Texas Commission on Environmental Quality

Permit Application To
Conduct in Situ Mining of Sodium Sulfate

Instructions

1. A person (individual, corporation or other legal entity) who intends to operate an underground injection activity to recover sodium sulfate from subsurface deposits must obtain a permit pursuant to the Texas Water Code, Chapter 27. If the operator of the facility is not the owner, then the operator shall be the applicant for a permit. The applicant is referred to Title 30 of the Texas Administrative Code (TAC) Chapters 281, 305 and 331 for technical and procedural regulations. Handling and storage of radioactive materials is authorized by the Texas Commission on Environmental Quality through a Radioactive Material license in accordance with TAC Chapter 336. See Title 30 Texas Administrative Code[1] for more information.

2. A person may not commence underground injection activities for the purpose of leaching or otherwise recovering sodium sulfate until the commission has issued a permit to authorize such activities.

3. The application (one original plus three complete copies) should be delivered to the following mailing address or physical address:

Mailing address:
Texas Commission on Environmental Quality
Attn: UIC Permits Team
Industrial & Hazardous Waste Permits Section
Mail Code: 130
P.O Box 13087
Austin Texas 78711 3087

Physical address:
Texas Commission on Environmental Quality
Attn: UIC Permits Team
Industrial & Hazardous Waste Permits Section
Mail Code: 130
12100 Park 35 Circle Building: F
Austin Texas 78753

Additionally, for new, renewal, major amendment and minor amendment applications provide a CD or DVD with a copy of the application text formatted in Microsoft Office Word 2007 or a totally compatible format.
The third copy should consist of paper copies of all plans, well logs, seismic data, maps and cross-sections, and a compact disk (CD) of the remaining document. The document should be formatted in Microsoft Office Word 2007 or a totally compatible format.

Telephone inquiries:

[1] http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=3&ti=30&pt=1

(512) 239-6466 - Technical - Underground Injection Control
(512) 239-6466 - Licensing – Radioactive Materials Division
(512) 239-0600 - Legal - Environmental Law Division
(512) 239-0300 - Fees - Financial Administration Division
(512) 239-6833 - Registration Review and Reporting Section
(512) 239-6260 - Financial Assurance - Financial Assurance Section

The application consists of five parts: Parts I, II and III, General Information; Part IV, Financial Assurance; Parts V and IX, Technical Report. The Technical Report addresses geology, hydrology, well construction, and facility operation.

Information submitted should be organized and labeled consistent with the organization of this form. For example, the discussion of regional geology should be labeled as Section V.A. The application should be organized in three-ring binders not to exceed three inches in thickness. All pages should be numbered and placed in the binders. Once the application is submitted, any revised text, tables, or maps should be clearly marked as revisions and dated. Any new pages, tables, maps or well logs should be clearly marked as additions and numbered or labeled appropriately for insertion into the application.

4. Signatures on Application: The application must be signed by the applicant [30 TAC §305.44] and be verified before a notary public. If another person signs on behalf of the applicant, this person's title or relationship to the applicant should be shown. In all cases, the person signing the form should be authorized to do so by the applicant. The Commission may require a person signing on behalf of an applicant to provide proof of authorization. An application submitted for a corporation must be signed by (or the signatory must be authorized by) a principal executive officer of at least the level of vice president; or for a partnership or sole proprietorship, by a general partner or the proprietor, respectively. For a municipal, state, federal, or other public facility, the application must be signed by either a principal executive officer or ranking elected official.

   Please note that the version date in the footer of the application pages should be the same as the date that the signature page is signed.

5. An application will not be processed until all information required to properly consider the application has been obtained. When an application is severely lacking in detail and/or the applicant fails to submit additionally requested information in a timely manner, the application will not be considered to be "filed in accordance with the rules and regulations of the Commission" and may be returned (30 TAC §281.18).

6. Fees and Costs

   a) The fee for filing an application is discussed in 30 TAC §305.53.

   b) The applicant for a permit is required to bear the cost of publication of notice of the application in a newspaper. [30 TAC §39251(d)(1)].

c) Payment of fees and costs should be made at the time the application is submitted. Send payment to:

Financial Administration Division
Texas Commission on Environmental Quality
Mail Code 214
P O Box 13088
Austin Texas 78711-3088

Send with the payment a copy of page 1 of the application form (one copy per injection well); write "New Well" on the page if this is an initial application.

7. Designation of Material as Confidential

The designation of material as confidential is frequently carried to excess. The Commission has a responsibility to provide a copy of each application to other review agencies and to interested persons upon request and to safeguard confidential material from becoming public knowledge. Thus, the Commission requests that the applicant (1) be prudent in the designation of material as confidential and (2) submit such material only when it might be essential to the staff in their development of a recommendation.

The Commission suggests that the applicant NOT submit confidential information as part of the permit application. However, if this cannot be avoided, the confidential information should be described in non-confidential terms throughout the application, and submitted as a document or binder, and conspicuously marked "**Confidential.**"

Reasons of confidentiality include the concept of trade secrecy and other related legal concepts that give a business the right to preserve confidentiality of business information to obtain or retain advantages from its right in the information. This includes authorizations under 5 United States Code (USC) 5552(b)(4), 18 USC 1905, and special rules cited in 40 Code of Federal Regulations (CFR) §§552.301-2.309. Section 361.037 of the Texas Health and Safety Code does not allow an applicant for an industrial and hazardous waste permit to claim as confidential any record pertaining to the characteristics of the industrial solid waste.

Information which deals with the existence, absence or levels of contaminants in drinking water will not be considered confidential [30 TAC §305.46(f)].

The applicant may elect to withdraw any confidential material submitted with the application. However, the permit cannot be issued, amended, or modified if the application is incomplete.

8. All engineering and geoscience plans, specifications, calculations, analyses, reports and other related engineering and geoscience documents must be prepared, sealed, signed, and dated by a Texas professional engineer (P.E.) or a Texas professional geoscientist (P.G.), as appropriate. Please refer to the Texas Engineering Practice Act (Occupations Code Chapter 1001), the rules Concerning the Practice of Engineering and Professional Engineering Licensure (22 TAC Part 6 Chapter 131), the Geoscience Practice Act (Occupations Code Chapter 1002), and the Rules For Geoscientist Licensure And The Practice Of Geoscience (22 TAC Part 39 Chapters 850 and 851). P.E. and P.G. Board rules (22 TAC §131.166 and 22 TAC §851.156) require that all engineering and geoscience pages be sealed, signed and dated unless contained in a bound document, in which case only the original title sheet needs to be sealed. If a single seal is used on a bound document, there must be a note near the seal clearly stating which pages of the document the seal covers. All engineering and geoscience plans and drawings must be individually sealed, signed and dated. If there are subsequent revisions to pages covered by the engineering or geoscience seal, each revised page must be

individually sealed. An engineer or geoscientist may not seal a document in a field outside their area of expertise. If more than one P.E. or P.G.'s work is contained in a document, each engineer's or geoscientist's seal is required on the document, and the limits of their work must be clearly indicated. See the Texas Board of Professional Engineers[2] and the Texas Board of Professional Geoscientists[3] site for more information.

9. Information taken from sources such as publications and public documents should be checked for accuracy and completeness and be properly referenced.

10. The applicant may wish to consider copyrighting the application.

11. UIC program information and an electronic copy of this form are available at the UIC permits section on the TCEQ website[4]

[2] http://www.tbpe.texas.gov/

[3] https://tbpg.state.tx.us/

[4] http://www.tceq.texas.gov/permitting/waste_permits/uic_permits/UIC_Guidance_Class_3.html

Procedural Information

Upon receipt of the application for an injection well, the Industrial and Hazardous Waste Permits Section staff date stamps the application, makes sure that the application fees have been submitted, and forwards the application to the administrative review team. The administrative review team reviews the application for completeness. The applicant may be contacted for clarification or additional information at any time during the administrative review.

Within 30 days of the date that the application is determined to be administratively complete, the chief clerk mails Notice of Receipt of Application and Intent to Obtain Permit to the applicant, to potentially affected persons, and to others. Sections §39.413 and §39.651(c) describe the mailed notice procedures for this first notice. The applicant is responsible for newspaper publication of notice of the application. The applicant must also place a copy of the administratively complete application in a public place. See §39.405 and §39.418 for a description of these procedures.

The UIC Permitting Team staff begins a technical review as soon as the application is administratively complete. The applicant may be contacted for clarification or additional information at any time during the technical review. Once the technical review is completed, the executive director makes a preliminary decision to issue a permit or recommend denial of the permit. The preliminary decision and draft permit are filed with the chief clerk. The chief clerk mails the preliminary decision concurrently with the Notice of Application and Preliminary Decision. The applicant is responsible for newspaper publication of the Notice of Application and Preliminary Decision. See §39.419 and §39.651(d) for a description of the procedures for the second notice.

Public comments must be filed with the chief clerk within the time period specified in the notice. The public comment period extends 30 days after the last publication of the Notice of Application and Preliminary Decision, except as provided in §55.152. If comments are received, the executive director prepares a response to comments and files the response to comments with the chief clerk within 60 days following the close of the comment period in accordance with §55.156. The chief clerk mails the executive director's decision, the executive director's response to public comments, instructions for requesting that the commission reconsider the executive director's decision, and instructions for requesting a contested case hearing. See §39.420 and §55.156 for additional information on procedures for processing public comment.

The executive director may act on an uncontested application if public notice requirements have been satisfied and the application meets all relevant statutory and administrative criteria in accordance with §50.133. The chief clerk mails notice of the action and an explanation of the opportunity to file a motion to overturn the executive director's action on the application. A motion to overturn must be filed no later than 20 days after the signed permit is mailed to the applicant in accordance with §50.139.

Texas Commission on Environmental Quality

Application for Permit to Conduct in Situ Sodium Sulfate Mining

I. General Information

A) Type of Permit For Which Application Is Submitted:

1. ☐ Original

   Permit Number: _____ (Will Be Assigned)

2. ☐ Amendment

   of Permit Number: _____

B) Applicant: _____ (Individual, Corporation or Other Legal Entity)

Address: _____ (Permanent Mailing Address)

City, State and Zip: _____
Telephone Number: _____
Mine Name: _____ County: _____
Mine Mailing Address (if available): _____
Ownership Status: _____
Check one: ☐ Federal ☐ State ☐ Private ☐ Other Entity

If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.

_____ (Charter Number)

If the application is submitted by a corporation or by a person residing out of state, the applicant must register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.

Agent: _____

Address: _____

City, State and Zip: _____

Telephone Number: _____

C) List those persons or firms authorized to act for the applicant during the processing of the permit application. Also indicate the capacity in which each person may represent the applicant (engineering, geology, legal, etc.). The person listed first will be the primary recipient of correspondence regarding this application. Include the complete mailing addresses and phone numbers.

D) Specify the individual who will be responsible for causing notice to be published in the newspaper. Include the complete mailing address, telephone number, and fax number. Please provide an e-mail address as well, if available.

E) For applications for new permits, renewals, and major amendments a copy of the administratively complete application must be made available at a public place in the county where the facility is located or proposed to be located for review and copying by the public. Identify the public place in the county (e.g. public library, county court house, city hall), including the address, where the application will be located.

F) If application is for amendment to an existing permit, please describe all requested permit changes and the reasons for the request:

G) Information Required for Compliance Summary

Prior to May 26, 2001, the TCEQ was required to consider the compliance history of an applicant in determining whether the use or installation of an injection well for the disposal of hazardous waste is in the public interest. This requirement was amended by Senate Bill 324, enacted by the 77th Legislature, 2001, and its applicability was broadened to include all injection well applications, including those for the disposal of hazardous and nonhazardous waste and those for injection mining. In December 2001, the TCEQ adopted rules to implement this and other new requirements of the legislation. The adopted rules may be viewed at the Secretary of State's web site[5] . The new procedures apply to any UIC applications for new permits, renewals, and major amendments which are pending on, or submitted on or after May 26, 2001 and before September 1, 2002. If necessary, these instructions will be updated to reflect procedures applicable after September 1, 2002.

The new rules set out the requirements for the preparation of comprehensive summaries of a UIC applicant's compliance history, including the compliance history of any corporation or business entity managed, owned, or otherwise closely related to the applicant. These summaries are to provide information on all media regulated by the commission including, but not limited to, underground injection, solid waste, water, and air.

To enable the executive director's staff to prepare a comprehensive summary of the compliance history of the applicant and closely related business entities under the requirements of 30 TAC §331.120, submit as "Attachment C" a list of all your company's closely related business entities currently doing business in the State of Texas. For each business entity, list any TCEQ permit numbers or authorizations for any facilities owned or managed by those closely related entities. Title 30 TAC §331.120(c) defines closely related entities as those that share common partnership members, association members, or corporate officers with the applicant, or business entities in which the applicant has an ownership interest of at least 20%.

H) TCEQ Core Data Form

The TCEQ requires that a Core Data Form (Form 10400) be submitted on all incoming applications unless a Regulated Entity and Customer Reference Number has been issued by the TCEQ and no core data information has changed. If no core data information has changed and the TCEQ has issued an RN and CN for your facility, please state these numbers. For more information, see the Core Data Form[6], on the TCEQ website or call (512) 239-1575.

[5] http://www.sos.texas.gov

[6] http://www.tceq.texas.gov/permitting/central_registry/guidance.html

II. Facility Background Information

I) List all existing or pending State and/or Federal permits, licenses or construction approvals that pertain to pollution control, industrial solid waste management, radioactive materials, or other activities conducted by your facility, at your location, or existing at a proposed facility or location.

J) Brief Description of the Nature of the Business, including the activities conducted by the applicant that require a permit.

K) Location

1. Give a description and a map of the location of the facility site with respect to known or easily identifiable landmarks (see Figure 3). Detail the access routes from the nearest U.S. or State Highway to the facility.
2. Is the facility located on Indian lands?

   ☐ Yes ☐ No

3. Is the facility located within the Coastal Management Program boundary?

   ☐ Yes ☐ No
   For questions regarding the Coastal Management Program, please call 1-800-85BEACH (1-800-852-3224).

4. Is the facility in an area in which the governing body of the county or municipality has prohibited the processing or disposal of municipal hazardous waste or industrial solid waste (see Texas Health and Safety Code Section 363.112)?

   ☐ Yes ☐ No

   If yes, please provide a copy of the ordinance or order.

5. Legal Description of Facility

   Submit as "Attachment A" a legal description(s) of the tract or tracts of land referred to in this permit application.

6. Submit as "Attachment B" drawn-to-scale on a topographic map (or other map if a topographic map is unavailable) of the facility and area extending one mile beyond the facility boundaries. Maps must be of material suitable for a permanent record, and be on sheets 8½ inches by 11 inches or folded to that size, and be on a scale of not less than one inch equals one mile. The scale should be adequate to depict the following features:

   a) the lease boundaries of the tract of land on which mining and related activities will be conducted, with acreage indicated.

   b) the proposed permit area boundaries, with acreage indicated. (The permit area boundary may be defined by the operator to coincide with or be within the lease ownership boundaries.);

   c) the location of the proposed production and disposal facilities; and

   d) all wells (water, oil and gas, disposal, etc.), springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant in the Area Of Review (AOR, an area that extends to one-quarter

mile past the proposed permit boundary), and the purpose for which each water well is used (e.g., domestic, livestock, agricultural, industrial, etc.) [30 TAC §305.45(a)(6)]

III. Information Required To Provide Notice

Submit as "Attachment C" the following lists of landowners and mineral owners, cross-referenced to a map (see attached example). In accordance with 30 TAC §39.405(b), please also submit this mailing list electronically, in MS Word. The electronic list must contain only the name, mailing address, city, state, and zip code with no reference to the lot number or lot location. The list should contain 30 names, addresses, etc. (10 per column) per page. Each name and address must be typed in the format that meets the United States Postal Service (USPS) requirements for machine readability. The letters in the name and address must be capitalized, contain no punctuation, and the two-character abbreviation must be used for the state. Examples of addresses using the USPS format may be found throughout the "**Instructions**" section of this application form (pages 1-4). Contact the USPS for further instructions on formatting addresses for machine readability.

A) Identify and provide a complete mailing address for all landowners adjacent to the proposed permit area and other nearby landowners who might consider themselves affected by the activities described by the application.

B) Identify and provide a complete mailing address for all mineral owners within the cone of influence as required by 30 TAC §39.251(d)(2). If the name(s) submitted represents less than 100% mineral ownership, specify the total percentage owned by all persons identified.

C) If the adjacent property ownership or mineral right ownership lists show the State of Texas to be an adjacent landowner and/or mineral rights owner within the cone of influence, as defined by 30 TAC §331.2, your application may affect lands dedicated to the permanent school fund. Refer to Texas Water Code §5.115. To determine whether lands dedicated to the permanent school fund are affected, you may submit a request which includes the property location to the General Land Office at the following address:

General Land Office
Deputy Commissioner Of Asset Acquisition
Steven F Austin Bldg
1700 N Congress
Austin Texas 78701

If it is determined that your application may affect lands dedicated to the permanent school fund, your application must include the following information:

1) State the location of the permanent school fund land to be affected; and

2) describe any foreseeable impact or effect of the proposed permitted action on permanent school fund land.

A formal action or ruling by the Commission on an application affecting permanent school fund land that is made without the notice required by the above-referenced rule is voidable by the School Land Board as to any permanent school fund lands affected by the action or ruling. [Texas Water Code 5.115(g)]

D) Provide the name and mailing address for the State Senator and State Representative in the district in which the well is or will be located. Either local district addresses or capitol addresses are acceptable. [30 TAC §39.251(b)]

E) Provide the name and mailing address of the mayor and health authority of the

municipality in whose territorial limits or extraterritorial jurisdiction the well is or will be located, and also the county judge and the health authority of the county in which the facility is located. [30 TAC §39.251(c)(2)]

IV. Financial Assurance

Submit as "Attachment E", information regarding the financial assurance plan as referenced below.

A) Financial Assurance Information Requirements for all Applicants

1) Financial Assurance for Closure

Please refer to 30 TAC §§331.144-147 for the financial assurance requirements for closure, and provide a signed statement from an authorized signatory per 30 TAC §305.44 regarding how the owner or operator will comply with this provision.

2) Provide a complete and accurate description of mine closure costs for the mining facility.

Signature Page

I (Signatory Name) ____________________________________ (Title) ____________________ certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

See 30 TAC §305.44 for signatory authority. Hazardous waste permits must be signed by both the owner and operator of the facility. Duplicate this page for additional signatories.

To Be Completed by the Applicant If the Application is Signed by an Agent for the Applicant

I (Signatory Name) ____________________________________ (Title) ____________________ hereby designate (Agent Name on Title) ___________________ as my agent and hereby authorize said agent to sign any application, submit additional information as may be requested by the Commission, and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my agent in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Signature____Date_____________________

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(Note: Application Must Bear Signature and Seal of Notary Public)

STATE OF TEXAS §

COUNTY OF_________________§

Subscribed And Sworn to before me by the said ____

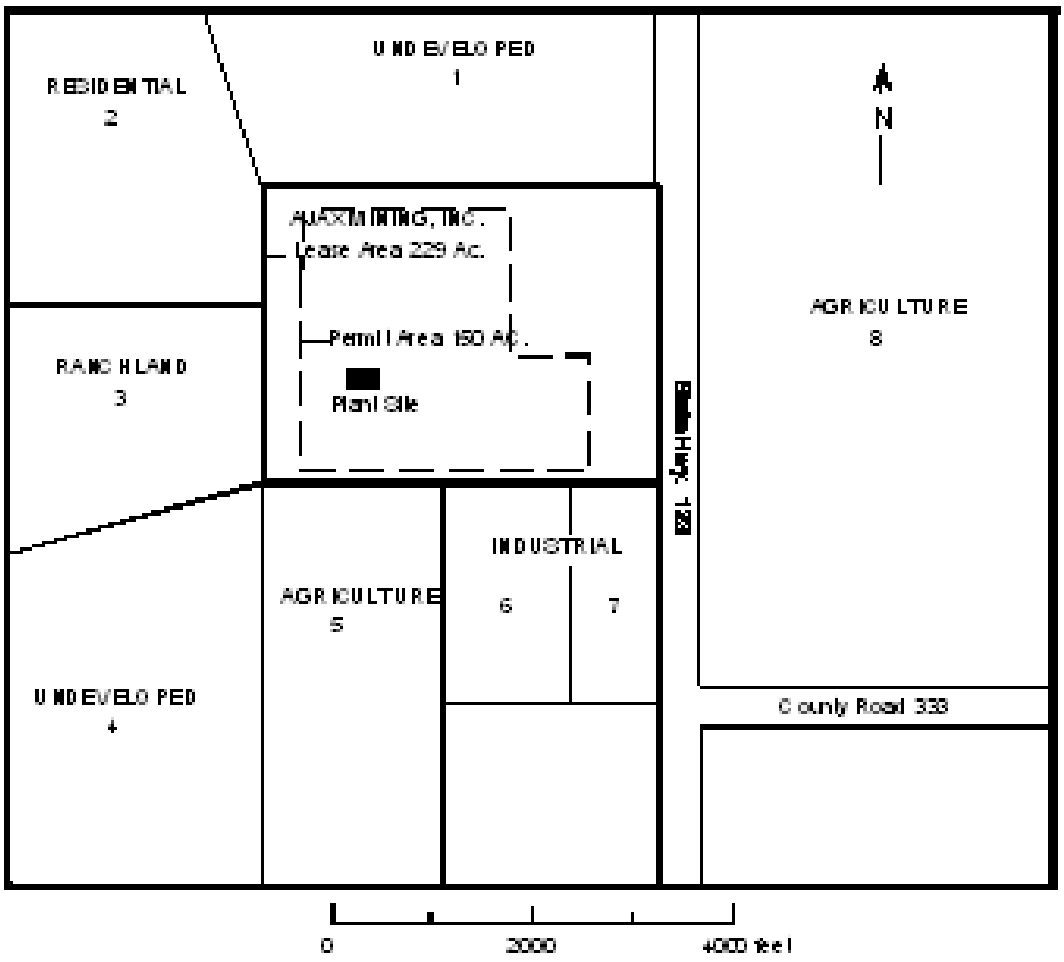
on this _____________ day of_____________________,______________________________

My commission expires on the ______________________ day of________________,________

____

Notary Public in and for the State of Texas

Figure 1 Sample Application Map



Landowners and Mineral Owners Cross-Referenced To Application Map

The persons identified below would be considered as affected persons:

1. Mr. and Mrs. Samuel L Davis
11901 Knights Bridge Road
Austin Texas 78759

2. Mr. and Mrs. Edward Sanchez
1405 Craigmont Lane
Waco Texas 76710

3. Mr. and Mrs. Hubert Jason
4240 Line Road
Dallas Texas 77590

4. Mr. and Mrs. Ted Goldsby
3210 20th Street
Waco Texas 76724

5. Mr. and Mrs Hubert Jason
4240 Line Rd
Dallas Texas 77640

6. Plainview CO
6647 Star Blvd
Houston Texas 77590

7. ABC Chemicals Inc
1212 Austin AVE
Dallas Texas 77640

8. Mr. and Mrs. T. R Larson
10024 NW HWY
Bovina Texas 79402

Technical Report Signature Page
(Parts V - IX)

The technical report of the application must be signed by the technical report supervisor. The supervisor must be a Texas licensed professional engineer, a licensed professional geoscientist, or a qualified person who is competent and experienced in the field to which the application relates and thoroughly familiar with the operation or project for which the application is made.

Attach a copy of the supervisor's resume.

I (Technical Report Supervisor) ____
(Title) ______________________________ certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature ____Date__________________________

- -

(Note: Application Must Bear Signature and Seal of Notary Public)

STATE OF TEXAS §

COUNTY OF_________________§

SUBSCRIBED AND SWORN to before me by the said_____________________________________

on this _______________ day of_________________________________,_________________

My commission expires on the ____________ day of ____________________, ______________

____
Notary Public in and for the state of Texas

Technical Report For In Situ Sodium Sulfate Mining
Class III Injection Wells

The following shall be submitted as the Permit Application Technical Report. The applicant shall review the information to be developed with commission staff prior to beginning to collect the information because certain conditions may require additional or different information. All technical information shall be prepared in accordance with the appropriate technical guidelines. Clearly mark the chapters with the indicated chapter identification.

V. Geology And Hydrogeology

A) Regional geology and hydrology - Describe the regional stratigraphic and structural geology, lithology, and hydrology pertinent to the proposed injection program. Information must be integrated into a coherent and complete summary, not merely listed. Regional geology should be rendered on a scale capable of accurately depicting the geology of the region (approximately a 20-50 mile radius). Maps and cross-sections from commercial mapping companies may be used, provided that they adequately characterize the geology (including faulting) of the region. Major aquifers, stratigraphic units, confining zones, injection zone and general lithology should be indicated on all cross-sections. Cross-sections should be constructed with well logs and to scale. The proposed permit area should be indicated on all maps and cross-sections. Maps and figures should be referenced in the description, where applicable.

1) Regional geology - Provide a written description of the general geology including regional stratigraphy, regional structural geology, regional seismic activity supported by maps and cross-sections showing geologic units, lithology, structural features and other pertinent information to the extent that this information is reasonably available. Include a regional stratigraphic column.

2) Regional hydrology - Provide a written description of the general hydrology including major aquifers, hydraulic gradients, major water quality indicators (i.e., TDS, U, Ra, SO4) and other pertinent information to the extent that this information is reasonably available. Note any major pumpage centers. Include maps and cross sections indicating the position relative to the injection formation, and the direction of water movement in every underground source of drinking water (USDW), including the injection zone, which may be affected by the proposed injection. Show the vertical and lateral limits of aquifers with TDS less than 3,000 mg/liter and less than 10,000 mg/liter.

B) Permit Area Geology and Hydrology- Provide detailed cross-sections along dip and strike accurately identifying overlying aquifers and the geologic interval to be mined. The cross-section shall also include the first underlying aquifer. The geologic interval identified as the "production zone" will be the zone authorized for production by the proposed permit. The lithologic columns shall be supported with electric logs. Show normal water levels for each aquifer.

C) Permit Area Location - On a county map, locate and identify the lease area, permit area, proposed or existing in situ or surface mines within five miles, and major water supply wells. Locate the wells in Item E.1. below.

D) Permit Area Topography - Provide a USGS Map (1:24,000 scale), locating the proposed permit area and production areas. Trace surface runoff from the plant and mine areas to regional surface waters. Show the area of review. Within the area of review, the map must show the number or name and the location of all producing wells, injection wells,

abandoned wells, dry holes, surface bodies of water, mines, quarries, public water systems, water wells, and other pertinent surface features including residences and roads, to the extent that this information is reasonably available. Show any fault, if known or suspected.

E) Water Supply Wells

1) Permit Area Vicinity Wells

a) Provide a list of water supply wells within the appropriate area of review for the permit area. Indicate the type of completion, casing depth, bottom depth, use, and water level elevation to the extent that this information is reasonably available.

b) Provide a map locating and identifying these wells and indicate the hydraulic gradient in the major aquifers.

2) Major Regional Wells

Provide the same information indicated in E.1. above for major water supply wells, such as municipal wells. Also provide, for these major wells, the average daily volume, the distance from the permit area and identify the aquifer being pumped.

F) Permit Area Water Quality

1) Plan View - Provide a plan view showing water level and TDS contours for production and non-production zone aquifers with baseline wells located and identified.

2) Water Quality Analysis Report - For each of the baseline wells completed in the production and non-production aquifers, located and identified on F.1., provide a completed Groundwater Analysis Report on forms provided by TCEQ.

3) Summary - Provide a summary of the parameter values derived in F.2. above showing high, average, and low parameter values for each aquifer on the Groundwater Analysis Report Summary form.

4) Documentation - Document that aquifers underlying the production zone are protected by a substantial aquiclude if it is proposed to not monitor the aquifer underlying the production zone.

G) Hydrologic Testing

Describe in detail the hydrologic testing procedures to be used. This description should include test preparation, test procedures, equipment, schedule, and procedures for analysis and summary of the test results.

1) Determine the degree of hydrologic connection between aquifers;

2) determine and locate boundaries and recharge structures; and

3) verify hydrologic connection between the production zone and the production zone monitor wells.

VI. Well Construction And Facility Operation

(P.E. seal required for all contents of this section)

A) Well Completion

Describe well completion for injection, recovery, and monitoring wells. This description may include:

1) Total depth criteria;

2) completion interval selection criteria;

3) type of completion: perforation, open hole, screen, etc.;

4) casing: size, type, grade, weight, setting depths;

5) tubing/packer (if applicable): size, type, name, model, setting depth of packer;

6) cement: class, volume (sufficient cement should be used to circulate to the surface). Describe and give percent of all cement additives, slurry weight, and cement-water ratio;

7) cementing technique: pump and plug displacement through casing is recommended;

8) cementing equipment: pump and plug displacement through casing is recommended;

9) casing centralizers: location and spacing;

10) sketch of each type of well completion;

11) drift control procedure;

12) installation control (completion certification, etc.); and

13) development procedure (jetting, acid, etc.).

B) Mechanical Integrity Testing

Describe in detail the mechanical integrity testing procedures to be used. This description should include test preparation, test procedures, equipment, time schedule, and procedures for analysis of results. These tests shall be conducted to demonstrate:

1) That there are no significant leaks in the casing; and

2) that there is no significant movement of fluids through fluid channels adjacent to the injection well bore.

These tests shall be conducted in accordance with the rules on Mechanical Integrity Testing (30TAC §331.43).

C) Well Logs

Submit the following log and information.

1) Resistivity and spontaneous potential log
   a) Casing depth shown
   b) Screened interval marked
   c) Centralizers located
   d) Aquifers and aquicludes clearly identified

2) Completion log for each well (attached to the above well log).

D) Production Facilities and Procedures

Provide the following information for facilities that will serve the mining activity of the area described in this permit application:

1) written description of production procedures and supporting facilities:

2) material balance flow diagram identifying all wastes and their disposition, source, and volume;

3) schedule for completion or installation of facilities;

4) typical composition of injected leach fluids, and any other fluids to be injected (tracers, etc.);

5) detailed construction design of all ponds to include leakage detection, repair procedures and freeboard limits; describe how access to these ponds by stock wildlife, or unauthorized persons will be controlled;

6) Runoff and spill control description supported with plan and cross sectional instructions;

7) provide a schedule of preventive maintenance inspection for ponds, pipelines, dikes, trenches, storage areas, etc.; and

8) detailed calculation and tabulation of the volume of fluids to be handled by storage and disposal facilities at their maximum, and comparative capacity of the facilities that will be available. Refer to Technical Guideline III.

E) Closing

Provide a description of closing procedures to be taken to restore affected surface areas to include plugging of wells, removal or adequate cover of wastes, etc.

VII. Initial Mine Plan

A) Provide an Initial Mine Plan to include:

A legible and reproducible plan view locating and identifying (Figure 2):

1) The permit area boundary;

2) the buffer areas; and

3) the individual initially proposed mine areas with acreage of the areas, production and disposal facilities, depth to the production zone and mean sea level of the production zone indicated.

B) A schedule with estimated starting and completion dates of production

VIII. Excursion Prevention

Provide a detailed description of the procedures to be used to prevent excursions horizontally in the production zone and vertically into non-production zones. These procedures may involve a bleed system, frequent conductivity change evaluation, water level evaluation, production volume evaluation and production adjustment, as well as procedures for maintaining a balanced well field.

IX. Aquifer Exemption

Provide a complete delineation of any aquifer or portion of an aquifer for which exempt status will be necessary.

Figure 2. Sample Mine Map

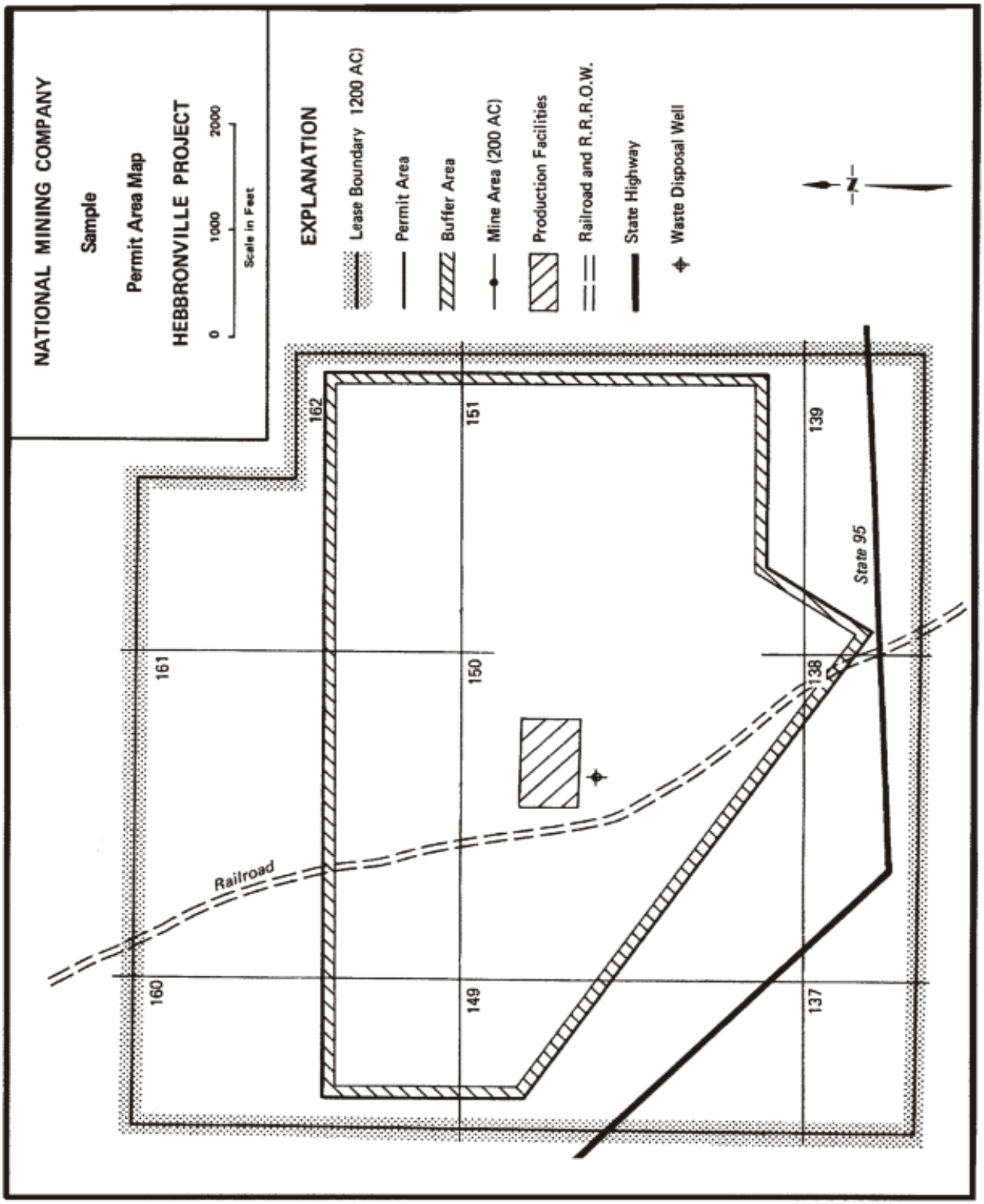


Figure 3. Sample Mine Location Map