



State of Utah

GARY R. HERBERT
Governor

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Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Cheryl Heying
Director

DAQE-IN0109170027-09

October 16, 2009

Todd Robinson
Great Salt Lake Minerals Corporation
765 North 10500 West
Ogden, UT 84404-1190

Dear Mr. Robinson:

Re: Intent to Approve: Modification to Approval Order DAQE-AN0917021-06 to Replace Dryer Control Equipment, Install a Fluid Bed Heater, and Increase Salt Production, Weber County; CDS A; Attainment Area, PSD, Title V (Part 70)
Project Number: N010917-0027

The attached document is the Intent to Approve for the above-referenced project. The Intent to Approve is subject to public review. Any comments received shall be considered before an Approval Order is issued. The Division of Air Quality is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an Approval Order. An invoice will follow upon issuance of the final Approval Order.

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. The project engineer for this action is Camron Harry, who may be reached at (801) 536-4232.

Sincerely,

Martin D. Gray, Manager
Major New Source Review Section

MDG:CAH:kw

cc: Mike Owens
Weber-Morgan Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

INTENT TO APPROVE: Modification to Approval Order DAQE-AN0917021-06 to Replace Dryer Control Equipment, Install a Fluid Bed Heater, and Increase Salt Production

**Prepared By: Camron Harry, Engineer
Phone: (801) 536-4232
Email: caharry@utah.gov**

INTENT TO APPROVE NUMBER

DAQE-IN0109170027-09

Date: October 16, 2009

**Great Salt Lake Minerals Corporation
Production Plant**

**Source Contact:
Mr. Todd Robinson
Phone: (801) 732-3251**

**Martin D. Gray, Manager
Major New Source Review Section
Utah Division of Air Quality**

ABSTRACT

Great Salt Lake Minerals Corporation (GSLM) is requesting a modification to replace dryer control equipment, install a fluid bed heater, and increase salt production. GSLM is located in Weber County, an attainment area of the NAAQS for all pollutants. NSPS, NESHAP and MACT regulations do not apply to this source. Title V of the 1990 Clean Air Act applies to this source. This AO is being processed as an enhanced AO, and the Title V permit will be administratively amended after the AO is issued.

The emissions, in tons per year, will change as follows: PM₁₀ -80.49, NO_x +4.48, SO_x +0.03, CO +3.77, & VOC +0.25

The changes in emissions will result in the following, in tons per year, potential to emit totals: PM₁₀ = 302.14, NO_x = 66.02, SO₂ = 0.40, CO = 16.08, & VOC = 3.52.

In the past the Potential To Emit (PTE) values were underestimated, although this did not affect the conditions of the permit, it is worth noting that these values within this permit have been adjusted to more accurately reflect current PTE estimates. Grandfathered equipment has not been included in the PTE calculations for this permit.

The NOI for the above-referenced project has been evaluated and has been found to be consistent with the requirements of 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 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 notification of the intent to approve will be published in the Ogden Standard Examiner on October 22, 2009. During the public comment period the proposal and the evaluation of its impact on air quality will be available for the public to review and provide 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. The proposed conditions of the AO may be changed as a result of the comments received.

Name of Permittee:

Great Salt Lake Minerals Corporation
765 North 10500 West
Ogden, UT 84404-1190

Permitted Location:

Production Plant
765 N 10500 W
Ogden, UT 84404-0000

UTM coordinates: 397,000 m Easting, 4,565,200 m Northing
SIC code: 2819 (Industrial Inorganic Chemicals, NEC)

Section I: GENERAL PROVISIONS

- I.1 All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]
- I.2 The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]

- I.3 Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
- I.4 All records referenced in this AO or in other applicable rules, 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, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of five (5) years. [R307-401]
- I.5 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. [R307-401-4]
- I.6 The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring. [R307-150]
- I.7 The owner/operator shall comply with UAC R307-107. General Requirements: Unavoidable Breakdowns. [R307-107]

Section II: SPECIAL PROVISIONS

II.A The approved installations shall consist of the following equipment:

II.A.1 Permitted Source

II.A.2 D-001

SOP Plant Dryer D-001 Dry Cyclone and Packed Tower Wet Scrubber (HE-028)
 Dryer Fuel Type: Natural Gas
 Flow Rate: 20,000 acfm

II.A.3 D-002

SOP Plant Dryer and Fabric Filter Baghouse (BH-008)
 Filter Type: Fabric Filter
 Flow Rate: 28,000 acfm

II.A.4 D-003

SOP Plant Dryer D-003 Dry Cyclone and Wet Scrubber (AH-013)
 Grandfathered unit pre-1969 (40% opacity)
 Dryer Fuel Type: Natural Gas
 Flow Rated: 30,000 acfm

- II.A.5 **D-004**
SOP Plant Dryer D-004 and High Efficiency Wet Scrubber (AH-075)
Dryer Fuel Type: Natural Gas
Flow Rate: 20,000 acfm
- II.A.6 **D-005**
SOP Plant Drying Circuit Fluid Bed Heater and Baghouse (BH-006)
Heater Fuel Type: Natural Gas
Heater Feed Rate: 10.24 MMBtu/hr
Filter Type: Fabric Filter
Flow Rate: 12,000 acfm
- II.A.7 **BH-001**
SOP Plant Loadout Baghouse
Filter Type: Fabric Filter
Flow Rate: 43,500 acfm
- II.A.8 **BH-002**
SOP Silos Dust Collection Baghouse
Filter Type: Fabric Filter
Flow Rate: 36,400 acfm
- II.A.9 **BH-004**
Baghouse and Associated Equipment
(no emission, all effluent air from this baghouse is vented into the building)
- II.A.10 **BH-005**
SOP Plant Compaction Baghouse
Flow Rate: design 40,000 cfm (actual 30,000 acfm)
Type: Pulse-jet baghouse
Air to cloth ratio: 5:1
- II.A.11 **SUB-COMP**
SOP Plant Submerged Combustion Process
Consisting of a water process tank and four (4) natural gas fired burners
- II.A.12 **AH-500**
Salt Plant Compaction/Loading Wet Scrubber
Flow Rate: 49,000 acfm
- II.A.13 **AH-502**
Salt Plant Screening Wet Scrubber
Flow Rate: 14,300 acfm
- II.A.14 **AH-505**
Salt Plant Special Products Wet Scrubber
Flow Rate: 6,500 acfm

- II.A.15 **D-501**
Salt Plant Dryer D-501 Wet Cyclone and Wet Scrubber (AH-513)
Dryer fuel type: Natural Gas
Flow Rate: 25,000 acfm
- II.A.16 **BH-501**
Salt Plant Dust Collection Baghouse
Filter Type: Fabric Filter
Flow Rate: 40,000 acfm
- II.A.17 **Mag Chloride Plant Wet Scrubber**
One (1) High Efficiency Venturi Wet Scrubber
Flow Rate: 8,000 acfm
- II.A.18 **BLAST**
Abrasive Blast Machine
Capacity of 3.0 cf, self contained
- II.A.19 **KCl Conveyor System**
Four (4) enclosed conveyor belt system with associated equipment
- II.A.20 **Emergency Generator**
Diesel fueled emergency generator
Stand By Rating: 175 kW
- II.A.21 **Cooling Tower**
One (1) Cooling Tower
Tower Water Flow: 600 gpm

II.B Requirements and Limitations

II.B.1 **Source Wide**

II.B.1.a The Source shall notify the Executive Secretary in writing when the installation of the new equipment has been completed and is operational. The new equipment includes the following: BH-008, AH-075, BH-006, and D-005. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If construction and/or installation 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. [R307-401]

II.B.1.b Visible emissions from the following emission points shall not exceed the following values:

Baghouse stack emission points - 10% opacity
All conveyor drop and transfer points - 20% opacity
All scrubber emission points - 15%

Emergency generators - 10%
 All other points - 20%
 All grandfathered emission points - 40%

Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9 or as approved by the Executive Secretary.

Baghouse & Scrubber Monitoring and Recordkeeping: A visual opacity survey shall be performed on a monthly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. If visible emissions other than steam are observed from an emission unit, an opacity determination of that emission unit shall be performed by a certified observer within 24 hours of the initial survey. The opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9. A log of the visual opacity survey(s) shall be maintained. If an opacity determination is performed, a notation of the determination will be made in the log. Records of all data required by 40 CFR 60, Appendix A, Method 9 shall also be maintained. [R307-201]

II.B.1.c Visible fugitive dust emissions from haul road traffic and mobile equipment in operational areas shall not exceed 20% opacity at any point. Visible emission determinations shall use procedures similar to Method 9. As an alternative to haul road opacity observations GSLM shall adhere to the most recent approved fugitive dust control plan. [R307-201]

II.B.1.d The mag chloride wet scrubber listed in II.A.17 shall control process streams from the end of the cooling belt, packaging and handling. All exhaust air from the process streams shall be routed through the wet scrubber before being vented to the atmosphere. [R307-401]

II.B.2 **Limitations & Test Procedures**

II.B.2.a The following production and consumption limits shall not be exceeded:

- 1) 300 tons per hour maximum loading rate of SOP K2S04 based on operator log
- 2) 5,600 hours per rolling 12-month total for potash silos loadout
- 3) 120 tons per hour maximum dry salt production in the plant dryer
- 4) 960,000 tons per rolling 12-month total of salt produced

Compliance with the annual limitations shall be determined on a rolling 12-month total. To determine compliance with a rolling 12-month total, based on the first day of each month a new 12-month total shall be calculated using data from the previous 12 months. Monthly calculations shall be made no later than 20 days after the end of each calendar month. [R307-401]

II.B.2.b PM₁₀ emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

Source	Rate (lbs/hr)	Concentration (grains/dscf) (@ 68 degrees F 29.92 in Hg)
AH-500	7.65	0.020
AH-502 #2 stack	5.24	0.040

AH-505 #3 stack	2.16	0.040
D-501 & AH-513 #4 stack	1.45	0.0114
D-001 & HE-028	40	
D-002 & BH-008	3.72	0.015
D-004 & AH-075	2.66	0.015
BH-001	1.64	0.01
BH-002	1.37	0.01
BH-501	0.9	0.01
BH-005	0.9	0.01
D-005 & BH-006	1.65	0.015
[R307-401]		

II.B.2.c Testing:

Initial compliance testing is required on all new equipment which includes the following: BH-008, AH-075, BH-006, and D-005. The initial test date shall be performed as soon as possible and in no case later than 180 days after the start up of a new emission source, an existing source without an AO, or the granting of an AO to an existing emission source that has not had an initial compliance test performed. If an existing source is modified, a compliance test is required on the modified emission point that has an emission rate limit.

For the following emission points, a compliance test shall be done at least once every five years subsequent to the initial compliance test. The Executive Secretary may require testing at any time. If an existing source is modified, a compliance test is required on the modified emission point that has an emission rate limit.

- 1) Baghouse Salt Cooler (BH-501)
- 2) Loadout Baghouse (BH-001)
- 3) Silos Dust Collection Baghouse (BH-002)
- 4) SOP Compaction Baghouse (BH-005)

For the following emission points, a compliance test shall be done at least once every three years subsequent to the initial compliance test. The Executive Secretary may require testing at any time. If an existing source is modified, a compliance test is required on the modified emission point that has an emission rate limit.

- 1) Salt Plant Cooler Wet Scrubber (AH-500)
- 2) Salt Plant Bagging Wet Scrubber (AH-502)
- 3) Salt Plant Special Product Wet Scrubber (AH-505)
- 4) Salt Dryer D-501 Wet Cyclone and Wet Scrubber (AH-513)
- 5) SOP Plant Dryer D-001 Dry Cyclone Wet Scrubber (HE-028)
- 6) SOP Plant Dryer D-002 and Baghouse (BH-008)
- 7) SOP Plant Dryer D-004 and Wet Scrubber (AH-075)
- 8) SOP Plant Dryer D-005 and Baghouse (BH-006)

[R307-150]

II.B.2.c.1 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 test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

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.

Calculations:

To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary, to give the results in the specified units of the emission limitation.

New Source Operation:

For a new source/emission point, the production rate during all compliance testing shall be no less than 90% of the production rate listed in this AO. If the maximum AO allowable production rate has not been achieved at the time of the test, the following procedure shall be followed:

- 1) Testing shall be at no less than 90% of the production rate achieved to date.
- 2) If the test is passed, the new maximum allowable production rate shall be 110% of the tested achieved rate, but not more than the maximum allowable production rate. This new allowable maximum production rate shall remain in effect until successfully tested at a higher rate.
- 3) The owner/operator shall request a higher production rate when necessary. Testing at no less than 90% of the higher rate shall be conducted. A new maximum production rate (110% of the new rate) will then be allowed if the test is successful. This process may be repeated until the maximum AO production rate is achieved.

Existing Source Operation:

For an existing source/emission point, the production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three (3) years.

Volumetric Flow Rate:

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

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. [R307-150]

II.B.3 **Fuel**

II.B.3.a The owner/operator shall use only natural gas as fuel for all burners. [R307-401]

II.B.3.b For the emergency generator, the owner/operator shall use #1, #2 or a combination of #1 and #2 diesel as a fuel source.

The sulfur content of any fuel oil or diesel burned shall not exceed 0.05 percent by weight for diesel fuels consumed in all stationary equipment. The sulfur content shall be determined by ASTM Method D-4294-89 or approved equivalent. Certification of fuels shall be either by owner/operator's own testing or test reports from the fuel marketer. [R307-401]

II.B.4 **Emergency Generator**

II.B.4.a The emergency generator hours of operation for maintenance firing purposes shall not exceed 30 hours per rolling 12-month total for each generator. To determine compliance with a rolling 12-month total, based on the first day of each month a new 12-month total shall be calculated using data from the previous 12 months. Monthly calculations shall be made no later than 20 days after the end of each calendar month. [R307-401]

PERMIT HISTORY

The final AO will be based on the following documents:

Is Derived From
24, 2009

Is Derived From
Replaces

Additional Information - Total PTE calculations dated September

NOI Received dated June 17, 2009

DAQE-AN0917021-06 dated March 23, 2006

ACRONYMS

The following lists commonly used acronyms and their associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CO	Carbon monoxide
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO _x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM ₁₀	Particulate matter less than 10 microns in size
PM _{2.5}	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO ₂	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds