



State of Utah

Department of
Environmental Quality

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Executive Director

DIVISION OF AIR QUALITY
Cheryl Heying
Director

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Lieutenant Governor

DAQE-IN0112050008-08

February 15, 2008

Steven Landau
Denison Mines (USA) Corp.
1050 17th Street, Suite 950
Denver, Colorado 80265

Dear Mr. Landau:

Re: Intent to Approve: AO Modification to Replace a Baghouse and to Install a Boiler
San Juan County – CDS B; ATT; NSPS; NESHAPS; HAPs; TITLE V Minor
Project Code: N011205-0008

The attached document is the Intent to Approve (ITA) for the above-referenced project. ITAs are subject to public review. Any comments received shall be considered before an Approval Order is issued.

Future correspondence on this Intent to Approve should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Mr. Maung Maung. He may be reached at (801) 536-4153.

Sincerely,

John T. Blanchard, Manager
Minor New Source Review Section

JTB:MM:sa

cc: Southeastern Utah District Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

**INTENT TO APPROVE: AO Modification to Replace a
Baghouse and to Install a Boiler**

**Prepared By: Maung Maung, Engineer
(801) 536-4153
Email: mmaung@utah.gov**

INTENT TO APPROVE NUMBER

DAQE-IN0112050008-08

Date: February 15, 2008

Denison Mines (USA) Corp.

**Source Contact
Steven D. Landau
(303) 628-7798**

**M. Cheryl Heying
Executive Secretary
Utah Air Quality Board**

Abstract

Denison Mines (USA) Corp. has requested to modify its existing Approval Order (AO) DAQE-AN 11205005-06 for the White Mesa Mill to add casting wheels to the approved equipment list, to replace the existing baghouse with a larger more efficient cartridge filter, and install a new propane-fired boiler rated at 25.2 million Btu per hour. White Mesa Mill is located near Blanding in San Juan County.

San Juan County is an attainment area of the National Ambient Air Quality Standards (NAAQS) for all pollutants. White Mesa Mill is subject to New Source Performance Standards (NSPS) 40 CFR parts 60 subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units). National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR parts 61, subpart W (National Emission Standards for Radon Emissions from Operating Mill Tailings) applies to this source. Maximum Available Control Technology (MACT) regulations do not apply to this source. Title V of the 1990 Clean Air Act for minor sources applies for this source. This minor source does not require a Title V operating permit.

The emissions, in tons per year (tpy), will change as follows: PM₁₀ (+ 1.45), NO_x (+ 4.10), SO₂ (+ 1.88), CO (+4.10), VOC (+ 2.76), HAPs (+0.20). These increases in emissions will result in the following, in tpy, potential to emit totals from the point sources: PM₁₀ = 33.91, NO_x = 39.61, SO₂ =2.91, CO = 10.49, VOC = 4.03, HAPs = 0.66.

The Notice of Intent (NOI) for the above-referenced project has been evaluated and has been found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). Air pollution producing sources and/or their air control facilities may not be constructed, installed, established, or modified prior to the issuance of an Approval Order (AO) by the Executive Secretary of the Utah Air Quality Board.

A 30-day public comment period will be held in accordance with UAC R307-401-7. A notice of intent to approve will be published in the San Juan Record on February 20, 2008. During the public comment period the proposal and the evaluation of its impact on air quality will be available for both you and the public to review and comment. If anyone so requests a public hearing, it will be held in accordance with UAC R307-401-7. The hearing will be held as close as practicable to the location of the source. Any comments received during the public comment period and the hearing will be evaluated.

Please review the proposed AO conditions during this period and make any comments you may have. The proposed conditions of the AO may be changed as a result of the comments received. Unless changed, the AO will be based upon the following conditions:

General Conditions:

1. This AO applies to the following company:

Site Office

Denison Mines (USA) Corp.
P.O. Box 809
Blanding, Utah 84511

Phone Number (801) 678-2221
Fax Number (801) 678-2224

Corporate Office Location

Denison Mines (USA) Corp.
1050 17th Street
Independence Plaza, Suite 950
Denver, Colorado 80265

(303) 628-7798
(303) 389-4125

The equipment listed in this AO shall be operated at the following location:

White Mesa Mill, six miles South of Blanding, Utah on Highway 191

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,155.4 km. Northing, 632.2 km. Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.
3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.
4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401.
5. All records referenced in this AO or in applicable NSPS and NESHAP standards, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request. Records shall be kept for the following minimum periods:
 - A. Emission inventories Five years from the due date of each emission statement or until the next inventory is due, whichever is longer
 - B. All other records Two years
6. Denison Mines (USA) Corp. shall operate the White Mesa Mill in according with the terms and conditions of this AO, which was written pursuant to NOI submitted to the Division of Air Quality (DAQ) on December 24, 2007 and additional information submitted to the DAQ on January 29, 2008.
7. This AO shall replace the AO (DAQE-AN1205005-06) dated July 20, 2006.
8. The approved installations shall consist of the following equipment or equivalent*:
 - A. Uranium Drying and Pollution Control (Yellow Cake Circuit)
 - 1) One (1) Yellowcake South Dryer YC

Dryer Type:	Six hearth rotary Skinner dryer
Fuel Type:	Propane
Heat Input Capacity:	3 x 10 ⁶ Btu/hr

- 2) Air Pollution Equipment for the South Dryer: One (1) Ducon Dry Cyclone followed by one (1) Ducon Scrubber with cyclonic separator

Wet Scrubber Model: UW4, Size 36, Scrubber with Demister
 Design Flow Rate: 3,800 acfm (150 °F)***
 Estimated Emission Rate: 0.02 gr/dscf, PM, 0.016 gr/dscf PM₁₀***

- 3) One (1) Yellowcake North Dryer (older)**

Dryer Make: Six hearth rotary Skinner dryer
 Fuel Type: Propane
 Heat Input Capacity: 2.4 x 10⁶ Btu/hr

- 4) Air Pollution Equipment for the North Dryer

Dry cyclonic separator followed by One (1) Ducon Venturi Scrubber with Ducon packed demister

Design Flow Rate: 3,160 acfm (140 °F)***
 Estimated Emissions Rate: 0.02 gr/dscf PM; 0.016 gr/dscf PM₁₀***

- 5) Packaging Area

Baghouse

Both dryers (South & North) discharge into a common hopper located in the enclosed packing area. Packing area is under negative pressure and all the generated dust discharges through a baghouse.

Designed Flow Rate: 5,000 acfm (68 °F)***
 Estimated Emission Rate: <0.01 gr/dscf, PM***

B. Vanadium Dryer and Pollution Control

- 1) One (1) Ammonium Meta-Vanadate (AMV) Dryer and Two (2) Fusion Furnaces **

AMV Dryer:
 Fuel Type: Propane
 Heat Input Capacity: 7,740,000 Btu/hr

- 2) Two (2) Fusion Furnaces and casting wheels** venting through AMV Dryer**

Dryer Make: Single burner for each furnace
 Fuel Type: Propane
 Heat input Capacity: up to 1.8 x 10⁶ Btu/hr, each

3) Air Pollution Equipment for AMV Dryer and Fusion Furnaces

Dry Cyclone followed by the Sly No 6 Ducon Venturi Scrubber²:

Scrubber Flow: 7,910 acfm, Temp. 370°F***

4) Two (2) Multi Hearth Dryer Pollution Control¹ System

Kice Dry Cyclone followed by Ducon Venturi Wet Scrubber²

Scrubber Flow: 27,800 acfm, Temp 440 °F***

¹Also serves as a backup for the two fusion furnaces

² Venturi Scrubbers Systems B.3) & B.4) shall connect in parallel to a mist eliminator and fan which discharges to the final stack

5) One (1) Rotary Calciner**

Dryer Make: Bartlett/Snow Rotary Multi Burner

Fuel Type: Propane

Heat input Capacity: 4 x 10⁶ Btu/hr

6) Calciner Pollution Control

System: Dry Cyclone followed by the Sly #6 Ducon Venturi Scrubber (B.3)

7) One Mist Eliminator

C. Leaching Process Control

Leach Mist Eliminator

D Boilers

1) One (1) Superior Boiler (Pre NSPS-Manufactured in 1987)

Fuel Type: Propane

Type of Burner: 60 ppm NO_x

Heat Input Capacity: up to 23.5 x 10⁶ Btu/hr

2) One (1) Cyclotherm Boiler

Fuel Type: Propane

Heat Input Capacity: up to 5 x 10⁶ Btu/hr

3) One (1) Low NO_x Superior Boiler Works (new)

Model: X6-5-3000-5150-PF-LPG

Fuel type: Propane

Heat Input Capacity: up to 25.2 x 10⁶ Btu/hr

E. Baghouses

- 1) One (1) Grizzly Baghouse

Design Rate: 5,000 acfm***
 Grain Loading: 0.02 grain per acf***

- 2) One (1) Yellow Cake Dryer Enclosures and Hoppers Baghouse

Emission Rate: 0.02 gr/dscf PM (0.73 lb/hr)***
 0.016 gr/dscf PM₁₀ (0.58 lb/hr)***

- 3) Dry Soda Ash Silo Bin Baghouse (Fuller Dracco dust collector), and Packing Area Vents Baghouse

- 4) Cartridge filter baghouse with 24 cartridges (new)

Design rate: 12,500 acfm***
 Grain Loading: 0.0014 grain per scf***

F. One (1) Leaching and Vanadium Demister Scrubber

Process Rate: 250 tons/year
 Design Rate: 0.07 lb/hr of SO₂***

G. One (1) Fire Pump

Fuel Type: #2 Diesel
 Rated at: up to 365 bhp

H. One (1) Emergency Generator

Fuel Type: #2 Diesel
 Electrical Output: up to 565 kW

* Equivalency shall be determined by the Executive Secretary.

** This equipment does not have direct emission point; it vents through control equipment.

***This information is provided only for the identification of the equipment.

9. Denison Mines (USA) Corp. shall notify the Executive Secretary in writing when the installation of the equipment listed in Condition #8 D.3 and E.4 has been completed and is operational. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If the installations have not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction and/or installation. At that time, the Executive Secretary shall require documentation of the continuous construction and/or installation of the operation and may revoke the AO in accordance with R307-401-18.

Limitations and Tests Procedures

10. Emissions to the atmosphere at all times from the indicated emission point(s) shall not exceed the following rates and concentrations:

Source: Vanadium Circuit Scrubbers

<u>Pollutant</u>	<u>lb/hr</u>	<u>grains/dscf</u> (68°F, 29.92 in Hg)
PM ₁₀	2.5.....	0.02

Source: Yellow Cake Dryers Scrubbers

<u>Pollutant</u>	<u>lb/hr</u>	<u>grains/dscf</u> (68°F, 29.92 in Hg)
PM ₁₀	0.4, each	0.003, each

11. Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below:

A.

<u>Emissions Point</u>	<u>Pollutant</u>	<u>Testing Status</u>	<u>Test Frequency</u>
(Vanadium Circuit Scrubber)	PM ₁₀	*	@
(Yellow Cake Dryers)	PM ₁₀	*	@

B. Testing Status

Initial compliance testing is required. The initial test date shall be performed as soon as possible and in no case later than 180 days after the start up of the emission source.

* The initial testing has already been performed.

@ Test every five years. The Executive Secretary may require testing at any time.

C. Notification

The Executive Secretary shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the tests. The source test protocol shall outline the proposed test methodologies, stack to be tested procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

D. Sample Location

The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location.

E. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2 or other testing methods approved by the Executive Secretary.

F. PM₁₀

For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, Methods 201, 201a, or other testing methods approved by the Executive Secretary. The back half condensibles shall also be tested using the method specified by the Executive Secretary. All particulate captured shall be considered PM₁₀.

For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5a, 5d, or 5e as appropriate, or other testing methods approved by the Executive Secretary. The back half condensibles shall also be tested using the method specified by the Executive Secretary. The portion of the front half of the catch considered PM₁₀ shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Executive Secretary.

The back half condensibles shall not be used for compliance demonstration but shall be used for inventory purposes.

G. Existing Source Operation

The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three (3) years.

12. Visible emissions from the following emission points shall not exceed the following values:

- A. Ore Loading Ares - 15% opacity
- B. Vanadium Circuit - 15% opacity
- C. All Baghouses - 10% opacity
- D. All diesel engines - 20% opacity
- E. Conveyor drop points - 20% opacity

- F. Propane fired, low NO_x boiler - 10%
- G. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

13. The following production and/or consumption limits shall not be exceeded:
 - A. 720,720 tons of ore processing per rolling 12-month period
 - B. Total 2,960,880 gallons of propane per rolling 12-month for the entire source except the Superior Boiler Works below
 - C. Total 2,439,249 gallons of propane per rolling 12-month period for Superior Boiler Works model X6-5-3000-5150-PF-LPG

To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. Records of consumption/production shall be kept for all periods when the plant is in operation. Ore production shall be determined from plant records. The records of production shall be kept on a daily basis. The source shall maintain separate records of propane consumption for the Superior Boiler Works boiler model number X6-5-3000-5150-PF-LPG. Propane consumption shall be determined from purchase order receipts. Records of purchase orders shall be maintained by the supervisor in a log.

14. Emergency generators shall be used for electricity producing operation only during the periods when electric power from the public utilities is interrupted, or for regular maintenance of the generators. Records documenting generator usage shall be kept in a log and they shall show the date the generator was used, the duration in hours of the generator usage, and the reason for each generator usage.

Roads and Fugitive Dust

15. Denison Mines (USA) Corp. shall abide by all applicable requirements of R307-205 for Fugitive Emission and Fugitive Dust sources. To be in compliance, the source must operate in accordance with the most current version of R307-205.
16. Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The normal requirement for observations to be made at 15-second intervals over a six-minute period, however, shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary or the Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made ½ vehicle length or greater behind the vehicle and at approximately ½ the height of the vehicle or greater. The accumulated six readings shall be averaged for the compliance value.

17. All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition. The opacity shall not exceed 20% during all times the areas are in use or unless it is below freezing. If chemical treatment is to be used, the plan must be approved by the Executive Secretary.
18. Any section of paved road under the owner/operator's jurisdiction shall be periodically swept or sprayed clean as dry conditions warrant or as determined necessary by the Executive Secretary. Records of cleaning paved road shall be made available to the Executive Secretary or the Executive Secretary's representative.

All records shall include the following items:

- A. Date
 - B. Number of treatments made
 - C. Rainfall received, if any, and approximate amount
 - D. Time of day treatments were made
19. Unpaved haul/access roads shall have at least one inch of gravel as road-base surface or will be watered and/or chemically treated as needed to meet the 20% opacity requirement.
 20. The storage piles shall be watered to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary.
 21. Fugitive dust from the disturbed areas shall be controlled through the use of watering as dry conditions warrant or as determined necessary by the Executive Secretary. The speed of compactors shall not exceed three (3) miles per hours (mph) at any time.
 22. For front-end loading operations and truck dumping operations, the drop distances shall be kept as small as practicable. The speed of the scrapers shall not exceed three (3) mph while loading and twelve (12) mph while dumping. The moisture content of the materials shall be no less than four percent by weight during these operations. The moisture content shall be tested if directed by the Executive Secretary using a test method approved by the Executive Secretary.
 23. The ore grizzly shall be enclosed on three sides and have wetting agents applied at the apron feeder and the conveyor discharge as needed. Additionally the baghouse dust collection system shall be utilized at the grizzly and apron feeder tunnel.
 24. The tailings retention areas shall be sprayed with water or a crusting agent when dry conditions exist or as determined necessary by the Executive Secretary.
 25. The mill area shall be graveled and shall be sprayed with water to minimize fugitive dust as dry conditions warrant or as determined necessary by the Executive Secretary.

26. The soil and overburden stockpiles shall be sprayed between stockpiling and vegetation periods as required (records of spraying shall be maintained).

Fuels

27. The owner/operator shall use only propane as a fuel in the two yellow cake dryers, vanadium multi hearth drier, rotary calciner, AMV dryer, fusion furnaces and boilers. Number 2 or better diesel fuel shall be used in the mobile equipment, emergency generator and fire pump engine.

28. The sulfur content of any fuel oil or diesel burned shall not exceed:

0.05 percent by weight for diesel fuels consumed in all other equipment

The sulfur content shall be determined by ASTM Method D-4294-89 or approved equivalent. Certification of used oil shall be either by Denison Mines (USA) Corporation's own testing or test reports from the used oil fuel marketer

Federal Limitations and Requirements

29. In addition to the requirements of this AO, the owner/operator shall comply with 40 CFR 61, Subpart W, National Emission Standards for Radon Emissions from Operating Mill Tailings. To be in compliance, this source must operate in accordance with the most current version of 40 CFR 61 applicable to this source.
30. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, NSPS Subpart A, 40 CFR 60.1 to 60.18 and Subpart Dc, 40 CFR 60.40c to 60.48c (Standards of Performance for (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units) apply to Superior Boiler Works boiler rated at 25.2 million Btu per hour. To be in compliance, this source must operate in accordance with the most current version of 40 CFR 60 applicable to this emission source.

Records & Miscellaneous

31. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded.
32. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.
33. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the DAQ. The UAC R307 rules used by DAQ, the NOI guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:

<http://www.airquality.utah.gov>

The annual emissions estimations below include point sources. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment area, maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The Potential to Emit (PTE) emissions for this source are currently calculated at the following values:

	<u>Pollutant</u>	<u>Tons/yr</u>
A.	PM ₁₀	33.91
B.	SO ₂	2.91
C.	NO _x	39.61
D.	CO	10.49
E.	VOC	4.03
F.	HAPs	0.66
	Hexane	0.63
	Formaldehyde	0.03

The DAQ is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an AO. An invoice will follow upon issuance of the final AO.

Sincerely,

John T. Blanchard, Manager
Minor New Source Review Section