

## BUREAU OF AIR POLLUTION CONTROL

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

**Facility ID No. A1497**

**Permit No. AP1041-3302**

### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE II

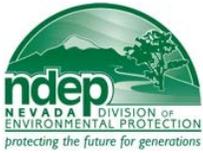
**Issued to:** Midway Gold US Inc.

**Mailing Address:** 705 AVENUE K; ELY, NEVADA 89301

**Physical Address:** PAN MINE - Approximately 50 miles west of Ely, Nevada and 22 miles southeast of Eureka, Nevada

**General Facility Location:** Section 34; T18N, R55E,  
 Sections 3, 10, 13-15, 22-27, 34-36; T17N, R55E,  
 Sections 1-3, 11-14, 23 and 24; T16N, R55E, MDB&M (HA 154)

Thermal Unit List: (6 Thermal Units)		
<b>A. System 9 – Carbon Kiln</b>		
TU	4.001	Carbon Kiln - Drum
<b>B. System 11 – Mercury Retort</b>		
TU	4.002	Mercury Retort - Throughput
<b>C. System 13 – Melt Furnace</b>		
TU	4.003	Melt Furnace
<b>D. System 14 – Carbon Stripping</b>		
TU	4.004	Electrowinning Cells
TU	4.005	Barren Tank TK-501
TU	4.006	Barren Tank TK-401



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Issued to: Midway Gold US 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.3685)

*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.3685)

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.3685)

*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.3685)

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.3685)

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.3685)

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

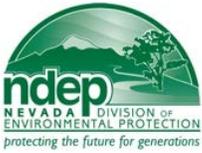
G. Information Request from Director. (NAC 445B.3685)

*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.3685)

*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 II

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## Section I. General Conditions (continued)

I. Certify True and Accurate. (NAC 445B.3685)

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.3685)

*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.

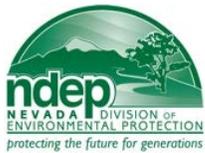
K. Facilities Operation. (NAC 445B.227)

*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 is 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: PHASE II

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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:

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

N. Annual Testing. (NAC 445B.3685)

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

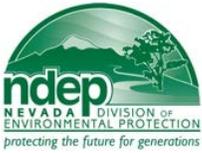
- Conduct and record a Method 29 (or alternative test method approved by the Director) compliance test for mercury on the exhaust stacks of **Systems 1, 2, 3 and 4** consisting of three valid runs. Each of the three test runs must collect a sample volume of 1.7 dry standard cubic meters (60 dscf) or be conducted for up to two hours in an effort to collect this sample volume (NAC 445B.3685.3).
- Simultaneously, during the Method 29 (or alternative test method approved by the Director) compliance tests, conduct and record a material assay from **Systems 1, 2, 3 and 4**. 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) (NAC 445B.3685.3).
- 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).
- 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).
- Furnish the Director within 60 days after completing the performance tests a written and electronic report of the results of the performance tests. All information and analytical results of testing and sampling must be certified as to the truth and accuracy and as to their compliance with NAC 445B.001 to 445B.3689 (NAC 445B.252.8).

O. SIP Article 2.5.4 Federally Enforceable SIP Requirement.

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

P. Expiration and Extension. (NAC 445B.3687)

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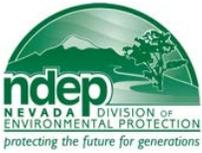
**Section I. General Conditions (continued)**

Q. Annual Reporting.

*The Permittee* shall:

1. Report mercury co-product on an annual basis (NAC 445B.3685).
2. Report the level of mercury emissions on an annual basis, which must be based on mercury emissions test data (NAC 445B.3685).

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



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# MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE II

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## Section II. Specific Operating Conditions

A. Thermal Unit #TU4.001 location North 4,351,414 m; East 607,376 m UTM (Zone 11)

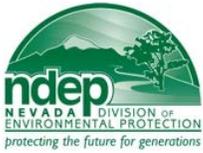
<b>A. System 9 – Carbon Kiln (S2.006)</b>		
TU	4.001	Carbon Kiln - Drum

### 1. Air Pollution Equipment

- a. Exhaust gases from **TU4.001** shall be ducted to a control system with 100% capture consisting of:
  - i. **Off-Gas Cooler**
  - ii. **Carbon Filter (CF-001)**
- b. Descriptive Stack parameters
  - i. Height: 50 feet
  - ii. Diameter: 0.33 feet
  - iii. Temperature: approximately 100°F
  - iv. Exhaust gases from **TU4.001** shall have a maximum volume flow rate of approximately 100 actual cubic feet per minute (ACFM).

### 2. Operating Requirements

- a. Limitations of Operation (NAC 445B.3685)
  - i. The maximum allowable throughput rate of **process carbon** for **TU4.001** shall not exceed **0.125** ton per any one-hour period.
  - ii. Mercury emissions from **TU4.001** shall not exceed **1.0 x 10<sup>-4</sup>** grains per dry standard cubic foot.
  - iii. **TU4.001** may operate a total of 8,760 hours per calendar year.



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

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

**A. Thermal Unit #TU4.001 (continued)**

**2. Operating Requirements (continued)**

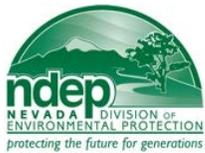
b. Work Practices Standards (NAC 445B.3685)

i. **Carbon Kiln - Drum**

Permittee shall perform an annual visual inspection of the kiln tube for structural damage and cracks.

ii. **Carbon Filter (CF-001)**

- (a) The carbon filter **CF-001** will contain no less than **252** pounds of sulfur-impregnated carbon.
- (b) The exhaust temperature at the inlet to the carbon filter **CF-001** will not exceed **100° Fahrenheit**.
- (c) The differential pressure across **CF-001** shall not exceed **5** inches water column.
- (d) Sample and replace the carbon in **CF-001** according to the following schedule:
  - a. Sample the carbon at the inlet and outlet of the carbon filter **CF-001** and record the depth of the sample probe within **90** days after replacement of the carbon. The sampled carbon will be analyzed for mercury and the average percentage of mercury, by weight, shall be calculated. The loading capacity of the sulfur-impregnated carbon is **20%** by weight. A sample of carbon will be analyzed quarterly until **50%** of the carbon loading capacity is reached. Upon reaching **50%** of the carbon loading capacity, the sampling of carbon will occur monthly until **90%** of the carbon loading capacity is reached. The carbon in the carbon filter **CF-001** will be replaced no later than **30** days after reaching **90%** of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:
    - (i) EPA Method 6020 – Inductively Coupled Plasma-Mass Spectrometry;
    - (ii) EPA Method 7471B – Mercury in Solid or Semi-solid Waste (Manual Cold Vapor Technique); or
    - (iii) An alternative test method as approved by the Director.
- (e) Any sulfur-impregnated carbon replaced in **CF-001** shall be replaced with only the original manufacturer's design specification sulfur-impregnated carbon or with equivalent, or better performing carbon.
- (f) The original manufacturer's design specifications for the sulfur-impregnated carbon used in **CF-001** shall be kept on site.



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### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE II

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## Section II. Specific Operating Conditions (continued)

### A. Thermal Unit #TU 4.001 (continued)

#### 3. Monitoring, Recordkeeping, Reporting and Testing (NAC 445B.3685)

##### a. Compliance Testing

Within 180 days of initial startup of **System 1**, the *Permittee* shall conduct and record a performance test for mercury on the exhaust stack of **System 1** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

##### b. Monitoring

The *Permittee* shall:

- i. Monitor the combined daily throughput rate of **carbon** for **TU4.001** in tons.
- ii. Monitor daily hours of operation for **TU4.001**.
- iii. Monitor the inlet exhaust temperature for the carbon filter **CF-001** continuously during operation. The hourly average exhaust temperature readings, determined from each successive 15-minute period, will be recorded for the corresponding date.
- iv. Monitor the differential pressure of **CF-001** continuously, during operation, in inches water column. The average hourly differential pressure readings, determined from each successive 15-minute period, will be recorded for the corresponding date.
- v. Monitor the percentage of mercury, by weight, on the carbon in the carbon filter **CF-001** quarterly until reaching 50% of the loading capacity, and then monthly until reaching 90% of the loading capacity.

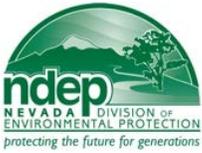
##### c. Recordkeeping

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

- i. The calendar date of any required monitoring.
- ii. The total daily throughput rate of **process carbon** in tons, for **TU4.001** for the corresponding date.
- iii. The total daily hours of operation for **TU4.001** for the corresponding date.
- iv. The inlet exhaust temperature for the carbon filter **CF-001** for the corresponding date.
- v. The corresponding average hourly throughput rate in tons per hour for **TU4.001**. The average hourly throughput rate will be determined from the total daily throughput rate (ii) and the total daily hours of operation (iii) above.
- vi. The date and weight of each carbon replacement for **CF-001**, for the corresponding date.

##### d. Reporting

*Permittee* will promptly report to the Director any emissions and or throughput exceedences from 2.a of this section. The report to the Director will include probable cause and any action taken to correct the exceedence. 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.



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

Issued to: Midway Gold US Inc.

**Section II. Specific Operating Conditions**

**B. Thermal Unit #TU4.002** location North 4,351,426 m; East 607,397 m UTM (Zone 11)

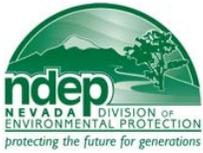
<b>B. System 11 – Mercury Retort (S2.008)</b>		
TU	4.002	Mercury Retort - Throughput

**1. Air Pollution Equipment**

- a. Exhaust gases from **TU4.002** shall be ducted to a control system with 100% capture consisting of:
  - i. **Mercury Condenser System**
  - ii. **Carbon Filter System (CF-002)**
- b. Descriptive Stack parameters
  - i. Height: 50 feet
  - ii. Diameter: 0.25 feet
  - iii. Temperature: approximately 100°F
  - iv. Exhaust gases from **TU4.002** shall have a maximum volume flow rate of 80 actual feet per minute (ACFM).

**2. Operating Requirements**

- a. Limitations of Operation (NAC 445B.3685)
  - i. **Retort (TU4.002)**
    - (a) The maximum allowable throughput rate of **precious metal concentrate** for **TU4.002** shall not exceed **0.21** ton per batch. “Precious metal laden concentrate” shall consist only of the following:
      - (1) Material loaded with precious metals such as gold and silver, along with various other metals that is produced by electro winning, the Merrill-Crowe process, flotation and gravity separation processes, and other gold concentration or precipitation processes.
      - (2) Material collected from the wash-down of any equipment or surfaces contacted with precious metals that have been concentrated through the various concentration methods employed by precious metal mines.
  - ii. Mercury emissions from **TU4.002** shall not exceed **1.0 x 10<sup>-4</sup>** grains per dry standard cubic foot.
  - iii. **TU4.002** may operate a total of 8,760 hours per calendar year.



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# MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE II

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## Section II. Specific Operating Conditions (continued)

### B. Thermal Unit #TU4.002 (continued)

#### 2. Operating Requirements (continued)

##### b. Work Practices Standards (NAC 445B.3685)

###### i. **Retort**

- (a) During heating, the retort vacuum gauge pressure of **TU4.002** will be maintained at or above **200.0** millimeters of mercury.

###### ii. **Mercury Condenser System**

- (a) Condensed mercury, collected from the condenser, shall be collected monthly.

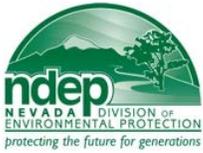
###### iii. **Carbon Filter System**

- (a) The carbon filter system **CF-002** will contain four carbon beds, with no less than **2,400** pounds, total, of sulfur-impregnated carbon.
- (b) The exhaust temperature, at the inlet to the carbon filter system **CF-002**, will not exceed **75°** Fahrenheit.
- (c) **TU4.002** shall automatically shut off via interlock if the exhaust temperature entering the **Carbon Filter System** is greater than **90°** Fahrenheit.
- (d) The differential pressure across **CF-002** shall not exceed **26** inches water column.
- (e) Sample and replace the carbon in **CF-002** according to the following schedule:
  - a. Sample the carbon in the first and last bed of the carbon filter system **CF-002** and record the depth of the sample probe within **90** days after replacement of the carbon. The sampled carbon will be analyzed for mercury and the average percentage of mercury, by weight, shall be calculated. The loading capacity of the sulfur-impregnated carbon is **20%** by weight. A sample of carbon will be analyzed quarterly until **50%** of the carbon loading capacity is reached. Upon reaching **50%** of the carbon loading capacity, the sampling of carbon will occur monthly until **90%** of the carbon loading capacity is reached. The carbon in the carbon filter system **CF-002** will be replaced no later than **30** days after reaching **90%** of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:
    - (i) EPA Method 6020 – Inductively Coupled Plasma-Mass Spectrometry;
    - (ii) EPA Method 7471B – Mercury in Solid or Semi-solid Waste (Manual Cold Vapor Technique); or
    - (iii) An alternative test method as approved by the Director.
- (f) Any sulfur impregnated carbon replaced in **CF-002** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon or equivalent performing carbon, or better.
- (g) The *Permittee* shall keep records on site of manufacturer's NvMACT sulfur impregnated carbon specifications.

#### 3. Monitoring, Recordkeeping, Reporting, and Testing (NAC 445B.3685)

##### a. Compliance Testing

Within 180 days of initial startup of **System 2**, the *Permittee* shall conduct and record a performance test for mercury on the exhaust stack of **System 2** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.



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# MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE II

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## Section II. Specific Operating Conditions (continued)

### B. Thermal Unit #TU4.002 (continued)

#### 3. Monitoring, Recordkeeping, Reporting, and Testing (NAC 445B.3685) (continued)

##### b. Monitoring

The *Permittee* shall:

- i. Prior to initial startup of **System 2**, install, operate, calibrate, and maintain instrumentation to measure and record the following:
  - (a) The retort gauge pressure of **TU4.002**, in millimeters of mercury.
  - (b) The exhaust gas temperature at the inlet to **CF-002**, in degrees Fahrenheit.
  - (c) The pressure drop across the **CF-002**, in inches of water.
- ii. Monitor the batch weight of precious metal concentrate for **TU4.002** in pounds, for each batch.
- iii. Monitor the hours of operation for **TU4.002**, for each batch.
- iv. Monitor the negative gauge pressure of **TU4.002**, continuously.
- v. Monitor the inlet exhaust gas temperature of **CF-002**, continuously, in degrees Fahrenheit.
- vi. Monitor the pressure drop across **CF-002**, continuously, in inches water column.
- vii. The percentage of mercury, by weight, on the carbon in the carbon filter system **CF-002**, will be monitored and recorded quarterly until reaching **50%** of the loading capacity, and then monthly until reaching **90%** of the loading capacity.

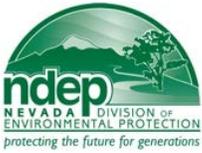
##### c. Recordkeeping

The required monitoring established in Section B.3.b, above 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 hours of operation for **TU4.002** per batch for the corresponding date.
- iii. The total batch rate of **precious metal concentrate** in tons for **TU4.002** per batch for the corresponding date.
- iv. The negative gauge pressure of **TU4.002** continuously, during each day of operation.
- v. The hourly exhaust gas temperature in degrees Fahrenheit entering **CF-002**, during each day of operation, for the corresponding date.
- vi. The hourly pressure drop in inches of water column across the **CF-002** during each day of operation, for the corresponding date.
- vii. The percentage of mercury, by weight, in **CF-002**, for the corresponding date.
- viii. The date and weight of each carbon replacement of **CF-002**.

##### d. Reporting

*Permittee* will promptly report to the Director any emissions and or throughput exceedences from 2.a of this section. The report to the Director will include probable cause and any action taken to correct the exceedence. 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.



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**Section II. Specific Operating Conditions**

C. Thermal Unit #TU4.003 location North 4,351,432 m; East 607,400 m UTM (Zone 11)

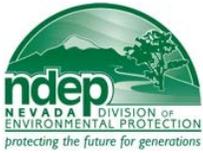
<b>C. System 13 – Furnace (S2.010)</b>		
TU	4.003	Furnace

**1. Air Pollution Equipment**

- a. Exhaust gases from **TU4.003** shall be ducted to a control system with 100% capture consisting of:
  - i. **Baghouse (DC-001)**
  - ii. **Carbon Filter (CF-003)**
- b. Descriptive Stack parameters (CF-003)
  - i. Height: 50 feet
  - ii. Diameter: 1.17 feet
  - iii. Temperature: approximately 270°F
  - iv. Exhaust gases from **CF-003** shall have a maximum volume flow rate of 5,200 actual cubic feet per minute (ACFM).

**2. Operating Requirements**

- a. Limitations of Operation (NAC 445B.3685)
  - i. The maximum allowable throughput rate of **retorted precious metal concentrate** for **TU4.003** shall not exceed **0.5** ton per batch.
  - ii. Mercury emissions from **TU4.003** shall not exceed **1.0 x 10<sup>-5</sup>** grains per dry standard cubic foot.
  - iii. **TU4.003** may operate a total of 8,760 hours per calendar year.



## BUREAU OF AIR POLLUTION CONTROL

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### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE II

Issued to: Midway Gold US Inc.

## Section II. Specific Operating Conditions (continued)

### C. Thermal Unit #TU4.003 (continued)

#### 2. Operating Requirements (continued)

##### b. Work Practices Standards (NAC 445B.3685)

###### i. **Furnace**

(a) All precious metal concentrate shall be retorted prior to processing in **TU4.003**.

###### ii. **Baghouse (DC-001)**

(a) The differential pressure across the baghouse **DC-001** will be maintained between **0.05** and **5** inches water column.

###### iii. **Carbon Filter (CF-003)**

(a) The carbon filter **CF-003** will contain no less than **13,200** pounds of sulfur-impregnated carbon.

(b) The exhaust temperature, at the inlet to the carbon filter **CF-003**, will not exceed **270°** Fahrenheit.

(c) The differential pressure across **CF-003** shall not exceed **10** inches water column.

(d) Sample and replace the carbon in **CF-003** according to the following schedule:

a. Sample the carbon at the inlet and outlet of the carbon filter **CF-003** and record the depth of the sample probe within **90** days after replacement of the carbon. The sampled carbon will be analyzed for mercury and the average percentage of mercury, by weight, shall be calculated. The loading capacity of the sulfur-impregnated carbon is **20%** by weight. A sample of carbon will be analyzed quarterly until **50%** of the carbon loading capacity is reached. Upon reaching **50%** of the carbon loading capacity, the sampling of carbon will occur monthly until **90%** of the carbon loading capacity is reached. The carbon in the carbon filter **CF-003** will be replaced no later than **30** days after reaching **90%** of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:

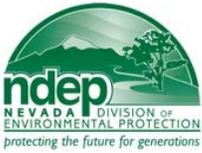
(i) EPA Method 6020 – Inductively Coupled Plasma-Mass Spectrometry;

(ii) EPA Method 7471B – Mercury in Solid or Semi-solid Waste (Manual Cold Vapor Technique); or

(iii) An alternative test method as approved by the Director.

(e) Any sulfur impregnated carbon replaced in **CF-003** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon or equivalent performing carbon, or better.

(f) The *Permittee* shall keep records on site of manufacturer's NvMACT sulfur impregnated carbon specifications.



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Issued to: Midway Gold US Inc.

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

**C. Thermal Unit #TU4.003 (continued)**

**3. Monitoring, Recordkeeping, Reporting, and Testing (NAC 445B.3685)**

a. Compliance Testing

Within 180 days of the initial startup of **System 3**, the *Permittee* shall conduct and record a performance test for mercury on the exhaust stack of **System 3** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

b. Monitoring

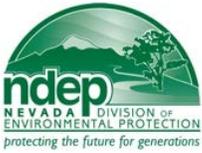
**The Permittee** shall:

- i. Prior to initial startup of **System 3**, install, operate, calibrate, and maintain instrumentation to measure and record the following:
  - (a) The differential pressure across **DC-001** in inches water column.
  - (b) The inlet exhaust temperature of **CF-003**.
  - (c) The differential pressure across **CF-003** in inches water column.
- ii. Monitor the throughput rate of **retorted precious metal concentrate**, for each batch, for **TU4.003** in tons.
- iii. Monitor hours of operation for **TU4.003**, for each batch.

c. Recordkeeping

The required monitoring established in Section C.3.b. above 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 throughput rate of **retorted precious metal concentrate**, for each batch, in tons, for **TU 4.003** for the corresponding date.
- iii. The total hours of operation for **TU4.003**, for each batch, for the corresponding date.
- v. The average hourly differential pressure of **CF-003**, during operation for the corresponding date.
- vi. The percentage of mercury, by weight, on the carbon in carbon filter **CF-003** will be monitored and recorded quarterly until reaching **50%** of the loading capacity, and then monthly until reaching **90%** of the loading capacity.
- vii. The differential pressure for **DC-001** once per day.



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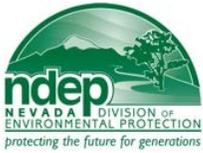
**Section II. Specific Operating Conditions (continued)**

**C. Thermal Unit #TU 4.003 (continued)**

**3. Monitoring, Recordkeeping, Reporting, and Testing (NAC 445B.3685) (continued)**

**d. Reporting**

- i. *Permittee* will promptly report to the Director any emissions and or throughput exceedences from 2.a of this section. The report to the Director will include probable cause and any action taken to correct the exceedence. 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.



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

Issued to: Midway Gold US Inc.

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

**D. Thermal Units #TU4.004 – TU4.006** location North 4,351,422 m; East 607,392 m UTM (Zone 11)

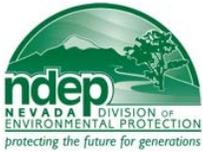
<b>D. System 14 – Carbon Stripping (S2.011)</b>		
TU	4.004	Electrowinning Cells
TU	4.005	Barren Tank TK-501
TU	4.006	Barren Tank TK-401

**1. Air Pollution Equipment**

- a. Exhaust gases from **TU4.004 through TU4.006** shall be ducted to a common control system with 100% capture consisting of:
  - i. **Carbon Filter (CF-004)**
- b. Descriptive Stack parameters
  - i. Height: 50 feet
  - ii. Diameter: 0.67 feet
  - iii. Temperature: approximately 110°F
  - iv. Exhaust gases from **CF-004** shall have a maximum volume flow rate of 1,100 actual cubic feet per minute (ACFM).

**2. Operating Requirements**

- a. Limitations of Operation (NAC 445B.3685)
  - i. **Electrowinning Cells (TU4.004) and Barren Tanks (TU4.005 and TU4.006)**
    - (a) The maximum allowable flow rate of solution for **TU4.004 through TU4.006** each, shall not exceed **56.0** gallons per minute.
  - ii. Mercury emissions from **TU4.004 through TU4.006** combined, shall not exceed **5 x 10<sup>-5</sup>** grains per dry standard cubic foot.
  - iii. **TU4.004 through TU4.006** may operate simultaneously.
  - iv. **TU4.004 through TU4.006** each, may operate a total of **8,760** hours per calendar year.



## BUREAU OF AIR POLLUTION CONTROL

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### MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE II

Issued to: Midway Gold US Inc.

## Section II. Specific Operating Conditions (continued)

### D. Thermal Units #TU4.004 – TU4.006 (continued)

#### 2. Operating Requirements (continued)

##### b. Work Practices Standards (NAC 445B.3685)

##### i. **Electrowinning (TU4.004)**

(a) Lids on **TU4.004** shall be closed during operation.

##### ii. **Carbon Filter (CF-004)**

(a) The carbon filter **CF-004** shall contain at least **2,800** pounds of sulfur impregnated carbon during all times of operation.

(b) The exhaust temperature at the inlet of the carbon filter **CF-004** will not exceed **110°** Fahrenheit.

(c) The pressure drop across **CF-004** shall be maintained at or below **5** inches of water column.

(d) Sample and replace the carbon in **CF-004** according to the following schedule:

a. Sample the carbon at the inlet and outlet of the carbon filter **CF-004** and record the depth of the sample probe within **90** days after replacement of the carbon. The sampled carbon will be analyzed for mercury and the average percentage of mercury, by weight, shall be calculated. The loading capacity of the sulfur-impregnated carbon is **20%** by weight. A sample of carbon will be analyzed quarterly until **50%** of the carbon loading capacity is reached. Upon reaching **50%** of the carbon loading capacity, the sampling of carbon will occur monthly until **90%** of the carbon loading capacity is reached. The carbon in the carbon filter **CF-004** will be replaced no later than **30** days after reaching **90%** of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:

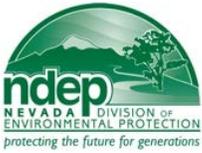
(i) EPA Method 6020 – Inductively Coupled Plasma-Mass Spectrometry;

(ii) EPA Method 7471B – Mercury in Solid of Semi-solid Waste (Manual Cold Vapor Technique); or

(iii) An alternative test method as approved by the Director.

(e) Any sulfur impregnated carbon replaced in **CF-004** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon or equivalent performing carbon, or better.

(f) The *Permittee* shall keep records on site of manufacturer's NvMACT sulfur impregnated carbon specifications.



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

Issued to: Midway Gold US Inc.

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

**D. Thermal Units #TU4.004 – TU4.006 (continued)**

**3. Monitoring, Recordkeeping, Reporting, and Testing (NAC 445B.3685)**

a. Compliance Testing

Within 180 days of initial startup of **System 4**, the *Permittee* shall conduct and record a performance test for mercury on the exhaust stack of **System 4** 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 initial startup of **System 4**, install, operate, calibrate, and maintain instrumentation to measure and record the following:
  - (a) The flow rate of **solution** for **TU4.004 through TU4.006**, in gallons per minute.
  - (b) The differential pressure drop across the **CF-004**, in inches of water column.
- ii. Monitor the flow rate of **solution** for **TU4.004 through TU4.006** in gallons per minute.
- iii. Monitor the daily hours of operation for **TU4.004 through TU4.006**.
- iv. Monitor the differential pressure drop across **CF-004**, continuously, in inches water column.

c. Recordkeeping

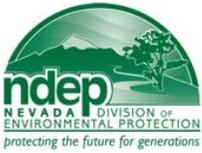
The required monitoring established in Section D.3.b, above shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping.

- i. The calendar date of any required monitoring.
- ii. The total daily hours of operation for **TU4.004 through TU4.006** for the corresponding date.
- iii. The flow rate in gallons per minute of **solution** to **TU4.004 through TU4.006** continuously for the corresponding date.
- iv. The hourly pressure drop across **CF-004** for the corresponding date.
- v. The percentage of mercury by weight in **CF-004**, for the corresponding date.
- vi. The date and weight of each carbon replacement of **CF-004**.

d. Reporting

*Permittee* will promptly report to the Director any emissions and or throughput exceedences from 2.a of this section. The report to the Director will include probable cause and any action taken to correct the exceedence. 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 \*\*\*\*\***



**BUREAU OF AIR POLLUTION CONTROL**

**Facility ID No. A1497**

**Permit No. AP1041-3302**

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

Issued to: Midway Gold US Inc.

**Section III. Amendments**

**This permit:**

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

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

**Issued by:** Jonathan McRae, P.E.  
Supervisor, Permitting Branch  
Bureau of Air Pollution Control

**Phone:** (775) 687-9337

**Date:** DRAFT

