

BUREAU OF AIR POLLUTION CONTROL

Facility ID No. A0390

Permit No. AP1041-2255

MERCURY OPERATING PERMIT TO CONSTRUCT

Issued to: HYCROFT RESOURCES & DEVELOPMENT, INC.

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.

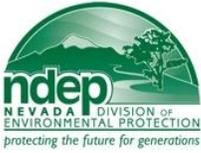
G. Information Request from Director. NAC 445B.3679.2(g)

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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Section I. General Conditions (continued)

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

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

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

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

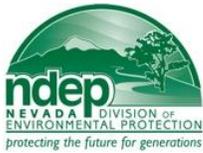
K. Facilities Operation. NAC 445B.227

The Permittee may not:

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

L. Excess Emissions. NAC 445B.232

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



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

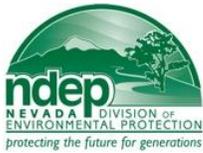
O. Annual Reporting.

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.



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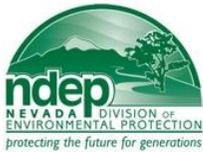
Section I. General Conditions (continued)

Q. Nevada Mercury Control Program Implementation Requirements

1. The NvMACT for **TU4.001 through TU4.003** must be implemented not later than 24 months after the issuance of this mercury operating permit to construct (NAC 445B.3679.3(a)(2)(I)).
 - a. The issuance date for **TU4.001 and TU4.002** is **May 20, 2009**.
 - b. The issuance date for **TU4.003** is **month date year**.
2. The Permittee shall provide the Director written notification of:
 - a. The date of implementation of NvMACT pursuant to NAC 445B.3679.3(a)(2)(i) postmarked within 15 days after such date. (NAC 445B.3679.2(g))

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

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Section II. Specific Operating Conditions

C. Thermal Unit #TU 4.003 location North 4,527.156 km, East 358.859 km, UTM (Zone 11)

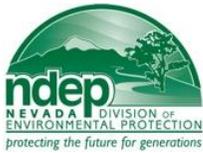
C. System 03 – Mercury Retort #2	
TU	4.003 Mercury Retort , manufactured by Summit Valley Equipment & Engineering, LLC., model number 40MR1E

1. Air Pollution Equipment

- a. Exhaust gases from **TU4.003** shall be ducted to a control system with 100% capture consisting of:
 - i. **Mercury Condenser (MC-002) with chiller**, manufactured by Summit Valley Equipment & Engineering, LLC.
 - ii. **Particulate Settling Chamber**
 - iii. **Demister**
 - iv. **Sulfur-impregnated Carbon Adsorption Bed (CA-003)**, with an internal “knockout box”, manufactured by Summit Valley Equipment & Engineering, LLC.
- b. Stack Parameters
 - i. Height: 12.6 ft
 - ii. Diameter: 0.5 ft
 - iii. Stack temperature: approximately 80°F
 - iv. Flow: Maximum volume flow rate of 107 actual cubic feet per minute (acfm).
 - v. **TU 4.003** is ducted to a single stack.

2. Operating Requirements

- a. Limitations of Operation NAC 445B.3679.3
 - i. The maximum allowable batch weight for **TU4.003** shall not exceed **1.15 tons of precious metal bearing material**. Precious metal bearing material shall consist only of the following:
 - (a) Precious metal precipitate from the Merrill Crowe circuit;
 - (b) Slag collected from **TU4.002**;
 - (c) Dust collected from the baghouse of **TU4.002**; and
 - (d) Precious metal bearing sludge collected from the refinery sump.
 - ii. Mercury emissions from **TU4.003** shall not exceed **1.0 x 10⁻⁴** grains per dry standard cubic foot (gr/dscf).
 - iii. **TU4.003** may operate a total of 8,760 hours per calendar year.
 - iv. The minimum batch time for **TU4.003** shall be 48 hours.
- b. Work Practice Standards NAC 445B.3679.3
 - i. During heating **TU4.003** shall be placed under negative gauge pressure above 200 mmHg.
 - ii. The maximum exhaust gas temperature at the discharge of **MC-002** for **TU4.003** shall not exceed 75°F.
 - iii. Condensed mercury from **MC-002** shall be collected monthly.
 - iv. **CA-003** shall contain no less than 550 pounds of sulfur-impregnated carbon.
 - v. The pressure differential across **CA-003** shall not exceed 12.85 inches of water.
 - vi. Precious metal bearing material shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.



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Section II. Specific Operating Conditions (continued)

A. Thermal Unit #TU4.001 (continued)

- vii. Replace the sulfur-impregnated carbon 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 70 % of the 20% by weight of the carbon loading capacity, as specified by the manufacturer, is reached. Upon reaching 70% of the 20% by weight of the carbon loading capacity, sampling of the carbon will occur monthly until 75% of the 20% 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 75% of the 20% 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 by the Director.
- viii. Any sulfur impregnated carbon replaced in **CA-003** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon.

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

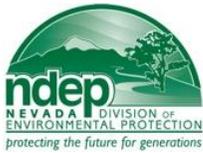
a. Compliance/Performance Testing

Within 180 days of implementation of NvMACT for **TU4.003** as required in section I.Q, **the Permittee** shall conduct and record a performance test for mercury on the exhaust stack of **TU4.003** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

b. Monitoring

The Permittee shall:

- i. Prior to implementation of NvMACT for **TU4.003**, install, operate, calibrate, and maintain instrumentation to measure the following:
 - (a) The negative gauge pressure of **TU4.003**, in mmHg.
 - (b) The exhaust gas temperature at the outlet of **MC-002**, in degrees Fahrenheit.
 - (c) The pressure drop across **CA-003**, in inches of water.
- ii. Prior to implementation of NvMACT for **TU4.003** install, operate, calibrate, and maintain a vacuum interlock that will shut off the retort heating element if the retort gauge pressure equals 200 mmHg of vacuum or less.
- iii. Prior to implementation of NvMACT for **TU4.003** 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 implementation of NvMACT for **TU4.003** install, operate, calibrate, and maintain an exhaust gas interlock that will shut off the retort heating element if the exhaust gas from the condenser is above 95°F.
- v. Monitor the daily batch weight of **precious metal bearing material**, in tons, for each batch.
- vi. Monitor the hours of operation during each day of operation, for each batch.
- vii. Monitor the gauge pressure on **TU4.003**, continuously during operation.
- viii. Monitor the outlet gas temperature of **MC-002** of **TU4.003**, continuously during operation.
- ix. Monitor the mercury drained from **MC-002**, monthly.
- x. Monitor the pressure drop across **CA-003**, continuously during operation.
- xi. Monitor **CA-003** for percentage of mercury by weight, quarterly until reaching 70 percent capacity and then monthly until reaching 75 percent capacity.



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Section II. Specific Operating Conditions (continued)

A. Thermal Unit #TU4.003 (continued)

c. Recordkeeping

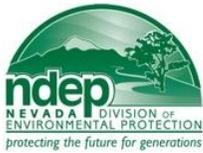
The required monitoring, established in Section C.3.b.i through xi., shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- i. The calendar date of any required monitoring.
- ii. The total daily batch weight of **precious metal bearing material** per batch, in tons, for the corresponding date.
- iii. The total daily operating hours per batch, for the corresponding date.
- iv. The gauge pressure on **TU4.003**, based on a one-hour period, for the corresponding date.
- v. The outlet gas temperature of **MC-002** based on a one-hour period, for the corresponding date.
- vi. The amount of mercury collected from **MC-002**, in pounds, monthly, for the corresponding date.
- vii. The pressure drop across **CA-003** based on a one-hour period, for the corresponding date.
- viii. The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- ix. The depth of the sample location, for the corresponding date.
- x. The date, time, and weight of each replacement of the sulfur-impregnated carbon bed.
- xi. The original manufacturer's design specifications for the sulfur impregnated carbon used in **CA-003** shall be kept on site.
- xii. The manufacturer's specified heating temperature profile for **TU4.003** shall be kept on site.
- xiii. The date, time, and corrective action taken for an interlock shut-down, for the corresponding date.

d. Reporting

Permittee will promptly report to the Director any deviations from the requirements of the Operating Permit to Construct. The report to the Director will include probable cause of all deviations and any action taken to correct deviations. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of 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 permit.

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



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Section III. Amendments

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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 Pollution Control

Phone: (775) 687-9330

Date: _____