

## STATEMENT OF BASIS

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 9  
DRAFT CLASS III UNDERGROUND INJECTION CONTROL PERMIT  
# R9UIC-AZ3-FY08- 01  
MORTON SALT, INC.**

**Location:**

Morton Salt, Inc.  
13000 West Glendale Avenue  
Glendale, AZ 85307-2408

**Permittee Contact:**

Melissa Hadley, Plant Manager  
Morton Salt  
Glendale, Arizona 85307-2408  
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**Regulatory Contact:**

Michele Dermer, Environmental Engineer  
United States Environmental Protection Agency, Region 9  
Ground Water Office, WTR-9  
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San Francisco, CA 94105  
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**I. Purpose of the Statement of Basis**

The U.S. Environmental Protection Agency, Region 9 (EPA) has prepared this Statement of Basis for the draft permit to be issued to Morton Salt, Inc. (Morton). Pursuant to the Underground Injection Control (UIC) regulations in Title 40, §124.7 of the Code of Federal Regulations (CFR), the purpose of the Statement of Basis is to briefly describe the derivation of the draft permit conditions and the reasons for them. To meet these objectives, this Statement of Basis contains background information on the permit process, a description of the project, a brief discussion of the permit conditions, and the reasons for these permit conditions.

**II. Permit Process**

The EPA Water Division Director (Director) has authority to issue permits for underground injection activities under 40 CFR §144.31. Morton submitted an application to the EPA dated July 29, 2008, for a UIC permit. Morton's application proposed to install a new underground injection

well at the site for the purpose of solution mining (Well Roach-Baker [RB] #5). Morton presently operates two permitted Class III injection wells at the site for this purpose (RB #3 and #4).

On September 4, 2008, EPA notified Morton that their application was administratively complete. Following this, EPA conducted a technical review of the application. A Request for Information was transmitted to Morton on May 27, 2009. Morton responded with the requested information on July 30, 2009. Based on the technical review, EPA drafted a Class III UIC permit that would authorize one new injection well for salt solution mining at the Morton Glendale facility. The draft permit contains construction, operation, maintenance, monitoring, reporting, and abandonment requirements.

Based on our review of the proposed well construction, operation standards, monitoring requirements, and the existing geologic setting, EPA believes the activities allowed under the proposed draft permit are protective of Underground Sources of Drinking Water as required by the Safe Drinking Water Act.

#### *Public Participation*

The public has thirty (30) days to review and comment on the draft Class III UIC permit (40 CFR §124.10). The draft permit, this Statement of Basis, and Morton's permit application are available at the following locations:

Glendale Public Library  
5959 West Brown Street  
Glendale, AZ 85301  
(602) 842-85302

U.S. Environmental Protection Agency, Region 9  
Ground Water Office  
Attn: Michele Dermer, Mail Code: WTR-9  
75 Hawthorne Street  
San Francisco, CA 94105  
(415) 972-3417

The permit application, draft permit and Statement of Basis are also available on the EPA Region 9 web page:

<http://www.epa.gov/region09/water/groundwater/uic-permits.html>

The public comment period begins on October 28, 2010 and ends on November 29, 2010. During this period, all written comments on the draft permit can be mailed, faxed, or e-mailed to Michele Dermer using the contact information listed on the first page of this Statement of Basis. Ms. Dermer is also available by phone to address any questions regarding the permit process or the draft permit.

After the close of the public comment period, EPA will review and consider all comments relevant to the UIC draft permit and application. EPA will send a response to comments to the applicant and each person who has submitted written comments or requested notice of the final permit decision. EPA will also post the response to comments document on our website. The response to comments will contain: a response to all significant comments on the draft permit; EPA's final permitting decision; any permit conditions that are changed and the reasons for the changes; and procedures for appealing the decision. The final decision shall be to either issue or deny the permit. The final decision shall become effective no sooner than thirty (30) days after the service of the notice of decision. Within thirty (30) days after the final permit decision has been issued, any person who filed comments on the draft permit, participated in any Public Hearing on this matter, or takes issue with any changes in the draft permit, may petition the Environmental Appeals Board to review any condition of the permit decision. Commenters are referred to 40 CFR §124.19 for procedural requirements of the appeal process. If no comments request a change in the draft permit, the permit shall become effective immediately upon issuance (40 CFR §124.15).

### **III. Description of Project**

Morton is a commercial salt manufacturing company that owns and operates a solution mining facility in Glendale, Arizona ("the facility"). Morton purchased the facility in the mid-1980s. The facility is developed within the Luke Salt Body, a ridge-like salt mass that is approximately ten miles long and six miles wide. The depth to the top of the salt body is approximately 1,000 feet below ground surface.

At the facility, Morton dissolves salt by pumping fresh water through two existing injection wells RB #3 and RB #4, into the Luke Salt Body. The dissolution of salt in the Luke Salt Body forms a cavity, referred to as a cavern, around each well. Fresh water is injected into each cavern through a central pipe (the injection tube), which is approximately 3,000 feet long and is attached to the wellhead, and extends down to the bottom of the cavern. Morton then pumps the resulting brine up to the surface through the annulus, a pipe between the injection tube and the well casing. The brine is delivered to surface evaporation ponds, and after the evaporation of the water, the resulting salt crystals are harvested and eventually milled. The salt products from the mill are moved to the stockpile/storage areas for loading into delivery trucks or are processed into other salt products such as salt pellets for commercial customers.

This action would authorize Morton to construct a third injection well at the facility, RB #5, under a separate UIC permit.

### **IV. Brief Summary of Specific Permit Conditions**

The conditions specified in the draft permit are for the construction and operation of the injection well, monitoring, reporting, and plugging and abandonment of the well. The following summary briefly describes the permit conditions and the reasons for them. These conditions will ensure the protection of Underground Sources of Drinking Water (USDW).

### Well Construction and Site Geology

The draft permit allows injection well drilling, testing, construction, or operation to commence after written approval from EPA.

EPA includes in the draft permit the procedures for drilling, workover, and plugging to comply with applicable portions of the Arizona Oil and Gas Conservation Commission and the well construction requirements of the Arizona Department of Water Resources contained in the Arizona Administrative Code. The proposed drilling procedures were submitted with the permit application. EPA will consider changes to the construction plans during construction as minor modifications, provided that Morton notifies and receives approval from EPA, and that the changes comply with the requirements of 40 CFR §§144 and 146.

EPA's draft permit also requires logs and other tests to be conducted during drilling and construction. These include, at a minimum, deviation checks, cased-hole logs, and injection formation tests. The draft permit also requires open hole logs, including mud cuttings logs over the entire open hole sequence. The draft permit additionally requires a casing inspection log be conducted initially to document the condition of the casing, and then follow-up casing inspection logs on a frequency dependent on the results, to continue to assess the condition of the casing throughout the operational life of the well.

Groundwater testing will be required during construction of the wells and shall include well logs and Total Dissolved Solids (TDS) analysis of target formation water to demonstrate either the presence and characteristics of, or the lack of, any USDW.

Injection for well RB #5 shall be permitted for the Luke Salt Body at depths between approximately 2,000 feet bgs and 3,500 feet bgs. The entire injection unit is approximately 1,500 feet thick as depicted in the draft permit, Appendix B.

### Well Operation

After the casing is set and cementing is complete, the draft permit requires a spherically focused cement bond evaluation log to be run over the course of the entire cased-hole sequence to check for adequate cement bonding. Prior to receiving authorization to inject, the draft permit requires that Morton conduct mechanical integrity (MI) testing. The draft permit requires mechanical integrity testing as specified prior to the start of injection, and also once every five years. Mechanical integrity must be demonstrated by means of a pressure test in the tubing/casing annulus, and from continuous pressure monitoring, or other procedures as approved by EPA.

Maximum allowable injection volume and injection pressure limitations are subject to results of testing required under the draft permit, and will be established by EPA upon review of the test results. In the event of increased salt cavity ceiling height or modification of the injection tubing length, Morton must notify EPA. The draft permit requires that a reduced maximum injection pressure be calculated based on these changes, and injection will not recommence until such

calculations have been submitted to and approved by EPA.

Injection fluids authorized by the draft permit will be limited to water supplied by water wells at the facility. The draft permit requires that any modification of the sources of the injectate must be analyzed and submitted to EPA for approval prior to injection.

#### Monitoring, Record Keeping, and Reporting

The draft permit will require Morton to continuously monitor injection rate, daily and total injection volume, injection pressure, and injection fluid temperature, produced fluid volume and temperature, as well as to keep various records and provide quarterly monitoring reports to EPA. The draft permit will also require that Morton take samples at or before the wellhead for analysis and submit these results to EPA on an annual basis. Tests include Inorganic Constituents; general parameters including temperature, turbidity, pH, conductivity, hardness, specific gravity, alkalinity, and biological oxygen demand, density and viscosity; and trace metals.

#### Well Plugging and Abandonment

Morton shall plug and abandon the well as provided in Appendix E of the draft permit, the general Plugging and Abandonment Program submitted as Attachment Q to the application, and consistent with the requirements of 40 CFR §146.10. EPA reserves the right to change the manner in which the well will be plugged if the well is modified during its permitted life or if the well is not consistent with EPA requirements for construction or mechanical integrity. EPA may require Morton to update the estimated plugging cost periodically. Such estimates shall be based upon costs which a third party would incur to plug the wells, including mud and disposal costs, with appropriate contingencies.

#### Financial Responsibility

Morton is required to demonstrate and maintain financial responsibility and resources sufficient to close, plug, and abandon the underground injection operation as provided in the Plugging and Abandonment Plans and consistent with 40 CFR §144 Subpart D, which the Director has chosen to apply.

Morton shall post an approved financial instrument in the amount of \$286,000 to guarantee closure. Continued authority to inject and operate RB #5 under the authority of the permit will be granted only after the financial instrument is posted and approved by EPA.

The draft permit requires that the financial responsibility mechanism be reviewed and updated periodically to reflect any changes in cost and/or procedures. Morton may also be required to change to an alternate method of demonstrating financial responsibility. Any such change must be approved in writing by EPA prior to the change.

#### Duration of Permit

The draft permit and the authorization to construct, test, and inject is issued for the operating

lifetime of the well, unless terminated. EPA may, for cause or upon request from Morton, modify, revoke and reissue, or terminate the permit in accordance with 40 CFR §§124.5, 144.12, 144.39, and 144.40. The draft permit is also subject to minor modifications for cause as specified in 40 CFR §144.41. EPA may also modify, revoke and reissue, or terminate the permit in accordance with any amendments to the SDWA if the amendments have applicability to this draft permit.

Once final, the EPA shall review the permit at least once every five years from the date of issuance to determine whether it should be modified, revoked and reissued, terminated, or a minor modification made as provided in 40 CFR §§144.39, 144.40, and 144.41.