Nevada Department of Conservation and Natural Resources • Division of Environmental Protection

Bureau of Air Pollution Control

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Facility ID No. A0387 *Permit No. 1041-2254*

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: **Marigold Mining Company** (HEREINAFTER REFERRED TO AS ***THE PERMITTEE***)
Mailing Address: P.O. BOX 160; VALMY, NEVADA 89438
Physical Address: 4.0 MILES SOUTH OF I-80 AT THE VALMY INTERCHANGE (EXIT 216)
General Facility Location: SECTIONS 1 AND 2, T 32 N, R42 E MDB&M
SECTIONS 4 – 6, T 32 N, R 43 E MDB&M
SECTIONS 1, 11 – 13, 23 – 25, 35, 36, T 33 N, R 42 E MDB&M
SECTIONS 4 – 10, 16 – 21, 28 – 33, T 33 N, R 43 E MDB&M
SECTIONS 36, T 34 N, R 42 E MDB&M
SECTIONS 19, 20, 28 – 33, T 34 N, R 43 E MDB&M
HA 64 – CLOVERS AREA AND HA 131 – BUFFALO VALLEY / HUMBOLDT COUNTY
NORTH 4,511,118 M, EAST 487,344 M, UTM ZONE 11, NAD 83

Emission Unit List		
A. System 01 – Carbon Kiln (Revised April 2025, Air Case #12320)		
TU	4.001	Carbon Kiln, manufactured by Lockheed Haggerty Engineering, Serial # 18775
B. System 02 – Refining Circuit		
TU	4.002	Mercury Retort, manufactured by Custom Equipment Corporation, Serial # 370-555-03A
TU	4.003	Tilting Crucible Furnace, manufactured by Custom Equipment Corporation, Serial # 134
TU	4.004	Electrowinning Cells (2 Cells), manufactured by Scotia International
TU	4.005	Pregnant Tank, manufactured by Scotia International, Equipment # 760-TNK-001
TU	4.006	Barren Tank, manufactured by Scotia International, Equipment # 760-TNK-002

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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.3365.2(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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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Marigold Mining Company

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 and supporting documentation (if applicable) will be submitted via the State and Local Emissions Inventory System (SLEIS) maintained by the Bureau of Air Quality Planning for all emission units/systems specified. The completed report must be submitted to the Bureau of Air Quality Planning no later than March 1 annually for the preceding calendar year.

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: aircompliance@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.

Issued to: Marigold Mining Company

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. ***The 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.

Issued to: Marigold Mining Company

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 Requirements NAC 445B.3679 and NAC445B.3685

1. The NvMACT for **TU4.001 – TU4.006**, each must be implemented not later than 48 months after the issuance of this mercury operating permit to construct (NAC 445B.3679.3(a)(2)(II)).
   a. The issuance date for **TU4.001 – TU4.006** is **July 1, 2013**.
   b. The revised issuance date for **TU4.004** is **August 27, 2019**.
2. The Permittee shall provide the Director written notification of:
   a. The date of implementation of NvMACT for **TU4.001 – TU4.006**, each, pursuant to NAC 445B.3679.3(a)(2)(i) postmarked within 15 days after such date (NAC 445B.3679.2(g)).

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 **********

Facility ID No. A0387 Permit No. AP1041-2254
MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Marigold Mining Company

Section II. Specific Operating Conditions

A. Emission Unit #TU4.001 location North 4,510,900 m, East 487,490 m, UTM (Zone 11)

A. System 01 – Carbon Kiln (Revised April 2025, Air Case #12178)		
TU	4.001	Carbon Kiln, manufactured by Lockheed & Haggerty Engineering, Serial # 18775

1. Air Pollution Equipment

a. Exhaust gases from **TU4.001** shall be ducted to a control system with 100% capture consisting of:
   1. **Wet Scrubber (WS-001)** *(manufactured by Lockheed & Haggerty Engineering)*
   2. **Demister (DM-001)**
   3. **Heater (HE-001)**
   4. **Carbon Adsorption Unit (CA-001)** *(manufactured by Lochheed & Haggerty Engineering)*

b. Stack parameters
   Height: 55.0 ft.
   Diameter: 8 in.
   Stack temperature: 120°F
   Flow: Maximum volume flow rate of 1,500 dry standard cubic feet per minute (dscfm).

2. Operating Requirements (NAC445B.3679.3)

a. Limitations of operation
   1. The maximum allowable throughput rate for **TU4.001** will not exceed **0.35** ton of strip circuit carbon per any one-hour period.
   2. Mercury emissions from **TU4.001** shall not exceed **1.0×10^{-4}** grains per dry standard cubic foot (gr/dscf).
   3. Hours
      TU4.001 may operate a total of **24** hours per day.

b. Work practices
   1. Carbon Kiln (**TU4.001**):
      (a) Perform a visual inspection of the kiln drum for cracks approximately every six months.
   2. Wet Scrubber (**WS-001**):
      (a) The water flow rate for **WS-001** shall be maintained at or above **40** gallons per minute.
      (b) Mercury from the mercury trap shall be collected monthly.

Issued to: Marigold Mining Company

Section II. Specific Operating Conditions (continued)

A. Emission Unit #TU4.001 (continued)

2. Operating Requirements (continued)

b. Work practices (continued)

5. Carbon Adsorption Unit (**CA-001**):

(a) **CA-001** shall contain no less than **2.5** tons of sulfur impregnated carbon.

(b) The differential pressure on **CA-001** during operation of **TU4.001** shall be maintained at or below **-0.01** inches of water.

(c) Replace the sulfur-impregnated carbon according to the following schedule:

i. The sulfur-impregnated carbon in **CA-001** shall be sampled within **90** days after the notification of implementation of NvMACT operation for **TU4.001** as required in Section I.Q. above. The depth of the sample location shall be recorded. If more than one sample is taken, calculate an average carbon loading from the samples. Using this sample the percentage of mercury by weight shall be calculated. Sampling will continue quarterly, at the same sample depth location, until **50%** of the **20%** by weight of the carbon loading capacity, as specified by the manufacturer, is reached. Upon reaching **50%** of the **20%** by weight of the carbon loading capacity, sampling of the carbon will occur monthly until **90%** 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 **90%** 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.

ii. On an annual basis, perform a total loading analysis on the mercury removal media in **CA-001**.

(d) Any sulfur-impregnated carbon replaced in **CA-001** shall be replaced with only the original manufacturer's design specification sulfur-impregnated carbon or with equivalent or better performing mercury removal media.

(e) The original manufacturer's design specifications for the sulfur impregnated carbon used in **CA-001** shall be kept on site.

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

a. Compliance Testing

(1) Within 180 days of initial startup of **TU4.001**, and annually thereafter, ***the Permitee*** 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 01**. 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 issuance date of this operating permit to construct shall:

1. Install, operate, calibrate, and maintain instrumentation to measure and record the following:
   (a) The water flow rate of **WS-001,** in gallons per minute.
   (b) The differential pressure across **CA-001**, in inches of water.
2. Monitor the throughput rate of strip circuit carbon in tons for **TU4.001** on a daily basis.
3. Monitor the hours of operation for **TU4.001** on a daily basis.
4. Monitor the water flow rate in gallons per minute for **WS-001** once per day during **TU4.001** operation.
5. Monitor the differential pressure in inches of water for **CA-001** once per day during **TU4.001** operation.

Issued to: Marigold Mining Company

Section II. Specific Operating Conditions (continued)

A. Emission Unit #TU4.001 (continued)

3. Monitoring, Recordkeeping, Reporting and Testing (continued)

c. Recordkeeping

The required monitoring established in Section II.A.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 strip circuit carbon in tons, for the corresponding date.
3. The total daily hours of operation for the corresponding date.
4. The results of the kiln drum inspections.
5. The water flow rate for **WS-001**, in gallons per minute, for the corresponding date.
6. The amount of mercury collected from the mercury trap, in pounds, for the corresponding date.
7. The differential pressure for **CA-001**, in inches of water, for the corresponding date.
8. The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
9. The depth of the sample location in **CA-001** from the mercury analysis, for the corresponding date.
10. The date, time, and weight of each sulfur-impregnated carbon replacement for **CA-001**, for the corresponding date.

d. Reporting

1. ***Permittee*** will promptly report to the Director any emissions and or throughput exceedance from 2.a. of this section. 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 permit.
2. ***Permittee*** will report annually to the Director the amount of mercury drained from the **Wet Scrubber (WS-001)**, in pounds for the reporting year.

Issued to: Marigold Mining Company

Section II. Specific Operating Conditions (continued)

B. Emission Units #TU4.002 – TU4.006 location North 4,510,900 m, East 487,490 m, UTM (Zone 11)

B. System 02 – Refining Circuit		
TU	4.002	Mercury Retort, manufactured by Custom Equipment Corporation, Serial # 370-555-03A
TU	4.003	Tilting Crucible Furnace, manufactured by Custom Equipment Corporation, Serial # 134
TU	4.004	Electrowinning Cells (2 Cells), manufactured by Scotia International
TU	4.005	Pregnant Tank, manufactured by Scotia International, Equipment # 760-TNK-001
TU	4.006	Barren Tank, manufactured by Scotia International, Equipment # 760-TNK-002

1. Air Pollution Equipment

a. Exhaust gases from **TU4.002** shall be ducted to a control system with 100% capture consisting of:
   1. **Mercury Condenser: (CO-001)** *(manufactured by Scotia International)*

b. Exhaust gases from **TU4.002 (after CO-001), TU4.003, TU4.004, TU4.005 and TU4.006** shall be ducted to a common control system with 100% capture consisting of:
   2. **Carbon Adsorption Unit: (CA-002)** *(manufactured by Scotia International)*

c. Stack parameters
Height: 55.0 ft.
Diameter: 9 in.
Stack temperature: 100ºF
Flow: Maximum volume flow rate of 3,000 dry standard cubic feet per minute (dscfm).
TU4.002 through TU4.006 are ducted to a common exhaust stack.

2. Operating Requirements (NAC 445B.3679.3)

a. Limitations of operation.
   1. The interim mercury emission limit during the demonstration period for establishment of the final mercury emission limit as established in Section II.B.3.e. for **TU4.002 and TU4.004 – TU4.006 combined** shall not exceed **5.0 x 10^{-3}** grains per dry standard cubic foot (gr/dscf)
   2. The interim mercury emission limit during the demonstration period for establishment of the final mercury emission limit as established in Section II.B.3.e. for **TU4.003 and TU4.004 – TU4.006 combined** shall not exceed **5.0 x 10^{-3}** grains per dry standard cubic foot (gr/dscf)
   3. Mercury Retort (**TU4.002**):
      (a) The maximum allowable throughput for **TU4.002** will not exceed **0.25** ton of precious metal concentrate per batch.
      (b) Precious metal concentrate fed into the retorts is defined as the following:
         1. Precious metal concentrate recovered from the process of electrowinning;
         2. Precious metal concentrate recovered from the Merrill-Crowe process;
         3. Precious metal concentrate recovered from flotation and gravity separation, and;
         4. Precious metal concentrate recovered from the wash-down of equipment or surfaces that have been in contact with precious metal concentrate.
      (c) Hours
      TU4.002 may operate **24** hours per day.

Issued to: Marigold Mining Company

Section II. Specific Operating Conditions (continued)

B. Emission Units #TU4.002 – TU4.006 (continued)

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

a. Limitations of operation (continued)

4. Tilting Crucible Furnace (**TU4.003**):
   (a) The maximum allowable throughput for **TU4.003** will not exceed **0.26** ton of retorted precious metal concentrate per batch.
   (b) Hours
      1. **TU4.003** will not operate in excess of **12** hours per day.
      2. **TU4.003** will not operate in excess of **1,200** hours per calendar year.
5. Electrowinning Cells (3 Cells) (**TU4.004**):
   (a) The maximum allowable throughput rate of process solution for **TU4.004** will not exceed **150** gallons per minute.
   (b) Hours
   TU4.004 may operate a total of **24** hours per day.
6. Pregnant Tank (**TU4.005**):
   (a) The maximum allowable throughput rate of process solution for **TU4.005** will not exceed **150** gallons per minute.
   (b) Hours
   TU4.005 may operate a total of **24** hours per day.
7. Barren Tank (**TU4.006**):
   (a) The maximum allowable throughput rate of process solution for **TU4.006** will not exceed **150** gallons per minute.
   (b) Hours
   TU4.006 may operate a total of **24** hours per day.

c. Work practices

1. Mercury Retort (**TU4.002**):
   (a) An interlock will shut down **TU4.002** when water flow to **CO-001** is not present.
   (b) **TU4.002** shall be operated under negative pressure while heating.
   (c) The negative vacuum pressure for **TU4.002** shall be maintained between **4** to **12** inches of water during operation.
2. Electrowinning Cells (**TU4.004**):
   (a) Lids for **TU4.004** shall be closed during operation and the exhaust ducted directly to **CA-002**.
3. Mercury Condenser (**CO-001**):
   (a) **CO-001** will be drained of mercury monthly.
   (b) The water temperature exiting **CO-001** shall be maintained at or below **95ºF**.

Issued to: Marigold Mining Company

Section II. Specific Operating Conditions (continued)

B. Thermal Units #TU4.002 – TU4.006 (continued)

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

c. Work practices (continued)

4. Carbon Adsorption Unit (**CA-002**):

(a) **CA-002** shall contain no less than **2.5** tons of sulfur impregnated carbon.

(b) The differential pressure on **CA-002** during operation of **TU4.002 through TU4.006** shall be maintained at or below **14** inches of water.

(c) Replace the sulfur-impregnated carbon according to the following schedule:

i. The sulfur-impregnated carbon in **CA-002** shall be sampled within **90** days after the notification of implementation of NvMACT operation for **TU4.002 through TU4.006** as required in Section I.Q. above. The depth of the sample location shall be recorded. If more than one sample is taken, calculate an average carbon loading from the samples. Using this sample the percentage of mercury by weight shall be calculated. Sampling will continue quarterly, at the same sample depth location, until **50%** of the **20%** by weight of the carbon loading capacity, as specified by the manufacturer, is reached. Upon reaching **50%** of the **20%** by weight of the carbon loading capacity, sampling of the carbon will occur monthly until **90%** 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 **90%** 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.

ii. On an annual basis, perform a total loading analysis on the mercury removal media in **CA-002**.

(d) Any sulfur-impregnated carbon replaced in **CA-002** shall be replaced with only the original manufacturer's design specification sulfur-impregnated carbon or with equivalent or better performing mercury removal media.

(e) The original manufacturer's design specifications for the sulfur impregnated carbon used in **CA-002** shall be kept on site.

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

a. Compliance Testing

1. Within 180 days of initial startup of **System 02**, and annually thereafter, ***the Permitee*** shall conduct and record a performance test for mercury on the exhaust stack of **System 02** 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**).

(a) **TU4.002** and **TU4.004 – TU4.006** shall be tested simultaneously for **System 02**.

(b) **TU4.003** and **TU4.004 – TU4.006** shall be tested simultaneously for **System 02**.

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.

Issued to: Marigold Mining Company

Section II. Specific Operating Conditions (continued)

B. Emission Units #TU4.002 – TU4.006 (continued)

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

b. Monitoring

The ***Permittee***, upon issuance of this operating permit to construct shall:

1. Install, operate, calibrate, and maintain instrumentation to measure and record the following:
   (a) The vacuum gauge pressure of **TU4.002,** in inches of water column.
   (b) The water temperature exiting from **CO-001**, in degrees Fahrenheit.
   (c) The differential pressure across **CA-002**, in inches of water.
2. Install, operate, calibrate, and maintain an interlock to shut down **TU4.002** when water flow to **CO-001** is not present.
3. Monitor the batch weight of precious metal concentrate in tons for **TU4.002** on a daily basis.
4. Monitor the hours of operation for **TU4.002** on a daily basis.
5. Monitor the vacuum gauge pressure in inches of water for **TU4.002** once per day during batch operation.
6. Monitor the water temperature in degrees Fahrenheit exiting **CO-001** once during batch operation for **TU4.002**.
7. Monitor the batch weight of precious metal concentrate in tons for **TU4.003** on a daily basis.
8. Monitor the hours of batch operation for **TU4.003** on a daily basis.
9. Monitor the throughput rate of process bearing solution in gallons per minute for **TU4.004** once per day.
10. Monitor the hours of operation for **TU4.004** on a daily basis.
11. Monitor the throughput rate of process solution in gallons per minute for **TU4.005** once per day.
12. Monitor the hours of operation for **TU4.005** on a daily basis.
13. Monitor the throughput rate of process solution in gallons per minute for **TU4.006** once per day.
14. Monitor the hours of operation for **TU4.006** on a daily basis.
15. Monitor the differential pressure in inches of water for **CA-002** once per day.

c. Recordkeeping

The required monitoring established in Section II.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 batch weight of precious metal concentrate for **TU4.002** in tons, for the corresponding date.
3. The hours of batch operation for **TU4.002** for the corresponding date.
4. The vacuum gauge pressure for **TU4.002** once per day during batch operation for the corresponding date.
5. The water temperature exiting **CO-001** once per batch operation for the corresponding date.
6. The batch weight of precious metal concentrate for **TU4.003** in tons, for the corresponding date.
7. The hours of batch operation for **TU4.003** for the corresponding date.
8. The throughput rate of process solution for **TU4.004** in gallons per minute, for the corresponding date.
9. The hours of operation for **TU4.004** for the corresponding date.
10. The throughput rate of process solution for **TU4.005**, in gallons per minute, for the corresponding date.
11. The hours of operation for **TU4.005** for the corresponding date.
12. The throughput rate of process solution for **TU4.005**, in gallons per minute, for the corresponding date.
13. The hours of operation for **TU4.005** for the corresponding date.
14. The differential pressure in inches of water for **CA-002** once per batch, for the corresponding date.
15. The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
16. The depth of the sample location in **CA-002** from the mercury analysis, for the corresponding date.
17. The date, time, and weight of each sulfur-impregnated carbon replacement for **CA-002**, for the corresponding date.

Issued to: Marigold Mining Company

Section II. Specific Operating Conditions (continued)

B. Emission Units #TU4.002 – TU4.006 (continued)

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

d. Reporting

1. ***Permittee*** will promptly report to the Director any emissions and or throughput exceedance from 2.a. of this section. 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 permit.
2. ***Permittee*** will report annually to the Director the amount of mercury drained from the **Mercury Condenser (CO-001)**, in pounds for the reporting year.

e. Performance Testing

1. Upon the date of notification of implementation of NvMACT, ***the Permittee***, shall begin a performance demonstration period for the establishment of a mercury emissions limits for **TU4.002**, **TU4.004 – TU4.006 combined,** and **TU4.003**, **TU4.004 – TU4.006 combined**, 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 final NvMACT mercury emission limits.
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 final NvMACT mercury emission limits.
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 limits 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 limits 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.

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

Facility ID No. A0387 Permit No. AP1041-2254
MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Marigold Mining Company

Section III. Amendments

Aircase 7624 – AK – Marigold Mining Company submitted a letter requesting to reopen the MOPTC for the following reasons:

- Section II.A.2.b.iii.(b) – The limit for differential pressure on CA-001 should have been -0.01 inches of water not -0.1 inches of water. The change has been made to CA-001.
- Section II.B.1.c.ii. – The stack diameter for System 02 should have been 9" not 10". The change has been made to the stack diameter for System 02.

Aircase 8360 – Notice of Replacement for CA-002. BAPC approved letter dated June 9, 2015 for replacement of CA-002 with another deep bed carbon scrubber that has the same characteristics as the previous deep bed carbon scrubber. BAPC stated that changes will be made in the next permitting action.

Aircase 8735 – Notification of Change. BAPC approved letter dated June 4, 2015 for changes to throughput for the Electrowinning Cells (from 70 gallons per minute to 85 gallons per minute) and changes to the work practice for the Wet Scrubber flow rate (from 60 gallons per minute to 50 gallons per minute). BAPC stated that changes will be made in the next permitting action.

Aircase 9707 – Administrative Amendment. MMC requested that "precious metal bearing solution" be changed to "process solution" for the Electrowinning Cells, the Pregnant Tank and Barren Tank. Also, MOPTC updated to reflect current template along with updating parameters found in Aircase 8735

Aircase 9869 – Finalized TUTD Testing, submitted October 30, 2018, MMC requested increased throughputs for the process solution thermal units. NMCP informed MMC that increasing the throughput 75% makes the prior TUTD Testing invalid, as those conditions are no longer part of the MOPTC. MMC submitted an application in June, 2019 modifying the electrowinning cells from three cells to two, operating in parallel and requests the increased throughput. MMC has elected to continue the TUTD Testing for System 02, and requests the General NvMACT limit for carbon regeneration kilns.

Aircase 11016 – Revision for carbon weights in CA-001 and CA-002 from 3.0 tons to 2.5 tons based on configuration of beds and density of the carbon. Also De Minimis updates

Aircase 12320 – RC – Revision for the Carbon Kiln (System 01, TU4.001) to add a demister (DM-001) and a heater (HE-001) as control units for gas conditioning the Carbon Kiln. Additionally, the flow rate for the wet scrubber (WS-001) control unit is revised to 40 gallons per minute (it was previously required to be maintained at or above 50 gallons per minute).

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: Tanya Soleta, P.E.
Supervisor, Nevada Mercury Control Program
Bureau of Air Pollution Control

Phone: (775) 687-9540 Date: _____

Ak	nl	km	km	rc
09/13	07/13	7/2019	12/2021	05/2025

Facility ID No. A0387 Permit No. AP1041-2254
MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Marigold Mining Company

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)
DM3.001	Drying Oven 1	0.3349
DM3.002	Drying Oven 2	0.2488
DM3.003	Drying Oven 3	0.3483
DM3.004	AA Machine 1	0.0583
DM3.005	AA Machine 2	0.0583
DM3.006	Assay Furnace 1	0.1749
DM3.007	Assay Furnace 2	0.1749
DM3.008	Cupellation Furnace 1	0
DM3.009	Cupellation Furnace 2	0
DM3.010	Hot Plate 1	0.0962
DM3.011	Hot Plate 2	0.0962
DM3.012	Hot Plate 3	0
DM3.013	Hot Plate 4	0
DM3.014	Hot Plate 5	0
DM3.015	Hot Plate 6	0
DM3.016	Hot Plate 7	0
DM3.017	Hot Plate 8	0
DM3.018	Annealing Oven	0
DM3.019	Drying Oven 4	0.3253
DM3.020	Drying Oven 5	0.3253
DM3.021	AA Machine 3	0.0583
DM3.022	ICP (Assay Lab)	0.0023
DM3.023	Cress Oven (Met Lab)	0.00053
DM3.024	Leco Analyzer (Met Lab)	0.0000053
	Total:	2.305

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

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

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

Amendments

10/29/08 - KM: Added Cupellation Furnace 2 (DM3.009) and Hot Plates 3 – 8 (DM3.012 – DM3.017).
08/24/10 - KM: Added Drying Ovens 4 and 5 (DM3.019 and DM3.020) and revised DM Calculations
3/2015 – TS: Added AA Machine 3 (DM3.021).
12/2021 – KM: Added ICP (DM3.022), Cress Oven (DM3.023) and Leco Analyzer (DM3.024). Revised mercury calculations for DM3.010 and DM3.011