

**SYNTHETIC MINOR OPERATING PERMIT  
EVALUATION REPORT  
MORTON SALT  
PLANT NUMBER A0079  
APPLICATION NUMBER 11358**

**BACKGROUND**

Morton Salt manufactures salt for industrial and domestic use in Newark, California. The facility received their initial Title V (Major Facility) permit on October 23, 2000. This application (# 11358) to renew their Major Facility Permit was received on December 2, 2004. However, due to reductions in salt production at Morton Salt and resulting emissions reductions, the facility changed their renewal application to that for a synthetic minor operating permit. This evaluation report documents the evaluation of their synthetic minor operating permit.

In order to obtain a synthetic minor operating permit, the facility will accept permit conditions limiting their operations such that facility wide emissions will not exceed the thresholds for a Major Facility in Regulation 2, Rule 6, Section 212. Pursuant to the SIP Regulation 2, Rule 6, Section 423.3, this Synthetic Minor Permit will be subject to a 30-day public comment period and 30-day EPA review period. Because Application 11358 was submitted in accordance with Regulation 2-6-404.2, the existing permit continues in force until the District takes final action on the renewal application.

The permitted sources covered by this synthetic minor operating permit are:

- S-3 Fifth Floor Vacuum Mill; abated by A-27 Wet Centrifugal Collector
- S-4 2nd Floor Process System; abated by A-30 Scrubber
- S-7 Industrial Boiler No. 1 (Nebraska)
- S-8 Vacuum Salt Process System; abated by A-27 Wet Centrifugal Collector
- S-9 Vacuum Salt Rotary Cooler; abated by A-9 and A-29 Air Wet Scrubber
- S-10 Solar Salt Rotary Cooler; abated by A-10 Air Wet Scrubber
- S-12 Pellet Products Process System; abated by A-28 Wet Centrifugal Collector
- S-13 Storage Silos & Conveyors; abated by A-13 Air Wet Scrubber
- S-14 Solar Mill 5th Floor Hummer Screens and Conveyor System; abated by A-14 Centrifugal Wet Scrubber
- S-15 Solar Salt Rotary Dryer; abated by A-15 Air Wet Scrubber
- S-16 Industrial Boiler No. 2 (B&W)
- S-20 Waste Salt Sump; abated by A-33 Water Spray
- S-21 Bulk Loading; abated by A-30 Scrubber
- S-22 Filter Wheel No. 2; abated by A-22 Air Wet Scrubber
- S-25 Solar Mill 5th Floor Rotex Screens, Bins and Conveyor System; abated by A-25 Wet Centrifugal Scrubber
- S-26 Solar Mill 5th Floor Bins and Conveyor System; abated by A-14 Centrifugal Wet Scrubber
- S-28 Paint Operation
- S-29 Tubewinder Flame Bonding System
- S-33 Spray Pond; abated by A-33 Water Spray

The exempt sources at this facility are:

- S-23 Duct Type Air Furnace, exempt per Regulation 2-1-114.1.2
- S-27 Wastewater Evaporator, exempt per Regulation 2-1-103
- Cold Cleaner, exempt per Regulation 2-1-118.4
- Cold Cleaner, exempt per Regulation 2-1-118.4
- 30wt% Hydrochloric Acid 650 Gallon Storage Tank; abated by Scrubber, exempt per Regulation 2-1-123.2.4

### **BACKGROUND INFORMATION OF SOURCE OPERATION**

Upon receiving harvested solar salt from their supplier, solar salt is either stored in outdoor bins for use in the industrial solar salt drying, conveying and packaging system or dissolved and purified as sodium chloride brines as a feedstock to the vacuum pan food grade salt production, drying, conveying and packaging system. When salt does not meet specifications, it is reprocessed in the waste salt operation.

#### **Vacuum Salt Operation**

The solar salt crystals are dissolved and made into saturated brine which is sent to treatment tanks to settle out natural impurities in the salt. Treated brine is then pumped into the Pan House building where water is evaporated from the brine using steam powered multiple-effect evaporators. Steam is supplied by an industrial boiler (S-7 or S-16). Crystallized salt slurry is sent to Filter Wheel #2 (S-22) where it is dewatered and dried (S-23, Duct Type Air Furnace). Next, the salt is cooled (S-9, Vacuum Salt Rotary Cooler) and conveyed either to silo storage (S-13, Storage Silos and Conveyors) or directly to the Vacuum Salt System on the 5th Floor Mill (S-3), which consists of rotex screeners, conveying equipment and feeders. Salt is then conveyed to storage bins on the 4th floor of the mill (S-8, Vacuum Salt Processing System). From the bins, salt is conveyed to packaging lines (S-4, Second Floor Process System-Mill) or is loaded into bulk trucks (S-21, Bulk Loading). Also associated with the vacuum salt operation is S-29, the Tubewinder Flame Bonding System which is utilized in forming the round can packages.

#### **Solar Salt Operation**

The solar salt crystals are conveyed to the Pan House building to be dried (S-15, Solar Salt Rotary Dryer), cooled (S-10, Solar Salt Rotary Cooler) and then conveyed either to silo storage (S-13, Storage Silos and Conveyors) or directly to the Mill solar operations starting on the 5th floor. Non-food grade solar salt is conveyed to hummer screeners (S-14) and then conveyed to storage bins (S-26). Food grade solar salt is conveyed to two rotex screeners and then two storage bins (S-25). From the storage bins, solar salt is conveyed to packaging lines (S-4, Second Floor Process System-Mill) or loaded into bulk trucks (S-21, Bulk Loading). Additionally, solar salt can be conveyed from storage bins to the Pellet Products Process System (S-12) to make water conditioning pellets.

#### **Waste Salt Operation**

The Waste Salt Sump (S-20) and Spray Pond (S-33) are used to recycle and reprocess waste salt again. The waste salt sump is located outside and adjacent to the mill building. There is a waste salt screw conveyor that dumps salt into the sump and also out of specification salt is dumped in either source (bagged or boxed product is manually dumped, or occasionally a bulk truck will blow salt using a hose). Water Spray (A-33) is used at both sources for reducing visible emissions.

**EMISSION LIMITS STRATEGY**

To obtain a synthetic minor operating permit, a facility must have federally enforceable emission limits that keep the potential to emit below 95 tpy for any regulated pollutant, 9 tpy for any single hazardous air pollutant (HAP), and below 23 tpy for any combination of HAPs. EPA has stated, via a memo from John Seitz entitled "Guidance on Limiting Potential to Emit" dated 6/13/89, that operational or throughput limits are required in addition to emission limitations. Permit conditions for this Synthetic Minor permit include annual and monthly throughput limits for all the currently permitted and exempt sources to ensure that all emissions remain below synthetic minor thresholds.

All the salt dust emitting sources at the facility are abated by scrubbers, except for the S-20 Waste Salt Sump and S-33 Spray Pond which are abated by water spray (A-33). There are no published emission factors for salt manufacturing. Emission factors from the Air Pollution Engineering Manual (AP-42) for sand and gravel processing (Chapter 11.19.1) as well as sand transfer operations in cement batching operations (Chapter 11.12) have been used as emission factors for the salt processing operations to estimate particulate emissions in past permit evaluations for this facility. However, to verify and confirm that Morton Salt indeed qualifies as a synthetic minor facility, source testing of all the scrubbers abating the salt processing operations were performed to determine worst case PM10 emissions.

Source test data was used for the permitted boilers at the facility to determine the nitrogen oxide (NOx) and carbon monoxide (CO) combustion emissions. AP-42 emission factors for the combustion of natural gas were used for the other combustion sources and for the other pollutants of the boilers. Throughput and VOC content of the materials used in the VOC sources shall be used to determine VOC emissions.

**EMISSION SUMMARY**

**Combustion Sources:**

There are three permitted combustion sources at Morton Salt: S-7 and S-16 Industrial Boiler No. 1 and 2, respectively, and S-29 Tubewinder Flame Bonding System. In addition, there is one exempt combustion source: S-23 Duct Air Furnace (exempt per Regulation 2-1-114.1.2). S-7 and S-16 Industrial Boilers were source tested most recently on November 7, 2008. The following average emission factors were derived from that source test:

| Source # | Firing Rate (MMBTU/hr) | NOx, corrected ppm @ 3% O <sup>2</sup> | NOx, calculated Lb/MMBTU | NOx Lb/hr | CO, corrected ppm @ 3% O <sup>2</sup> | CO, calculated Lb/MMBTU | CO Lb/hr |
|----------|------------------------|--|--------------------------|-----------|---------------------------------------|-------------------------|----------|
| S-7      | 50                     | 27.13                                  | 0.033                    | 1.65      | <2                                    | 0.0015                  | 0.07     |
| S-16     | 38                     | 24.21                                  | 0.029                    | 1.11      | 6.52                                  | 0.0048                  | 0.18     |

$$\text{lb/MMBTU} = \text{ppm}_{\text{measured}} * [(21-0)/(21-\% \text{O}_2 \text{ measured})] * (\text{MW}) * F_d / V_M$$

where:

V<sub>M</sub> = molar volume = 359 dscf/mole = 385.3 scf/mole (corrected to 68°F from 32°F)

MW = molecular weight of pollutant (i.e., 46.01 lb NO<sub>2</sub>/mole or 28.0 lb CO/mole)

F<sub>d</sub> = 8,710 dscf/MMBTU

For S-15, S-23 and S-29 and the other criteria pollutants of S-7 and S-16, AP-42 emission factors for the combustion of natural gas were used.

| Source # | Firing Rate (MMBTU/hr) | NOx Lb/10 <sup>6</sup> scf | NOx, calculated Lb/MMBTU | NOx Lb/hr | CO Lb/10 <sup>6</sup> scf | CO, calculated Lb/MMBTU | CO Lb/hr |
|----------|------------------------|----------------------------|--------------------------|-----------|---------------------------|-------------------------|----------|
| S-15     | 13                     | 100                        | 0.098                    | 1.27      | 84                        | 0.083                   | 1.08     |
| S-23     | 8.7                    | 100                        | 0.098                    | 0.85      | 84                        | 0.083                   | 0.72     |
| S-29     | 1.5                    | 100                        | 0.098                    | 0.15      | 84                        | 0.083                   | 0.12     |

Emission Factors (from Chapter 1.4 Natural Gas Combustion of AP-42):

POC = 5.5 lb/10<sup>6</sup> scf = 0.0054 lb/MMBTU

SOx = 0.6 lb/10<sup>6</sup> scf = 0.0006 lb/MMBTU

PM<sub>10</sub> = 7.6 lb/10<sup>6</sup> scf = 0.0075 lb/MMBTU

| S-7                           | S-15                         | S-16                          | S-23                           | S-29                           |
|-------------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|
| POC = 0.27 lb/hr              | POC = 0.07 lb/hr             | POC = 0.21 lb/hr              | POC = 0.047 lb/hr              | POC = 0.0081 lb/hr             |
| SOx = 0.03 lb/hr              | SOx = 0.008 lb/hr            | SOx = 0.02 lb/hr              | SOx = 0.005 lb/hr              | SOx = 0.0009 lb/hr             |
| PM <sub>10</sub> = 0.38 lb/hr | PM <sub>10</sub> = 0.1 lb/hr | PM <sub>10</sub> = 0.29 lb/hr | PM <sub>10</sub> = 0.065 lb/hr | PM <sub>10</sub> = 0.011 lb/hr |

From the specified emission factors and continuous operation (8760 hours per year, except for S-15 which is limited to 250,000 therms per year or approximately 1923 hours per year), the following combustion emissions are estimated from the combustion sources (S-7, S-15, S-16, S-23, and S-29) at Morton Salt:

|                  | S-7 (TPY) | S-15* (TPY) | S-16 (TPY) | S-23 (TPY) | S-29 (TPY) | TOTAL (TPY) |
|------------------|-----------|-------------|------------|------------|------------|-------------|
| NOx              | 7.2       | 1.2         | 4.9        | 3.7        | 0.6        | 17.6        |
| CO               | 0.3       | 1.0         | 0.8        | 3.2        | 0.5        | 5.8         |
| POC              | 1.2       | 0.07        | 0.9        | 0.2        | 0.04       | 2.4         |
| SOx              | 0.1       | 0.008       | 0.1        | 0.02       | 0.004      | 0.2         |
| PM <sub>10</sub> | 1.6       | 0.1         | 1.2        | 0.3        | 0.05       | 3.3         |

\*Note: S-15 is limited to a natural gas throughput limit of 250,000 therms/year = 25,000 MMBTU/yr = 1923 hrs/year of operation at maximum firing rate of 13 MMBTU/hr.

These emission totals are the “potential to emit” from all combustion sources. The potential to emit for each pollutant, from all combustion sources, is significantly less than its major facility threshold. The combustion POC emissions of 2.4 TPY will be added to the non-combustion POC emissions (see POC emissions section). The combustion PM<sub>10</sub> emissions of 3.3 TPY will be added to the non-combustion PM<sub>10</sub> emissions to yields total facility PM10 emissions (see PM10 emissions section). **It is not necessary to include fuel usage conditions to limit NOx, CO, or SOx combustion emissions to a synthetic minor limit of 95 TPY.**

**POC:**

There are only one permitted and three exempt precursor organic compound (POC) sources. The permitted source is S-28 Paint Operation. The exempt sources are two cold cleaners using aqueous cleaners (<0.42 lb/gal VOC) and a wastewater evaporator.

The paint operation (S-28) emissions are calculated on the basis of paint and clean-up solvent usage, and POC content which are already limited by permit condition. S-28 is currently subject to Condition ID# 11261, which limits individual coating and solvent usages, and also limits total POC emissions to 2986.5 pounds in any consecutive 12-month period. Total POC emission from S-28 and from the combustion sources are 3.9 TPY:

$$\text{POC} = 1.5 \text{ (from S-28)} + 2.4 \text{ (S-7, S-15, S-16, S-23, and S-29)} = 3.9 \text{ TPY}$$

**Exempt Sources:**

The Cold Cleaners, are exempt from BAAQMD permit requirements by Regulation 2-1-118.4 (use of aqueous cleaners with a VOC content no more than 0.42 lb/gal). Based on the maximum expected cleaner usage provided by the applicant, combined annual POC emissions are:

$$\text{POC} = (300 \text{ gal/yr}) (0.42 \text{ lb/gal}) = 126 \text{ lb/yr} (0.06 \text{ TPY})$$

The "wastewater" is from residual water from the steam cleaning equipment. The wastewater evaporator emissions are based on the AP-42 emission factors for an uncontrolled oil/water separator (Chapter 5.1 of AP-42): 5 lb/1000 gallons. Based on the maximum hourly throughput of the evaporator, the POC emissions from S-27, Wastewater evaporator are:

$$\text{POC} = 5 \text{ lb/1000 gal}(25 \text{ gal/hr})(8760 \text{ hr/yr}) = 1095 \text{ lbs/yr} (0.5 \text{ TPY})$$

The emissions from the permitted and exempt sources are significantly below all thresholds for a major facility:

$$\text{POC} = 3.9 \text{ (permitted)} + 0.06 \text{ (cold cleaners)} + 0.5 \text{ (wastewater evaporator)} = 4.5 \text{ TPY}$$

The 30wt% Hydrochloric Acid 650 Gallon Storage Tank is abated by a scrubber. Negligible acid mist is estimated from the device after abatement by the scrubber.

**Therefore, no additional record keeping will be required for the permitted or exempt sources to limit POC emissions.**

**PM10:**

All the salt dust emitting sources at the facility are abated by scrubbers, except for the S-20 Waste Salt Sump and S-33 Spray Pond which are abated by water spray (A-33). There are no published emission factors for salt manufacturing. Emission factors from the Air Pollution Engineering Manual (AP-42) for sand transfer operations in cement batching operations (Chapter 11.12) have been used as the emission factor (0.00099 lb/ton) for the Waste Salt Sump (S-20) and the Spray Pond (S-33). The bulk density of salt is approximately 0.92 g/ml or 1549 lb/yd<sup>3</sup>:

$$0.92 \text{ g/ml}(\text{lb}/454 \text{ g})(\text{ml}/\text{cm}^3)[(2.54 \text{ cm}/\text{in})(12 \text{ in}/\text{ft})(3 \text{ ft}/\text{yd})]^3 = 1549 \text{ lb}/\text{yd}^3$$

while sand has a bulk density of approximately 1600 lb/yd<sup>3</sup>. This use of this emission factor is reasonable and may be an overestimate since salt is being transferred into water and any resulting dust is abated by water spray.

Similarly, the emission factor for sand handling, transfer and storage with wet scrubber and sand screen with venturi scrubber from AP-42 Chapter 11.19.1 (Sand and Gravel Processing) shall be used to estimate emissions from the handling, transfer, storage, and screening of salt for sources S-4, S-12, S-13, S-21, S-25, and S-26:

PM10 Emission Factor = 0.0013 lb/ton (handling, transfer, and storage with wet scrubber)  
 PM10 Emission Factor = 0.0083 lb/ton (screening with venturi scrubber)

Based on the maximum hourly throughput of the sources, their hourly emissions were estimated:

| Source #                                  | Maximum Throughput (ton/hr) | AP-42 Emission Factor (lb/ton)           | Emission Rate (lb/hr) |
|---|-----------------------------|--|-----------------------|
| S-4 (to be combined with S-21)            | 180                         | 0.0013 (4 transfer pts)                  | 0.9                   |
| S-12                                      | 10                          | 0.0013 (4 transfer pts)                  | 0.1                   |
| S-13                                      | 68                          | 0.0013 (4 transfer pts)                  | 0.4                   |
| S-14 (to be combined with S-25 and S-26)  | 60                          | 0.0013 + 0.0083 = 0.0096 (1 transfer pt) | 0.6                   |
| S-21 (to be combined with S-4)            | 60                          | 0.0013 (4 transfer pt)                   | 0.3                   |
| S-25 (to be combined with S-14, and S-26) | 40                          | 0.0013 + 0.0083 = 0.0096 (1 transfer pt) | 0.4                   |
| S-26 (to be combined with S-14 and S-25)  | 40                          | 0.0013 (4 transfer pt)                   | 0.2                   |

However, to verify and confirm that Morton Salt indeed qualifies as a synthetic minor facility, source testing of the large scrubbers abating the salt processing operations were performed to estimate the PM10 emissions from the larger salt emitting sources (S-3, S-8, S-9, S-10, S-15, and S-22). The remaining smaller sources will be source tested by Morton in the following year (2011) to ensure compliance with the facility's synthetic minor emissions limit.

Total PM10 emissions for the facility are calculated as follows:

| Source #   | EmsnFctr | Units    | Multiplier | Units/yr | Emissions (TPY) | Basis    |
|------------|----------|----------|------------|----------|-----------------|----------|
| 3, 8       | 0.75     | lb/hr    | 6240       | hr       | 2.34            | ST 10227 |
| 4, 21      | 1.2      | lb/hr    | 6240       | hr       | 3.74            | AP-42    |
| 7          | 0.0075   | lb/MMBTU | 438000     | MMBTU    | 1.64            | AP-42    |
| 9          | 14.3     | lb/hr    | 6240       | hr       | 44.62           | ST 10224 |
| 10         | 3.2      | lb/hr    | 4160       | hr       | 6.66            | ST 10217 |
| 12         | 0.1      | lb/hr    | 5000       | hr       | 0.25            | AP-42    |
| 13         | 0.4      | lb/hr    | 6240       | hr       | 1.25            | AP-42    |
| 14, 25, 26 | 1.2      | lb/hr    | 5000       | hr       | 3.00            | AP-42    |
| 15         | 0.46     | lb/hr    | 4160       | hr       | 0.96            | ST 10240 |
| 16         | 0.0075   | lb/MMBTU | 332880     | MMBTU    | 1.25            | AP-42    |
| 20         | 0.00099  | lb/ton   | 30000      | ton      | 0.01            | AP-42    |
| 22         | 1.2      | lb/hr    | 6240       | hr       | 3.74            | ST 10239 |
| 29         | 0.0075   | lb/MMBTU | 1.5        | MMBTU    | 0.05            | AP-42    |

| Source #          | EmsnFctr | Units  | Multiplier | Units/yr | Emissions (TPY) | Basis      |
|-------------------|----------|--------|------------|----------|-----------------|------------|
| 33                | 0.00099  | lb/ton | 5000       | ton      | 0.00            | AP-42      |
| <b>TOTAL PM10</b> |          |        |            |          | <b>69.6</b>     | <b>TPY</b> |

**Total Emissions:**

The total emissions (TPY) from all permitted sources are:

|      |                              |
|------|------------------------------|
| NOx  | 17.6                         |
| SO2  | 0.2                          |
| CO   | 5.8                          |
| PM10 | 95.0 (Synthetic Minor Limit) |
| POC  | 4.5                          |

**DISCUSSION OF PERMIT CONDITIONS**

**Existing Conditions:**

The following are all of the existing permit conditions at Morton Salt.

Condition ID # 16559 specifies the permit conditions for S-3:

COND# 16559 -----

1. Rotoclone Wet Scrubber (A-27) shall abate the particulate matter emissions from this source (S-3). (Basis: Regulation 6-301, 6-310, 6-311, Cumulative Increase)
2. Rotoclone Wet Scrubber (A-27) shall be properly maintained and kept in good operating condition at all times. (Basis: Regulation 6-301, 6-310, 6-311, Cumulative Increase or Best Available Control Technology)
3. The Rotoclone Wet Scrubber (A-27) shall be inspected monthly to ensure proper operation. The ducting to the Rotoclone Wet Scrubber (A-27) shall be checked for evidence of any tears, holes, abrasions, and scuffs, and repaired or replaced as needed. [basis: Regulation 2-1-403, 2-6-409.2]
4. In order to demonstrate compliance with the above permit conditions, the following records shall be maintained in a District approved log. The Permit Holder shall keep records of all inspections and all Maintenance work including abatement device and/or Ducting repair or replacement. Records of each Inspection shall consist of a log containing the date Of inspection and the initials of the personnel that inspects the Rotoclone Wet Scrubber (A27). These Records shall be kept on site and made available for District inspection for a period of at least five Years from the date on which a record is made. Basis: Regulation 2-6-409.2]

Condition ID# 17281 specifies the pressure drop and its monitoring requirements for the scrubbers abating S-4, S-9, S-10, S-13, S-14, S-21, and S-26:

COND# 17281 -----

1. The pressure drop across the scrubber abating these sources shall not be less than 0.1 inch of water nor exceed 15 inches of water. [Regulation 2-6-409.2]
2. A District approved logbook shall be maintained on a weekly basis of the pressure drop across the scrubber. Records shall be retained for a period of at least 5 years from the date of entry and made readily available to District staff upon request. [Regulation 2-6-409.2]

Condition ID # 17282 specifies the source test and other monitoring requirements for S-7 and S-16:

COND# 17282 -----

1. A District approved source test shall be performed on an annual basis for each boiler to verify compliance with the NOx and CO emission standards of Regulation 9-7-301 and 9-7-302. [basis: Regulation 2-6-409.2]
2. The sulfur content of the fuel oil shall be certified by the fuel oil vendor. [basis: Regulation 2-6-409.2]
3. S7 and S16 Boilers, shall be checked for visible emissions after combustion of one million gallons of fuel oil at each boiler. The visible emissions check shall take place while the equipment is operating and during daylight hours. If any visible emissions are detected, the operator shall take corrective action within one week, and check for visible emissions after corrective action is taken. If no visible emissions are detected, the operator shall continue to check for visible emissions at the same frequency. (basis: Regulation 2-6-409.2)
4. The operator shall keep records of all visible emissions checks, the person performing the check, and all corrective action taken at S7 and S16 Boilers. The records shall be retained for five (5) years and shall be made available to District personnel upon request. (basis: Regulation 2-6-409.2)

Condition ID # 6130 requires that S-8 be abated by A-27 and includes monitoring requirements:

COND# 6130 -----

1. The exhaust from the Vacuum Salt Process System, S-8, shall always be scrubbed by A-27 before it is released to the ambient air. [basis: Regulation 6-301, 6-310, 6-311, Cumulative Increase]
2. The scrubber, A-27, shall be maintained in good working condition at all times S-8 is operating. [basis: Regulation 6-301, 6-310, 6-311, Cumulative Increase]
3. The pressure drop across the scrubber abating this Source shall not be less than 0.1 inch of water nor exceed 15 inches of water. [basis: Regulation 2-6-409.2]
4. A District approved logbook shall be maintained on a Weekly basis of the pressure drop across the scrubber. Records shall be retained for a period of at least 5 Years from the date of entry and made readily available to

District staff upon request. [basis: Regulation 2-6-409.2]

Condition ID# 6131 requires S-12 to be abated by A-28.

COND# 6131 -----

1. The exhaust from the Pellet Products Process System, S-12, shall always be scrubbed by A-28 before it is released to the ambient air. [basis: Regulation 6-301, 6-310, 6-311, Cumulative Increase]
2. The scrubber, A-28, shall be maintained in good working condition at all times S-12 is operational. [basis: Regulation 6-301, 6-310, 6-311, Cumulative Increase]
3. The pressure drop across the scrubber abating this source shall not be less than 0.1 inch of water nor exceed 15 inches of water. [basis: Regulation 2-6-409.2]
4. A District approved logbook shall be maintained on a weekly basis of the pressure drop across the scrubber. Records shall be retained for a period of at least 5 years from the date of entry and made readily available to District staff upon request. [basis: Regulation 2-6-409.2]

Condition ID # 16147 specifies S-15 permit conditions:

COND# 16147 -----

1. S-15 shall be fired exclusively with natural gas (or propane), at a firing rate not to exceed 13.1 MMBTU/hr. [basis: Cumulative Increase]
2. The particulate emissions from S-15 shall not exceed Ringelmann 0.5. [basis: Cumulative Increase]
3. Natural gas usage of S-15 shall not exceed 700 therms per day and 250,000 therms during any consecutive twelve-month period. [basis: Cumulative Increase]
4. The usage of natural gas and fuel shall be recorded daily and monthly in a District approved log and retained for at least two years from the date of entry. The log shall be kept on site and made available to the District staff upon request. [basis: Cumulative Increase]
5. The pressure drop across the scrubber abating this source shall not be less than 0.1 inch of water nor exceed 15 inches of water. [basis: Regulation 6-301, 6-310, 6-311, 2-6-409.2]
6. A District approved logbook shall be maintained on a weekly basis of the pressure drop across the scrubber. records shall be retained for a period of at least 5 years from the date of entry and made readily available to District staff upon request. [basis: Regulation 2-6-409.2]

Condition ID # 17283 specifies the source test and other monitoring requirements for S-20:

COND# 17283 -----

1. The S20 Waste Salt Sump shall be checked for visible emissions monthly. The visible emissions

check shall take place while the equipment is operating and during daylight hours. If any visible emissions are detected, the operator shall take corrective action within one week, and check for visible emissions after corrective action is taken. If no visible emissions are detected, the operator shall continue to check for visible emissions at the same frequency. (basis: Regulation 2-6-409.2)  
2. The operator shall keep records of all visible emissions checks, the person performing the check, and all corrective action taken at S20 Waste Salt Sump. The records shall be retained for five (5) years and shall be made available to District personnel upon request. (basis: Regulation 2-6-409.2)

Condition ID # 15255 specifies the permit requirements for S-22:

COND# 15255 -----

1. The material throughput shall not exceed 165,000 tons per consecutive 12 month period.

Material throughput at this source shall be recorded in a District approved logbook on a monthly basis, and totalled to demonstrate compliance with this condition. These records shall be kept at the site for at least 24 months from the date the data is entered, and be made available to the District staff upon request. [basis: Cumulative Increase; Regulation 2-6-409.2]

2. The exhaust from S-22 shall always be vented through A-22 before being released to the ambient air. The scrubber with mist eliminator (A-22) shall be maintained in good working condition at all times S-22 is operational. [basis: BACT]
3. Morton Salt shall develop an abatement device monitoring program which will include daily monitoring of pressure drop and flow rate and, monthly sampling and measurement of salinity. The performance program shall have the approval of the BAAQMD. From these measurements, Morton Salt will determine the acceptable range of operating parameters. [basis: BACT]
4. Morton Salt shall install a York Vane Mist eliminator (style 7, with maximum of 3/8 inch spacing) in the existing scrubber (A-22), prior to increasing the throughput above the pre-modification level at S-22. [basis: BACT]
5. The pressure drop across the scrubber abating this source shall not be less than 0.1 inch of water nor exceed 15 inches of water. [basis: Regulation 6-301, 6-310, 6-311, 2-6-409.2]
6. A District approved logbook shall be maintained on a weekly basis of the pressure drop across the scrubber. Records shall be retained for a period of at least 5 years from the date of entry and made available to District staff upon request. [basis: Regulation 2-6-409.2]

Condition ID# 11261 specifies the permit condition for S-28:

COND# 11261 -----

1. The usage of paint, and clean-up solvent at S-28 shall not exceed the following limits per consecutive 12 month period:

- a. Amerlock 400 Resin as applied = 330 gallons.
- b. Amerlock 400 Cure as applied = 170 gallons.
- c. Sherwin-Williams as applied = 50 gallons
- d. Clean-up solvent, Amercoat (Product #12) = 300 gallons

Other paints, and clean-up solvents can be used if the owner/operator of the source, S-28, can demonstrate to the satisfaction of APCO by record keeping including emission calculations that volatile organic compounds (VOC) emissions do not exceed 2986.5 pounds per year. [basis: Cumulative Increase]

2. The VOC content of paints to be used at this source shall not exceed 2.8 pounds/gallon of coating minus water and exempt solvents. [basis: Regulation 8-19-302.2, Cumulative Increase]

3. The owner/operator of S-28 shall maintain records on a monthly basis for the following information in a District approved logbook:

- a. a current list of paints, thinners, and clean-up solvents along with product data sheet or MSDS;
- b. amount of each coating applied;
- c. amount of each solvent used for clean-up, surface preparation, and used as thinner;
- d. manufacturer's recommended mix ratio of components;
- e. coating and mix ratio of components in the coating used;
- f. VOC content of coating as applied.
- g. VOC emission calculations if paints and primers other than specified in item #1 are used.

These records shall be retained at the site for at least two years from the date the data is recorded and shall be made available to the District staff upon request. [basis: Cumulative Increase, Regulation 2-6-409.2]

Condition ID# 24560 specifies the permit condition for S-33:

COND# 24560 -----

1. The owner/operator of S-33 shall abate S-33 with water spray (A-33) whenever salt is loaded into it to comply with Regulation 6-301 and 302 (Ringlemann No. 1 and Opacity Limitations). [Basis: Regulation 6-301, 302]

Condition ID# 24562 specifies the permit condition for S-14, S-25, and S-26:

COND# 24562 -----

- 1. The owner/operator shall abate S-14, S-25 and S-26 with A-14 Wet Centrifugal Scrubber, whenever they are in operation. [Basis: Regulation 6-301, 302]
- 2. The owner/operator shall ensure that the pressure drop

across A-14 Wet Centrifugal Scrubber shall not be less than 0.1 inch of water nor exceed 15 inches of water. [basis: Regulation 2-6-409.2]

3. In order to demonstrate compliance with Part 2 of this condition, the owner/operator shall maintain a District approved logbook on a weekly basis of the pressure drop across A-14 Wet Centrifugal Scrubber. Records shall be retained for a period of at least 5 years from the date of entry and made available upon request.

### **New Conditions for Synthetic Minor Permit**

All the salt dust emitting sources are abated by scrubbers. Because of substantial variation in production, annual (12-month rolling) production operation limits will be imposed on these sources to limit the potential to emit. This is as per EPA Guidance via a memo dated 2/24/92 from John B. Rasonic to David Kee of Region V. In addition, hourly emissions will be limited (as discussed above), so that it is possible to verify the PM emission factors for each source after abatement. In addition, a lot of the scrubber maintenance and recordkeeping have been consolidated and combined into the same condition.

The facility has stopped the use of fuel oil in their combustion equipment. As a result, this limiting condition will be added to their boiler (S-7 and S-16) and dryer (S-15) sources so that no visible emissions check is required. In addition, the frequency of source testing the boilers has been reduced to once every three years because the facility has demonstrated from past source testing that the boilers consistently are far below the regulatory standards for NOx and CO emissions.

The facility has requested that the permit conditions for their paint operation (S-28) be updated to remove the outdated reference of the coating brands they no longer use. As a result, the conditions have been amended to remove reference to these brands.

In addition, the facility has requested that instead of monthly sampling of salinity to check the operations of the mist eliminators within some of the scrubbers that the facility instead be required to inspect and clean the spray nozzles of the mist eliminators. This inspection and clean requirement replaces that salinity check requirement for S-22. Furthermore, monitoring the pressure drop of each scrubber should provide evidence of any mechanical leaks to the scrubber.

### **STATEMENT OF COMPLIANCE**

This facility is in compliance with the applicable requirements of Regulation 2 Rule 6 to obtain a synthetic minor permit. Morton Salt has voluntarily accepted federally enforceable permit conditions including throughput that will keep its potential to emit below the synthetic minor thresholds. **All existing permit conditions will be replaced with the following new synthetic minor permit conditions.**

**PERMIT TO OPERATE:  
MORTON SALT  
PLANT # A0079  
7380 MORTON AVENUE  
NEWARK, CA 94560**

**Permitted Sources:**

- S-3 Fifth Floor Vacuum Mill
  - S-4 2nd Floor Process System
  - S-7 Industrial Boiler No. 1 (Nebraska)
  - S-8 Vacuum Salt Process System
  - S-9 Vacuum Salt Rotary Cooler
  - S-10 Solar Salt Rotary Cooler
  - S-12 Pellet Products Process System
  - S-13 Storage Silos & Conveyors
  - S-14 Solar Mill 5th Floor Hummer Screens and Conveyor System
  - S-15 Solar Salt Rotary Dryer
  - S-16 Industrial Boiler No. 2 (B&W)
  - S-20 Waste Salt Sump
  - S-21 Bulk Loading
  - S-22 Filter Wheel No. 2
  - S-25 Solar Mill 5th Floor Rotex Screens, Bins and Conveyor System
  - S-26 Solar Mill 5th Floor Bins and Conveyor System
  - S-28 Paint Operation
  - S-29 Tubwinder Flame Bonding System
  - S-33 Spray Pond
- 
- A-9 Air Wet Scrubber
  - A-10 Air Wet Scrubber
  - A-13 Air Wet Scrubber
  - A-14 Centrifugal Wet Scrubber
  - A-15 Air Wet Scrubber
  - A-22 Air Wet Scrubber
  - A-27 Wet Centrifugal Collector
  - A-28 Wet Centrifugal Collector
  - A-29 Air Wet Scrubber
  - A-30 Scrubber
  - A-33 Water Spray

**Exempt Sources**

- S-23 Duct Type Air Furnace
- S-27 Wastewater Evaporator  
Cold Cleaner  
Cold Cleaner  
30wt% Hydrochloric Acid 650 Gallon Storage Tank; abated by Scrubber,

The owner/operator, Morton Salt, has a synthetic minor operating permit. This operating permit covers all sources existing at the facility as of permit issuance. The sources are listed above.

Asterisks (\*) denote permit conditions that are part of this permit but do not contribute to establishing the synthetic minor limits. The facility must comply with all conditions, regardless of asterisks. The following conditions do not negate the applicability of any District, state or federal requirements.

1. The owner/operator shall not exceed their PM10 synthetic minor operating limit of 95 TPY. (basis: Regulation 2-6-423.2.1).
2. The owner/operator shall not exceed any of the following salt throughput processing limits at any of the listed sources in any consecutive 12-month period:

| <u>Source</u> | <u>ton/12-mon</u> |
|---------------|-------------------|
| S-20          | 30000             |
| S-22          | 165000            |
| S-33          | 5000              |

(basis: Regulation 2-6-423.2).

3. The owner/operator shall abate all the following specified sources with the abatement device(s) specified, whenever the source is in operation. In addition, the owner/operator shall not exceed any of the operating hours specified in any consecutive 12-month period. The PM10 emission rates specified in the table below are not individual source limits but emission factors for calculating total facility PM10 emissions. These emission factors shall be updated annually upon District permit renewal with the average of the last two most recent District approved source tested results, per Part 4:

| <u>Source(s)</u>  | <u>Abatement Device(s)</u> | <u>PM10 (lb/hour)</u> | <u>Operating Hours (hour/12-month)</u> |
|-------------------|----------------------------|-----------------------|--|
| S-3 & S-8         | A-27                       | 0.75                  | 6240                                   |
| S-4 & S-21        | A-30                       | 1.2                   | 6240                                   |
| S-9               | A-9 & A-29                 | 14.3                  | 6240                                   |
| S-10              | A-10                       | 3.2                   | 4160                                   |
| S-12              | A-28                       | 0.1                   | 5000                                   |
| S-13              | A-13                       | 0.4                   | 6240                                   |
| S-14, S-25 & S-26 | A-14                       | 1.2                   | 5000                                   |
| S-15              | A-15                       | 0.46                  | 4160                                   |
| S-22              | A-22                       | 1.2                   | 6240                                   |

(basis: Regulation 2-6-423.2).

4. Morton Salt Company shall conduct annual PM10 source tests on the abatement devices at their facility according to the following schedule:

| <u>Calendar Year</u>                         | <u>Abatement Device(s)</u> |
|--|----------------------------|
| By July 1, 2011 and every 5 years thereafter | A-13, A-14, A-28, A-30     |
| By July 1, 2012 and every 5 years thereafter | A10, A-15, A-22            |
| By July 1, 2013 and every 5 years thereafter | A-9, A-27, A-29            |

The PM10 source tests shall be conducted in accordance with the BAAQMD Manual of Procedures, Volume IV, test method ST-17, ST-23 and EPA Method 5/202, or other method approved by the District. PM10 emission is calculated by adding the front half and back half results of the EPA Method 5/202 tests together. (basis: Regulation 2-6-423.2)

5. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements as specified in Volume V of the District's

Manual of Procedures. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. (basis: Regulation 2-6-423.3)

6. The owner/operator shall submit the source test results to the District staff no later than 60 days after the source test. (basis: Regulation 2-6-423.3)
7. The owner/operator shall prepare a monthly and consecutive twelve-month summary of the actual throughput, operating hours, and estimated PM10 emissions at each source listed in Parts 1, 2 and 3, within 10 business days following the end of each calendar month. These summaries and supporting documentation (i.e., source test results used in emission estimates) shall be kept for at least 5 years and shall be made available to the District upon request. (basis: Regulation 2-6-423.2.3)
8. The owner/operator shall notify the District, in writing, within 5 business days following any determination that the facility has exceeded consecutive twelve-month throughput, operating hours, or synthetic minor limits. (basis: Regulation 2-6-423.2)
9. The owner/operator shall maintain a pressure drop across each of the scrubbers (A-9, A-10, A-13, A-14, A-15, A-22, A-27, A-28, A-29, and A-30) abating the sources of the facility to be not less than 0.1 inches of water nor exceed 15 inches of water. (basis: Regulation 2-6-423.2.3)
10. The owner/operator shall maintain a District approved logbook on a weekly basis of the pressure drop across each of the scrubbers (A-9, A-10, A-13, A-14, A-15, A-22, A-27, A-28, A-29, and A-30). Records shall be retained for a period of at least 5 years from the date of entry and made readily available to District staff upon request. (basis: Regulation 2-6-423.2.3)
11. To ensure proper operation of the any scrubber with a mist eliminator, the owner/operator shall conduct weekly inspection and cleaning of the spray nozzles to prevent build-up of solids. (basis: Regulation 2-6-423.2)
12. The owner/operator shall abate S-20 and S-33 with water spray (A-33) whenever salt is loaded into it to comply with Regulation 6-1-301 and 6-1-302 (Ringlemann No. 1 and Opacity Limitations). (basis: Regulation 6-1-301, 6-1-302)

**The following are existing conditions that do not contribute to establishing the synthetic minor limits.**

S-7 and S-16 Boilers

- \*13. The owner/operator shall fire S-7 and S-16 exclusively with natural gas. No other fuel shall be used. (basis: Regulation 2-6-423.2)
- \*14. The owner/operator shall perform a District approved source test every three years for each boiler (S-7 and S-16) to verify compliance with the NO<sub>x</sub> and CO emission standards of Regulation 9-7-301 and 9-7-302. (basis: Regulation 2-6-423.2.3)

- \*15. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. (basis: Regulation 2-6-423.2.3)
- \*16. The owner/operator shall submit the source test results to the District staff no later than 60 days after the source test. (basis: Regulation 2-6-423.3)

S-15 Solar Salt Rotary Dryer

- \*17. The owner/operator shall fire S-15 exclusively with natural gas. No other fuel shall be used. (basis: Cumulative Increase)
- \*18. The owner/operator shall not use more than 250,000 therms of natural gas at S-15 in any consecutive twelve-month period (basis: Cumulative Increase)
- \*19. To determine compliance with Part 11, the owner/operator shall maintain monthly records of natural gas consumption at S-15 in a District approved log. These logs shall be kept for at least 5 years and shall be made available to the District upon request. (basis: Cumulative Increase)

S-28 Paint Operation

- \*20. The usage of coatings and clean-up solvent at S-28 shall not exceed the following limits per consecutive 12-month period limits:

|                     |                |
|---------------------|----------------|
| Coating, as applied | 550 gallons/yr |
| Clean-up solvent    | 300 gallons/yr |

Any coatings and clean-up solvents may be used if the owner/operator of S-28 can demonstrate to the satisfaction of APCO by record keeping including emission calculations that volatile organic compounds (VOC) emissions do not exceed 3000 pounds per year, and that toxic emissions do not increase above risk screening trigger levels of Regulation 2-5-1. (basis: Cumulative Increase)

- \*21. Morton Salt shall maintain records for S-28 on a monthly basis of the following information in a District approved logbook:
  - a. Coating, as applied.
  - b. Clean-up solvent(basis: Cumulative Increase)

By: \_\_\_\_\_  
M.K. Carol Lee  
Senior Air Quality Engineer

Date: \_\_\_\_\_