CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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Southwest Salt Co
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

29 MAY 1987

Dear Colleague:

This is to inform you that the Southwest Salt Company has applied to the Environmental Protection Agency for an Underground Injection Control (UIC) permit to inject a mixture of evaporative brine and fresh water at their facility located in Glendale, Arizona. Under the authority of the Safe Drinking Water Act, Public Law 93-523, the EPA is proposing to issue a UIC permit for the construction and operation of this well.

In proposing the draft permit, the EPA has developed the enclosed public notice, statement of basis, and draft Permit for your review.

I would welcome any comments or concerns you may have regarding the draft permit. Please contact Betty Wilcox of my staff at (415) 974-0808 or at the EPA address listed in the public notice. We look forward to hearing from you.

Sincerely,

James E. Thompson

for Richard A Coddington,
Acting Director
Water Management Division

Enclosures

NOTICE OF PUBLIC COMMENT PERIOD

BY

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 9
215 Fremont Street
San Francisco, CA 94105

On Application by Southwest Salt Company
for Underground Injection Control Permit to Operate Injection Well

Public Notice Numbers AZ-UIC-87-2-W

The Regional Administrator, Region 9, Environmental Protection Agency (EPA), proposes to issue an Underground Injection Control (UIC) permit to operate a Class III injection well to the applicant named below, pursuant to the Safe Drinking Water Act, as amended (1980), (42 U.S.C. § 300f et seq.) (SDWA) and its implementing regulations (40 C.F.R. Parts 124, 144, 146, 147). Information regarding the facility, its application, and draft permit is listed below.

Name and Address of Facility: Southwest Salt Company
13000 West Glendale Avenue
Glendale, Arizona 85307

Location: Twp 2N, Rge 1W, Sec 2, SE 1/4

As proposed, the draft UIC permit would allow the facility the use of a new injection well, named Roach Baker well #4, for solution mining of a NaCl salt deposit. At this facility, a mixture of evaporative brine and fresh water is injected through wells (which are cased and have tubing) into the salt cavity. A salt saturated solution is then pumped out of the wells into a series of surface evaporation ponds. The draft UIC permit includes operation and construction requirements for the new injection well.

As required by Title 40 of the Code of Federal Regulations, Section 124.9, the administrative records, including the application, the draft permit, and comments received by EPA, together with data submitted by the applicant, are located and available for public inspection at Region 9 EPA Library, Sixth Floor, 215 Fremont Street, San Francisco, CA 94105. A copy of the draft permit and statement of basis are available for inspection at the Glendale Public Library, 7010 N. 58th Dr., Glendale, Arizona.

Any written comments on or objections to the draft permit or requests for a public hearing, pursuant to 40 CFR 124.11, must be received no later than 6 JUL 1987 . Comments or requests for a public hearing must be mailed to the EPA address below.

Environmental Protection Agency
215 Fremont Street
San Francisco, CA 94105
Attn: Betty Wilcox (W-6-4)

Requests for a public hearing must state the nature of the issues to be raised at the hearing. Pursuant to 40 CFR 124.12, the Regional Administrator will hold a public hearing if she finds, on the basis of requests, a significant degree of public interest in the draft permit or if she determines that a hearing might clarify one or more of the issues involved in the permit decision. If the Regional Administrator decides to hold a public hearing, a notice of the date, time and place of the hearing will be made at least 30 days prior to the hearing.

A final decision to issue the permit, or to deny the application for the permit, will be made after all comments have been considered. Notice of the final decision will be sent to each person who has sent or delivered written comments or requested notice of the final permit decision. If issued, the permit will become effective 30 days from the date of issuance unless:

1. a later effective date is specified in the permit;

2. an administrative review is requested under 40 C.F.R. § 124.19; or

3. there are no comments requesting a change to the draft permit, in which case the final decision may become effective immediately upon issuance.

All persons are advised that they must raise all reasonably ascertainable issues and submit all reasonably available arguments and factual grounds supporting their position by the close of the comment period, pursuant to 40 C.F.R. § 124.13. In any review of the final permit decision, no issues may be raised that were not submitted to the administrative records unless good cause is shown for the failure to do so, pursuant to 40 C.F.R. § 124.76.

For further information, please contact Betty Wilcox at (415) 974-0808.

Please bring this notice to the attention of all persons who would be interested in this matter.

Dated: 20 MAY 1987 .

SOUTHWEST SALT #1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

18 AUG 1987

Dear Colleague:

Re: Notice of Final Decision

On August 18, 1987 EPA, Region 9, issued a Class III Underground Injection Control (UIC) permit to the following facility to operate the well known as Southwest Salt Roach Baker No. 4.

Southwest Salt Company
Roach-Baker Ranch
13000 W. Glendale Avenue
Glendale, Arizona
UIC Permit No. AZS000000005

The staff at the Environmental Protection Agency (EPA) has reviewed the UIC permit applications for the wells mentioned above and has prepared draft permits, in accordance with Federal UIC regulations of 40 C.F.R. Parts 124, 144 and 146. Also, the EPA has published a public notice of its tentative decision to issue a permit. After considering the expressed views of all interested persons and agencies, pertinent Federal Statues and Regulations, EPA, pursuant to 40 C.F.R. 124, has prepared a final permit which does not differ significantly from the draft permit.

The Responsiveness Summary, shown in Enclosure 1, is EPA's response to significant comments on the draft permit received during the comment period between May 29, and July 6, 1987. Changes made to the draft permit and the reasons for these changes are also described in the Responsiveness Summary.

The UIC permit is hereby issued upon August 18, 1987, shall become effective on September 17, 1987 and shall be effective for the operating lifetime of the well unless terminated, or until primary enforcement responsibility is delegated to the State of Arizona, or unless there is a written petition to appeal the final decision. The procedures to appeal the final decision are described in Enclosure 2. The final permit is given in Enclosure 3.

Copies of the final permit and the Responsiveness Summary are available for public inspection at the Glendale Public Library, 7010 N. 58th Drive, Glendale, Arizona, until September 17, 1987.

Interested persons may obtain further information on the permits, including copies by contacting Betty Wilcox at EPA, Region 9, Drinking Water Branch, 215 Fremont Street, San Francisco, California, 94105 or by calling (415) 974-0808.

Sincerely,

Harry Seraydarian
Director
Water Management Division

ENCLOSURE 1

RESPONSIVENESS SUMMARY
FOR
COMMENT PERIOD
ON
EPA'S DRAFT UIC PERMIT
PERMIT NO. AZS00000005
FOR
SOUTHWEST SALT COMPANY
13000 W. GLENDALE AVENUE
GLENDALE, ARIZONA

RESPONSES TO COMMENTS RECEIVED ON EPA'S PROPOSED UIC PERMIT FOR ROACH BAKER WELL #4 OWNED AND OPERATED BY SOUTHWEST SALT COMPANY

COMMENT: One commentor is concerned with the injection of fuel oil into the salt cavity to prevent dissolution of the salt cavity ceiling (see Statement of Basis, page 5). The commentor objected to the injection of fuel oil into the groundwater supply which may affect a potable water supply four miles east of the Southwest Salt Company site. The commentor has requested that monitoring wells be installed to assure that existing water quality remains stable.

RESPONSE: Several conditions in the permit for a Class III injection well ensure that injection into Underground Source of Drinking Water (USDW) will not occur. The regulations prohibit injection into an USDW and specify that the well shall maintain mechanical integrity at all times. The purpose of the permit is to uphold these requirements. Requirements of Part II of the permit such as monitoring of fluid volumes, injection pressure, and flow rates ensure that mechanical integrity is maintained at all times. Mechanical integrity demonstrations made every five years and any time the tubing is removed ensure that fluid migration into the USDW is prevented.

In addition to the requirements above, USDW's are further protected by the construction of a Class III salt solution mining well. Because the purpose of a salt solution mining operation is to maximize the production of saturated brine, the system is closed. The construction of the well is such that fluid will only enter and exit through the wellhead. No fluid is intended to enter into or be produced from the groundwater.

Finally, Southwest Salt's use of fuel oil will be limited and is not projected to occur within the first few years of operation.

COMMENT: The applicant has proposed a new location for the Class III well. The proposed location is near the facility office and closer to Glendale Avenue. The previously specified location, according to the permit application, was between two center ponds adjacent to the Cal Gas facility to the North of Southwest Salt.

RESPONSE: In reviewing a proposed site, consideration is given to the geology and hydrogeology at that location.

In this regard, EPA has found that there is insignificant difference between the new location and the previous location. The well construction, operational maintenance, and closure requirements in the permit will ensure that any endangerment to USDW's is prevented. EPA finds the new proposed location to be acceptable.

COMMENT: The applicant has proposed using a packer between the 10-3/4 inch and 13-3/8 inch casing to add the ability to monitor fluid levels in the same annulus. Monitoring of the fluid level will increase detection capabilities of any possible leak that may exist in the 13-3/8 inch casing

RESPONSE: Because adding a packer in the 10-3/4 inch and 13-3/4 inch annulus will result in improved mechanical integrity monitoring, EPA has no objections to this addition. Adding or removing a packer during the lifetime of operation of Roach Baker #4 will be considered a workover and should be reported on a quarterly basis when such action has occurred.

COMMENT: In complying with the permit condition Part II, Section A, Item 2d, collection of water sample, the applicant has specified that a particular method be used to collect this sample during the drilling of Roach Baker #4. The method utilizes a hydraulically actuated packer and a snorkel probe to collect water samples.

RESPONSE: EPA finds the above method for water sampling acceptable. Should any other water sampling method be considered, the Director should be notified prior to water sample collection.

COMMENT: One commentor is concerned with the permit condition requiring thirty days notification period prior to conducting a mechanical integrity test (MIT) in an emergency situation. When the tubing is removed to investigate possible operational problems such as decreased fluid saturation it is not possible to provide a thirty day notice without discontinuing operation of the well for this time period.

RESPONSE: EPA agrees that to shut in the well for thirty days in the event of an emergency removal of the tubing is unnecessary. If such an emergency event occurs, the operator will be required to notify EPA within 24 hours. The operator shall conduct an EPA approved MIT upon removal of the tubing, and will submit the results to the Director within fifteen (15) days of

testing. Injection may recommence upon demonstration of mechanical integrity and approval by the Director. If the results of the MIT are unacceptable, EPA will require further testing.

It should be noted, that the thirty day notification requirement is to be observed for the five year MIT and for cases when pulling the tubing and packer is not an emergency but a planned or calculated event.

COMMENT: The applicant requested that an increased maximum injection pressure be allowed and has provided the following calculations as evidence that an increased pressure should be allowed.

depth of 13-3/8 inch casing = 1600 ft to surface
depth of 10-3/4 inch casing = 2600 ft to surface
depth of salt cavern ceiling = 1500 ft below surface

A column of fresh water is injected through the 10-3/4 inch tubing to 2600 ft below land surface. A column of saturated brine within the salt cavern lies behind the 10-3/4 inch tubing from 1500 ft to 2600 ft below land surface.

1. Formation overburden of .97 psi/ft (based on a specific gravity of 2.24 derived from local core samples of the upper formation) at depth of 1500 ft below surface, 1500 x .97, — 1455 psi

2. 80% of formation overburden at depth of 1500 ft, 1455 x .80, — 1164 psi

3. Pressure of saturated fluid column of specific gravity 1.15 lying within salt cavity from 1500 ft to 2600 ft pressure gradient = .498 psi/ft, (2600 - 1500) x .498, — 548 psi

4. Combined pressure of formation overburden and saturated brine fluid column, 1164 + 548, — 1712 psi

5. Pressure of fluid column in 10-3/4 inch tubing at .433 psi/ft, 2600 x .433, — 1126 psi

6. Maximum allowable surface pressure that will not overcome combined overburden and saturated column pressures, 1712 - 1126. — 586 psi

Final requested maximum injection pressure = 586 psi.

RESPONSE: The equation given in the Statement of Basis is based on a fracture gradient of .8 psi/ft, and only considers the effects of the fresh water fluid column in the 10-3/4 inch tubing. The equations used by Southwest Salt account for pressure differences due to saturated brine in the salt cavity and fresh water in the full length of the 10-3/4 inch injection tubing. The above calculation is acceptable to EPA, and the permit has been modified accordingly. In the event that the salt cavern ceiling height increases above 1500 ft or the 10-3/4 inch tubing length is modified, the permittee shall notify EPA. In no case shall the injection pressure cause fracturing of the Luke Salt Body.

The following modifications have been made to the Class III permit for Roach Baker #4.

1. Part I, Section H, addition of the following.

   6. Emergency Removal of Tubing or Packer.

   In the event of emergency removal of the tubing or packer in which the removal was not planned or calculated, the Director shall be notified verbally within 24 hours and in writing within 5 days of the emergency removal. An EPA approved mechanical integrity demonstration shall be made and the results submitted within fifteen (15) days of such demonstration. Injection may recommence upon demonstration of mechanical integrity and approval by the Director. The Director, upon review of the submitted results may request further testing.

2. Part II, Section B, Item 3, Injection Pressure Limitation. The maximum injection pressure has been modified from 440 psi to 586 psi. In addition the following provision has been added;

   "In the event of an increased salt cavity ceiling height or modification of the 10-3/4 inch tubing length, the permittee shall notify the Director. A reduced maximum injection pressure shall be calculated based on these changes and injection shall not commence until such calculations have been submitted to and approved by the Director."

ENCLOSURE 2

FEDERAL UNDERGROUND INJECTION CONTROL PROGRAM
PERMIT ISSUANCE AND MODIFICATION APPEALS PROCEDURES

The provisions governing procedures for the appeal of an EPA permitting decision are defined at 40 CFR §124.19. The appeals process allows for a written petition for review from any person who commented on the draft permit or modification either in writing during the comment period or orally at the public hearing. Persons who have not previously participated in the comment period may only appeal changes which occurred between the draft and final permit or modification. Appeals may be made by citizens, groups, organizations, governments, and the permittee within this procedural framework.

A petition for review must be filed within thirty-three (33) days from the issuance date of the permit. Such written requests are to be sent to EPA at the addresses listed below.

Office of the Administrator
U.S. EPA
401 M Street, SW
Washington, DC 20460

Regional Administrator
U.S. EPA, Region 9
215 Fremont Street (W-6-2)
San Francisco, CA 94105

Reference should be made to 40 CFR §124.19 for guidance in preparing a petition for appeal.

Within a reasonable time of receipt of the petition for review, the Administrator will either grant or deny the petition for review. EPA will provide public notice of the granting of an appeal as provided in 40 CFR §124.19. Petitioners whose petitions are denied will be individually notified of the action and any further appeal rights.

The Administrator may deny the appeal, decide the issue on the merits, or remand the permit or modification for further proceedings. The Regional Administrator, EPA, Region 9, will issue a final permit or modification decision when any of the above is completed. After that time, all administrative appeals have been exhausted, and any further challenges to the permit or modification decision must be made to the Federal court.

ENCLOSURE 3

FINAL UIC PERMIT
FOR
ROACH BAKER WELL #4

U.S. ENVIRONMENTAL PROTECTION AGENCY

UNDERGROUND INJECTION CONTROL PERMIT: CLASS III

Permit Number AZS000000005

EPA ID Number AZD020681839

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147

Southwest Salt Co.
13000 W. Glendale Road
Glendale, Arizona 85307

is hereby authorized to operate a Class III injection well identified as

Roach-Baker #4

located at

T2N, R1W, SW 1/4 Sec. 2
Glendale
Maricopa County, Arizona

into Luke Salt Body, upon the express conditions that the permittee meet the restrictions set forth herein. Injection shall not commence until the permittee has received written permission from the Director to inject.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective. The following attachments are incorporated into this permit: Attachment O (Contingency Plan for Well Failure); Attachment Q (Plugging and Abandonment Plan); Attachment R (Financial Responsibility).

This permit shall become effective on 17 SEP 1987

This permit and the authorization to inject shall continue for the operating lifetime of the well, unless terminated, or until primary enforcement responsibility is delegated to the State of Arizona, unless that State chooses to adopt this permit as a State permit.

The Director shall review this 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.

Signed on 8/18/87

Harry Seraydarian

Harry Seraydarian
Director
Water Management Division
EPA Region 9

PART I

GENERAL PERMIT COMPLIANCE

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee, authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit is prohibited. Compliance with this permit does not constitute a defense to any action brought under the SDWA, or any other common or statutory law or regulation. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this permit shall be construed to relieve the permittee of any duties under applicable regulations.

B. PERMIT ACTIONS

1. Modification, Revocation, Reissuance and Termination.

The Director may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition. The Director may also modify, revoke and reissue, or terminate this permit in accordance with any amendments to the SDWA if the amendments have applicability to the conditions in this permit.

2. Transfer of Permits.

This permit is not transferrable to any person except in accordance with 40 CFR 144.38.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

1) The name and address of the permittee:

2) Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply.

The permittee shall comply with all applicable UIC Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 CFR 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. Such non-compliance may also be grounds for enforcement action under RCRA.

2. Penalties for Violations of Permit Conditions.

Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to the such actions pursuant to RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. State Continuation.

An EPA permit issued for the operating lifetime of the injection well may continue in force at the time a State is authorized to

assume primary enforcement authority, providing that the State has the authority to do so under State law, and that the State chooses to adopt and enforce the permit. Otherwise, the injection activity is operating without a Federal UIC permit from the time that the State assumes primacy until the effective date of the State-issued new permit.

4. Need to Halt or Reduce Activity not a Defense.

It shall not be a defense, for permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate.

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. Proper Operation and Maintenance.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. Duty to Provide Information.

The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. Inspection and Entry.

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA, any substances or parameters at any location.

9. Records.

(a) The permittee shall retain records and all monitoring information, including all calibration and maintenance records and all original instrumented recordings for continuous monitoring and copies of all reports required by this permit for a period of at least five years from the date of the sample, measurement or report.

(b) The permittee shall maintain records of all data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR 144.31 for a period of at least five years from the date the application was signed. These periods may be extended by request of the Director at any time.

(c) The permittee shall retain records concerning the nature and composition of all injected fluids until three years after the completion of plugging and abandonment which has been carried out in accordance with the attached plugging and abandonment plan, and is consistent with 40 CFR 146.10.

(d) The permittee shall continue to retain the records after the retention period specified by paragraphs (a) to (c) above, unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

(e) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individual(s) who performed the sampling or measurements;

(3) A precise description of both sampling methodology and the handling (custody) of samples;

(4) The date(s) analyses were performed;

(5) The names of individual(s) who performed the analyses;

(6) The analytical techniques or methods used; and

(7) The results of such analyses.

10. Monitoring.

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Monitoring results shall be reported at the intervals specified in Part II, Paragraphs C and D, of this permit.

(a) Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR 136.3 or in Appendix III of 40 CFR Part 261 or in certain circumstances by other methods that have been approved by the Administrator.

(b) The permittee shall submit, to the Director, all reports as required in Part II, Sections C and D of this permit. The permittee shall prepare a report describing the intended procedures that will be used for sample collection, handling, and analysis. This report must be submitted for approval by EPA a minimum of 30 days prior to collecting samples for the first Quarterly Report and any time the sampling procedures are changed or modified for subsequent reporting periods.

11. Signatory Requirements.

All reports or other information, required to be submitted by this permit or requested by the Director, shall be signed and certified in accordance with 40 CFR 144.32.

12. Reporting Requirements.

(a) Planned Changes. The permittee shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility.

(b) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.

(d) Twenty-four Hour Reporting.

(1) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the

time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:

(i) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.

(ii) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between underground sources of drinking water.

(2) A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(e) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition 12(d)(2) above.

(f) Other Information. When the permittee becomes aware that he failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, the permittee shall submit such facts or information within 10 days.

(g) Report of Permit Review. Within thirty (30) days of receipt of this permit, the permittee shall report to the Director that he has read and is personally familiar with all terms and conditions of this permit.

F. COMMENCING INJECTION.

An operator may not commence injection until:

1. All logs and tests required by Part II, Section A, Item 2 of this permit are completed and results submitted to the Director,

2. Mechanical integrity of the well has been demonstrated in accordance with Part I, Section H and Part II, Section B, Item 5,

3. Construction is complete as required by Part II, Section A, Item 1 and Part II, Section C, Item 6 of the permit, and the permittee has submitted to the Director, by Certified Mail with return receipt requested, a notice of completion of construction using EPA Form 7520-9, and either:

(a) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

(b) The permittee has not received, within 13 days of the date of the Director's receipt of the notice required above, notice from the Director of his or her intent to inspect or otherwise review the new injection well, in which case prior inspection or review is waived and the permittee may commence injection.

G. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment.

The permittee shall notify the Director no later than 45 days before conversion or abandonment of the well.

2. Plugging and Abandonment.

Pursuant to 40 CFR §146.10, the Director shall prescribe aquifer cleanup and monitoring prior to plugging and abandonment where he deems it necessary and feasible to insure adequate protection of USDWs.

The permittee shall plug and abandon the well consistent with 40 CFR 146.10, as provided for in the attached plugging and abandonment plan (which is hereby incorporated as a part of this permit). Within 60 days after plugging a well, or at the time of the next quarterly report (whichever is shorter), the permittee shall submit a report to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and shall consist of either:

(a) A statement that the well was plugged in accordance with the plan previously submitted to the Director; or

(b) If the actual plugging differed from the approved plan, a statement defining the actual plugging and why the Director should approve such deviation. Any deviation from a previously approved plan may be cause for the Director to require the operator to replug the well.

3. Inactive Wells.

After a cessation of injection for two years the permittee shall plug and abandon the well in accordance with the plan unless he:

(a) Provides notice to the Director; and

(b) Describes actions or procedures, which are deemed satisfactory by the Director, that the permittee will take to ensure that the well will not endanger USDWs during the period of

temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived, in writing, by the Director.

H. MECHANICAL INTEGRITY

1. Standards.

All injection well(s) must have and maintain mechanical integrity consistent with 40 CFR §146.8.

2. Prohibition Without Demonstration.

The permitttee shall not commence injection activity after the effective date of this permit unless the permittee has demonstrated that the well covered by this permit has mechnical integrity in accordance with 40 CFR §146.8 and the permittee has received written notice from the Director that such demonstration is satisfactory.

3. Mechanical Integrity Request from Director.

The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.

4. Subsequent Mechanical Integrity Demonstrations.

A demonstration of mechanical integrity in accordance with 40 CFR §§146.8 and 146.33(b)(3) shall be made no later than five years from the date of the last approved demonstration. Mechanical integrity shall also be demonstrated any time the tubing is removed from the well, the packer is reset, or a loss of mechanical integrity becomes evident during operation. The permittee shall notify the Director of his intent to demonstrate mechanical integrity at least 30 days prior to such demonstration. The permittee shall report the results of a mechanical integrity demonstration within 90 days after completion.

5. Loss Of Mechanical Integrity.

If the permittee or the Director finds that the well fails to demonstrate mechanical integrity during a test, or a loss of mechanical integrity as defined by 40 CFR §146.8 becomes evident during operation, the operation shall be halted immediately and shall not be resumed until the Director gives approval to recommence injection.

6. Emergency Removal of Tubing and Packer

In the event of emergency removal of the tubing or packer in which the removal was not planned or calculated, the Director shall be notified verbally within 24 hours and in writing within 5 days of the emergency removal. An EPA approved mechanical integrity demonstration shall be made and the results submitted within fifteen (15) days of such demonstration. Injection may recommence upon demonstration of mechanical integrity and approval by the Director. The Director, upon review of the submitted results may request further testing.

I. FINANCIAL RESPONSIBILITY

1. Financial Responsibility.

The permittee is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner consistent with the underground injection control regulations and Attachment Q (Plugging and Abandonment Plan). The financial responsibility mechanism shall be updated periodically, upon request of the Director.

2. Insolvency.

In the event of:

(a) the bankruptcy of the trustee or issuing institution of the financial mechanism, or

(b) suspension or revocation of the authority of the trustee institution to act as trustee, or

(c) the institution issuing the financial mechanism loses its authority to issue such an instrument, the permittee must notify the Director, within ten (10) business days. The owner or operator must establish other financial assurance or liability coverage acceptable to the Director, within 60 days after such an event.

An owner or operator must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within 10 business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he is named as debtor, as required under the terms of the guarantee.

PART II

WELL SPECIFIC CONDITIONS FOR UIC PERMITS

A. CONSTRUCTION

1. Casing and Cementing [40 CFR 146.32(a)].

Notwithstanding any other provisions of this permit, the permittee shall case and cement the well to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of the well shall be designed for the life expectancy of the well. The permittee shall give advance notice of any planned changes in the construction of the permitted well to the Director. The following specifications apply to Roach Baker well #4.

Conductor Casing	-	20 inch conductor pipe driven to 20 ft below ground surface.
Long String Casing	-	13-3/8 inch J-55 steel, 42 lb/ft, .333 inch wall thickness, cemented in 18 inch hole from 1600 ft below ground surface to surface.
Injection Tubing	-	10-3/4 inch J-55 steel, 32 lb/ft, .312 inch wall thickness, or similar tubing from approximately 2600 ft to surface.
Production Tubing	-	6-5/8 inch J-55 steel, 14 lb/ft, .244 inch wall thickness, or similar tubing from approximately 3000 ft to surface.

2. Logs and Tests

The appropriate logs and tests shall be conducted during the drilling and construction of the well. A descriptive report interpreting the results of those logs and tests which specifically relate to (1) an USDW and confining zone and (2) the injection and adjacent formations, shall be prepared by a knowledgable log analyst and submitted to the Director. The following logs and tests shall be conducted.

a. Coring of anhydrite	for	core analysis, including lithologic description and hydrogeologic parameters,
b. Resistivity, Gamma Ray and Spontaneous Potential Logs	for	detection of permeable beds, indication of bed shaliness, salinity profile approximation, location of lithologic boundaries, and density profile,

c. Lithologic analysis of borings brought to surface during drilling of Roach Baker #4,

d. Collection of formation water samples for chemical analysis,

e. Mechanical integrity testing of the well in accordance with Part II, Section B, Item 5 of this permit, and

f. A cement bond log (CBL) prior to operation to demonstrate adequate primary cementing.

B. OPERATIONS

1. Injection Formation.

Injection shall be limited to the Luke Salt Body in the interval between 1200 ft and 5000 ft below land surface. In no event shall the roof of the solution cavern be developed in such a manner that dissolution of the overlying anhydrite beds takes place or that injection brines or seal fluids are allowed to migrate into any formation overlying the Luke Salt Body.

2. Salt Cavern Roof.

The permittee shall maintain a minimum salt cavern roof thickness of 200 feet between the overlying anhydrite layer and salt cavern ceiling unless a written request is sent to the Director and written permission is given by the Director to maintain a thickness of less than 200 ft. Depth below ground surface of the salt cavern ceiling shall be determined once every two years. Control of dissolution of the cavern ceiling may include, but not be limited to injection of fuel-oil to act as a seal fluid blanket.

3. Injection Pressure Limitation [40 CFR §146.33(a)].

Injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water.

The maximum injection pressure measured at the wellhead, shall not exceed 586 psig during operation of the well. In the event of an increased salt cavity ceiling height or modification of the 10-3/4 inch tubing length, the permittee shall notify the Director. A reduced maximum injection pressure shall be calculated based on these changes and injection shall not commence until such calculations have been submitted to and approved by the Director.

4. Additional Injection Limitation.

Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

5. Mechanical Integrity Test [40 CFR §146.8]

A Mechanical Integrity Test (MIT) shall be conducted prior to operation and once every five years to demonstrate the absence of significant leaks in the casing and to demonstrate the absence of significant fluid movement through vertical channels adjacent to the injection well. Sixty (60) days prior to conducting a mechanical integrity test, the permittee shall submit to the Director for approval, a plan to conduct a mechanical integrity test. Tests shall not proceed until the permittee receives the Director's written permission.

6. Ratio of Injected Volume to Produced Volume Limitation

Within one year following the effective date of operation of Roach Baker #4, the Director may prescribe a limitation of the ratio of injected fluid volume to produced volume. This value will be based upon data submitted by the permittee during the first year of operation of Roach Baker #4.

C. MONITORING

1. Monitoring Requirements [40 CFR §§144.51(j)(1) and 144.52(a)(5)].

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used to obtain a representative sample of the fluid to be analyzed and the procedures for analysis of the sample are as follows:

- Grab samples shall be collected at the sampling valve at the wellhead and used for laboratory analysis for physical and chemical characteristics.

- Temperature, annular pressure, and injection pressure shall be measured at the wellhead.

- The permittee shall identify the types of tests and methods used to generate the monitoring data as specified by 40 CFR §136.3 or Appendix III of 40 CFR §261. When the analytical method for a particular parameter is not specified in either 40 CFR §136.3 or Appendix III of 40 CFR §261, the permittee must obtain EPA approval of the types of tests and methods used to generate the monitoring data.

2. Injection Fluid Analysis [40 CFR §144.28(g)(3)(i)]

The permittee shall provide to the Director a qualitative analysis and ranges in concentrations of all constituents of injected fluids at least once within the first year of authorization and

thereafter whenever the injection fluids are modified to the extent that the initial data are incorrect or incomplete. The owner or operator may request Federal confidentiality as specified in 40 CFR Part 2. If the information is proprietary the owner or operator may in lieu of the ranges in concentrations choose to submit maximum concentrations which shall not be exceeded. In such a case the owner or operator shall retain records of the undisclosed concentrations and provide them upon request to the Regional Administrator as part of any enforcement investigation.

3. Demonstration of Mechanical Integrity [40 CFR §146.33(b)(3)]

A demonstration of mechanical integrity pursuant to 40 CFR §146.8 shall be conducted at least once every five years during the life of the well.

4. Modification of Injection Fluid [40 CFR §146.33(b)(1)].

Whenever the injection fluid is modified to the extent that the analysis required by §146.34(a)(7)(iii) is incorrect or incomplete, a new analysis as required by §146.34(a)(7)(iii) shall be provided to the Director.

5. Monitoring Frequency [40 CFR §146.33(b)(2) and (4)].

Monitoring shall be conducted no less frequently than indicated for the parameters listed below:

Parameter	Monitoring Frequency	Sample Type
injection rate, vol/time	continuous	Recorder
injection total volume, gallons	continuous	Totalizer
injection pressure, psig	continuous	Recorder
produced fluid total volume, gallons	continuous	Totalizer
water filled annular pressure, psig	continuous	Recorder
injection fluid temperature, °F	continuous	Recorder
produced fluid temperature, °F	continuous	Recorder
water filled annular temperature, °F	daily	Measured
seal fluid total volume injected, gallons	daily	Measured
maximum seal fluid injection pressure, psig		

6. Continuous Monitoring Devices.

Continuous recording devices shall be installed at the wellhead and used to monitor temperature of injection fluid, produced fluid and annular fluid, injection rate, injection and annular pressure, and volume of injected and produced fluids. Description, specifications, and location of the equipment shall be submitted to the Director for approval prior to operation. This equipment shall be installed and operating prior to operation of the well.

7. Seal Fluid Measurements.

Seal fluid injection shall be monitored on a daily basis when injection of such fluid occurs. Seal fluid volumes injected and pressure of seal fluid injection shall be reported for each incidence of seal fluid injection.

8. Salt Cavern Roof Thickness.

Measurement of the salt cavern roof thickness shall be taken once every two years. This value shall be measured from the ceiling of the salt cavern to the bottom of the overlying anhydrite layer.

9. Monitoring Modification.

Following one year of operation of the well, the permittee may request a modification of monitoring requirements. The request shall be in writing and shall state specifically the type of modification requested.

D. REPORTING REQUIREMENTS [40 CFR §146.33(c)(1)]

1. Quarterly reports

The permittee shall submit accurate quarterly reports to the Director containing the following information:

(a) Results of the injection fluid analyses specified in Part II, Section C, item 2.

(b) Monthly average, maximum and minimum values for injection fluid temperature, produced fluid temperature, annular temperature, injection pressure, injection rate, seal fluid volume, and total injection volume and production volume.

(c) Daily and monthly ratio of injected to produced fluid volume.

2. Reports on Well Tests and Workovers [40 CFR §146.13(c)(2)]

In the first quarterly report after the activity the permittee shall report to the Director the results of the following:

(a) Mechanical integrity tests;

(b) Other tests required by this permit;

(c) Any well workover and removal or replacement of tubings.

3. Reporting of Monitoring Results

All pH values shall be reported to the nearest 0.1 pH unit. Observation and recording of parameters specified to be monitored periodically shall be done over equal time intervals over a 24 hour period. When computing a daily or monthly average value, as defined in the section of Definitions, for those parameters monitored continuously, the continuous recording charts shall be read once for every 2 hour measurement taken during periods of injection. The reporting of daily average, daily maximum, and daily minimum values shall be in a format acceptable to the Director.

Monitoring results obtained during each calendar month shall be summarized for each month and reported on EPA Form 7520-8. Forms shall be submitted for the reporting periods by the respective due dates as listed below:

Reporting Period	Report Due
July, Aug, Sept	Oct 28
Oct, Nov, Dec	Jan 28
Jan, Feb, Mar	Apr 28
Apr, May, June	Jul 28

The report shall also include the following information:

1. date and time of sample collection;

2. name of individual(s) who performed the sampling;

3. type of containers used and how samples were treated and preserved prior to transporting to the lab;

4. method of transportation to the lab;

5. name and location of the lab analyzing the samples;

6. the procedures used by the lab for analysis; (Note: If the procedures were different from the information submitted as required in Part I, Section E, item 10(b) of this permit, indicate these differences.) and

7. reference to established, published criteria should be made wherever possible.

Copies of the monitoring results required by Section C of Part I and all other reports required by Section B of Part II shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Region 9
Water Management Division
Underground Injection Control Section (W-6-2)
215 Fremont Street
San Francisco, California 94105

PART III

SCHEDULE OF COMPLIANCE

A. SUBSIDENCE MONITORING PROGRAM

Within ninety (90) days of the effective date of this permit the permittee shall submit a plan to the Director for approval to develop a monitoring well network specifically for the purpose of monitoring subsidence.

Implementation of a subsidence monitoring program shall begin within one year of the effective date of the permit.

B. SALT ROOF CAVERN THICKNESS

Within ninety (90) days of the effective date of the permit the permittee shall submit a plan to the Director to measure the salt roof cavern thickness and salt cavern ceiling depth below ground surface. Plans shall include description of devices used to obtain the above values.

Definitions

1. BPD

   BPD means barrels per day.

2. Daily Average of Parameters Monitored Continuously

   Daily Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C of this permit, divided by the total number of values observed and recorded during the day.

3. Daily Average of Parameters Not Monitored Continuously

   Daily Average of Parameters Not Monitored Continuously means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during that day.

4. Daily or Monthly Maximum Value

   Maximum Value means the highest value recorded during the day or month, respectively. For continuously monitored parameters the highest value recorded is the highest instantaneous value for the continuous monitoring record.

5. Daily or Monthly Minimum Value

   Minimum Value means the lowest value recorded during the day or month, respectively. For continuously monitored parameters the lowest value recorded is the lowest instantaneous value from the continuous monitoring record.

6. GPM

   GPM means gallons per minute.

7. Grab Sample

   Grab Sample means a single portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the monitored activity.

8. Injection Tubing or Tubing

   Injection Tubing means a system of pipes, of appropriate material, inserted into the well through the casing to convey the injection fluid to the injection zone and to prevent casing degradation.

9. Monthly Average of Parameters Monitored Continuously

Monthly Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C, item 1, divided by the total number of values observed and recorded during that month.

10. Monthly Average of Parameters Monitored Daily

Monthly Average of Parameters Monitored Daily means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during the month.

11. PSIG

PSIG means pounds per square inch gauge.

12. Water Filled Annulus

Water Filled Annulus is the annular space between the injection tubing and the cemented long string casing filled with water.

Attachment Q

Plugging and Abandonment Plan

Prior to plugging and abandoning the well, an MIT shall be conducted in accordance with 40 CFR §146.8 to ensure the absence of leaks in or behind the casing. Before plugging and abandonment static equilibrium will be obtained by bleeding fluid from the well to the brine ponds until there is zero pressure remaining at the wellhead. A wireline bridge plug will be set in the 13-3/8 inch casing at 1560 ft and a single cement plug run from 1560 ft to surface. Cement placement will be accomplished by running tubing and displacing the fluid in the casing with cement. The tubing will be pulled up as the cement fills the casing.

The permittee has submitted the following data base for plugging costs in addition to EPA Form 7520-14 and a sketch of the well after plugging and abandonment, which are attached.

Data Base for Plugging Costs

Halliburton Pumping Unit

Mileage from El Centro (230 miles one way)

$2.10/mi Pump Truck (one way)
$0.80/mi Tool Truck (one way)
$2.90/mi x 230 mi = $667.00

Equipment and Crews

$1,000/Day Pump Truck, etc.
$ 160/Day Per Diem - Crew
$ 80/Day Tool Man
$1,240/Day

Cement

$0.95/sack mix & pump customer
$7.00/sack delivered to well

Use ASTM TYPE 2 (API Type A) cement plus 1 bag calcium chloride per 100 sacks of cement.

One sack cement has a volume of 1.18 ft^3

Slurry Volume - Use 5-10% extra in pipes.

Workover Rig
Run tubing string for cementing.

$1,000 move-in plus $75/hour = $1,600/well

Time for Plugging

8 hours maximum

Attachment O

Contingency Plan for Well Failure

The permittee has submitted the following contingency plans for implementation when any well failures that may cause the migration of fluids into any USDW are identified by testing, or are indicated by operations data:

1. Stop injection to identified well.
2. Investigate well failure.
3. Report as required.
4. Take corrective action to repair or plug well and protect USDW.

ATT. Q

Form A[illegible]ed. OMB No. 2040-0042. Approval expires 9-30-86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

PLUGGING AND ABANDONMENT PLAN

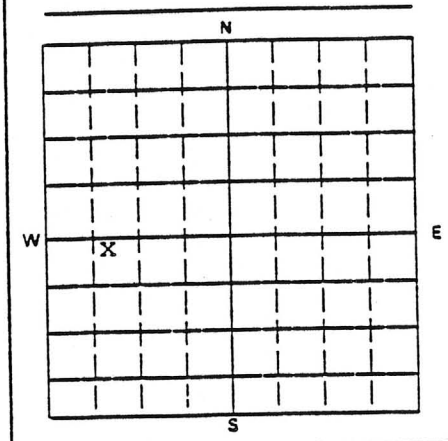
NAME AND ADDRESS OF FACILITY

Roach Baker Well No. 4
Glendale, AZ

NAME AND ADDRESS OF OWNER/OPERATOR

Southwest Salt Co.
13000 W. Glendale Ave
Glendale, AZ 85307

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE: AZ
COUNTY: Maricopa
PERMIT NUMBER:

SURFACE LOCATION DESCRIPTION

NE ¼ OF NW ¼ OF SW ¼ SECTION 2 TOWNSHIP 2N RANGE 1W

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 370 ft. from (N/S) N Line of quarter section
and 1010 ft. from (E/W) W Line of quarter section

TYPE OF AUTHORIZATION

- ☒ Individual Permit
- ☐ Area Permit
- ☐ Rul[illegible]

Number of Wells 1

WELL ACTIVITY

- ☐ CLASS I
- ☐ CLASS II
  - ☐ Brine Disposal
  - ☐ Enhanced Recovery
  - ☐ Hydrocarbon Storage
- ☒ CLASS III

Lease Name Roach-Baker
Well Number 4

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
20"	43		20'	21"
11-3/4"	47		1600'	15-3/4"

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☐ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	11-3/4"						
Depth to Bottom of Tubing or Drill Pipe (ft.)	1560						
Sacks of Cement To Be Used (each plug)	916						
Slurry Volume To Be Pumped (cu. ft.)	1080						
Calculated Top of Plug (ft.)	Surface						
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6						
Type Cement or Other Material (Class III)	Class A						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED *(If any)*

From	To	From	To

Estimated Cost to Plug Wells

1. Pull Tubing $3500
2. Set Plug $2500
3. Run Tubing $1500
4. Cement $7500
5. Contingency $1500

TOTAL $16,500

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*
L. H. Kreisel, Vice President
Salt Group Operations

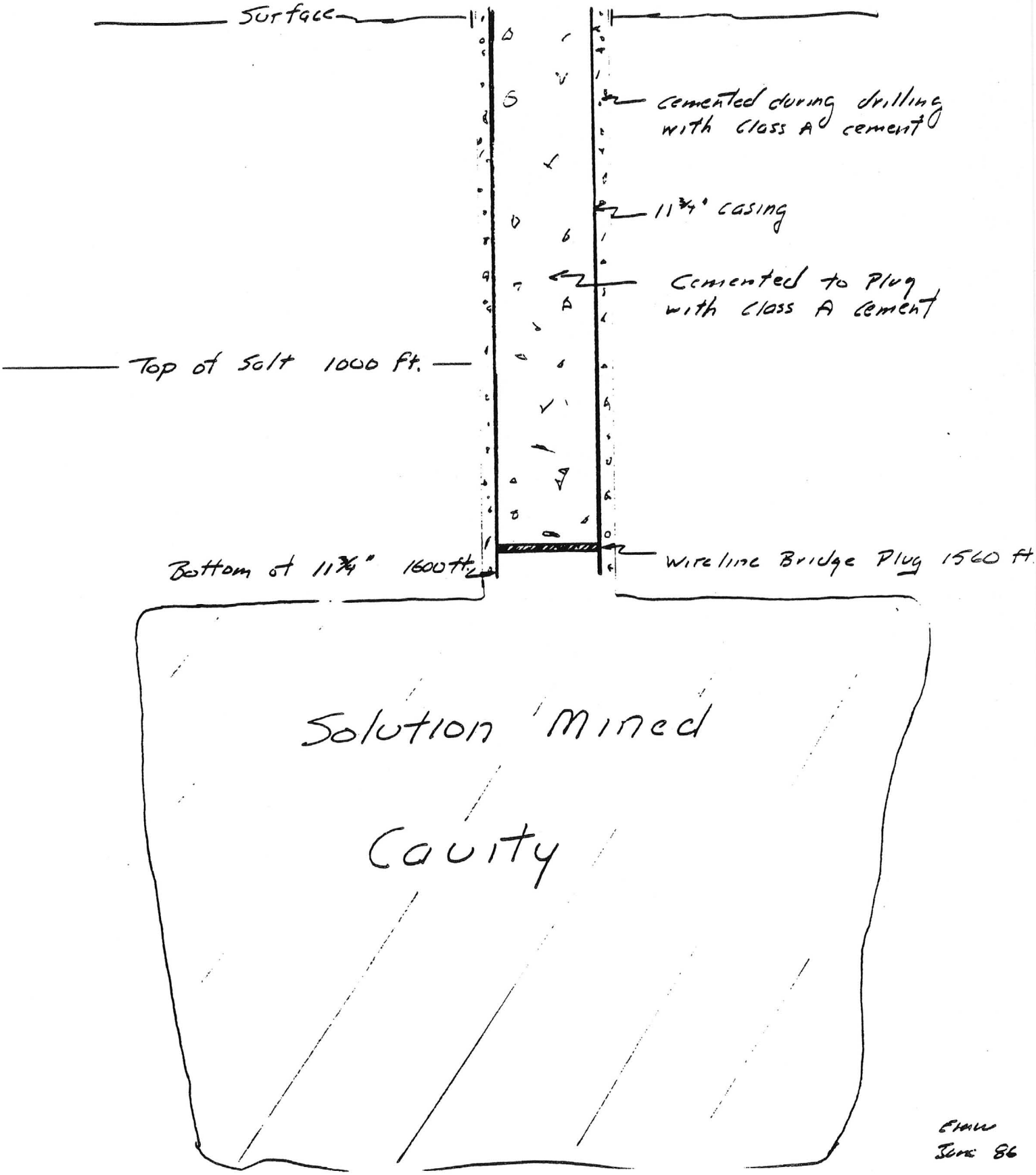
SIGNATURE

DATE SIGNED
8/1/86

EPA Form 7520-14 (3-84)

Att. D

Plug and Abandonment
Roach - Baker No. 4



Final
June 86

Attachment R

Financial Responsibility

The permittee has submitted a financial statement as demonstration of financial responsibility. The permittee was found to have met the criteria necessary to pass the financial test in accordance with the requirements of 40 CFR §144.52(a)(7).

The permittee shall submit updated financial assurance information for plugging and abandonment provided in this permit on an annual basis. The information submitted to the Director must consist of the following three (3) items:

(1) A letter signed by the owner's or operator's financial officer and worded as specified in 40 CFR §144.70(f); and

(2) A copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and

(3) A special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:

(i) He has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements; and

(ii) In connection with that procedure, no matters came to his attention which caused him to believe that the specific data should be adjusted.

The permittee must maintain a written cost estimate, in current dollars, for the plugging and abandonment plan as specified in 40 CFR §146.10 and according to the plan contained in Attachment Q. The latest cost estimates must be kept on file at the facility during the operating life of the facility and shall be available for inspection. The permittee must revise the plugging and abandonment cost estimate whenever a change in the plugging and abandonment plan increases the cost of plugging and abandonment.

The revised plugging and abandonment estimate must be adjusted for inflation. The inflation factor is prescribed in 40 CFR §144.62(b).

Five years from the effective date of the permit and every five years thereafter, the permittee must submit the most current plugging and abandonment cost estimate to the Director.

Attachment R

Attached are the following documents demonstrating financial responsibility for closure, plugging and abandonment:

1. Letter from Morton Thiokol's Vice President Finance.

2. Corporate guarantee for plugging and abandonment.

3. Report from Ernst and Whinny.

4. Form 10K

5. Morton Thiokol annual report for 1985.

MORTON THIOKOL, INC.

John R. Bowen
Vice President
Finance

July 1, 1986

Regional Administrator, Region IX
U.S. Environmental Protection Agency
215 Fremont Street
San Francisco, CA 94105

Dear Sir or Madam:

This letter, an update of our January 6, 1986 filing, contains information submitted as evidence of financial responsibility for the Environmental Protection Agency's underground injection control requirements:

1. Southwest Salt Company, Roach-Baker Ranch, 13000 W. Glendale Avenue, Glendale, Arizona is the owner or operator of Class III injection wells in the following state within EPA Region IX: Arizona.

2. Morton Thiokol, Inc., 110 North Wacker Drive, Chicago, IL guarantees the plugging and abandonment of the following injection wells owned or operated by Southwest Salt Company (a totally owned subsidiary):

Wells	Plugging and Abandonment Cost Estimate
Roach - Baker 1	$ 9,400
Roach - Baker 2	12,800
Roach - Baker 3	12,000
Roach - Baker 4	16,500
	$50,700

3. Morton Thiokol, Inc. is required to file a Form 10-K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

4. The fiscal year of Morton Thiokol, Inc. ends on June 30. The following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year ended June 30, 1985.

110 North Wacker Drive, Chicago, Illinois 60606-1560 (312) 807-2308

ALTERNATIVE II

1.	Current plugging and abandonment cost	$ 50,700
2.	Current bond rating of most recent issuance of this firm and name of rating service.... ..... (Standard & Poor's)	A
3.	Date of issuance of bond	Oct. 1, 1975
4.	Date of maturity of bond	Oct. 1, 2000
* 5.	Tangible net worth (if any portion of the closure and post-closure cost estimates is included in "total liabilities" on your firm's financial statements, you may add the amount of that portion to this line)	$ 498,202,000
* 6.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	$1,189,500,000

		Yes	No
7.	Is line 5 at least $10 million?	X	___
8.	Is line 5 at least 6 times line 1	X	___
* 9.	Are at least 90% of firm's assets located in the U.S.? If not, complete line 10	___	X
10.	Is line 6 at least 6 times line 1	X	___

I hereby certify that the financial information contained in this letter is correct.

John R. Bowen
Vice President Finance

Date: July 1, 1986

CORPORATE GUARANTEE FOR PLUGGING AND ABANDONMENT

Guarantee made this 1st day of July, 1986, by Morton Thiokol, Inc., a business corporation organized under the laws of the State of Delaware, herein referred to as guarantor, to the United State Environmental Protection Agency (EPA), obligee, on behalf of our subsidiary Southwest Salt Company of Roach-Baker Ranch, 13000 W. Glendale Avenue, Glendale, AZ.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the UIC reporting requirements for guarantors.

2. Southwest Salt Company owns or operates the following Class III injection wells covered by this guarantee:

   Roach-Baker Injection Wells
   13000 W. Glendale Avenue
   Glendale, AZ

   Roach-Baker No. 1
   UIC Permit No. AZSO 0000 0002

   Roach-Baker No. 2
   UIC Permit No. AZSO 0000 0003

   Roach-Baker No. 3
   UIC Permit No. AZSO 0000 0004

   Roach-Baker No. 4
   UIC Permit Application

3. "Plugging and abandonment plan" as used below refers to the plans maintained as required by 40 CFR Part 144 for the plugging and abandonment of injection wells as identified above.

4. For value received from Southwest Salt Company, guarantor guarantees to EPA that in the event that Southwest Salt Company fails to perform "plugging and abandonment" on the above facility in accordance with the plugging and abandonment plan and other requirements when required to do so, the guarantor will do so or fund a trust fund in the name of Southwest Salt Company in the amount of the adjusted plugging and abandonment cost estimates prepared as specified in 40 CFR 144.62.

5. Guarantor agrees that, if at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor will send within 90 days, by certified mail, notice to

the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located and to the Southwest Salt Company that he intends to provide alternate financial assurance as specified in 40 CFR 144.63 in the name of Southwest Salt Company. Within 30 days after sending such notice, the guarantor will establish such financial assurance if Southwest Salt Company has not done so.

6. The guarantor agrees to notify the Regional Administrator, by certified mail, of the voluntary or involuntary case under Title 11, U.S. Code, naming guarantor as debtor, within 10 days after its commencement.

7. Guarantor agrees that within 30 days after being notified by an EPA Regional Administrator of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of plugging and abandonment, he will establish alternate financial assurance, as specified in 40 CFR 144.63 in the name of Southwest Salt Company if Southwest Salt Company has not done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the plugging and abandonment plan, the extension or reduction of the time of performance or plugging and abandonment or any other modification or alteration of an obligation of Southwest Salt Company pursuant to 40 CFR Part 144.

9. Guarantor agrees to remain bound under this guarantee for so long as Southwest Salt Company must comply with the applicable financial assurance requirements of 40 CFR Part 144 for the above-listed facilities, except that guarantor may cancel this guarantee by sending notice by certified mail, to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located and to Southwest Salt Company, such cancellation to become effective no earlier that 120 days after actual receipt of such notice by both EPA and Southwest Salt Company as evidenced by the return receipts.

10. Guarantor agrees that if Southwest Salt Company fails to provide alternate financial assurance and obtain written approval of such assurance from the EPA Regional Administrator(s) within 90 days after a notice of cancellation by the guarantor is received by both the EPA Regional Administrator(s) and Southwest Salt Company, guarantor will provide alternate financial assurance as specified in 40 CFR 144.63 in the name of Southwest Salt Company.

11. Guarantor expressly waives notice of acceptance of this guarantee by the EPA or by Southwest Salt Company. Guarantor also expressly waives notice of amendments or modifications of the plugging and abandonment plan.

Effective Date: July 1, 1986

Morton Thiokol, Inc.

John R. Bowen
Vice President Finance

SUBSCRIBED AND SWORN to before me
this 1st day of July, 1986.

My commission expires My Commission Expires July 19, 1989

Ernst & Whinney

150 South Wacker Drive
Chicago, Illinois 60606

312/368-1800

Mr. John R. Bowen
Vice President - Finance
Morton Thiokol, Inc.

We have examined the consolidated financial statements of Morton Thiokol, Inc. and subsidiaries for the year ended June 30, 1985, and have expressed our unqualified opinion thereon in our report dated July 31, 1985.

At your request, we have compared the tangible net worth ($498,202,000) and total assets in the United States ($1,189,500,000), as set forth in your letter dated July 1, 1986 to representatives of environmental agencies, to the corresponding amounts derived from the aforementioned consolidated financial statements. In connection with performing this procedure, no matters came to our attention which caused us to believe that the specified data should be adjusted.

This letter has been prepared solely to assist you in complying with the applicable requirements of environmental agencies and is not to be used for any other purpose.

Ernst & Whinney

Chicago, Illinois
July 1, 1986

STATEMENT OF BASIS

Application for
Underground Injection Control Permit
for Class III Well at
Southwest Salt Company

Date: May 26, 1987

Facility Identification No. AZD020681839
Permit Identification Nos. AZS000000005

Name and Facility
Address of Applicant

Southwest Salt Company
Roach-Baker Ranch
13000 West Glendale Avenue
Glendale, Arizona 85307

Well Identification: Roach-Baker #4

BACKGROUND:

Southwest Salt Company (Southwest) plans to drill a well into the upper levels of the Luke Salt body located in the Salt River Valley. The draft permit is for a new Class III well to be used for the purpose of producing saturated brine for Southwest's solar operation. Saline water is injected under pressure through a system of tubings.

Injection into an underlying salt cavern causes dissolution of the salt body. This results in a saturated brine solution that will be forced to the surface through the well bore center tubing. The brine solution is then pumped to surface ponds. To flush salt build-up from the well tubing, Southwest will occasionally inject water through the center tubing, causing saturated brine to be produced from the injection annulus.

The injected brine is produced by mixing evaporative brine and saline water; also, Southwest Salt Co. accepts displaced brine from the Cal Gas LPG storage operations adjacent to the mining area. The fluid pumped from the operation approaches a 100% NaCl saturation. Injection operations are seasonal. Southwest Salt Company currently operates one other injection well for the purpose of salt solution mining.

INJECTION ZONE:

Injection will be into the Luke Salt body lying at a depth of approximately 1000 feet below land surface. The base of the Luke Salt body varies in depth from 6000 feet to 9000 feet below land surface. Injection will be limited to the upper levels of the salt body. The cavern developed by the operation will grow at a volumetric rate of approximately 4.5 million ft^3 per year.

Southwest Salt plans to maintain an upper layer of salt above the salt cavern. The proposed thickness of this salt cavern roof is 200 feet. If needed, a fluid-seal of fuel oil will be injected through the annulus which will act as an oil pad to prevent dissolution of the salt cavity ceiling.

LOCAL HYDROGEOLOGY:

An Underground Source of Drinking Water (USDW), the Upper Alluvial Unit is located above the Luke Salt body. Approximate flow is towards a large cone of depression south of the Luke Air Force Base. Several water producing wells penetrate the Upper Alluvial Unit throughout the area overlying the Luke Salt body. Salinity is erratic in the area of the salt body ranging from 500 to 9000 mg/l, but increases mainly with well depth.

The basin is modeled as saturated alluvial fill that yields water to wells only in the more hydraulically conductive zones. Also, the basin has been extensively pumped so as to cause subsidence in and around Luke Air Force Base, Sun City, and at the Southwest Salt facility site. As a result of the previous depletion of groundwater resources and NaCl contamination caused by the occurrence of the Luke Salt deposit the overlying USDW was degraded prior to the beginning of injection operations (for an additional explanation see Geological Survey Professional Paper 753). Southwest Salt Company will be able to prevent additional salt loading of the USDW if the mechanical integrity of the injection wells is maintained and dissolution of the anhydrite layer is prevented.

COMMENCEMENT:

Southwest Salt may not commence operation of Roach Baker well #4 until all hydrogeologic testing and logging, and well construction is complete, and until mechanical integrity has been demonstrated.

LOGS AND TESTS:

Logs and tests will provide further information concerning the confining ability of the anhydrite layer. Testing will also provide an approximate background measurement of salinity as it varies with depth.

MAXIMUM INJECTION PRESSURE:

Injection pressure measured at the wellhead shall be limited so as to prevent fracturing of the injection and confining zones. Assuming a natural background fracture gradient of 1.0 psi/ft, the applicant has proposed to base the maximum pressure on a conservative value of 0.8 psi/ft. Based on the experience of the applicant this fracture gradient has provided a suitable margin of safety in calculating the injection pressure. Maximum surface injection pressure is related to the fracture gradient through the following equation:

$$P_S = [F.G. - .433\ (SG)]\ (depth)$$

Where F.G. is the fracture gradient of the injection formation, SG is the specific gravity of the injected fluid, and depth is the depth in feet at which the top of the injection zone lies.

$$P_S = [.8 - .433\ (1.0)]\ (1200)$$

The calculated maximum injection pressure is 440 psi.

DEMONSTRATION OF MECHANICAL INTEGRITY: [§146.33(b)(3)]

A demonstration of mechanical integrity pursuant to 40 CFR §146.8 shall be conducted prior to operation and at least once every five years during the life of the well.

RATIO OF INJECTED FLUIDS TO PRODUCED FLUIDS:

To ensure that no leaks exist in the casing or salt cavern the permittee will monitor fluid volumes continuously and will calculate and report the monthly ratio of injected fluid volume to produced fluid volume. Based on the first year of operating data the Director may prescribe a limitation on this monthly ratio.

Based on historical data of other salt solution mining operations, the volume of fluid injected will be greater than the volume produced. The reason for a difference in injected volume and produced volume is attributed to the conservation of mass. The density of brine solution (produced fluid), being greater than water (innjected fluid), indicates that a volume of brine will have a greater weight than an equal volume of water. Thus, it requires a greater volume of water to be injected than brine being produced to have equal masses. So during injection operations a smaller volume of fluid will be produced than injected. Other factors that may cause this ratio to vary include temperature differences, salt body mechanics, and dissolution rates.

MONITORING REQUIREMENTS: [40 CFR 144.51(j)(1) and 144.52(a)(5)]

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used to obtain a representative sample of the fluid to be analyzed and the procedures for analysis of the sample are as follows:

a) Grab samples shall be collected at the sampling valve located at the well head and used for laboratory analysis of the physical and chemical characteristics.

b) Temperatures, annular fluid pressure, and injection pressure shall be measured at the wellhead.

c) The permittee shall identify the types of tests and methods used to generate the monitoring data as specified by 40 CFR 136.3 or Appendix III of 40 CFR 261. When the analytical method for a particular parameter is not specified in either 40 CFR 136.3 or Appendix III of 40 CFR 261, the permittee will obtain EPA approval of the types of tests and methods used to generate the monitoring data.

INJECTION FLUID ANALYSIS: [§144.28(g)(3)(i)]

The permittee shall provide to the Director a qualitative analysis, including the ranges in concentration of all constituents of injected fluids at least once within the first year of operation and thereafter, whenever the injection fluid is modified to the extent that the initial data are incorrect, incomplete or unrepresentative.

CONTINUOUS MONITORING DEVICES:

Continuous recording devices shall be installed at the wellhead and used to monitor temperature of injection, produced, and annulus fluid, injection rate, injection pressure, volume of injected and produced fluids, and seal fluid pressures and volumes.

MODIFICATION OF INJECTION FLUID: [§146.33(b)(1)]

Whenever the injection fluid is modified to the extent that the analysis required by §146.34(a)(7)(iii) is incorrect or incomplete, a new analysis as required by §146.34(a)(7)(iii) shall be provided to the Director.

MONITORING FREQUENCY: [§146.33(b)(2) and (4)]

Monitoring shall be conducted no less frequently than indicated for the parameters listed below:

Parameter	Monitoring Frequency	Sample Type
injection rate, gpm	continuous	Recorder
injection total, gallons	continuous	Totalizer
injection pressure, psi	continuous	Recorder
produced fluid total volume, gallons	continuous	Totalizer
water filled annular pressure, psi	continuous	Recorder
injection fluid temperature, °F	continuous	Recorder
produced fluid temperature, °F	continuous	Recorder
water filled annular temperature, °F	continuous	Recorder

Continuous monitoring is required to accurately record the range in values of the injection rate, range in values of the injection volume and range in values for the injection pressure.

A seal fluid of fuel oil can be maintained between the cavity ceiling and brine solution for the purpose of preventing dissolution of the salt cavern ceiling. Since anhydrite is not soluble in fuel oil; maintaining a protective oil layer limits the upward migration of brine and subsequent dissolution of the cavern ceiling. Southwest Salt plans to inject brine at rates that will allow the cavern to grow laterally and limit vertical dissolution of the cavern ceiling. For this reason, the use of the fuel oil will be limited. Southwest will inject the fuel oil when it is necessary to maintain the integrity of the salt cavern ceiling.

In the event Southwest injects the fuel oil, daily well head measurements will be taken of the total seal fluid volume and maximum seal fluid injection pressure.

Injection fluid temperature and production fluid temperature indicate the loss or gain of heat that may take place in the injection operation; and thereby serves as an indicator of mixing efficiency and subsequent fluid loss that may occur.

SALT CAVERN ROOF THICKNESS:

Southwest will monitor the thickness of the salt roof cavern by recording the salt cavern height every two years. This will ensure that the minimum salt cavern roof thickness of 200 ft. is maintained.

SUBSIDENCE MONITORING:

To ensure that subsidence will not cause contamination of the USDW by the salt mining operation Southwest Salt will submit plans for a monitoring well network. These plans must be submitted within ninety (90) days of the effective date of the permit.

PLUGGING AND ABANDONMENT:

Plans for abandoning the wells are included in the permit application as Attachment Q. Prior to abandonment, the Southwest Salt Company will be required to test the individual wells for leakage along the well bore. The plugging and abandonment plan complies with Federal UIC regulation (40 CFR 146.10).

FINANCIAL RESPONSIBILITY:

The applicant has demonstrated financial responsibility to plug and abandon the well. If issued a permit, the applicant will be required to send updated information to the EPA within 90 days after the close of each succeeding fiscal year. The EPA may also require reports of financial condition at any time from the applicant.

The draft permit also requires the permittee to update plugging and abandonment costs every five years. This will include a revised estimate of resources needed to plug and abandon the wells to reflect the effects of inflation.

ADMINISTRATIVE PROCEDURES:

The Administrative Record

The Administrative Records, including the application, draft permit, statement of basis, public notice, comments received and additional information, are available for review or copying at the EPA Library, 6th floor, 215 Fremont Street, San Francisco, California, 94105, during business hours, Monday through Friday. Documents can be requested by contacting EPA, Region 9. The statement of basis and draft permit are also available at the Glendale Public Library, 7010 N. 58th Drive., Glendale, Arizona.

Reference Documents

All documents used in the preparation of the draft permit are available at EPA, Region 9. Information regarding these materials may be obtained from the person listed below.

EPA Contact

Betty Wilcox
(415) 974-0808

PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS:

Comment Period

Any written comments on or objections to any or all of the draft permit and requests for a public hearing, pursuant to 40 CFR §124.11 must be received no later than the date specified in the public notice. Comments or requests for a public hearing must be mailed to the EPA address below.

Environmental Protection Agency
Underground Injection Control Section
215 Fremont Street
San Francisco, California 94105
Attn: Betty Wilcox (W-6-4)

Public Hearing

Requests for a public hearing must state the nature of the issues to be raised at the hearing. Pursuant to 40 CFR §124.12, the Regional Administrator will hold a public hearing if she finds, on the basis of requests, a significant degree of public interest in the draft permit or if she determines that a hearing might clarify one or more issues involved in the permit decision. If the Regional Administrator decides to hold a public hearing, a public notice of the date, time and place of the hearing will be made at least 30 days prior to the hearing.

Panel Hearing

In accordance with 40 CFR §124, Subpart F, any interested person may submit a request for a non-adversary panel hearing on the permit and its conditions within thirty days of the date of the public notice of intent to issue the permit.

The request must comply with the requirements set forth at 40 CFR §124.114. The granting of a request for a panel hearing under Subpart F is discretionary with the Regional Administrator and is not appealable.

Issuance of the Permit

After consideration of all written comments and of the requirements and policies in the Safe Drinking Water Act and appropriate regulations, and after consideration of all comments, statements and data presented at any public hearing, Regional Administrator will make a determination regarding the permit issuance. If the determination is substantially unchanged from the tentative determination outlined above, the EPA Regional Administrator will so notify all persons submitting written comments and all persons participating in any hearing. If the determination is substantially changed, the EPA Regional Administrator will issue a public notice indicating the revised determinations.

Unless a request for review (under 40 CFR §124.19) is received within thirty (30) days after the issued determination, the determination shall become effective and will be the final action of the EPA.

Luke Salt Deposit file Maricopa

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Dear Colleague:

Pursuant to his order of April 17, 1987, the Administrator has granted a review in part of the Southwest Salt Company appeal regarding the Underground Injection Control (UIC) permits for three Class III injection wells. That part of the appeal the Administrator has decided to accept for review involves the issue of whether EPA Region 9 acted properly in refusing to allow the withdrawal of the applications for Roach Baker well #1 and Roach Baker well #2.

The permit applicant and appellant in this appeal, Southwest Salt Company, uses underground injection wells for solution mining of a salt deposit in Maricopa, Arizona, known as the Luke Salt Body. A mixture of brine and fresh water is injectd through the wells into the salt cavity, and the resulting salt solution is then pumped out into a series of surface evaporation ponds. An underground source of drinking water is located above the Luke Salt Body.

Enclosed is a copy of the public notice and a copy of the decision to grant review of the appeal.

If you have any comments or concerns regarding the appeal, please contact Brian Cox of my staff at (415) 974-0798 or at the EPA address listed in the public notice. We look forward to hearing from you.

Sincerely,

James E. Thompson

for Richard A. Coddington
Acting Director
Water Management Division

Enclosures

NOTICE OF PUBLIC COMMENT PERIOD

by

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 9
215 Fremont Street (W-6-2)
San Francisco, CA 94105

On Decision to Review the Appeal of Southwest Salt Company
UIC Appeal no. 85-3
In the matter of Underground Injection Control Permit Nos.
AZS00000002
AZS00000003
AZS00000004

Public Notice Number AZ-UIC-87-1-W

The Administrator of the United States Environmental Protection Agency (USEPA), 401 M Street SW, Washington, D.C. 20460, pursuant to his Order of April 17, 1987, has granted a review in part of the above-referenced appeal.

That part of the appeal which the Administrator has decided to accept for review involves the issue of whether EPA Region 9 acted properly in refusing to allow the permit applicant, Southwest Salt Company, 13000 W Glendale Rd., Glendale, Arizona 85307, to withdraw its applications for Roach Baker well #1 (Permit No. AZS00000002) and Roach Baker well #2 (Permit No. AZS00000003).

This public notice of the Administrator's decision and the information contained herein are being provided in accordance with 40 C.F.R. §§124.10 and 124.19(c).

The permit applicant and appellant in this appeal, Southwest Salt Company, uses underground injection wells for solution mining of a salt deposit in Maricopa, Arizona, known as the Luke Salt Body. A mixture of brine and fresh water is injectd through the wells into the salt cavity, and the resulting salt solution is then pumped out into a series of surface evaporation ponds. An underground source of drinking water is located above the Luke Salt Body.

Interested persons may obtain further information and review the administrative record in this matter, including the draft and final permits, statement of basis, and data submitted by Southwest Salt Company at the EPA, Region 9 Library, sixth floor, address above between the hours of 9:00 am and 4:30 pm. A copy of the draft and final permits and the Administrator's decision will be available for inspection at the Glendale Public Library, 7010 N. 58th Dr., Glendale, Arizona.

Any interested person may file an amicus brief for which review has been granted. Written comments must be received no later than June 8, 1987 and should be sent to the addresses below.

Administrator
US Environmental Protection Agency
401 M Street SW
Washington, D.C. 20460

Environmental Protection Agency
215 Fremont Street
San Francisco, CA 94105
Attn: Brian Cox (W-6-2)

Jeff Wyant
Morton Salt Company
110 N Wacker Drive
Chicago, IL 60606

If appropriate, the Administrator will establish a schedule for reply briefs and notice will be given to interested persons at such future time.

For further information, please contact Brian Cox, Environmental Engineer, EPA, Region 9 at (415) 974-0798.

Please bring this notice to the attention of all persons who would be interested in this matter.

Dated: May 18, 1987

BEFORE THE ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In the Matter of:	)	
	)	
Southwest Salt Company	)	
Glendale, Arizona	)	UIC Appeal No. 85-3
	)	
UIC Permit Nos. AZS000000002	)	
AZS000000003	)	
AZS000000004	)	
	)	
	)	

ORDER

EPA Region 9 issued permits to Southwest Salt Company of Glendale, Arizona (Southwest) for three underground injection wells for the solution mining of salt. The company requests review of certain technical conditions common to all three permits. Additionally, it requests withdrawal of its applications for permits for Roach-Baker Well #1 (Permit No. AZS000000002) and Roach-Baker Well #2 (Permit No. AZS000000003), both of which are currently inactive. For the reasons set forth below, the petition is denied to the extent that Southwest seeks review of technical conditions in the permits. However, pursuant to 40 CFR §124.19(c), I am granting Southwest's request for review of the Region's action in denying its request to withdraw two permit applications. The Regional Administrator shall give public notice of this Order as provided in 40 CFR §124.10 within fifteen (15) days of the date of this Order. Any interested person may file a brief on the issue for which review has been granted within twenty-one (21) days of the date public notice is given. Copies of all briefs shall be mailed to the Administrator and to the individuals listed on the

Certificate of Service. If appropriate, a schedule for reply briefs will be established.

Background

Southwest Salt uses underground injection wells for the solution mining of a salt deposit in Maricopa, Arizona, known as the Luke Salt Body. A mixture of brine and fresh water is injected through the wells into the salt cavity, and the resulting salt solution is then pumped out into a series of surface evaporation ponds. An underground source of drinking water is located above the Luke Salt Body.

The Safe Drinking Water Act, as amended (1986), 42 U.S.C. §300f et seq. (SDWA), and implementing regulations, prohibit any underground injection that is not authorized by permit or rule. 42 U.S.C. §300h(b)(1); §300h-1(c). Southwest filed applications for UIC permits for three Class III wells on March 26, 1985. Region 9 issued a notice of proposed permits for the wells on August 7, 1985. Final permits were issued September 30, 1985, effective October 30, 1985. Southwest filed a petition on October 30, 1985, for review of the permit decisions.

Pursuant to 40 CFR §124.19(a), "any person who filed comments on the draft permit . . . may petition the Administrator to review any condition of the permit decision." The regulations further provide that petitioners may not raise any issue not raised during the comment period. 40 CFR §124.13. Southwest submitted written comments to EPA on September 9, 1985. Except as noted below, it has standing to petition for review.

The SDWA and applicable regulations do not provide a right to obtain review of UIC permit decisions. Rather, 40 CFR §124.19 provides that petitions for review shall not be granted unless the permit determination is clearly erroneous or involves an exercise of discretion or policy that is important and should be reviewed as a discretionary matter. The preamble to the regulations states that:

> this power of review should be only sparingly exercised [and] . . . most permit conditions should be finally determined at the Regional level . . . . 45 Fed. Reg. 33412 (May 19, 1980).

Thus, the burden of demonstrating that a permit determination should be reviewed rests on the person making the request.

Denial of Request to Review Permit Conditions

Southwest requests deletion of four permit conditions common to all three permits. Since the company has not demonstrated that it is entitled to review of any of the conditions, its requests are denied. A brief discussion of each condition follows.

1) Southwest objects to the condition that "the Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time." Part I, Section G (Mechanical Integrity), Paragraph 2, p. 9. It proposes, instead, that EPA require a demonstration of mechanical integrity only when the Agency has "due cause." Although the company recognizes that

the regulations authorize mechanical integrity demonstrations,[1/] it contends that the permits should not require them, because Southwest would be disadvantaged if the regulation were repealed and it remained bound by the requirement as a permit condition. According to the Region, the condition is necessary to enable it to assure that the mechanical integrity of the well is maintained. Moreover, the permit may be amended in appropriate circumstances to reflect any changes in the UIC regulations. 40 CFR §144.39(a)(3); UIC Permit Part I, Section B, Paragraph 1. Therefore, since EPA may clearly require a permittee to demonstrate mechanical integrity, petitioner has not demonstrated that review of this condition is warranted.

2) Southwest requests deletion of the condition that "mechanical integrity shall also be demonstrated any time the tubing is removed from the well, the packer is reset . . . ." UIC Permit Part I, Section G, Paragraph 3. In its petition, Southwest contended that testing on all such occasions would impede its efforts "at constantly monitoring and 'fine tuning'"

1/ The regulations provide that:

> . . . the Regional Administrator by written notice may require the owner or operator to comply with a schedule describing when [mechanical integrity] demonstrations shall be made. 40 CFR §144.51(p).

Additionally, the regulations require the permittee to furnish any information the Regional Administrator may require to determine compliance with the permit. 40 CFR §144.51(h). Further authority for the permit condition is provided by 40 CFR §144.52(a), which provides that the Regional Administrator may impose additional conditions necessary to prevent the migration of fluids into underground sources of drinking water.

the system. Moreover, with respect to Roach-Baker Well #3, Southwest argues that such a permit condition is unnecessary because the tubing design of the well does not affect its mechanical integrity and because a non-resettable packer was installed in February 1987. 2/

Southwest has not shown that it is entitled to review of this permit condition. The regulations provide clear authority for requiring mechanical integrity demonstrations. Moreover, I agree with the Region that mechanical integrity testing is appropriate after the tubing has been removed and replaced to provide assurance that the integrity of the well has been preserved. Southwest may seek modification of its permit for Roach-Baker Well #3 pursuant to 40 CFR §144.39, which provides a procedure for permit modification if substantial alterations or additions to a facility have been made, and if other regulatory requirements are met.

3) Southwest's petition raised a number of objections to monitoring requirements specified in Part II, Section C (Monitoring), Paragraph 5 of the permits, and proposes alternative monitoring provisions. 3/ Southwest contends that the monitoring requirements imposed by the permits will not provide information

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2/ Southwest's Reply to Regional Response, February 18, 1987. As I interpret Southwest's letter, the company continues to object to the inclusion of this condition in all three permits.

3/ Southwest initially objected to the reuirements for monitoring pH and for continuous monitoring of the following parameters: temperatures of injection fluid and produced fluid; injection

(next page)

of value to the Agency. The Region disagrees, and maintains that these requirements are appropriate to protect the underground source of drinking water. It has informed Southwest that EPA will consider modifying some of the monitoring requirements when Southwest submits new operational plans. Therefore, since the regulations authorize the Region to require monitoring, 40 CFR §§144.52(a) and .54, and since Southwest has not shown that the Region committed error or an abuse of discretion in imposing the particular monitoring requirements at issue, I am denying its request to review this condition.

4) Southwest contends that because it recently increased its expertise, it should be allowed to revise its applications and submit detailed operating plans before the permits are issued. Since Southwest did not raise this issue during the comment period, it does not have standing to raise it now.[4/]

Grant of Review of Region's Denial of Request to Withdraw Permit Applications

Lastly, Southwest renews its request, denied by the Region, to withdraw its applications for permits for Roach-Baker Wells #1 and #2

Footnote 3 (continued):

rate and pressure; volumes of injected and produced fluid; and seal fluid level and temperature. It proposed to report pH and temperature measurements on grab samples; and to measure injection and production rates on a semi-monthly basis. See letter from Southwest Salt to Region 9, September 9, 1985. In its reply to the Region, the company withdraws its objections to continuous monitoring requirements for injection rate, volume and pressure. It continues to object to permit requirements for monitoring production fluid total volume and the temperatures of injection, production, and seal fluid; and raises a new objection to the requirement for monitoring seal fluid level. Reply to Regional response, February 18, 1987.

4/ Petitioner may not raise any arguments not raised during the comment period. 40 CFR §124.13.

both of which are currently inactive. For the reasons stated below, I am granting review of the Region's action.

Region 9 issued permits to Southwest Salt for Roach-Baker Wells #1 and #2 on September 30, 1985, effective October 30, 1985. Southwest submitted two letters to Region 9 requesting withdrawal of the permit applications. The first, dated September 9, 1985, was signed by Southwest's technical director. The second, dated October 25, 1985, was signed by a company vice-president. The company plans to plug and abandon the wells and intends to comply with the Plugging and Abandonment Plans, EPA Form 7520-14, submitted in connection with its applications.

The Region refuses to permit Southwest to withdraw its applications. It states that the company's technical director lacked authority to make the September 9 request to withdraw the permit applications, and that the October 25 request was not timely because it was submitted after EPA had issued final permit decisions. Therefore, according to Region 9, Southwest is no longer an applicant but is a permittee. In accordance with Part I, Section E, Paragraph 7 of the permits, the Region has notified Southwest that it may not plug and abandon its wells until EPA obtains information from the company relating to a possible loss of fluid from Roach-Baker Well #2. 5/ Southwest questions the Region's authority to deny its request to withdraw

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5/ Letter from Nathan Lau, Chief, UIC Section, Region 9, to Southwest Salt Company, November 27, 1985.

its permit applications. Since the Region may have acted erroneously, I am granting Southwest's request for review of the Region's action.

I agree with the Region that Southwest's first request to withdraw its applications, signed by its technical director, did not satisfy the requirements of 40 CFR §144.32.[6/] However, Southwest's second request, which was signed by its vice-president, does satisfy the requirements of this regulation. Therefore, unless some other statutory or regulatory provision bars Southwest from withdrawing its applications, the Region should have allowed it to do so.

I do not agree with Region 9 that Southwest had final permits at the time it submitted its second request, since the regulations expressly define "permit" to exclude "any permit which has not yet been the subject of final Agency action." 40 CFR §124.1; 40 CFR §144.3. Final Agency action occurs when a permit is issued or denied and Agency review procedures (such as this appeal) are exhausted. 40 CFR §124.19(f)(1). Thus, it would appear that Southwest merely had pending applications, not final permits, on October 25, 1985.

The Region suggests in its response to the Petition that 40 CFR §144.53(b) authorizes the Regional Administrator to require

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6/ Pursuant to 40 CFR §144.32, permit applications shall be signed by the corporate officers identified therein.

an applicant to complete the application process, culminating in the issuance of a permit, and to comply with all closure requirements imposed on permittees. 7/ However, Southwest does not appear to fall within the category of permit applicants that 40 CFR §144.53(b) describes. This regulatory provision appears in Subpart E of the regulations, which is titled "Permit Conditions." It seems intended to apply to the narrow category of permit applicants who make the decision to cease regulated activities before issuance of a final permit, but who do not intend to cease conducting such activities until some time during the term of the permit. Based on the appellate record, it appears that Southwest terminated injection activities before issuance of the permits and, therefore, is not covered by the regulation.

Conclusion

The petition is denied to the extent that petitioner requests review of technical permit conditions in all three permits. Pursuant to 40 CFR §124.19(c), these permit conditions become final

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7/ Title 40 CFR §144.53(b) provides that:

> A permit applicant or permittee may cease conducting regulated activities (by plugging and abandonment) rather than continue to operate and meet permit requirements as follows:
>
> * * *
>
> (2) If the decision to cease conducting regulated activities is made before issuance of a permit whose term will include the termination date, the permit shall contain a schedule leading to termination which will ensure timely compliance with applicable requirements. 40 CFR §144.53(b).

Agency action. Since no issues remain affecting the issuance of UIC Permit No. AZS000000004 for Roach-Baker Well #3, the permit becomes effective in accordance with 40 CFR §124.19(f)(1).

I am granting Southwest's petition to review the issuance of final permits for Roach-Baker Wells #1 and #2. Pursuant to 40 CFR §124.16, the effect of these permits is stayed pending the decision on review.

The parties are requested to file briefs addressing the following questions:

1. What is the current legal status of Roach-Baker Wells #1 and #2 under the Safe Drinking Water Act; and what would their status be if the permit applications were withdrawn?

2. Does 40 CFR §144.53(b) authorize the Regional Administrator to require Southwest Salt to complete the permit application procedure, culminating in the issuance of a permit?

3. Does the Regional Administrator have other authority to require Southwest Salt to complete the permit application procedure and obtain a permit?

So ordered.

Lee M. Thomas
Administrator

Dated: April 17, 1987

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Order in the matter of Southwest Salt Company, UIC Appeal No. 85-3, were sent to the following persons in the following manner:

By 1st class mail, postage prepaid:

Jeffrey C. Wyant
Legal Department
Morton Salt Company
110 N. Wacker Drive
Chicago, IL 60606

Judith E. Ayres
Regional Administrator
U.S. EPA, Region IX
215 Fremont Street
San Francisco, CA 94105

Nathan Lau
Chief, UIC Section
U.S. EPA, Region IX
215 Fremont Street
San Francisco, CA 94105

Joseph Armao
Assistant Regional Counsel
U.S. EPA, Region IX
215 Fremont Street
San Francisco, CA 94105

Dated: [illegible]

Brenda H. Selden, Secretary
to the Chief Judicial Officer

DRAFT

U.S. ENVIRONMENTAL PROTECTION AGENCY

UNDERGROUND INJECTION CONTROL PERMIT: CLASS III

Permit Number AZS000000005

EPA ID Number AZD020681839

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147

Southwest Salt Co.
13000 W. Glendale Road
Glendale, Arizona 85307

is hereby authorized to operate a Class III injection well identified as

Roach-Baker #4

located at

T2N, R1W, SW 1/4 Sec. 2
Glendale
Maricopa County, Arizona

into Luke Salt Body, upon the express conditions that the permittee meet the restrictions set forth herein. Injection shall not commence until the permittee has received written permission from the Director to inject.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective. The following attachments are incorporated into this permit: Attachment O (Contingency Plan for Well Failure); Attachment Q (Plugging and Abandonment Plan); Attachment R (Financial Responsibility).

This permit shall become effective on

This permit and the authorization to inject shall continue for the operating lifetime of the well, unless terminated, or until primary enforcement responsibility is delegated to the State of Arizona, unless that State chooses to adopt this permit as a State permit.

The Director shall review this 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.

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Signed on

Richard A. Coddington, Acting Director
Water Management Division
EPA Region 9

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PART I

GENERAL PERMIT COMPLIANCE

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee, authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit is prohibited. Compliance with this permit does not constitute a defense to any action brought under the SDWA, or any other common or statutory law or regulation. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this permit shall be construed to relieve the permittee of any duties under applicable regulations.

B. PERMIT ACTIONS

1. Modification, Revocation, Reissuance and Termination.

The Director may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition. The Director may also modify, revoke and reissue, or terminate this permit in accordance with any amendments to the SDWA if the amendments have applicability to the conditions in this permit.

2. Transfer of Permits.

This permit is not transferrable to any person except in accordance with 40 CFR 144.38.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

1) The name and address of the permittee:

2) Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply.

The permittee shall comply with all applicable UIC Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 CFR 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. Such non-compliance may also be grounds for enforcement action under RCRA.

2. Penalties for Violations of Permit Conditions.

Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to the such actions pursuant to RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. State Continuation.

An EPA permit issued for the operating lifetime of the injection well may continue in force at the time a State is authorized to

assume primary enforcement authority, providing that the State has the authority to do so under State law, and that the State chooses to adopt and enforce the permit. Otherwise, the injection activity is operating without a Federal UIC permit from the time that the State assumes primacy until the effective date of the State-issued new permit.

4. Need to Halt or Reduce Activity not a Defense.

It shall not be a defense, for permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate.

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. Proper Operation and Maintenance.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. Duty to Provide Information.

The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. Inspection and Entry.

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA, any substances or parameters at any location.

9. Records.

(a) The permittee shall retain records and all monitoring information, including all calibration and maintenance records and all original instrumented recordings for continuous monitoring and copies of all reports required by this permit for a period of at least five years from the date of the sample, measurement or report.

(b) The permittee shall maintain records of all data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR 144.31 for a period of at least five years from the date the application was signed. These periods may be extended by request of the Director at any time.

(c) The permittee shall retain records concerning the nature and composition of all injected fluids until three years after the completion of plugging and abandonment which has been carried out in accordance with the attached plugging and abandonment plan, and is consistent with 40 CFR 146.10.

(d) The permittee shall continue to retain the records after the retention period specified by paragraphs (a) to (c) above, unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

(e) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individual(s) who performed the sampling or measurements;

(3) A precise description of both sampling methodology and the handling (custody) of samples;

(4) The date(s) analyses were performed;

(5) The names of individual(s) who performed the analyses;

(6) The analytical techniques or methods used; and

(7) The results of such analyses.

10. Monitoring.

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Monitoring results shall be reported at the intervals specified in Part II, Paragraphs C and D, of this permit.

(a) Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR 136.3 or in Appendix III of 40 CFR Part 261 or in certain circumstances by other methods that have been approved by the Administrator.

(b) The permittee shall submit, to the Director, all reports as required in Part II, Sections C and D of this permit. The permittee shall prepare a report describing the intended procedures that will be used for sample collection, handling, and analysis. This report must be submitted for approval by EPA a minimum of 30 days prior to collecting samples for the first Quarterly Report and any time the sampling procedures are changed or modified for subsequent reporting periods.

11. Signatory Requirements.

All reports or other information, required to be submitted by this permit or requested by the Director, shall be signed and certified in accordance with 40 CFR 144.32.

12. Reporting Requirements.

(a) Planned Changes. The permittee shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility.

(b) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.

(d) Twenty-four Hour Reporting.

(1) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the

time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:

(i) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.

(ii) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between underground sources of drinking water.

(2) A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(e) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition 12(d)(2) above.

(f) Other Information. When the permittee becomes aware that he failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, the permittee shall submit such facts or information within 10 days.

(g) Report of Permit Review. Within thirty (30) days of receipt of this permit, the permittee shall report to the Director that he has read and is personally familiar with all terms and conditions of this permit.

F. COMMENCING INJECTION.

An operator may not commence injection until:

1. All logs and tests required by Part II, Section A, Item 2 of this permit are completed and results submitted to the Director,

2. Mechanical integrity of the well has been demonstrated in accordance with Part I, Section H and Part II, Section B, Item 5,

3. Construction is complete as required by Part II, Section A, Item 1 and Part II, Section C, Item 6 of the permit, and the permittee has submitted to the Director, by Certified Mail with return receipt requested, a notice of completion of construction using EPA Form 7520-9, and either:

(a) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

(b) The permittee has not received, within 13 days of the date of the Director's receipt of the notice required above, notice from the Director of his or her intent to inspect or otherwise review the new injection well, in which case prior inspection or review is waived and the permittee may commence injection.

G. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment.

The permittee shall notify the Director no later than 45 days before conversion or abandonment of the well.

2. Plugging and Abandonment.

Pursuant to 40 CFR §146.10, the Director shall prescribe aquifer cleanup and monitoring prior to plugging and abandonment where he deems it necessary and feasible to insure adequate protection of USDWs.

The permittee shall plug and abandon the well consistent with 40 CFR 146.10, as provided for in the attached plugging and abandonment plan (which is hereby incorporated as a part of this permit). Within 60 days after plugging a well, or at the time of the next quarterly report (whichever is shorter), the permittee shall submit a report to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and shall consist of either:

(a) A statement that the well was plugged in accordance with the plan previously submitted to the Director; or

(b) If the actual plugging differed from the approved plan, a statement defining the actual plugging and why the Director should approve such deviation. Any deviation from a previously approved plan may be cause for the Director to require the operator to replug the well.

3. Inactive Wells.

After a cessation of injection for two years the permittee shall plug and abandon the well in accordance with the plan unless he:

(a) Provides notice to the Director; and

(b) Describes actions or procedures, which are deemed satisfactory by the Director, that the permittee will take to ensure that the well will not endanger USDWs during the period of

temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived, in writing, by the Director.

H. MECHANICAL INTEGRITY

1. Standards.

All injection well(s) must have and maintain mechanical integrity consistent with 40 CFR §146.8.

2. Prohibition Without Demonstration.

The permitttee shall not commence injection activity after the effective date of this permit unless the permittee has demonstrated that the well covered by this permit has mechnical integrity in accordance with 40 CFR §146.8 and the permittee has received written notice from the Director that such demonstration is satisfactory.

3. Mechanical Integrity Request from Director.

The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.

4. Subsequent Mechanical Integrity Demonstrations.

A demonstration of mechanical integrity in accordance with 40 CFR §§146.8 and 146.33(b)(3) shall be made no later than five years from the date of the last approved demonstration. Mechanical integrity shall also be demonstrated any time the tubing is removed from the well, the packer is reset, or a loss of mechanical integrity becomes evident during operation. The permittee shall notify the Director of his intent to demonstrate mechanical integrity at least 30 days prior to such demonstration. The permittee shall report the results of a mechanical integrity demonstration within 90 days after completion.

5. Loss Of Mechanical Integrity.

If the permittee or the Director finds that the well fails to demonstrate mechanical integrity during a test, or a loss of mechanical integrity as defined by 40 CFR §146.8 becomes evident during operation, the operation shall be halted immediately and shall not be resumed until the Director gives approval to recommence injection.

I. FINANCIAL RESPONSIBILITY

1. Financial Responsibility.

The permittee is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner consistent with the underground injection control regulations and Attachment Q (Plugging and Abandonment Plan). The financial responsibility mechanism shall be updated periodically, upon request of the Director.

2. Insolvency.

In the event of:

(a) the bankruptcy of the trustee or issuing institution of the financial mechanism, or

(b) suspension or revocation of the authority of the trustee institution to act as trustee, or

(c) the institution issuing the financial mechanism loses its authority to issue such an instrument, the permittee must notify the Director, within ten (10) business days. The owner or operator must establish other financial assurance or liability coverage acceptable to the Director, within 60 days after such an event.

An owner or operator must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within 10 business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he is named as debtor, as required under the terms of the guarantee.

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PART II

WELL SPECIFIC CONDITIONS FOR UIC PERMITS

A. CONSTRUCTION

1. Casing and Cementing [40 CFR 146.32(a)].

Notwithstanding any other provisions of this permit, the permittee shall case and cement the well to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of the well shall be designed for the life expectancy of the well. The permittee shall give advance notice of any planned changes in the construction of the permitted well to the Director. The following specifications apply to Roach Baker well #4.

Conductor Casing	-	20 inch conductor pipe driven to 20 ft below ground surface.
Long String Casing	-	13-3/8 inch J-55 steel, 42 lb/ft, .333 inch wall thickness, cemented in 18 inch hole from 1600 ft below ground surface to surface.
Injection Tubing	-	10-3/4 inch J-55 steel, 32 lb/ft, .312 inch wall thickness, or similar tubing from approximately 2600 ft to surface.
Production Tubing	-	6-5/8 inch J-55 steel, 14 lb/ft, .244 inch wall thickness, or similar tubing from approximately 3000 ft to surface.

2. Logs and Tests

The appropriate logs and tests shall be conducted during the drilling and construction of the well. A descriptive report interpreting the results of those logs and tests which specifically relate to (1) an USDW and confining zone and (2) the injection and adjacent formations, shall be prepared by a knowledgable log analyst and submitted to the Director. The following logs and tests shall be conducted.

a. Coring of anhydrite	for	core analysis, including lithologic description and hydrogeologic parameters,
b. Resistivity, Gamma Ray and Spontaneous Potential Logs	for	detection of permeable beds, indication of bed shaliness, salinity profile approximation, location of lithologic boundaries, and density profile,

c. Lithologic analysis of borings brought to surface during drilling of Roach Baker #4,

d. Collection of formation water samples for chemical analysis,

e. Mechanical integrity testing of the well in accordance with Part II, Section B, Item 5 of this permit, and

f. A cement bond log (CBL) prior to operation to demonstrate adequate primary cementing.

B. OPERATIONS

1. Injection Formation.

Injection shall be limited to the Luke Salt Body in the interval between 1200 ft and 5000 ft below land surface. In no event shall the roof of the solution cavern be developed in such a manner that dissolution of the overlying anhydrite beds takes place or that injection brines or seal fluids are allowed to migrate into any formation overlying the Luke Salt Body.

2. Salt Cavern Roof.

The permittee shall maintain a minimum salt cavern roof thickness of 200 feet between the overlying anhydrite layer and salt cavern ceiling unless a written request is sent to the Director and written permission is given by the Director to maintain a thickness of less than 200 ft. Depth below ground surface of the salt cavern ceiling shall be determined once every two years. Control of dissolution of the cavern ceiling may include, but not be limited to injection of fuel-oil to act as a seal fluid blanket.

3. Injection Pressure Limitation [40 CFR §146.33(a)].

Injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water. The maximum injection pressure measured at the wellhead, shall not exceed 440 psig during operation of the well.

4. Additional Injection Limitation.

Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

5. Mechanical Integrity Test [40 CFR §146.8]

A Mechanical Integrity Test (MIT) shall be conducted prior to operation and once every five years to demonstrate the absence of significant leaks in the casing and to demonstrate the absence of significant fluid movement through vertical channels adjacent to the injection well. Sixty (60) days prior to conducting a mechanical integrity test, the permittee shall submit to the Director for approval, a plan to conduct a mechanical integrity test. Tests shall not proceed until the permittee receives the Director's written permission.

6. Ratio of Injected Volume to Produced Volume Limitation

Within one year following the effective date of operation of Roach Baker #4, the Director may prescribe a limitation of the ratio of injected fluid volume to produced volume. This value will be based upon data submitted by the permittee during the first year of operation of Roach Baker #4.

C. MONITORING

1. Monitoring Requirements [40 CFR §§144.51(j)(1) and 144.52(a)(5)].

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used to obtain a representative sample of the fluid to be analyzed and the procedures for analysis of the sample are as follows:

- Grab samples shall be collected at the sampling valve at the wellhead and used for laboratory analysis for physical and chemical characteristics.

- Temperature, annular pressure, and injection pressure shall be measured at the wellhead.

- The permittee shall identify the types of tests and methods used to generate the monitoring data as specified by 40 CFR §136.3 or Appendix III of 40 CFR §261. When the analytical method for a particular parameter is not specified in either 40 CFR §136.3 or Appendix III of 40 CFR §261, the permittee must obtain EPA approval of the types of tests and methods used to generate the monitoring data.

2. Injection Fluid Analysis [40 CFR §144.28(g)(3)(i)]

The permittee shall provide to the Director a qualitative analysis and ranges in concentrations of all constituents of injected fluids at least once within the first year of authorization and thereafter whenever the injection fluids are modified to the extent that the initial data are incorrect or incomplete. The owner or operator may request Federal confidentiality as specified in 40 CFR Part 2. If the information is proprietary the owner or

operator may in lieu of the ranges in concentrations choose to submit maximum concentrations which shall not be exceeded. In such a case the owner or operator shall retain records of the undisclosed concentrations and provide them upon request to the Regional Administrator as part of any enforcement investigation.

3. Demonstration of Mechanical Integrity [40 CFR §146.33(b)(3)]

A demonstration of mechanical integrity pursuant to 40 CFR §146.8 shall be conducted at least once every five years during the life of the well.

4. Modification of Injection Fluid [40 CFR §146.33(b)(1)].

Whenever the injection fluid is modified to the extent that the analysis required by §146.34(a)(7)(iii) is incorrect or incomplete, a new analysis as required by §146.34(a)(7)(iii) shall be provided to the Director.

5. Monitoring Frequency [40 CFR §146.33(b)(2) and (4)].

Monitoring shall be conducted no less frequently than indicated for the parameters listed below:

Parameter	Monitoring Frequency	Sample Type
injection rate, vol/time	continuous	Recorder
injection total volume, gallons	continuous	Totalizer
injection pressure, psig	continuous	Recorder
produced fluid total volume, gallons	continuous	Totalizer
water filled annular pressure, psig	continuous	Recorder
injection fluid temperature, °F	continuous	Recorder
produced fluid temperature, °F	continuous	Recorder
water filled annular temperature, °F	continuous	Recorder
seal fluid total volume injected, gallons	daily	Measured
maximum seal fluid injection pressure, psig	daily	Measured

6. Continuous Monitoring Devices.

Continuous recording devices shall be installed at the wellhead and used to monitor temperature of injection fluid, produced fluid and annular fluid, injection rate, injection and annular pressure, and volume of injected and produced fluids. Description, specifications, and location of the equipment shall be submitted to the Director for approval prior to operation. This equipment shall be installed and operating prior to operation of the well.

7. Seal Fluid Measurements.

Seal fluid injection shall be monitored on a daily basis when injection of such fluid occurs. Seal fluid volumes injected and pressure of seal fluid injection shall be reported for each incidence of seal fluid injection.

8. Salt Cavern Roof Thickness.

Measurement of the salt cavern roof thickness shall be taken once every two years. This value shall be measured from the ceiling of the salt cavern to the bottom of the overlying anhydrite layer.

9. Monitoring Modification.

Following one year of operation of the well, the permittee may request a modification of monitoring requirements. The request shall be in writing and shall state specifically the type of modification requested.

D. REPORTING REQUIREMENTS [40 CFR §146.33(c)(1)]

1. Quarterly reports

The permittee shall submit accurate quarterly reports to the Director containing the following information:

(a) Results of the injection fluid analyses specified in Part II, Section C, item 2.

(b) Monthly average, maximum and minimum values for injection fluid temperature, produced fluid temperature, annular temperature, injection pressure, injection rate, seal fluid volume, and total injection volume and production volume.

(c) Daily and monthly ratio of injected to produced fluid volume.

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2. Reports on Well Tests and Workovers [40 CFR §146.13(c)(2)]

In the first quarterly report after the activity the permittee shall report to the Director the results of the following:

(a) Mechanical integrity tests;

(b) Other tests required by this permit;

(c) Any well workover and removal or replacement of tubings.

3. Reporting of Monitoring Results

All pH values shall be reported to the nearest 0.1 pH unit. Observation and recording of parameters specified to be monitored periodically shall be done over equal time intervals over a 24 hour period. When computing a daily or monthly average value, as defined in the section of Definitions, for those parameters monitored continuously, the continuous recording charts shall be read once for every 2 hour measurement taken during periods of injection. The reporting of daily average, daily maximum, and daily minimum values shall be in a format acceptable to the Director.

Monitoring results obtained during each calendar month shall be summarized for each month and reported on EPA Form 7520-8. Forms shall be submitted for the reporting periods by the respective due dates as listed below:

Reporting Period	Report Due
July, Aug, Sept	Oct 28
Oct, Nov, Dec	Jan 28
Jan, Feb, Mar	Apr 28
Apr, May, June	Jul 28

The report shall also include the following information:

1. date and time of sample collection;

2. name of individual(s) who performed the sampling;

3. type of containers used and how samples were treated and preserved prior to transporting to the lab;

4. method of transportation to the lab;

5. name and location of the lab analyzing the samples;

6. the procedures used by the lab for analysis; (Note: If the procedures were different from the information submitted as required in Part I, Section E, item 10(b) of this permit, indicate these differences.) and

7. reference to established, published criteria should be made wherever possible.

Copies of the monitoring results required by Section C of Part I and all other reports required by Section B of Part II shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Region 9
Water Management Division
Underground Injection Control Section (W-6-2)
215 Fremont Street
San Francisco, California 94105

PART III

SCHEDULE OF COMPLIANCE

A. SUBSIDENCE MONITORING PROGRAM

Within ninety (90) days of the effective date of this permit the permittee shall submit a plan to the Director for approval to develop a monitoring well network specifically for the purpose of monitoring subsidence.

Implementation of a subsidence monitoring program shall begin within one year of the effective date of the permit.

B. SALT ROOF CAVERN THICKNESS

Within ninety (90) days of the effective date of the permit the permittee shall submit a plan to the Director to measure the salt roof cavern thickness and salt cavern ceiling depth below ground surface. Plans shall include description of devices used to obtain the above values.

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Definitions

1. BPD

BPD means barrels per day.

2. Daily Average of Parameters Monitored Continuously

Daily Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C of this permit, divided by the total number of values observed and recorded during the day.

3. Daily Average of Parameters Not Monitored Continuously

Daily Average of Parameters Not Monitored Continuously means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during that day.

4. Daily or Monthly Maximum Value

Maximum Value means the highest value recorded during the day or month, respectively. For continuously monitored parameters the highest value recorded is the highest instantaneous value for the continuous monitoring record.

5. Daily or Monthly Minimum Value

Minimum Value means the lowest value recorded during the day or month, respectively. For continuously monitored parameters the lowest value recorded is the lowest instantaneous value from the continuous monitoring record.

6. GPM

GPM means gallons per minute.

7. Grab Sample

Grab Sample means a single portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the monitored activity.

8. Injection Tubing or Tubing

Injection Tubing means a system of pipes, of appropriate material, inserted into the well through the casing to convey the injection fluid to the injection zone and to prevent casing degradation.

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9. Monthly Average of Parameters Monitored Continuously

Monthly Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C, item 1, divided by the total number of values observed and recorded during that month.

10. Monthly Average of Parameters Monitored Daily

Monthly Average of Parameters Monitored Daily means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during the month.

11. PSIG

PSIG means pounds per square inch gauge.

12. Water Filled Annulus

Water Filled Annulus is the annular space between the injection tubing and the cemented long string casing filled with water.

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Attachment O

Contingency Plan for Well Failure

The permittee has submitted the following contingency plans for implementation when any well failures that may cause the migration of fluids into any USDW are identified by testing, or are indicated by operations data:

1. Stop injection to identified well.

2. Investigate well failure.

3. Report as required.

4. Take corrective action to repair or plug well and protect USDW.

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Attachment Q

Plugging and Abandonment Plan

Prior to plugging and abandoning the well, an MIT shall be conducted in accordance with 40 CFR §146.8 to ensure the absence of leaks in or behind the casing. Before plugging and abandonment static equilibrium will be obtained by bleeding fluid from the well to the brine ponds until there is zero pressure remaining at the wellhead. A wireline bridge plug will be set in the 13-3/8 inch casing at 1560 ft and a single cement plug run from 1560 ft to surface. Cement placement will be accomplished by running tubing and displacing the fluid in the casing with cement. The tubing will be pulled up as the cement fills the casing.

The permittee has submitted the following data base for plugging costs in addition to EPA Form 7520-14 and a sketch of the well after plugging and abandonment, which are attached.

Data Base for Plugging Costs

Halliburton Pumping Unit

Mileage from El Centro (230 miles one way)

$2.10/mi Pump Truck (one way)
$0.80/mi Tool Truck (one way)
$2.90/mi x 230 mi = $667.00

Equipment and Crews

$1,000/Day Pump Truck, etc.
$ 160/Day Per Diem - Crew
$ 80/Day Tool Man
$1,240/Day

Cement

$0.95/sack mix & pump customer
$7.00/sack delivered to well

Use ASTM TYPE 2 (API Type A) cement plus 1 bag calcium chloride per 100 sacks of cement.

One sack cement has a volume of 1.18 ft^3

Slurry Volume - Use 5-10% extra in pipes.

Workover Rig
Run tubing string for cementing.

$1,000 move-in plus $75/hour = $1,600/well

Time for Plugging

8 hours maximum

ATT. Q

Form App... OM... ...04 ... ...ov... ...es 9-30-86

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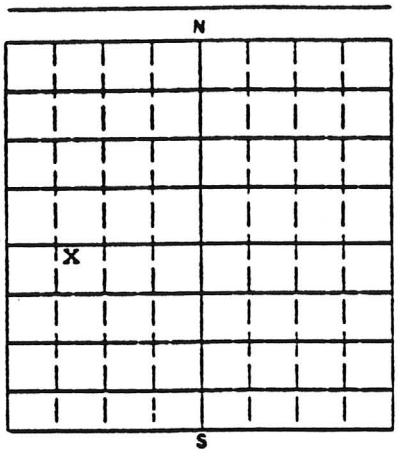
UNITED STATES ENVIRONMENTAL PROTECTION ...
WASHINGTON, DC 20460

EPA

PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY	NAME AND ADDRESS OF OWNER/OPERATOR
Roach Baker Well No. 4 Glendale, AZ	Southwest Salt Co. 13000 W. Glendale Ave Glendale, AZ 85307

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
AZ	Maricopa	

SURFACE LOCATION DESCRIPTION

NE ¼ OF NW ¼ OF SW ¼ SECTION 2 TOWNSHIP 2N RANGE 1W

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 370 ft. from (N/S) N Line of quarter section

and 1010 ft. from (E/W) W Line of quarter section

TYPE OF AUTHORIZATION	WELL ACTIVITY
☒ Individual Permit ☐ Area Permit ☐ Rul. Number of Wells 1	☐ CLASS I ☐ CLASS II ☐ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage ☒ CLASS III
Lease Name Roach-Baker	Well Number 4

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
20"	43		20'	21"
11-3/4"	47		1600'	15-3/4"

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☐ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	11-3/4"						
Depth to Bottom of Tubing or Drill Pipe (ft.)	1560						
Sacks of Cement To Be Used (each plug)	916						
Slurry Volume To Be Pumped (cu. ft.)	1080						
Calculated Top of Plug (ft.)	Surface						
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	15.6						
Type Cement or Other Material (Class III)	Class A						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED *(If any)*

From	To	From	To

Estimated Cost to Plug Wells

1. Pull Tubing $3500
2. Set Plug $2500
3. Run Tubing $1500
4. Cement $7500
5. Contingency $1500

TOTAL $16,500

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
L. H. Kreisel, Vice President Salt Group Operations		8/1/86

EPA Form 7520-14 (3-84)

Plug and Abandonment
Roach - Baker No. 4

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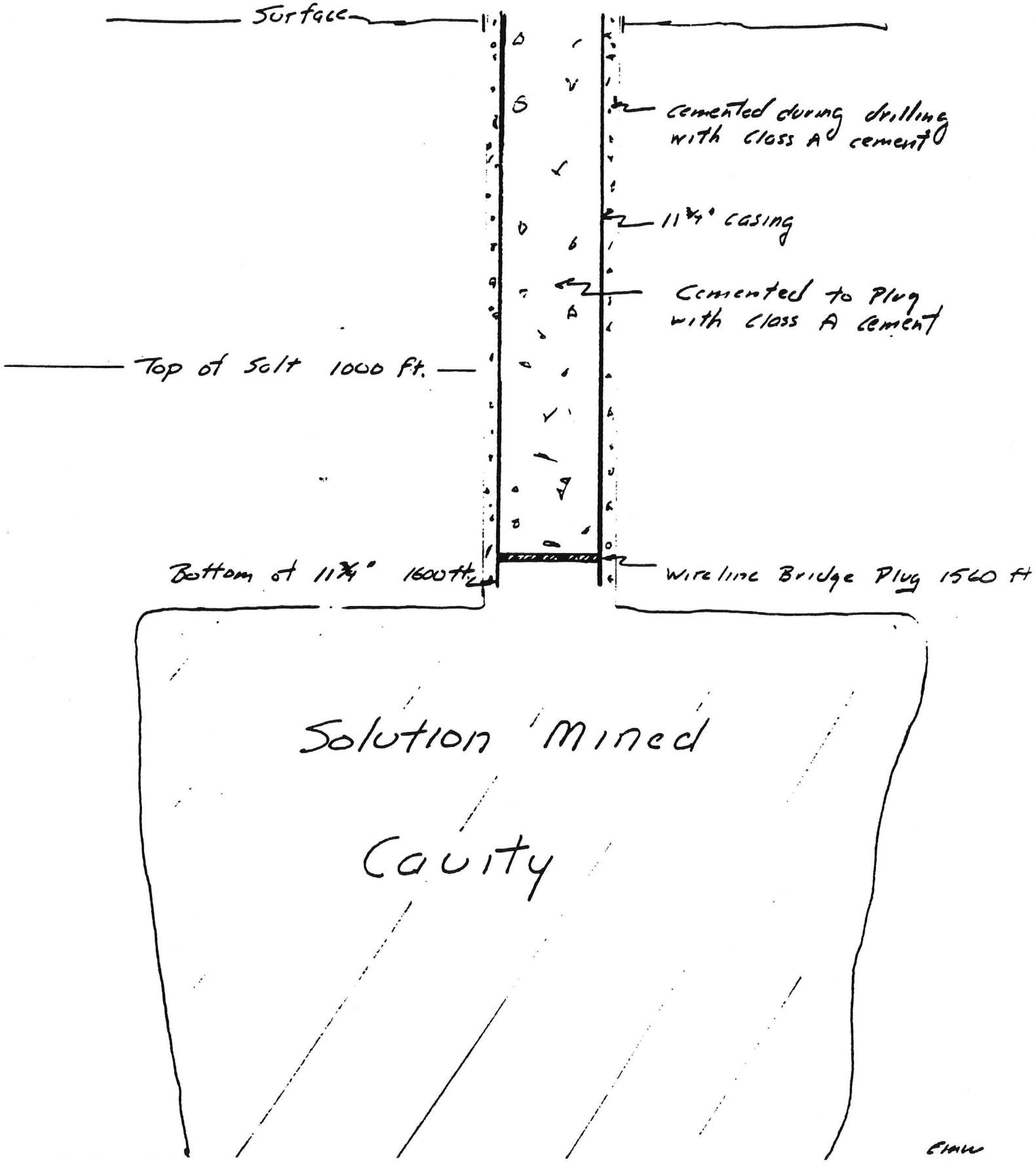

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Attachment R

Financial Responsibility

The permittee has submitted a financial statement as demonstration of financial responsibility. The permittee was found to have met the criteria necessary to pass the financial test in accordance with the requirements of 40 CFR §144.52(a)(7).

The permittee shall submit updated financial assurance information for plugging and abandonment provided in this permit on an annual basis. The information submitted to the Director must consist of the following three (3) items:

(1) A letter signed by the owner's or operator's financial officer and worded as specified in 40 CFR §144.70(f); and

(2) A copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and

(3) A special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:

(i) He has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements; and

(ii) In connection with that procedure, no matters came to his attention which caused him to believe that the specific data should be adjusted.

The permittee must maintain a written cost estimate, in current dollars, for the plugging and abandonment plan as specified in 40 CFR §146.10 and according to the plan contained in Attachment Q. The latest cost estimates must be kept on file at the facility during the operating life of the facility and shall be available for inspection. The permittee must revise the plugging and abandonment cost estimate whenever a change in the plugging and abandonment plan increases the cost of plugging and abandonment.

The revised plugging and abandonment estimate must be adjusted for inflation. The inflation factor is prescribed in 40 CFR §144.62(b).

Five years from the effective date of the permit and every five years thereafter, the permittee must submit the most current plugging and abandonment cost estimate to the Director.

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Attachment R

Attached are the following documents demonstrating financial responsibility for closure, plugging and abandonment:

1. Letter from Morton Thiokol's Vice President Finance.

2. Corporate guarantee for plugging and abandonment.

3. Report from Ernst and Whinny.

4. Form 10K

5. Morton Thiokol annual report for 1985.

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MORTON THIOKOL, INC.

John R. Bowen
Vice President
Finance

July 1, 1986

Regional Administrator, Region IX
U.S. Environmental Protection Agency
215 Fremont Street
San Francisco, CA 94105

Dear Sir or Madam:

This letter, an update of our January 6, 1986 filing, contains information submitted as evidence of financial responsibility for the Environmental Protection Agency's underground injection control requirements:

1. Southwest Salt Company, Roach-Baker Ranch, 13000 W. Glendale Avenue, Glendale, Arizona is the owner or operator of Class III injection wells in the following state within EPA Region IX: Arizona.

2. Morton Thiokol, Inc., 110 North Wacker Drive, Chicago, IL guarantees the plugging and abandonment of the following injection wells owned or operated by Southwest Salt Company (a totally owned subsidiary):

Wells	Plugging and Abandonment Cost Estimate
Roach - Baker 1	$ 9,400
Roach - Baker 2	12,800
Roach - Baker 3	12,000
Roach - Baker 4	16,500
	$50,700

3. Morton Thiokol, Inc. is required to file a Form 10-K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

4. The fiscal year of Morton Thiokol, Inc. ends on June 30. The following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year ended June 30, 1985.

110 North Wacker Drive, Chicago, Illinois 60606-1560 (312) 807-2308

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ALTERNATIVE II

1.	Current plugging and abandonment cost	$ 50,700
2.	Current bond rating of most recent issuance of this firm and name of rating service.... ..... (Standard & Poor's)	A
3.	Date of issuance of bond	Oct. 1, 1975
4.	Date of maturity of bond	Oct. 1, 2000
* 5.	Tangible net worth (if any portion of the closure and post-closure cost estimates is included in "total liabilities" on your firm's financial statements, you may add the amount of that portion to this line)	$ 498,202,000
* 6.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	$1,189,500,000

		Yes	No
7.	Is line 5 at least $10 million?	X	___
8.	Is line 5 at least 6 times line 1	X	___
* 9.	Are at least 90% of firm's assets located in the U.S.? If not, complete line 10	___	X
10.	Is line 6 at least 6 times line 1	X	___

I hereby certify that the financial information contained in this letter is correct.

John R. Bowen
Vice President Finance

Date: July 1, 1986

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CORPORATE GUARANTEE FOR PLUGGING AND ABANDONMENT

Guarantee made this 1st day of July, 1986, by Morton Thiokol, Inc., a business corporation organized under the laws of the State of Delaware, herein referred to as guarantor, to the United State Environmental Protection Agency (EPA), obligee, on behalf of our subsidiary Southwest Salt Company of Roach-Baker Ranch, 13000 W. Glendale Avenue, Glendale, AZ.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the UIC reporting requirements for guarantors.

2. Southwest Salt Company owns or operates the following Class III injection wells covered by this guarantee:

   Roach-Baker Injection Wells
   13000 W. Glendale Avenue
   Glendale, AZ

   Roach-Baker No. 1
   UIC Permit No. AZSO 0000 0002

   Roach-Baker No. 2
   UIC Permit No. AZSO 0000 0003

   Roach-Baker No. 3
   UIC Permit No. AZSO 0000 0004

   Roach-Baker No. 4
   UIC Permit Application

3. "Plugging and abandonment plan" as used below refers to the plans maintained as required by 40 CFR Part 144 for the plugging and abandonment of injection wells as identified above.

4. For value received from Southwest Salt Company, guarantor guarantees to EPA that in the event that Southwest Salt Company fails to perform "plugging and abandonment" on the above facility in accordance with the plugging and abandonment plan and other requirements when required to do so, the guarantor will do so or fund a trust fund in the name of Southwest Salt Company in the amount of the adjusted plugging and abandonment cost estimates prepared as specified in 40 CFR 144.62.

5. Guarantor agrees that, if at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor will send within 90 days, by certified mail, notice to

the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located and to the Southwest Salt Company that he intends to provide alternate financial assurance as specified in 40 CFR 144.63 in the name of Southwest Salt Company. Within 30 days after sending such notice, the guarantor will establish such financial assurance if Southwest Salt Company has not done so.

6. The guarantor agrees to notify the Regional Administrator, by certified mail, of the voluntary or involuntary case under Title 11, U.S. Code, naming guarantor as debtor, within 10 days after its commencement.

7. Guarantor agrees that within 30 days after being notified by an EPA Regional Administrator of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of plugging and abandonment, he will establish alternate financial assurance, as specified in 40 CFR 144.63 in the name of Southwest Salt Company if Southwest Salt Company has not done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the plugging and abandonment plan, the extension or reduction of the time of performance or plugging and abandonment or any other modification or alteration of an obligation of Southwest Salt Company pursuant to 40 CFR Part 144.

9. Guarantor agrees to remain bound under this guarantee for so long as Southwest Salt Company must comply with the applicable financial assurance requirements of 40 CFR Part 144 for the above-listed facilities, except that guarantor may cancel this guarantee by sending notice by certified mail, to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located and to Southwest Salt Company, such cancellation to become effective no earlier that 120 days after actual receipt of such notice by both EPA and Southwest Salt Company as evidenced by the return receipts.

10. Guarantor agrees that if Southwest Salt Company fails to provide alternate financial assurance and obtain written approval of such assurance from the EPA Regional Administrator(s) within 90 days after a notice of cancellation by the guarantor is received by both the EPA Regional Administrator(s) and Southwest Salt Company, guarantor will provide alternate financial assurance as specified in 40 CFR 144.63 in the name of Southwest Salt Company.

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11. Guarantor expressly waives notice of acceptance of this guarantee by the EPA or by Southwest Salt Company. Guarantor also expressly waives notice of amendments or modifications of the plugging and abandonment plan.

Effective Date: July 1, 1986

Morton Thiokol, Inc.

John R. Bowen
Vice President Finance

SUBSCRIBED AND SWORN to before me
this 1st day of July, 1986.

My commission expires My Commission Expires July 19, 1989

DRAFT

Ernst & Whinney

150 South Wacker Drive
Chicago, Illinois 60606

312/368-1800

Mr. John R. Bowen
Vice President - Finance
Morton Thiokol, Inc.

We have examined the consolidated financial statements of Morton Thiokol, Inc. and subsidiaries for the year ended June 30, 1985, and have expressed our unqualified opinion thereon in our report dated July 31, 1985.

At your request, we have compared the tangible net worth ($498,202,000) and total assets in the United States ($1,189,500,000), as set forth in your letter dated July 1, 1986 to representatives of environmental agencies, to the corresponding amounts derived from the aforementioned consolidated financial statements. In connection with performing this procedure, no matters came to our attention which caused us to believe that the specified data should be adjusted.

This letter has been prepared solely to assist you in complying with the applicable requirements of environmental agencies and is not to be used for any other purpose.

Ernst & Whinney

Chicago, Illinois
July 1, 1986

LUKE SALT DEPOSITS (file)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

30 SEP 1985

Dear Colleague:

Re: Notice of Final Decision

On 30 SEP 1985 EPA, Region 9, issued three Class III Underground Injection Control (UIC) permits to the following facility to operate wells known as Southwest Salt Roach-Baker Injection Wells No. 1, 2, and 3.

Southwest Salt Company
Roach-Baker Ranch
13000 W. Glendale Avenue
Glendale, Arizona
UIC Permit No. AZS000000002
UIC Permit No. AZS000000003
UIC Permit No. AZS000000004

The staff at the Environmental Protection Agency (EPA) has reviewed the UIC permit applications for the wells mentioned above and has prepared draft permits, in accordance with Federal UIC regulations of 40 C.F.R. Parts 124, 144 and 146. Also, the EPA has published a public notice of its tentative decision to issue permits. After considering the expressed views of all interested persons and agencies, pertinent Federal Statutes and Regulations, EPA, pursuant to 40 C.F.R. 124, has prepared final permits which do not differ significantly from the draft permits.

The Responsiveness Summary, shown in Enclosure 1, is EPA's response to significant comments on the draft permits received during the comment period between August 7, 1985 and September 10, 1985. Changes made to the draft permits and the reasons for these changes are also described in the Responsiveness Summary.

The UIC permits are hereby issued upon 30 SEP 1985, shall become effective on 30 OCT 1985 and shall be effective for the operating lifetime of the operation unless terminated, or unless there is a written petition to appeal the final decisions. The procedures to appeal the final decisions are described in Enclosure 2. The final permits are shown in Enclosure 3.

Further information, including copies of the permits, may be obtained by contacting Carole Truitt at EPA, Region 9, Drinking Water Branch, 215 Fremont Street, San Francisco, California, 94105 or by calling (415) 974-7172.

Sincerely,

Frank M. Covington

Frank M. Covington, Director
Water Management Division

Enclosures

ENCLOSURE 1

RESPONSIVENESS SUMMARY
FOR
COMMENT PERIOD
ON
EPA'S DRAFT UIC PERMITS
WELL NO. AZS000000002
AZS000000003
AZS000000004
FOR
SOUTHWEST SALT COMPANY
P. O. BOX 1237
LITCHFIELD PARK, ARIZONA
AT ROACH-BAKER RANCH
13000 WEST GLENDALE AVENUE
GLENDALE, ARIZONA

INTRODUCTION

This Responsiveness Summary is prepared in accordance with 40 CFR § 124.17 to respond to the public comments on the application for EPA Underground Injection Control (UIC) permits by Southwest Salt Company in Glendale, Ariziona. On March 26, 1985, Southwest Salt Company submitted a UIC permit application for three Class III injection wells for the solution mining of a sodium chloride salt deposit. The application, after review by EPA Region 9 staff, was deemed complete on June 25, 1985.

Public notice was given in the Glendale Star of Glendale, Arizona and in The Arizona Republic of Phoenix, Arizona on August 7, 1985. Copies of the public notice, statement of basis and draft permits were individually mailed to state officials, local officials and individuals. The comment period was from August 7, 1985 through September 10, 1985. The public notice, statement of basis and draft permits were also available for public review during the comment period at the Glendale Public Library in Glendale, Arizona.

The major issues raised during the comment period are summarized in this document, as are EPA's responses to the points and questions raised. After review and consideration of the comments by EPA, no significant changes were made between the draft and final permits. However, the noteworthy changes that were made are described in the Responsiveness Summary.

COMMENT: One commentor requested a public hearing during which concerns related to an anonymous report of a loss of 7,000 gallons of crankcase oil from a well into the overlying aquifer could be addressed.

RESPONSE: The purpose of a public hearing is to allow the public an opportunity to raise their concerns for EPA's consideration before a final permit determination. EPA would not have responded to those concerns at the public hearing, but within the framework of a Responsiveness Summary, which is this document.

EPA has considered those comments in its permit determination. In addition to regulatory authority implicit within the UIC program, specific permit conditions may apply to the reported incident.

- Part I(f)(2) cites 40 CFR 146.10 in which the Director has the authority to prescribe aquifer cleanup.

- The wells must be plugged and abandoned in accordance with 40 CFR.10 which includes provisions for mechanical integrity tests prior to the actual plugging. Those tests will be designed to detect any breach in the roof of the salt cavity.

COMMENT: One commentor objected to the requirement for continuous monitoring devices on the basis that they are not a regulatory requirement nor are they needed to protect groundwater from contamination, citing 40 CFR 144.28(g)(3)(iii) as the basis for that comment.

RESPONSE: The portion of the UIC regulations cited, 40 CFR 144.28(g), describes the minimal operating requirements for Class I, II and III wells authorized by rule. Technical permit conditions are prepared in accordance with 40 CFR 146 (Subpart D) which describes the minimum requirements for criteria and standards applicable to Class III wells in a permit.

In addition, the conditions in the permits are consistent with the applications which indicate that for proper operation of the well, it is necessary to have the pressure drops in the water-brine and production strings close to a balance at the well's design rate. For an alternate requirement, the permittee has the option of presenting a revised operating plan for EPA's approval pursuant to Condition II(B)(3).

COMMENT: One commentor objected to the monitoring frequency required in Part II(C)(5) on the basis that the regulations used the words "as appropriate" and "where appropriate" and the natural contamination of the groundwater is ongoing, irreversible and cannot be stopped.

RESPONSE: EPA agrees that a natural increase in salinity of the groundwarter in the vicinity of the Luke Salt Body is ongoing, irreversible,and will not stop as long as current hydrogeologic conditions exist. EPA disagrees, however, that the Southwest Salt operation has no effect on the groundwater. The natural contamination consists of increased salinity in the USDW. Southwest Salts' operation has used petroleum based fluid seals. A breach of the roof of the salt cavern and overlying anhydrite beds could allow injection of petroleum products of currently unidentified characteristics into the overlying USDW. Contamination of the aquifer by the seal fluids would clearly constitute contamination beyond that which occurs naturally.

Part II(B)(3) of the permit provides the permittee the opportunity to present an alternative operational plan for EPA's review.

COMMENT: One commentor requested that Part I(F), Plugging and Abandonment, be deleted and alternative language be substituted.

RESPONSE: The permit language is standard language which meets regulatory requirements. EPA finds the alternative language submitted by the commentor to be unacceptable as it does not meet the substantive requirements of 40 CFR 146.10.

COMMENT: One commentor objected to mechanical integrity conditions Part I(G)(2) and (3) and suggested alternative language to require the Director to demonstrate "due cause".

RESPONSE: It is not EPA's intention to require mechanical integrity testing arbitrarily and capriciously or without "due cause". It is, however, EPA's regulatory responsibility to assure the maintenance of mechanical integrity and the protection of USDW's. This condition was not changed in the final permit.

COMMENT: One commentor objected to the limitation of the injection interval.

RESPONSE: EPA understands that the Luke Salt Body is an extensive salt deposit. The injection intervals designated in the permits correspond to those requested in the permit applications. The permittee may make a request for increased injection intervals as part of the overall operational plan required in Part II(B)(3) of the permit. The plan will be suject to review by EPA and may result in permit modification as appropriate.

COMMENT: One commentor inquired as to how the structural integrity of the protective anhydrite cap is monitored as the cavern is enlarged.

RESPONSE: If operated as proposed in the applications, wells maintain a fluid seal at the roof of the salt cavity to protect the roof and the anhydrite from dissolution. The anhydrite is a highly soluble mineral and is not considered a confining layer. Proper operation includes maintenance of an adequate overlying salt zone to isolate the injectate from overlying USDWs.

If the wells are operated properly, the fluid seal will prevent dissolution of the roof of the salt cavity and overlying anhydrite bed.

COMMENT: One commentor requested information about the potential impact of the facility on the hydrocarbon storage facility located next to it.

RESPONSE: There should be no impact on the Calgas Liquid Petroleum Gas (LPG) wells. There would be no anticipated pressure build-up nor any fluid migration through the salt body which might affect the Calgas wells.

COMMENT: One commentor inquired whether hydrocarbons were being stored in the same caverns that are producing brine.

RESPONSE: There are no hydrocarbons being stored in the wells at the Southwest Salt facility.

COMMENT: One commentor expressed concern that the contingency plan does not appear to require the facility to address groundwater cleanup due to a loss of fuel oil or brine solution into the overlying aquifer as a result of a well or cavern failure.

RESPONSE: The permittee has met the substantive requirements of 40 CFR §146.34(14) to submit "contingency plans to cope with all shut-ins or well failures so as to prevent the migration of contaminating fluids into underground sources of drinking water."

Clean-up may be required under the Federal UIC Program, where contamination of a USDW has occurred. The following permit language was added to Part I(F)(2) of the final permits for clarification. "Pursuant to 40 CFR §146.10, the Director shall prescribe aquifer clean-up and monitoring prior to plugging and abandonment where he deems it necessary and feasible to insure adequate protection of USDWs."

COMMENT: One commentor asked what was being done to protect the wells from collapse of casings due to subsidence in the vicinity of the facility.

RESPONSE: Part II(C)(5) of the permits requires continuous monitoring of the seal fluid and injection fluid. While monitoring in itself will not prevent casing collapse due to subsidence, it will provide warning of a loss of integrity and will prompt shutdown, minimizing the opportunity for contamination of the overlying USDW.

COMMENT: One commentor requested withdrawal of the permit applications for Roach-Baker No. 1 and Roach-Baker No. 2 on the basis that injection is not ongoing and that plugging and abandonment is desirable.

RESPONSE: EPA finds withdrawal of the permit applications inappropriate. 40 CFR §144.53(b) provides for alternative schedules of compliance should the permittee choose to cease injection, and plug and abandon the wells.

The following modification was made by EPA in all three final permits. Part I(E)(12)(g) was added. This condition requires that within thirty (30) days, the permittee must verify to the Director that he has read and is familiar with the terms and conditions of this permit.

ENCLOSURE 2

FEDERAL UNDERGROUND INJECTION CONTROL PROGRAM
PERMIT APPEALS PROCEDURES

The provisions governing procedures for the appeal of an EPA permitting decision are defined at 40 CFR §124.19. The appeals process allows for a written petition for review from any person who commented on the draft permit either in writing during the comment period or orally at the public hearing. Persons who have not previously participated in the comment period may only appeal changes which occurred between the draft and final permits. Appeals may be made by citizens, groups, organizations, governments and the permittee within this procedural framework.

A petition for review must be filed within thirty (30) days from the issuance date of the permit. Such written requests are to be sent to EPA at the addresses listed below.

The Administrator
U.S. EPA
410 M Street, SW
Washington, DC 20460

Regional Administrator
U.S. EPA, Region 9
215 Fremont Street
San Francisco, CA 94105

Reference should be made to 40 CFR §124.19 for guidance in preparing a petition for appeal.

Within a reasonable time of receipt of the petition for review, the Administrator will either grant or deny the petition for review. EPA will provide public notice of the granting of an appeal as provided in 40 CFR §124.19. Petitioners whose petitions are denied will be individually notified of the action and any further appeal rights.

The Administrator may deny the appeal, decide the issue on the merits or remand the permit for futher proceedings. The Regional Administrator, EPA, Region 9, will issue a final permit decision when any of the above is completed. After that time all administrative appeals have been exhausted, and any further challenges to the permit decision must be made to federal court.

ENCLOSURE 3

U.S. ENVIRONMENTAL PROTECTION AGENCY

UNDERGROUND INJECTION CONTROL PERMIT: CLASS III

Permit Number AZS000000002

EPA ID Number AZD020681839

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147

Southwest Salt Co.
P. O. Box 1237
Litchfield Park, Arizona 85340

is hereby authorized to operate a Class III injection well identified as

Roach-Baker #1

located at

T2N, R1W, SW 1/4 Sec. 2
Glendale
Maricopa County, Arizona

into Luke Salt Body, upon the express conditions that the permittee meet the restrictions set forth herein. Injection is authorized by rule pursuant to 40 CFR 144.21 until the effective date of this permit.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective. The following attachments are incorporated into this permit: Attachment H (Operating Data); Attachment O (Contingency Plan for Well Failure); Attachment Q (Plugging and Abandonment Plan); Attachment R (Financial Responsibility).

This permit shall become effective on 30 OCT 1985

This permit and the authorization to inject shall continue for the operating lifetime of the well, unless terminated, or until primary enforcement responsibility is delegated to the State of Arizona, unless that State chooses to adopt this permit as a State permit.

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

Signed on 30 SEP 1985

Frank M. Covington

Frank M. Covington, Director
Water Management Division
EPA Region 9

PART I

GENERAL PERMIT COMPLIANCE

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee, authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit is prohibited. Compliance with this permit does not constitute a defense to any action brought under the SDWA, or any other common or statutory law or regulation. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this permit shall be construed to relieve the permittee of any duties under applicable regulations.

B. PERMIT ACTIONS

1. Modification, Revocation, Reissuance and Termination.

The Director may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition. The Director may also modify, revoke and reissue, or terminate this permit in accordance with any amendments to the SDWA if the amendments have applicability to the conditions in this permit.

2. Transfer of Permits.

This permit is not transferrable to any person except in accordance with 40 CFR 144.38.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

1) The name and address of the permittee:

2) Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply.

The permittee shall comply with all applicable UIC Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 CFR 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. Such non-compliance may also be grounds for enforcement action under RCRA.

2. Penalties for Violations of Permit Conditions.

Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to the such actions pursuant to RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. State Continuation.

An EPA permit issued for the operating lifetime of the injection well may continue in force at the time a State is authorized to

assume primary enforcement authority, providing that the State has the authority to do so under State law, and that the State chooses to adopt and enforce the permit. Otherwise, the injection activity is operating without a Federal UIC permit from the time that the State assumes primacy until the effective date of the State-issued new permit.

4. Need to Halt or Reduce Activity not a Defense.

It shall not be a defense, for permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate.

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. Proper Operation and Maintenance.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. Duty to Provide Information.

The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. Inspection and Entry.

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA, any substances or parameters at any location.

9. Records.

(a) The permittee shall retain records and all monitoring information, including all calibration and maintenance records and all original instrumented recordings for continuous monitoring and copies of all reports required by this permit for a period of at least five years from the date of the sample, measurement or report.

(b) The permittee shall maintain records of all data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR 144.31 for a period of at least five years from the date the application was signed. These periods may be extended by request of the Director at any time.

(c) The permittee shall retain records concerning the nature and composition of all injected fluids until three years after the completion of plugging and abandonment which has been carried out in accordance with the attached plugging and abandonment plan, and is consistent with 40 CFR 146.10.

(d) The permittee shall continue to retain the records after the retention period specified by paragraphs (a) to (c) above, unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

(e) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individual(s) who performed the sampling or measurements;

(3) A precise description of both sampling methodology and the handling (custody) of samples;

(4) The date(s) analyses were performed;

(5) The names of individual(s) who performed the analyses;

(6) The analytical techniques or methods used; and

(7) The results of such analyses.

10. Monitoring.

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Monitoring results shall be reported at the intervals specified in Part II, Paragraphs C and D, of this permit.

(a) Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR 136.3 or in Appendix III of 40 CFR Part 261 or in certain circumstances by other methods that have been approved by the Administrator.

(b) The permittee shall submit, to the Director, all reports as required in Part II, Sections C and D of this permit. The permittee shall prepare a report describing the intended procedures that will be used for sample collection, handling, and analysis. This report must be submitted for approval by EPA a minimum of 30 days prior to collecting samples for the first Quarterly Report and any time the sampling procedures are changed or modified for subsequent reporting periods.

11. Signatory Requirements.

All reports or other information, required to be submitted by this permit or requested by the Director, shall be signed and certified in accordance with 40 CFR 144.32.

12. Reporting Requirements.

(a) Planned Changes. The permittee shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility.

(b) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.

(d) Twenty-four Hour Reporting.

(1) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the

time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:

(i) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.

(ii) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between underground sources of drinking water.

(2) A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(e) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition 12(d)(2) above.

(f) Other Information. When the permittee becomes aware that he failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, the permittee shall submit such facts or information within 10 days.

(g) Report of Permit Review. Within thirty (30) days of receipt of this permit, the permittee shall report to the Director that he has read and is personally familiar with all terms and conditions of this permit.

F. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment.

The permittee shall notify the Director no later than 45 days before conversion or abandonment of the well.

2. Plugging and Abandonment.

Pursuant to 40 CFR §146.10, the Director shall prescribe aquifer cleanup and monitoring prior to plugging and abandonment where he deems it necessary and feasible to insure adequate protection of USDWs.

The permittee shall plug and abandon the well consistent with 40 CFR 146.10, as provided for in the attached plugging and abandon-

ment plan (which is hereby incorporated as a part of this permit). Within 60 days after plugging a well, or at the time of the next quarterly report (whichever is shorter), the permittee shall submit a report to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and shall consist of either:

(a) A statement that the well was plugged in accordance with the plan previously submitted to the Director; or

(b) If the actual plugging differed from the approved plan, a statement defining the actual plugging and why the Director should approve such deviation. Any deviation from an previously approved plan may be cause for the Director to require the operator to replug the well.

3. Inactive Wells.

After a cessation of injection for two years the permittee shall plug and abandon the well in accordance with the plan unless he:

(a) Provides notice to the Director; and

(b) Describes actions or procedures, which are deemed satisfactory by the Director, that the permittee will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived, in writing, by the Director.

G. MECHANICAL INTEGRITY

1. Standards.

All injection well(s) must have and maintain mechanical integrity consistent with 40 CFR 146.8.

2. Mechanical Integrity Request from Director.

The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.

3. Subsequent Mechanical Integrity Demonstrations.

A demonstration of mechanical integrity in accordance with 40 CFR 146.8 and 146.33(b)(3) shall be made no later than five years from the date of the last approved demonstration. Mechanical integrity shall also be demonstrated any time the tubing is removed from the well, the packer is reset, or a loss of mechanical integrity becomes evident during operation. The permittee shall notify the Director of his intent to demonstrate mechanical integrity at least 30 days prior to such demonstration. The permittee shall report the results of a mechanical integrity demonstration within 90 days after completion.

4. Loss Of Mechanical Integrity.

If the permittee or the Director finds that the well fails to demonstrate mechanical integrity during a test, or a loss of mechanical integrity as defined by 40 CFR 146.8 becomes evident during operation, the operation shall be halted immediately and shall not be resumed until the Director gives approval to recommence injection.

H. FINANCIAL RESPONSIBILITY

1. Financial Responsibility.

The permittee is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner consistent with the underground injection control regulations and Attachment Q (Plugging and Abandonment Plan). The financial responsibility mechanism shall be updated periodically, upon request of the Director.

2. Insolvency.

In the event of:

(a) the bankruptcy of the trustee or issuing institution of the financial mechanism, or

(b) suspension or revocation of the authority of the trustee institution to act as trustee, or

(c) the institution issuing the financial mechanism loses its authority to issue such an instrument, the permittee must notify the Director, within ten (10) business days. The owner or operator must establish other financial assurance or liability coverage acceptable to the Director, within 60 days after such an event.

An owner or operator must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within 10 business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he is named as debtor, as required under the terms of the guarantee.

PART II

WELL SPECIFIC CONDITIONS FOR UIC PERMITS

A. CONSTRUCTION

1. Casing and Cementing [40 CFR 146.32(a)].

Notwithstanding any other provisions of this permit, the permittee shall case and cement the well to prevent the movement of fluids into or between underground sources of drinking water.

2. Construction Specification Requirement.

The permittee shall submit to the Director, within ninety (90) days of the effective date of the permit, complete well construction details including, but not limited to, type, thickness, diameter, nominal weight, collapse strength, internal yield strength and lengths of all casing and tubing, API cement classification, and accurate schematic diagrams of well completion.

B. OPERATIONS

1. Injection Formation.

Injection shall be limited to the Luke Salt Body in the interval between 880 ft. and 4503 ft. below land surface. In no event shall the roof of the solution cavern be developed in such a manner that dissolution of the overlying anhydrite beds takes place or that injection brines or seal fluids are allowed to migrate into any overlying formation.

2. Injection Pressure Limitation [40 CFR 146.33(a)].

Except during well stimulation injection pressure at the wellhead shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water.

3. Operational Plan Requirement.

In addition to the injection pressure limitation of Part II, Section B(2) of this permit, the permittee, shall submit to the Director for approval, within ninety (90) days of the effective date of this permit, a detailed operational plan. This plan shall include, but not be limited to, such information as chemical characterization of injected fluids, injection pressure and rate, production pumping rate, and volume of injectate to be processed.

The composition and volume of seal fluid being used as a blanket, as well as detailed operational procedure for the use of the seal fluid, shall also be provided in the above operational plan.

4. Additional Injection Limitation.

Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

5. Additional Mechanical Integrity Testing.

A mechanical integrity test shall be conducted on the injection well within ninety (90) days after the effective date of this permit to demonstrate that fluids are not moving between or into Underground Sources of Drinking Water (USDWs) pursuant to 40 CFR 146.8. The method used to demonstrate the mechanical integrity of the well shall be submitted to the Director for approval thirty (30) days prior to the test. The Director reserves the right to witness the test. The results of the test shall be submitted to the Director in writing within thirty (30) days from the date of the test's completion.

6. Demonstration of Financial Assurance.

The permittee shall, within ninety (90) days from the effective date of this permit, provide to the Director a demonstration of financial responsibility and resources to close, plug, and abandon the injection well known as Roach-Baker #1. This financial responsibility mechanism shall demonstrate available resources to close, plug, and abandon Roach-Baker #1 in a manner consistent with 40 CFR 146.10.

C. MONITORING

1. Monitoring Requirements [40 CFR 144.51(j)(1) and 144.52(a)(5)].

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used to obtain a representative sample of the fluid to be analyzed and the procedures for analysis of the sample are as follows:

- Grab samples shall be collected at the sampling valve at the wellhead and used for laboratory analysis for physical and chemical characteristics.

- Temperature, annulus pressure, and injection pressure shall be measured at the wellhead.

- The permittee shall identify the types of tests and methods used to generate the monitoring data as specified by 40 CFR 136.3 or Appendix III of 40 CFR 261. When the analytical method for a particular parameter is not specified in either 40 CFR 136.3 or Appendix III of 40 CFR 261, the

permittee must obtain EPA approval of the types of tests and methods used to generate the monitoring data.

2. Injection fluid analysis [§144.28(g)(3)(i)]

The permittee shall provide to the Director a qualitative analysis and ranges in concentrations of all constituents of injected fluids at least once within the first year of authorization and thereafter whenever the injection fluids are modified to the extent that the initial data are incorrect or incomplete. The owner or operator may request Federal confidentiality as specified in 40 CFR Part 2. If the information is proprietary the owner or operator may in lieu of the ranges in concentrations choose to submit maximum concentrations which shall not be exceeded. In such a case the owner or operator shall retain records of the undisclosed concentrations and provide them upon request to the Regional Administrator as part of any enforcement investigation.

3. Demonstration of Mechanical Integrity [§146.33(b)(3)]

A demonstration of mechanical integrity pursuant to 40 CFR 146.8 shall be conducted at least once every five years during the life of the well.

4. Modification of Injection Fluid [§146.33(b)(1)].

Whenever the injection fluid is modified to the extent that the analysis required by §146.34(a)(7)(iii) is incorrect or incomplete, a new analysis as required by §146.34(a)(7)(iii) shall be provided to the Director.

5. Monitoring Frequency [§146.33(b)(2) and (4)].

Monitoring shall be conducted no less frequently than indicated for the parameters listed below:

Parameter	Monitoring Frequency	Sample Type
injection rate, vol/time	continuous	Recorder
injection total volume, gallons	continuous	Totalizer
injection pressure, psig	continuous	Recorder
produced fluid total volume, gallons	continuous	Totalizer
seal fluid level,feet below land surface	continuous	Recorder
injection fluid temperature, °F	continuous	Recorder
produced fluid temperature, °F	continuous	Recorder
seal fluid, temperature, °F	continuous	Recorder

Parameter	Monitoring Frequency	Sample Type
fluid level, injection zone, feet below land surface	semi-monthly	Measured

6. Continuous monitoring devices.

Continuous recording devices shall be installed at the wellhead and used to monitor temperature of injection fluid and produced fluid and seal fluid, injection rate, injection pressure, volume of injected and produced fluids, and seal fluid level.

D. REPORTING REQUIREMENTS [40 CFR 146.33(c)(1)]

1. Quarterly reports

The permittee shall submit accurate quarterly reports to the Director containing the following information:

(a) Results of the injection fluid analyses specified in Part II, Section C, item 2.

(b) Monthly average, maximum and minimum values for injection fluid temperature, produced fluid temperature, seal fluid temperature, injection pressure, injection rate, and total injection volume and production volume.

2. Reports on Well Tests and Workovers [§146.13(c)(2)].

In the first quarterly report after the activity the permittee shall report to the Director the results of the following:

(a) Mechanical integrity tests;

(b) Other tests required by this permit;

(c) Any well workover.

3. Reporting of Monitoring Results

All pH values shall be reported to the nearest 0.1 pH unit. Observation and recording of parameters specified to be monitored periodically shall be done over equal time intervals over a 24 hour period. When computing a daily or monthly average value, as defined in the section of Definitions, for those parameters monitored continuously, the continuous recording charts shall be read once every 2 hours during periods of injection. The reporting of daily average, daily maximum, and daily minimum values shall be in a format acceptable to the Director.

Monitoring results obtained during each calendar month shall be summarized for each month and reported on EPA Form 7520-8. Forms shall be submitted for the reporting periods by the respective due dates as listed below:

Reporting Period	Report Due
July, Aug, Sept	Oct 28
Oct, Nov, Dec	Jan 28
Jan, Feb, Mar	Apr 28
Apr, May, June	Jul 28

The report shall also include the following information:

1. date and time of sample collection;

2. name of individual(s) who performed the sampling;

3. type of containers used and how samples were treated and preserved prior to transporting to the lab;

4. method of transportation to the lab;

5. name and location of the lab analyzing the samples;

6. the procedures used by the lab for analysis; (Note: If the procedures were different from the information submitted as required in Part I, Section E, item 10(b) of this permit, indicate these differences.) and

7. reference to established, published criteria should be made wherever possible.

Copies of the monitoring results required by Section C of Part I and all other reports required by Section B of Part II shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Region 9
Water Management Division
Underground Injection Control Section (W-6-2)
215 Fremont Street
San Francisco, California 94105

Attachment H

Operating Plan

The permittee shall submit, within ninety (90) days of the effective date of the permit, a detailed plan of operation for review and approval by the Director.

This plan shall include, but not be limited to, proposed general operating procedures, maximum injection pressures, maximum annulus pressures, maximum volumes of injectate and product withdrawn, and maximum flow rate of injectate.

Attachment O

Contingency Plan for Well Failure

The permittee has submitted the following contingency plans for implementation when any well failures that may cause the migration of fluids into any USDW are identified by testing, or are indicated by operations data:

1. Stop injection to identified well.

2. Investigate well failure.

3. Report as required.

4. Take corrective action to repair or plug well and protect USDW.

Attachment Q

Plugging and Abandonment Plan

The permittee has submitted the following data base for plugging costs in addition to EPA Form 7520-14, which is attached.

Data Base for Plugging Costs

Halliburton Pumping Unit

Mileage from El Centro (230 miles one way)

$2.10/mi Pump Truck (one way)
$0.80/mi Tool Truck (one way)
$2.90/mi x 230 mi = $667.00

Equipment and Crews

$1,000/Day Pump Truck, etc.
$ 160/Day Per Diem - Crew
$ 80/Day Tool Man
$1,240/Day

Cement

$0.95/sack mix & pump customer
$7.00/sack delivered to well

Use ASTM TYPE 2 (API Type B) cement plus 1 bag calcium chloride per 100 sacks of cement.

One sack cement has a volume of 1.18 ft^3

Slurry Volume - Use 5-10% extra in pipes.

Workover Rig

Run tubing string for cementing.

$1,000 move-in plus $75/hour = $1,600/well

Time for Plugging

8 hours maximum

Attachment R

Financial Responsibility

The permittee is being required, within ninety (90) days from the effective date of this permit, to provide to the Director a demonstration of financial responsibility and resources to close, plug, and abandon the injection well in a manner consistent with 40 CFR 146.10.

Definitions

1. BPD

   BPD means barrels per day.

2. Daily Average of Parameters Monitored Continuously

   Daily Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C of this permit, divided by the total number of values observed and recorded during the day.

3. Daily Average of Parameters Not Monitored Continuously

   Daily Average of Parameters Not Monitored Continuously means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during that day.

4. Daily or Monthly Maximum Value

   Maximum Value means the highest value recorded during the day or month, respectively. For continuously monitored parameters the highest value recorded is the highest instantaneous value for the continuous monitoring record.

5. Daily or Monthly Minimum Value

   Minimum Value means the lowest value recorded during the day or month, respectively. For continuously monitored parameters the lowest value recorded is the lowest instantaneous value from the continuous monitoring record.

6. GPM

   GPM means gallons per minute.

7. Grab Sample

   Grab Sample means a single portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the monitored activity.

8. Injection Tubing or Tubing

   Injection Tubing means a system of pipes, of appropriate material, inserted into the well through the casing to convey the injection fluid to the injection zone and to prevent casing degradation.

9. Monthly Average of Parameters Monitored Continuously

Monthly Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C, item 1, divided by the total number of values observed and recorded during that month.

10. Monthly Average of Parameters Monitored Daily

Monthly Average of Parameters monitored Daily means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during that month.

11. PSIG

PSIG means pounds per square inch gauge.

U.S. ENVIRONMENTAL PROTECTION AGENCY

UNDERGROUND INJECTION CONTROL PERMIT: CLASS III

Permit Number AZS000000003

EPA ID Number AZD020681839

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147

Southwest Salt Co.
P. O. Box 1237
Litchfield Park, Arizona 85340

is hereby authorized to operate a Class III injection well identified as

Roach-Baker #2

located at

T2N, R1W, SW 1/4 Sec. 2
Glendale
Maricopa County, Arizona

into Luke Salt Body, upon the express conditions that the permittee meet the restrictions set forth herein. Injection is authorized by rule pursuant to 40 CFR 144.21 until the effective date of this permit.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective. The following attachments are incorporated into this permit: Attachment H (Operating Data); Attachment O (Contingency Plan for Well Failure); Attachment Q (Plugging and Abandonment Plan); Attachment R (Financial Responsibility).

This permit shall become effective on 30 OCT 1985

This permit and the authorization to inject shall continue for the operating lifetime of the well, unless terminated, or until primary enforcement responsibility is delegated to the State of Arizona, unless that State chooses to adopt this permit as a State permit.

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

Signed on 30 SEP 1985

Frank M. Covington

Frank M. Covington, Director
Water Management Division
EPA Region 9

PART I

GENERAL PERMIT COMPLIANCE

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee, authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit is prohibited. Compliance with this permit does not constitute a defense to any action brought under the SDWA, or any other common or statutory law or regulation. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this permit shall be construed to relieve the permittee of any duties under applicable regulations.

B. PERMIT ACTIONS

1. Modification, Revocation, Reissuance and Termination.

The Director may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition. The Director may also modify, revoke and reissue, or terminate this permit in accordance with any amendments to the SDWA if the amendments have applicability to the conditions in this permit.

2. Transfer of Permits.

This permit is not transferrable to any person except in accordance with 40 CFR 144.38.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

1) The name and address of the permittee:

2) Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply.

The permittee shall comply with all applicable UIC Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 CFR 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. Such non-compliance may also be grounds for enforcement action under RCRA.

2. Penalties for Violations of Permit Conditions.

Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to the such actions pursuant to RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. State Continuation.

An EPA permit issued for the operating lifetime of the injection well may continue in force at the time a State is authorized to

assume primary enforcement authority, providing that the State has the authority to do so under State law, and that the State chooses to adopt and enforce the permit. Otherwise, the injection activity is operating without a Federal UIC permit from the time that the State assumes primacy until the effective date of the State-issued new permit.

4. Need to Halt or Reduce Activity not a Defense.

It shall not be a defense, for permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate.

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. Proper Operation and Maintenance.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. Duty to Provide Information.

The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. Inspection and Entry.

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA, any substances or parameters at any location.

9. Records.

(a) The permittee shall retain records and all monitoring information, including all calibration and maintenance records and all original instrumented recordings for continuous monitoring and copies of all reports required by this permit for a period of at least five years from the date of the sample, measurement or report.

(b) The permittee shall maintain records of all data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR 144.31 for a period of at least five years from the date the application was signed. These periods may be extended by request of the Director at any time.

(c) The permittee shall retain records concerning the nature and composition of all injected fluids until three years after the completion of plugging and abandonment which has been carried out in accordance with the attached plugging and abandonment plan, and is consistent with 40 CFR 146.10.

(d) The permittee shall continue to retain the records after the retention period specified by paragraphs (a) to (c) above, unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

(e) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individual(s) who performed the sampling or measurements;

(3) A precise description of both sampling methodology and the handling (custody) of samples;

(4) The date(s) analyses were performed;

(5) The names of individual(s) who performed the analyses;

(6) The analytical techniques or methods used; and

(7) The results of such analyses.

10. Monitoring.

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Monitoring results shall be reported at the intervals specified in Part II, Paragraphs C and D, of this permit.

(a) Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR 136.3 or in Appendix III of 40 CFR Part 261 or in certain circumstances by other methods that have been approved by the Administrator.

(b) The permittee shall submit, to the Director, all reports as required in Part II, Sections C and D of this permit. The permittee shall prepare a report describing the intended procedures that will be used for sample collection, handling, and analysis. This report must be submitted for approval by EPA a minimum of 30 days prior to collecting samples for the first Quarterly Report and any time the sampling procedures are changed or modified for subsequent reporting periods.

11. Signatory Requirements.

All reports or other information, required to be submitted by this permit or requested by the Director, shall be signed and certified in accordance with 40 CFR 144.32.

12. Reporting Requirements.

(a) Planned Changes. The permittee shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility.

(b) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.

(d) Twenty-four Hour Reporting.

(1) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the

time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:

(i) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.

(ii) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between underground sources of drinking water.

(2) A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(e) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition 12(d)(2) above.

(f) Other Information. When the permittee becomes aware that he failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, the permittee shall submit such facts or information within 10 days.

(g) Report on Permit Review. Within thirty (30) days of receipt of this permit, the permittee shall report to the Director that he has read and is personally familiar with all terms and conditions of this permit.

F. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment.

The permittee shall notify the Director no later than 45 days before conversion or abandonment of the well.

2. Plugging and Abandonment.

Pursuant to 40 CFR §146.10, the Director shall prescribe aquifer cleanup and monitoring prior to plugging and abandonment where he deems it necessary and feasible to insure adequate protection of USDWs.

The permittee shall plug and abandon the well consistent with 40 CFR 146.10, as provided for in the attached plugging and abandon-

ment plan (which is hereby incorporated as a part of this permit). Within 60 days after plugging a well, or at the time of the next quarterly report (whichever is shorter), the permittee shall submit a report to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and shall consist of either:

(a) A statement that the well was plugged in accordance with the plan previously submitted to the Director; or

(b) If the actual plugging differed from the approved plan, a statement defining the actual plugging and why the Director should approve such deviation. Any deviation from an previously approved plan may be cause for the Director to require the operator to replug the well.

3. Inactive Wells.

After a cessation of injection for two years the permittee shall plug and abandon the well in accordance with the plan unless he:

(a) Provides notice to the Director; and

(b) Describes actions or procedures, which are deemed satisfactory by the Director, that the permittee will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived, in writing, by the Director.

G. MECHANICAL INTEGRITY

1. Standards.

All injection well(s) must have and maintain mechanical integrity consistent with 40 CFR 146.8.

2. Mechanical Integrity Request from Director.

The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.

3. Subsequent Mechanical Integrity Demonstrations.

A demonstration of mechanical integrity in accordance with 40 CFR 146.8 and 146.33(b)(3) shall be made no later than five years from the date of the last approved demonstration. Mechanical integrity shall also be demonstrated any time the tubing is removed from the well, the packer is reset, or a loss of mechanical integrity becomes evident during operation. The permittee shall notify the Director of his intent to demonstrate mechanical integrity at least 30 days prior to such demonstration. The permittee shall report the results of a mechanical integrity demonstration within 90 days after completion.

4. Loss Of Mechanical Integrity.

If the permittee or the Director finds that the well fails to demonstrate mechanical integrity during a test, or a loss of mechanical integrity as defined by 40 CFR 146.8 becomes evident during operation, the operation shall be halted immediately and shall not be resumed until the Director gives approval to recommence injection.

H. FINANCIAL RESPONSIBILITY

1. Financial Responsibility.

The permittee is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner consistent with the underground injection control regulations and Attachment Q (Plugging and Abandonment Plan). The financial responsibility mechanism shall be updated periodically, upon request of the Director.

2. Insolvency.

In the event of:

(a) the bankruptcy of the trustee or issuing institution of the financial mechanism, or

(b) suspension or revocation of the authority of the trustee institution to act as trustee, or

(c) the institution issuing the financial mechanism loses its authority to issue such an instrument, the permittee must notify the Director, within ten (10) business days. The owner or operator must establish other financial assurance or liability coverage acceptable to the Director, within 60 days after such an event.

An owner or operator must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within 10 business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he is named as debtor, as required under the terms of the guarantee.

PART II

WELL SPECIFIC CONDITIONS FOR UIC PERMITS

A. CONSTRUCTION

1. Casing and Cementing [40 CFR 146.32(a)].

Notwithstanding any other provisions of this permit, the permittee shall case and cement the well to prevent the movement of fluids into or between underground sources of drinking water.

2. Construction Specification Requirement.

The permittee shall submit to the Director, within ninety (90) days of the effective date of the permit, complete well construction details including, but not limited to, type, thickness, diameter, nominal weight, collapse strength, internal yield strength and lengths of all casing and tubing, API cement classification, and accurate schematic diagrams of well completion.

B. OPERATIONS

1. Injection Formation.

Injection shall be limited to the Luke Salt Body in the interval between 1000 ft. and 3200 ft. below land surface. In no event shall the roof of the solution cavern be developed in such a manner that dissolution of the overlying anhydrite beds takes place or that injection brines or seal fluids are allowed to migrate into any overlying formation.

2. Injection Pressure Limitation [40 CFR 146.33(a)].

Except during well stimulation injection pressure at the wellhead shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water.

3. Operational Plan Requirement.

In addition to the injection pressure limitation of Part II, Section B(2) of the permit, the permittee, shall submit to the Director for approval, within ninety (90) days of the effective date of this permit, a detailed operational plan. This plan shall include, but not be limited to, such information as chemical characterization of injected fluids, injection pressure and rate, production pumping rate, and volume of injectate to be processed.

The composition and volume of seal fluid being used as a blanket, as well as detailed operational procedure for the use of the seal fluid, shall also be provided in the above operational plan.

4. Additional Injection Limitation.

Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

5. Additional Mechanical Integrity Testing.

A mechanical integrity test shall be conducted on the injection well within ninety (90) days after the effective date of this permit to demonstrate that fluids are not moving between or into Underground Sources of Drinking Water (USDWs) pursuant to 40 CFR 146.8. The method used to demonstrate the mechanical integrity of the well shall be submitted to the Director for approval thirty (30) days prior to the test. The Director reserves the right to witness the test. The results of the test shall be submitted to the Director in writing within thirty (30) days from the date of the test's completion.

6. Demonstration of Financial Assurance.

The permittee shall, within ninety (90) days from the effective date of this permit, provide to the Director a demonstration of financial responsibility and resources to close, plug, and abandon the injection well known as Roach-Baker #2. This financial responsibility mechanism shall demonstrate available resources to close, plug, and abandon Roach-Baker #2 in a manner consistent with 40 CFR 146.10.

C. MONITORING

1. Monitoring Requirements [40 CFR 144.51(j)(1) and 144.52(a)(5)].

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used to obtain a representative sample of the fluid to be analyzed and the procedures for analysis of the sample are as follows:

- Grab samples shall be collected at the sampling valve at the wellhead and used for laboratory analysis for physical and chemical characteristics.

- Temperature, annulus pressure, and injection pressure shall be measured at the wellhead.

- The permittee shall identify the types of tests and methods used to generate the monitoring data as specified by 40 CFR 136.3 or Appendix III of 40 CFR 261. When the analytical method for a particular parameter is not specified in either 40 CFR 136.3 or Appendix III of 40 CFR 261, the

permittee must obtain EPA approval of the types of tests and methods used to generate the monitoring data.

2. Injection fluid analysis [§144.28(g)(3)(i)]

The permittee shall provide to the Director a qualitative analysis and ranges in concentrations of all constituents of injected fluids at least once within the first year of authorization and thereafter whenever the injection fluids are modified to the extent that the initial data are incorrect or incomplete. The owner or operator may request Federal confidentiality as specified in 40 CFR Part 2. If the information is proprietary the owner or operator may in lieu of the ranges in concentrations choose to submit maximum concentrations which shall not be exceeded. In such a case the owner or operator shall retain records of the undisclosed concentrations and provide them upon request to the Regional Administrator as part of any enforcement investigation.

3. Demonstration of Mechanical Integrity [§146.33(b)(3)]

A demonstration of mechanical integrity pursuant to 40 CFR 146.8 shall be conducted at least once every five years during the life of the well.

4. Modification of Injection Fluid [§146.33(b)(1)].

Whenever the injection fluid is modified to the extent that the analysis required by §146.34(a)(7)(iii) is incorrect or incomplete, a new analysis as required by §146.34(a)(7)(iii) shall be provided to the Director.

5. Monitoring Frequency [§146.33(b)(2) and (4)].

Monitoring shall be conducted no less frequently than indicated for the parameters listed below:

Parameter	Monitoring Frequency	Sample Type
injection rate, vol/time	continuous	Recorder
injection total volume, gallons	continuous	Totalizer
injection pressure, psig	continuous	Recorder
produced fluid total volume, gallons	continuous	Totalizer
seal fluid level,feet below land surface	continuous	Recorder
injection fluid temperature, °F	continuous	Recorder
produced fluid temperature, °F	continuous	Recorder
seal fluid, temperature, °F	continuous	Recorder

Parameter	Monitoring Frequency	Sample Type
fluid level, injection zone, feet below land surface	semi-monthly	Measured

6. Continuous monitoring devices.

Continuous recording devices shall be installed at the wellhead and used to monitor temperature of injection fluid and produced fluid and seal fluid, injection rate, injection pressure, volume of injected and produced fluids, and seal fluid level.

D. REPORTING REQUIREMENTS [40 CFR 146.33(c)(1)]

1. Quarterly reports

The permittee shall submit accurate quarterly reports to the Director containing the following information:

(a) Results of the injection fluid analyses specified in Part II, Section C, item 2.

(b) Monthly average, maximum and minimum values for injection fluid temperature, produced fluid temperature, seal fluid temperature, injection pressure, injection rate, and total injection volume and production volume.

2. Reports on Well Tests and Workovers [§146.13(c)(2)].

In the first quarterly report after the activity the permittee shall report to the Director the results of the following:

(a) Mechanical integrity tests;

(b) Other tests required by this permit;

(c) Any well workover.

3. Reporting of Monitoring Results

All pH values shall be reported to the nearest 0.1 pH unit. Observation and recording of parameters specified to be monitored periodically shall be done over equal time intervals over a 24 hour period. When computing a daily or monthly average value, as defined in the section of Definitions, for those parameters monitored continuously, the continuous recording charts shall be read once every 2 hours during periods of injection. The reporting of daily average, daily maximum, and daily minimum values shall be in a format acceptable to the Director.

Monitoring results obtained during each calendar month shall be summarized for each month and reported on EPA Form 7520-8. Forms shall be submitted for the reporting periods by the respective due dates as listed below:

Reporting Period	Report Due
July, Aug, Sept	Oct 28
Oct, Nov, Dec	Jan 28
Jan, Feb, Mar	Apr 28
Apr, May, June	Jul 28

The report shall also include the following information:

1. date and time of sample collection;

2. name of individual(s) who performed the sampling;

3. type of containers used and how samples were treated and preserved prior to transporting to the lab;

4. method of transportation to the lab;

5. name and location of the lab analyzing the samples;

6. the procedures used by the lab for analysis; (Note: If the procedures were different from the information submitted as required in Part I, Section E, item 10(b) of this permit, indicate these differences.) and

7. reference to established, published criteria should be made wherever possible.

Copies of the monitoring results required by Section C of Part I and all other reports required by Section B of Part II shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Region 9
Water Management Division
Underground Injection Control Section (W-6-2)
215 Fremont Street
San Francisco, California 94105

Attachment H

Operating Plan

The permittee shall submit, within ninety (90) days of the effective date of the permit, a detailed plan of operation for review and approval by the Director.

This plan shall include, but not be limited to, proposed general operating procedures, maximum injection pressures, maximum annulus pressures, maximum volumes of injectate and product withdrawn, and maximum flow rate of injectate.

Attachment O

Contingency Plan for Well Failure

The permittee has submitted the following contingency plans for implementation when any well failures that may cause the migration of fluids into any USDW are identified by testing, or are indicated by operations data:

1. Stop injection to identified well.

2. Investigate well failure.

3. Report as required.

4. Take corrective action to repair or plug well and protect USDW.

Attachment Q

Plugging and Abandonment Plan

The permittee has submitted the following data base for plugging costs in addition to EPA Form 7520-14, which is attached.

Data Base for Plugging Costs

Halliburton Pumping Unit

Mileage from El Centro (230 miles one way)

$2.10/mi Pump Truck (one way)
$0.80/mi Tool Truck (one way)
$2.90/mi x 230 mi = $667.00

Equipment and Crews

$1,000/Day Pump Truck, etc.
$ 160/Day Per Diem - Crew
$ 80/Day Tool Man
$1,240/Day

Cement

$0.95/sack mix & pump customer
$7.00/sack delivered to well

Use ASTM TYPE 2 (API Type B) cement plus 1 bag calcium chloride per 100 sacks of cement.

One sack cement has a volume of 1.18 ft^3

Slurry Volume - Use 5-10% extra in pipes.

Workover Rig

Run tubing string for cementing.

$1,000 move-in plus $75/hour = $1,600/well

Time for Plugging

8 hours maximum

Attachment R

Financial Responsibility

The permittee is being required, within ninety (90) days from the effective date of this permit, to provide to the Director a demonstration of financial responsibility and resources to close, plug, and abandon the injection well in a manner consistent with 40 CFR 146.10.

Definitions

1. BPD

   BPD means barrels per day.

2. Daily Average of Parameters Monitored Continuously

   Daily Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C of this permit, divided by the total number of values observed and recorded during the day.

3. Daily Average of Parameters Not Monitored Continuously

   Daily Average of Parameters Not Monitored Continuously means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during that day.

4. Daily or Monthly Maximum Value

   Maximum Value means the highest value recorded during the day or month, respectively. For continuously monitored parameters the highest value recorded is the highest instantaneous value for the continuous monitoring record.

5. Daily or Monthly Minimum Value

   Minimum Value means the lowest value recorded during the day or month, respectively. For continuously monitored parameters the lowest value recorded is the lowest instantaneous value from the continuous monitoring record.

6. GPM

   GPM means gallons per minute.

7. Grab Sample

   Grab Sample means a single portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the monitored activity.

8. Injection Tubing or Tubing

   Injection Tubing means a system of pipes, of appropriate material, inserted into the well through the casing to convey the injection fluid to the injection zone and to prevent casing degradation.

9. Monthly Average of Parameters Monitored Continuously

Monthly Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C, item 1, divided by the total number of values observed and recorded during that month.

10. Monthly Average of Parameters Monitored Daily

Monthly Average of Parameters monitored Daily means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during that month.

11. PSIG

PSIG means pounds per square inch gauge.

U.S. ENVIRONMENTAL PROTECTION AGENCY

UNDERGROUND INJECTION CONTROL PERMIT: CLASS III

Permit Number AZS000000004

EPA ID Number AZD020681839

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147

Southwest Salt Co.
P. O. Box 1237
Litchfield Park, Arizona 85340

is hereby authorized to operate a Class III injection well identified as

Roach-Baker #3

located at

T2N, R1W, SW 1/4 Sec. 2
Glendale
Maricopa County, Arizona

into Luke Salt Body, upon the express conditions that the permittee meet the restrictions set forth herein. Injection is authorized by rule pursuant to 40 CFR 144.21 until the effective date of this permit.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective. The following attachments are incorporated into this permit: Attachment H (Operating Data); Attachment O (Contingency Plan for Well Failure); Attachment Q (Plugging and Abandonment Plan); Attachment R (Financial Responsibility).

This permit shall become effective on 30 OCT 1985

This permit and the authorization to inject shall continue for the operating lifetime of the well, unless terminated, or until primary enforcement responsibility is delegated to the State of Arizona, unless that State chooses to adopt this permit as a State permit.

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

Signed on 30 SEP 1985

Frank M. Covington

Frank M. Covington, Director
Water Management Division
EPA Region 9

PART I

GENERAL PERMIT COMPLIANCE

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee, authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit is prohibited. Compliance with this permit does not constitute a defense to any action brought under the SDWA, or any other common or statutory law or regulation. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this permit shall be construed to relieve the permittee of any duties under applicable regulations.

B. PERMIT ACTIONS

1. Modification, Revocation, Reissuance and Termination.

The Director may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition. The Director may also modify, revoke and reissue, or terminate this permit in accordance with any amendments to the SDWA if the amendments have applicability to the conditions in this permit.

2. Transfer of Permits.

This permit is not transferrable to any person except in accordance with 40 CFR 144.38.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

1) The name and address of the permittee:

2) Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply.

The permittee shall comply with all applicable UIC Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 CFR 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. Such non-compliance may also be grounds for enforcement action under RCRA.

2. Penalties for Violations of Permit Conditions.

Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to the such actions pursuant to RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. State Continuation.

An EPA permit issued for the operating lifetime of the injection well may continue in force at the time a State is authorized to

assume primary enforcement authority, providing that the State has the authority to do so under State law, and that the State chooses to adopt and enforce the permit. Otherwise, the injection activity is operating without a Federal UIC permit from the time that the State assumes primacy until the effective date of the State-issued new permit.

4. Need to Halt or Reduce Activity not a Defense.

It shall not be a defense, for permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate.

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. Proper Operation and Maintenance.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. Duty to Provide Information.

The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. Inspection and Entry.

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA, any substances or parameters at any location.

9. Records.

(a) The permittee shall retain records and all monitoring information, including all calibration and maintenance records and all original instrumented recordings for continuous monitoring and copies of all reports required by this permit for a period of at least five years from the date of the sample, measurement or report.

(b) The permittee shall maintain records of all data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR 144.31 for a period of at least five years from the date the application was signed. These periods may be extended by request of the Director at any time.

(c) The permittee shall retain records concerning the nature and composition of all injected fluids until three years after the completion of plugging and abandonment which has been carried out in accordance with the attached plugging and abandonment plan, and is consistent with 40 CFR 146.10.

(d) The permittee shall continue to retain the records after the retention period specified by paragraphs (a) to (c) above, unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

(e) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individual(s) who performed the sampling or measurements;

(3) A precise description of both sampling methodology and the handling (custody) of samples;

(4) The date(s) analyses were performed;

(5) The names of individual(s) who performed the analyses;

(6) The analytical techniques or methods used; and

(7) The results of such analyses.

10. Monitoring.

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Monitoring results shall be reported at the intervals specified in Part II, Paragraphs C and D, of this permit.

(a) Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR 136.3 or in Appendix III of 40 CFR Part 261 or in certain circumstances by other methods that have been approved by the Administrator.

(b) The permittee shall submit, to the Director, all reports as required in Part II, Sections C and D of this permit. The permittee shall prepare a report describing the intended procedures that will be used for sample collection, handling, and analysis. This report must be submitted for approval by EPA a minimum of 30 days prior to collecting samples for the first Quarterly Report and any time the sampling procedures are changed or modified for subsequent reporting periods.

11. Signatory Requirements.

All reports or other information, required to be submitted by this permit or requested by the Director, shall be signed and certified in accordance with 40 CFR 144.32.

12. Reporting Requirements.

(a) Planned Changes. The permittee shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility.

(b) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.

(d) Twenty-four Hour Reporting.

(1) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the

time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:

(i) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.

(ii) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between underground sources of drinking water.

(2) A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(e) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition 12(d)(2) above.

(f) Other Information. When the permittee becomes aware that he failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, the permittee shall submit such facts or information within 10 days.

(g) Report of Permit Review. Within thirty (30) days of receipt of this permit, the permittee shall report to the Director that he has read and is personally familiar with all terms and conditions of this permit.

F. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment.

The permittee shall notify the Director no later than 45 days before conversion or abandonment of the well.

2. Plugging and Abandonment.

Pursuant to 40 CFR §146.10, the Director shall prescribe aquifer cleanup and monitoring prior to plugging and abandonment where he deems it necessary and feasible to insure adequate protection of USDWs.

The permittee shall plug and abandon the well consistent with 40 CFR 146.10, as provided for in the attached plugging and abandon-

ment plan (which is hereby incorporated as a part of this permit). Within 60 days after plugging a well, or at the time of the next quarterly report (whichever is shorter), the permittee shall submit a report to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and shall consist of either:

(a) A statement that the well was plugged in accordance with the plan previously submitted to the Director; or

(b) If the actual plugging differed from the approved plan, a statement defining the actual plugging and why the Director should approve such deviation. Any deviation from an previously approved plan may be cause for the Director to require the operator to replug the well.

3. Inactive Wells.

After a cessation of injection for two years the permittee shall plug and abandon the well in accordance with the plan unless he:

(a) Provides notice to the Director; and

(b) Describes actions or procedures, which are deemed satisfactory by the Director, that the permittee will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived, in writing, by the Director.

G. MECHANICAL INTEGRITY

1. Standards.

All injection well(s) must have and maintain mechanical integrity consistent with 40 CFR 146.8.

2. Mechanical Integrity Request from Director.

The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.

3. Subsequent Mechanical Integrity Demonstrations.

A demonstration of mechanical integrity in accordance with 40 CFR 146.8 and 146.33(b)(3) shall be made no later than five years from the date of the last approved demonstration. Mechanical integrity shall also be demonstrated any time the tubing is removed from the well, the packer is reset, or a loss of mechanical integrity becomes evident during operation. The permittee shall notify the Director of his intent to demonstrate mechanical integrity at least 30 days prior to such demonstration. The permittee shall report the results of a mechanical integrity demonstration within 90 days after completion.

4. Loss Of Mechanical Integrity.

If the permittee or the Director finds that the well fails to demonstrate mechanical integrity during a test, or a loss of mechanical integrity as defined by 40 CFR 146.8 becomes evident during operation, the operation shall be halted immediately and shall not be resumed until the Director gives approval to recommence injection.

H. FINANCIAL RESPONSIBILITY

1. Financial Responsibility.

The permittee is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner consistent with the underground injection control regulations and Attachment Q (Plugging and Abandonment Plan). The financial responsibility mechanism shall be updated periodically, upon request of the Director.

2. Insolvency.

In the event of:

(a) the bankruptcy of the trustee or issuing institution of the financial mechanism, or

(b) suspension or revocation of the authority of the trustee institution to act as trustee, or

(c) the institution issuing the financial mechanism loses its authority to issue such an instrument, the permittee must notify the Director, within ten (10) business days. The owner or operator must establish other financial assurance or liability coverage acceptable to the Director, within 60 days after such an event.

An owner or operator must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within 10 business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he is named as debtor, as required under the terms of the guarantee.

PART II

WELL SPECIFIC CONDITIONS FOR UIC PERMITS

A. CONSTRUCTION

1. Casing and Cementing [40 CFR 146.32(a)].

Notwithstanding any other provisions of this permit, the permittee shall case and cement the well to prevent the movement of fluids into or between underground sources of drinking water.

2. Construction Specification Requirement.

The permittee shall submit to the Director, within ninety (90) days of the effective date of the permit, complete well construction details including, but not limited to, type, thickness, diameter, nominal weight, collapse strength, internal yield strength and lengths of all casing and tubing, API cement classification, and accurate schematic diagrams of well completion.

B. OPERATIONS

1. Injection Formation.

Injection shall be limited to the Luke Salt Body in the interval between 1050 ft. and 3700 ft. below land surface. In no event shall the roof of the solution cavern be developed in such a manner that dissolution of the overlying anhydrite beds takes place or that injection brines or seal fluids are allowed to migrate into any overlying formation.

2. Injection Pressure Limitation [40 CFR 146.33(a)].

Except during well stimulation injection pressure at the wellhead shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water.

3. Operational Plan Requirement.

In addition to the injection pressure limitation of Part II, Section B(2) of the permit, the permittee, shall submit to the Director for approval, within ninety (90) days of the effective date of this permit, a detailed operational plan. This plan shall include, but not be limited to, such information as chemical characterization of injected fluids, injection pressure and rate, production pumping rate, and volume of injectate to be processed.

The composition and volume of seal fluid being used as a blanket, as well as detailed operational procedure for the use of the seal fluid, shall also be provided in the above operational plan.

4. Additional Injection Limitation.

Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

5. Additional Mechanical Integrity Testing.

A mechanical integrity test shall be conducted on the injection well within ninety (90) days after the effective date of this permit to demonstrate that fluids are not moving between or into Underground Sources of Drinking Water (USDWs) pursuant to 40 CFR 146.8. The method used to demonstrate the mechanical integrity of the well shall be submitted to the Director for approval thirty (30) days prior to the test. The Director reserves the right to witness the test. The results of the test shall be submitted to the Director in writing within thirty (30) days from the date of the test's completion.

6. Demonstration of Financial Assurance.

The permittee shall, within ninety (90) days from the effective date of this permit, provide to the Director a demonstration of financial responsibility and resources to close, plug, and abandon the injection well known as Roach-Baker #3. This financial responsibility mechanism shall demonstrate available resources to close, plug, and abandon Roach-Baker #3 in a manner consistent with 40 CFR 146.10.

C. MONITORING

1. Monitoring Requirements [40 CFR 144.51(j)(1) and 144.52(a)(5)].

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used to obtain a representative sample of the fluid to be analyzed and the procedures for analysis of the sample are as follows:

- Grab samples shall be collected at the sampling valve at the wellhead and used for laboratory analysis for physical and chemical characteristics.

- Temperature, annulus pressure, and injection pressure shall be measured at the wellhead.

- The permittee shall identify the types of tests and methods used to generate the monitoring data as specified by 40 CFR 136.3 or Appendix III of 40 CFR 261. When the analytical method for a particular parameter is not specified in either 40 CFR 136.3 or Appendix III of 40 CFR 261, the

permittee must obtain EPA approval of the types of tests and methods used to generate the monitoring data.

2. Injection fluid analysis [§144.28(g)(3)(i)]

The permittee shall provide to the Director a qualitative analysis and ranges in concentrations of all constituents of injected fluids at least once within the first year of authorization and thereafter whenever the injection fluids are modified to the extent that the initial data are incorrect or incomplete. The owner or operator may request Federal confidentiality as specified in 40 CFR Part 2. If the information is proprietary the owner or operator may in lieu of the ranges in concentrations choose to submit maximum concentrations which shall not be exceeded. In such a case the owner or operator shall retain records of the undisclosed concentrations and provide them upon request to the Regional Administrator as part of any enforcement investigation.

3. Demonstration of Mechanical Integrity [§146.33(b)(3)]

A demonstration of mechanical integrity pursuant to 40 CFR 146.8 shall be conducted at least once every five years during the life of the well.

4. Modification of Injection Fluid [§146.33(b)(1)].

Whenever the injection fluid is modified to the extent that the analysis required by §146.34(a)(7)(iii) is incorrect or incomplete, a new analysis as required by §146.34(a)(7)(iii) shall be provided to the Director.

5. Monitoring Frequency [§146.33(b)(2) and (4)].

Monitoring shall be conducted no less frequently than indicated for the parameters listed below:

Parameter	Monitoring Frequency	Sample Type
injection rate, vol/time	continuous	Recorder
injection total volume, gallons	continuous	Totalizer
injection pressure, psig	continuous	Recorder
produced fluid total volume, gallons	continuous	Totalizer
seal fluid level,feet below land surface	continuous	Recorder
injection fluid temperature, °F	continuous	Recorder
produced fluid temperature, °F	continuous	Recorder
seal fluid, temperature, °F	continuous	Recorder

Parameter	Monitoring Frequency	Sample Type
fluid level, injection zone, feet below land surface	semi-monthly	Measured

6. Continuous monitoring devices.

Continuous recording devices shall be installed at the wellhead and used to monitor temperature of injection fluid and produced fluid and seal fluid, injection rate, injection pressure, volume of injected and produced fluids, and seal fluid level.

D. REPORTING REQUIREMENTS [40 CFR 146.33(c)(1)]

1. Quarterly reports

The permittee shall submit accurate quarterly reports to the Director containing the following information:

(a) Results of the injection fluid analyses specified in Part II, Section C, item 2.

(b) Monthly average, maximum and minimum values for injection fluid temperature, produced fluid temperature, seal fluid temperature, injection pressure, injection rate, and total injection volume and production volume.

2. Reports on Well Tests and Workovers [§146.13(c)(2)].

In the first quarterly report after the activity the permittee shall report to the Director the results of the following:

(a) Mechanical integrity tests;

(b) Other tests required by this permit;

(c) Any well workover.

3. Reporting of Monitoring Results

All pH values shall be reported to the nearest 0.1 pH unit. Observation and recording of parameters specified to be monitored periodically shall be done over equal time intervals over a 24 hour period. When computing a daily or monthly average value, as defined in the section of Definitions, for those parameters monitored continuously, the continuous recording charts shall be read once every 2 hours during periods of injection. The reporting of daily average, daily maximum, and daily minimum values shall be in a format acceptable to the Director.

Monitoring results obtained during each calendar month shall be summarized for each month and reported on EPA Form 7520-8. Forms shall be submitted for the reporting periods by the respective due dates as listed below:

Reporting Period	Report Due
July, Aug, Sept	Oct 28
Oct, Nov, Dec	Jan 28
Jan, Feb, Mar	Apr 28
Apr, May, June	Jul 28

The report shall also include the following information:

1. date and time of sample collection;

2. name of individual(s) who performed the sampling;

3. type of containers used and how samples were treated and preserved prior to transporting to the lab;

4. method of transportation to the lab;

5. name and location of the lab analyzing the samples;

6. the procedures used by the lab for analysis; (Note: If the procedures were different from the information submitted as required in Part I, Section E, item 10(b) of this permit, indicate these differences.) and

7. reference to established, published criteria should be made wherever possible.

Copies of the monitoring results required by Section C of Part I and all other reports required by Section B of Part II shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Region 9
Water Management Division
Underground Injection Control Section (W-6-2)
215 Fremont Street
San Francisco, California 94105

Attachment H

Operating Plan

The permittee shall submit, within ninety (90) days of the effective date of the permit, a detailed plan of operation for review and approval by the Director.

This plan shall include, but not be limited to, proposed general operating procedures, maximum injection pressures, maximum annulus pressures, maximum volumes of injectate and product withdrawn, and maximum flow rate of injectate.

Attachment O

Contingency Plan for Well Failure

The permittee has submitted the following contingency plans for implementation when any well failures that may cause the migration of fluids into any USDW are identified by testing, or are indicated by operations data:

1. Stop injection to identified well.

2. Investigate well failure.

3. Report as required.

4. Take corrective action to repair or plug well and protect USDW.

Attachment Q

Plugging and Abandonment Plan

The permittee has submitted the following data base for plugging costs in addition to EPA Form 7520-14, which is attached.

Data Base for Plugging Costs

Halliburton Pumping Unit

Mileage from El Centro (230 miles one way)

$2.10/mi Pump Truck (one way)
$0.80/mi Tool Truck (one way)
$2.90/mi x 230 mi = $667.00

Equipment and Crews

$1,000/Day Pump Truck, etc.
$ 160/Day Per Diem - Crew
$ 80/Day Tool Man
$1,240/Day

Cement

$0.95/sack mix & pump customer
$7.00/sack delivered to well

Use ASTM TYPE 2 (API Type B) cement plus 1 bag calcium chloride per 100 sacks of cement.

One sack cement has a volume of 1.18 ft^3

Slurry Volume - Use 5-10% extra in pipes.

Workover Rig

Run tubing string for cementing.

$1,000 move-in plus $75/hour = $1,600/well

Time for Plugging

8 hours maximum

Attachment R

Financial Responsibility

The permittee is being required, within ninety (90) days from the effective date of this permit, to provide to the Director a demonstration of financial responsibility and resources to close, plug, and abandon the injection well in a manner consistent with 40 CFR 146.10.

Definitions

1. BPD

   BPD means barrels per day.

2. Daily Average of Parameters Monitored Continuously

   Daily Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C of this permit, divided by the total number of values observed and recorded during the day.

3. Daily Average of Parameters Not Monitored Continuously

   Daily Average of Parameters Not Monitored Continuously means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during that day.

4. Daily or Monthly Maximum Value

   Maximum Value means the highest value recorded during the day or month, respectively. For continuously monitored parameters the highest value recorded is the highest instantaneous value for the continuous monitoring record.

5. Daily or Monthly Minimum Value

   Minimum Value means the lowest value recorded during the day or month, respectively. For continuously monitored parameters the lowest value recorded is the lowest instantaneous value from the continuous monitoring record.

6. GPM

   GPM means gallons per minute.

7. Grab Sample

   Grab Sample means a single portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the monitored activity.

8. Injection Tubing or Tubing

   Injection Tubing means a system of pipes, of appropriate material, inserted into the well through the casing to convey the injection fluid to the injection zone and to prevent casing degradation.

9. Monthly Average of Parameters Monitored Continuously

Monthly Average of Parameters Monitored Continuously means the sum of values observed and recorded periodically as specified in Part II, Section C, item 1, divided by the total number of values observed and recorded during that month.

10. Monthly Average of Parameters Monitored Daily

Monthly Average of Parameters monitored Daily means the sum of all daily observed and recorded values divided by the total number of values observed and recorded during that month.

11. PSIG

PSIG means pounds per square inch gauge.