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.
  - (b) *The Permittee* may request to the Director an alternative sampling and replacement schedule, wherein carbon may be replaced every 3,060 hours of **TU 4.004** operation.
- xiii. Any sulfur impregnated carbon replaced in **CF-003 and CF-004** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon, or equivalent.

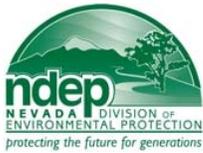
### 4. **Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.3379.3)**

#### a. Compliance Testing

Within 180 days of the notification of initial startup of **TU 4.005** as required in D.2.a through c, of this section, **the Permittee** shall conduct and record a performance test for mercury on the exhaust stack of **TU 4.005** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

#### b. Performance Testing

- i. Upon the date of commencement of operations, *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 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.



## BUREAU OF AIR QUALITY PLANNING

Facility ID No. A0003

Permit No. AP1041-2218

### MERCURY OPERATING PERMIT TO CONSTRUCT

## Section II. Specific Operating Conditions (continued)

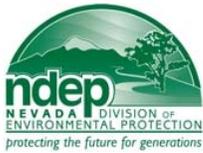
### D. Thermal Unit # TU 4.005 (continued)

- ii. *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.
- iii. *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.
- iv. 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. The notification shall include the test run values in gr/dscf mercury, for each thermal unit test event.
- v. The final NvMACT mercury emission limit shall be calculated as the weighted average of all test runs' mercury emission values in gr/dscf-mercury, weighted by the mercury loading in lb/hr-mercury from each corresponding NDEP-validated performance demonstration test run, plus one standard deviation, calculated from all the corresponding NDEP-validated performance demonstration test runs.
- vi. 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.
- vii. A validated performance demonstration test may be used for the purpose of annual mercury emissions testing upon prior approval by the Director.

### c. Monitoring

*The Permittee*, upon issuance date of this permit, for **TU4.005** shall:

- i. Prior to commencement of **TU 4.005**, install, operate, calibrate, and maintain instrumentation to continuously measure and record the following:
  - (a) The gauge pressure of **TU 4.005**, 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.
- ii. Prior to commencement of **TU 4.005**, install, operate, calibrate, and maintain a vacuum interlock that will shut off the retort heating element if the retort gauge pressure equals 2 inches of Hg of vacuum or less.
- iii. Prior to commencement of **TU 4.005**, install, operate, calibrate, and maintain a condenser water flow interlock which will shut off the retort heating element if condenser water flow is not present.
- iv. Prior to commencement of **TU 4.004**, install, operate, calibrate, and maintain an exhaust gas temperature alarm which will notify the operator when the exhaust gas from **AC-001** equals a temperature of 110°F or more



**BUREAU OF AIR QUALITY PLANNING**

**Facility ID No. A0003**

**Permit No. AP1041-2218**

**MERCURY OPERATING PERMIT TO CONSTRUCT**

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

**D. Thermal Unit #TU 4.005 (continued)**

- v. Prior to commencement of **TU 4.005**, install, operate, calibrate, and maintain an exhaust gas temperature interlock which will shut off the retort heating element if the temperature equals a temperature of 160°F or more.
- vi. Monitor the daily batch weight of **precious metal precipitate**, in tons, for each batch.
- vii. Monitor the daily hours for each batch, during each day of operation.
- viii. Monitor the gauge pressure on **TU 4.005**, continuously per batch during operation.
- ix. Monitor the cooling water flow rate entering **MC-003, MC-004, and AC-002** continuously per batch during operation.
- x. Monitor the water temperature exiting the chiller, continuously per batch during operation.
- xi. Monitor the amount of mercury drained from **MC-003 and MC-004** weekly.
- xii. Monitor the exhaust gas temperature exiting **AC-002**, continuously per batch during operation.
- xiii. Monitor **CF-003** and **CF-004** for percentage of mercury by weight, quarterly until reaching 14 percent capacity and then monthly until reaching 15 percent capacity.

**d. Recordkeeping**

The required monitoring, established in Section D.4.c.i through xii, shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- i. The calendar date of any required monitoring.
- ii. The total batch weight of **precious metal laden material** per batch, in tons, for the corresponding date.
- iii. The total daily hours of operation per batch, for the corresponding date.
- iv. The gauge pressure on **TU 4.005**, based on a one-hour period, for the corresponding date.
- v. The cooling water flow entering **MC-003, MC-004, and AC-002** based on a one-hour period, for the corresponding date.
- vi. The water temperature exiting the chiller, based on a one-hour period, for the corresponding date.
- vii. The amount of mercury collected from **MC-003 and MC-004**, weekly for the corresponding date.
- viii. The exhaust gas temperature exiting **AC-002**, based on a one-hour period, for the corresponding date.
- ix. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-003**.
- x. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-004**.
- xi. The original manufacturer's design specifications for the sulfur impregnated carbon used in **CF-003** and **CF-004** shall be kept on site.
- xii. The manufacturer's specified heating temperature profiles for the **TU 4.005** shall be kept on site.
- xiii. The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- xiv. The depth of the sample location, in each carbon column, for the corresponding date.
- xv. The date, time, and corrective action taken for an alarm notification or an interlock shut-down, for the corresponding date.

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



**BUREAU OF AIR QUALITY PLANNING**

**Facility ID No. A0003**

**Permit No. AP1041-2218**

**MERCURY OPERATING PERMIT TO CONSTRUCT**

**Section III. Amendments**

**DRAFT**

**This permit:**

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

**Signature** \_\_\_\_\_

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

**Phone:** (775) 687-9330      **Date:** August 29, 2009