

The Texas Natural Resource Conservation Commission (TNRCC or commission) proposes amendments to §331.14, Prohibition of Class I Salt Cavern Solid Waste Disposal Wells and Associated Caverns in Geologic Structures or Formations Other Than Salt Stocks of Salt Domes; §331.121, Class I Wells; §331.161, Applicability; and §331.163, Well Construction Standards.

#### BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE PROPOSED RULES

The purpose of this rulemaking is three-fold: 1.) to implement legislation prohibiting the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine; 2.) to amend and clarify the information required to establish the geologic suitability of a proposed location for a salt cavern disposal well; and 3.) to reinstate technical requirements administratively omitted in 1992.

House Bill (HB) 2912 (an act relating to the continuation and functions of the Texas Natural Resource Conservation Commission; providing penalties), §9.02, 77th Legislature, 2001, amended Texas Health and Safety Code (THSC), §361.114, Prohibition of Disposal of Hazardous Waste Into Certain Geological Formations. The legislation mandates the commission to prohibit, by rule, the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. The proposed amendment to §331.14 implements this legislation by creating new §331.14(b) to reflect the prohibition in THSC, §361.114.

The proposal would also amend and clarify the information required to establish the geologic suitability of a proposed location for a salt cavern disposal well. On June 5, 1992, the Texas Water Commission

(a predecessor agency of the TNRCC) adopted new rules regulating the permitting of Class I salt cavern disposal wells. This action was taken in response to legislative changes enacted by the 72nd Texas Legislature in 1991.

Solution-mined salt caverns have been permitted by other agencies for the storage of petroleum products, but none have ever been permitted in the United States for the purpose of disposing of solidified commercial industrial waste. The commission was cautious but deliberate in developing regulations for these activities and wanted to ensure that any proposed site would be geologically suitable, that any proposed salt cavern disposal well would meet stringent construction standards, and that the design and operation of any project would preclude the escape of hazardous constituents from the salt cavern injection zone.

A total of five applications for salt cavern waste disposal projects have been evaluated by the commission, four of which were received before Class I salt cavern disposal well rules were adopted in 1992. Of the four, two applications were received from United Resource Recovery (URR), one from TEXSTOR, and one from Hunter Industrial Facilities, Inc. (HIFI). All were ultimately denied. The fifth application, from Secured Environmental Management, Inc. (SEM), is currently under technical review by commission staff.

On June 5, 2000, Baker Botts, L.L.P. (Baker Botts), on behalf of SEM, filed a petition for rulemaking requesting revision of 30 TAC §331.121(d)(1) to clarify and amend the requirements for information necessary to establish the geologic suitability of a proposed site for a salt cavern Class I injection well.

The petitioner requested that the requirement to submit three-dimensional (3-D) seismic survey data sufficient to delineate the edge of the salt stock and image underneath all suspected overhangs be deleted from the rule and that it be replaced with a requirement to conduct a 3-D seismic survey over the cavern location. SEM, in its petition, interpreted the current language as requiring a 3-D seismic survey of the salt dome in its entirety. SEM argued that such a requirement would thwart applicants from proposing Class I salt cavern injection wells in large salt domes due to the expense of the 3-D seismic survey requirement, and noted the difficulty in obtaining surface access to neighboring properties to conduct the survey.

By order dated September 11, 2000, the commission directed the executive director to examine the issues in the petition and initiate rulemaking if deemed necessary. As a result of the examination, the executive director determined that the current requirements for the 3-D seismic survey are ambiguous, and amended rules were drafted. On February 21, 2001, proposed amended rules were approved by the commission for publication in the *Texas Register*. The proposed rules were published on March 9, 2001, followed by a 73-day comment period (including extensions) that concluded on May 22, 2001. During the time executive director staff was preparing the response to comments, the Texas Legislature passed HB 2912 which, in part, directs the commission to prohibit by rule the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. Because it would have been inconsistent for the commission to adopt amended rules pertaining to activities prohibited by new legislation, on July 11, 2001, the commission withdrew the proposal to adopt the amended rules based on its decision to consider reproposal at the same time rules are proposed implementing §9.02 of HB 2912. This proposed rulemaking follows through with that plan.

The commission today proposes amendments and clarifications of §331.121(d)(1)(A), concerning establishing geologic suitability of proposed salt cavern locations. The commission also proposes to reformat §331.121(d)(1)(A) to improve readability. The existing 3-D seismic survey rule, stated in §331.121(d)(1)(A), requires an applicant to submit seismic reflection data “sufficient to image underneath all suspected overhangs and to delineate the edge of the stock.” Although this language has been interpreted by some as requiring delineation of the entire edge of the salt stock, the executive director believes that the rule only requires delineation of that portion of the edge of the salt stock that is technically relevant to the application. The commission proposes new §331.121(d)(1)(B) that would require a surface-recorded 3-D seismic survey, the lateral extent of which is to be determined by the executive director. This survey, in conjunction with §331.121(d)(1)(A), will support demonstration of the geologic suitability of the site.

This rulemaking is also proposed to reinstate technical requirements administratively omitted in 1992. While evaluating the previously mentioned Baker Botts petition, staff discovered an administrative error in the original rules the commission submitted to the *Texas Register* of the Office of the Secretary of State in 1992. At that time, the commission adopted changes to the original proposal in response to public comments, including a new requirement for a vertical seismic profile (VSP), and clarification of other provisions in the rules. These adopted changes were inadvertently omitted when the agency submitted the rules to the Office of the Secretary of State.

#### SECTION BY SECTION DISCUSSION

Section 331.14, Prohibition of Class I Salt Cavern Solid Waste Disposal Wells and Associated Caverns in Geologic Structures or Formations Other Than Salt Stocks of Salt Domes, is proposed to be amended to implement legislation prohibiting the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. The proposed amendment to §331.14 implements this legislation by creating new subsection (b) to reflect the prohibition in THSC, §361.114. The existing language in §331.14 is proposed to be retained within new subsection (a). Also, the title of the section is proposed to be amended to add the following phrase at the end of the title: “and Prohibition of Disposal of Hazardous Waste Into Certain Geological Formations.”

References to hazardous waste disposal in salt cavern disposal wells occur in 30 TAC §331.2(81)(B), Definitions, salt cavern solid waste disposal well or salt cavern disposal well; §331.142(b), Financial Assurance; §331.165(a)(10)(B), Waste Disposal Operating Requirements; §335.1(63), Definitions, hazardous waste management facility and §335.1(64), hazardous waste management unit; and §335.204, Unsuitable Site Characteristics. These references to hazardous waste disposal in salt cavern disposal wells are not being amended, because proposed §331.14(b), which states, “Notwithstanding any provision to the contrary in this chapter or Chapter 335 of this title (relating to Industrial Solid Waste and Municipal Hazardous Waste), or any other chapter of this title, the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine is prohibited” globally removes the effectiveness of these references to hazardous waste disposal in salt caverns without deleting each individual occurrence of the term.

Section 331.121, Class I Wells, is proposed to be amended to clarify information which must be submitted as part of the technical report of the application to perform a thorough characterization of the salt dome to establish the geologic suitability of the location. This information is required as part of the demonstration required by 30 TAC §331.162 (relating to Performance Standard). In §331.121(d)(1)(A), the proposed amendments specify that data and interpretation from all appropriate geophysical methods (such as well logs, seismic surveys, and gravity surveys), subject to approval by the executive director, must be provided. The information required for a thorough geologic characterization of a salt dome is specified in proposed §331.121(d)(1)(A)(i) - (viii), which requires an applicant to: 1.) map the overall geometry of the salt dome, including all edges and any suspected overhangs of the salt stock; 2.) demonstrate the existence of a minimum distance of 500 feet between the boundaries of the proposed salt cavern injection zone and the boundaries of the salt stock; 3.) define the composition and map the top and thickness of the sedimentary rock units between the caprock and surface, including the flanks of the salt stock; 4.) define the composition and map the top and thickness of the caprock overlying the salt stock; 5.) map the top of the salt stock; 6.) calculate the movement and the salt loss rate of the salt stock; 7.) define any other caverns and other uses of the salt dome, and address any conditions that may result in potential adverse impact on the salt dome; and 8.) satisfy any other requirement of the executive director necessary to demonstrate the geologic suitability of the location. The requirements in §331.121(d)(1)(A)(ii) restate the cavern construction standard in 30 TAC §331.164(b)(1), relating to Cavern Construction Standards, to emphasize that the requirement of a minimum distance of 500 feet between the boundaries of the salt cavern injection zone and the boundaries of the salt stock is crucial in determining the geologic suitability of a proposed site. Section 331.121(d)(1)(A)(iv) and (v) is proposed to provide clarification of certain data which is needed to

characterize the salt dome by adding the requirement to define the composition and map the top and thickness of the caprock as well as to map the top of the salt stock.

The specific requirement in existing §331.121(d)(1)(A) to submit seismic reflection data, including a 3-D seismic grid survey to image underneath all suspected overhangs and delineate the edge of the stock, is proposed to be amended by inserting new §331.121(d)(1)(B), which requires a surface-recorded 3-D seismic survey, subject to the following minimum requirements: 1.) the lateral extent of the survey must be determined by the executive director; and 2.) the survey must provide information as part of demonstrating that the location is geologically suitable for the purpose of meeting the performance standard in §331.162. Depending on the information submitted with the application and the geology of the location, the executive director will determine the lateral extent of the 3-D seismic survey necessary to support the demonstration of geologic suitability. The information must be provided before completion of technical review and before a draft permit may be issued.

In the previous version of the proposed amended rules published in the March 9, 2001 issue of the *Texas Register*, new §331.121(d)(1)(B) called for “a surface-recorded three-dimensional seismic survey, as determined by the executive director to be required to establish the geologic suitability of the location to show compliance with the performance standard in §331.162 of this title, considering the data presented by the applicant under subparagraph (A) of this paragraph.” Unlike the previous proposal, §331.121(d)(1)(B) in this proposed rulemaking does not provide discretion of the executive director in determining whether a 3-D seismic survey is necessary. Requiring a 3-D seismic survey over the proposed cavern location focuses the information obtained from this technology on the area of greatest

interest, the cavern location. The executive director will determine the lateral extent of the survey needed to supplement other geologic information to establish the geologic suitability of the proposed location. This proposed amended provision incorporates flexibility in the use of 3-D seismic to serve the most geologically-relevant purpose at a given site.

The commission proposes a correction in §331.121(d)(1)(C) by adding the words “identification of” at the beginning of the paragraph for proper grammatical formatting of the subparagraph.

The proposed amendments to §331.161 and §331.163 are amendments which were inadvertently omitted, through an administrative error, when the agency originally submitted these rules to the Office of the Secretary of State in 1992. All of these changes were adopted at that time as a result of comments during the 1992 public comment period. The proposed amendments under §331.161 and §331.163 are the same as those originally adopted, except: 1.) the type of VSP is no longer specified; and 2.) the purpose and use of the VSP is no longer stated.

Section 331.161 is proposed to be amended to make clear that the rules contained in Subchapter J, Standards for Class I Salt Cavern Solid Waste Disposal Wells, apply only to salt caverns located in the salt stocks of salt domes. The term “horizontally bedded salt formation” was not specifically defined previously, and the prohibition on salt cavern disposal wells and associated caverns was not specified for “geologic structures or formations other than salt stocks of salt domes.” The commission proposes this clarification to provide consistency with existing requirements in §331.14.

Section 331.163(b)(1) is proposed to be amended to add the words “and waste” to the phrase “to prevent the movement of fluids” to clarify that all fluids and waste must be prevented from moving into underground sources of drinking water or freshwater aquifers, and to prevent potential leaks of fluid and waste from the well. This additional clarification is necessary because any waste disposed of in the salt caverns must be stabilized. The word “period” is also added to modify the term “post-closure care.”

Section 331.163(c) is proposed to be amended to substitute the word “tubings” for “tubing” and to clarify the requirement that two concentric and removable injection tubings are to be utilized for injection activities. Paragraph (1) of subsection (c) is also proposed to be amended to replace the term “corrosion inhibiting” with the word “non-corrosive.” This proposed change allows greater flexibility in the type of annulus fluid used. Paragraph (2) of subsection (c) is proposed to be amended to replace the phrase “removable injection tubing” with the phrase “the inner tubing.”

Section 331.163(d)(2) is proposed to be amended to add the words “and waste” to clarify that the requirements for a tubing and packer system must consider both the fluid and the waste in stabilized form.

Section 331.163(e)(1)(F) is proposed to be amended to add a requirement for a VSP that is slightly altered from the version originally adopted by the commission, but inadvertently omitted from the Secretary of State’s published rules. The original rule required a three-component offset VSP, which would be required after drilling the cavern pilot hole, to depict the 3-D nature of the salt-sediment

interface. In this proposal, a VSP is required without specifying the type or purpose of the VSP. By not specifying the type or purpose, the proposed rule would give the permittee flexibility to select the appropriate VSP survey to meet the most relevant geologic objectives since the objectives will vary from site to site. The VSP would supplement or confirm information submitted to demonstrate compliance with the performance standard under §331.162, to gain approval of the well construction stage under §331.163(i), or to gain approval of the completion of the cavern construction stage under §331.164(f)(2).

Section 331.163(e)(2)(A) is proposed to be amended to modify the pressure testing requirements for the surface casing to specify a more commonly accepted engineering practice. Section 331.163(e)(3)(D), which would allow the executive director to waive or modify future coring projects, is proposed to be deleted. Such a requirement would allow the permittee to construct new caverns without performing confirming cores for each subsequent cavern. Numerous commenters in 1992 pointed out the danger of making assumptions from the original cavern due to foreign matter which may be present within the salt and which could compromise the integrity of waste containment. The commission continues to agree with this concern.

#### FISCAL NOTE: COSTS TO STATE AND LOCAL GOVERNMENT

John Davis, Technical Specialist with Strategic Planning and Appropriations, has determined that for each year of the first five-year period the proposed amendments are in effect there will be no anticipated fiscal implications for units of state and local government as a result of administration or enforcement of the proposed amendments.

The proposed amendments will implement certain provisions of HB 2912, 77th Legislature, 2001, which required the TNRCC to prohibit, by rule, the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. This rulemaking will also amend and clarify the information required to establish the geologic suitability of a proposed location for a salt cavern disposal well through the use of a 3-D seismic survey, and will reinstate the requirement for a VSP survey to the battery of logging and testing required during the initial construction phase for a new Class I solution-mined salt cavern injection well.

Units of state and local government are not anticipated to be users of Class I disposal wells. Also, these amendments will not substantially affect the commission's current practices relative to review of such applications. Therefore, the commission does not anticipate any fiscal implications to units of state and local government as a result of implementing the proposed amendments.

#### PUBLIC BENEFITS AND COSTS

Mr. Davis has also determined for each of the first five years the proposed amendments are in effect, the public benefit anticipated as a result of implementing the proposed amendments will be continued environmental protection through the incorporation of more clearly defined and expanded geological requirements for any proposed salt cavern Class I injection wells.

The proposed amendments are intended to implement provisions of HB 2912, which required the TNRCC to prohibit, by rule, the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. This rulemaking will also amend and clarify the

information required to establish the geologic suitability of a proposed location for a salt cavern disposal well through the use of a 3-D seismic survey, and will reinstate the requirement for a VSP survey to the battery of data logging and testing required during the initial construction phase for a new Class I solution-mined salt cavern injection well. If authorized by the commission, salt dome cavern Class I waste disposal wells can be used to dispose of stabilized nonhazardous industrial solid waste.

There are currently no Class I solution-mined salt cavern injection wells permitted in Texas; therefore, the proposed amendments would not affect any existing sites. There is currently one company with an application pending before the commission. The only potential additional cost to comply with this rulemaking will be the cost of conducting a VSP survey. Based on an estimate provided by a geophysical service company, the commission expects that a VSP would cost approximately \$23,000 to perform.

#### SMALL BUSINESS AND MICRO-BUSINESS ASSESSMENT

There will be adverse economic effects, which are not anticipated to be significant, to only one small or micro-business as a result of the implementation of the proposed amendments. There should be no adverse economic effects to any other small or micro-business as a result of this rulemaking. The proposed amendments are intended to implement provisions of HB 2912, which required the TNRCC to prohibit, by rule, the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. This rulemaking will also amend and clarify the information required to establish the geologic suitability of a proposed location for a salt cavern disposal well through the use of a 3-D seismic survey, and will reinstate the requirement for a VSP survey to the battery of data logging

and testing required during the initial construction phase for a new Class I solution-mined salt cavern injection well. If authorized by the commission, salt dome cavern Class I waste disposal wells can be used to dispose of stabilized nonhazardous industrial solid waste.

The commission is aware of only one company, a micro-business, which would be affected by these proposed rule amendments. At the present time that company consists of eight employees, although that number may rise to approximately 75 employees if a Class I solution-mined salt cavern injection well permit is issued to the company and authorized activities are initiated. The only potential additional cost to comply with this rulemaking will be the cost of conducting a VSP survey. Based on an estimate provided by a geophysical service company, the commission expects that a VSP survey would cost approximately \$23,000 to perform.

The following is an analysis of the cost per employee for small or micro-businesses affected by the proposed amendments. Small and micro-business are defined as having fewer than 100 or 20 employees respectively. The cost to comply with this rulemaking for the one company affected could be approximately \$23,000. The commission believes that the potential one-time cost would be approximately \$2,875 per employee for the one known small business currently expected to be affected by the proposed amendments.

#### LOCAL EMPLOYMENT IMPACT STATEMENT

The commission reviewed this proposed rulemaking and determined that a local employment impact statement is not required because the proposed rule amendments do not adversely affect a local economy in a material way for the first five years that the proposed rule is in effect.

#### DRAFT REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the proposed rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the rulemaking is not subject to that section because it does not meet the definition of a “major environmental rule.” A “major environmental rule” is a rule the specific intent of which is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state.

The primary purpose of this rulemaking is to clarify the information to be submitted in the technical report under §331.121(d)(1); to remove prescriptive language that may not be applicable to all proposed sites; to emphasize the purpose and use of the data as they relate to the performance standard of no release of hazardous constituents from the salt cavern and to the geologic suitability of a proposed site; and to implement the statutory prohibition on storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. There is, however, a potential new technical requirement for persons granted permits for salt dome cavern waste disposal wells. Proposed new §331.163(e)(1)(F) requires that permittees perform a VSP.

The commission believes the amendments are as protective as those which currently exist in the agency's rules. The goal under either set of rules is to maximize protection of human health and the environment by establishing the geologic suitability of a proposed site for a salt cavern Class I injection well. By clarifying what information is required in the application, and by tying the information to current construction and performance standards, the commission believes the amendments provide appropriate flexibility while maintaining the level and degree of protectiveness of the permitting process.

The proposed rulemaking is not a "major environmental rule" because it is not expected to adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state. The proposed amendments should not have a materially adverse effect on any of the listed categories. The amendments are intended primarily to clarify requirements which already exist in the commission's regulations; eliminate prescriptive language relating to the requirement for a 3-D seismic survey, and relate the demonstrations required in a permit application to the geologic suitability of a specific site, in order to ensure there will be no release of hazardous constituents from the proposed salt cavern injection zone; and to implement the statutory prohibition on storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. Because the proposed rulemaking does not constitute a "major environmental rule," a full regulatory impact analysis under Texas Government Code, §2001.0225 is not required.

Furthermore, the proposed rulemaking does not meet any of the four applicability requirements listed in Texas Government Code, §2001.0225(a). Section 2001.0225 only applies to a major environmental rule, the result of which is to: 1.) exceed a standard set by federal law, unless the rule is specifically required by state law; 2.) exceed an express requirement of state law, unless the rule is specifically required by federal law; 3.) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or 4.) adopt a rule solely under the general powers of the agency instead of under a specific state law. This proposed rulemaking does not meet any of these four applicability requirements.

The commission invites public comment on the draft regulatory impact analysis determination.

#### TAKINGS IMPACT ASSESSMENT

The commission evaluated these proposed rules and performed a preliminary assessment of whether these proposed rules constitute a takings under Texas Government Code, Chapter 2007. The purpose of this proposed rulemaking is to remove prescriptive language relating to which methodologies must be employed to make specific demonstrations of geologic suitability; clarify the information to be submitted in the technical report to support an application for a Class I salt cavern injection well; add requirements inadvertently left out of the agency's transmission to the Secretary of State in 1992; add a requirement for a VSP; and implement the statutory prohibition on storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine. The commission believes the proposed amendments would substantially advance this purpose by more specifically describing which geologic features of a salt dome are to be analyzed, and authorizing the executive director to specify the

lateral extent of the 3-D seismic survey as needed to ensure that a proposed cavern location and any subsequently constructed caverns meet the performance standard “of no escape of hazardous constituents from the salt cavern injection zone” in §331.162. The proposed rule prohibiting the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine implements the statutory mandate to the commission in THSC, §361.114 to prohibit this activity by rule. Texas Health and Safety Code, §361.002, provides that it is the state’s policy and purpose of the Solid Waste Disposal Act to safeguard the health, welfare, and physical property of the people and to protect the environment by controlling the management of solid waste.

Promulgation and enforcement of these proposed rules would be neither a statutory nor a constitutional taking of private real property. Specifically, the subject proposed rules do not burden real property, nor restrict or limit the owner’s right to property and reduce its value by 25% or more beyond that which would otherwise exist in the absence of the regulations. These rules mainly clarify the technical requirements and submissions for applications for authorization of waste disposal in a salt dome and implement the statutory prohibition of storage, processing, or disposal of hazardous waste in a solution-mined salt dome or sulphur mine. Although the proposed rules affect the ability to use real property for hazardous waste treatment, storage, and disposal in a solution-mined salt dome cavern or sulphur mine, the commission believes that there are off-setting benefits to the value of real property because the possibility of property damage from this type of waste management technique is reduced. The benefits to society from the proposed rulemaking are the protection of health, welfare, and the environment. Because this proposed rulemaking implements a statutory mandate to prohibit the storage, processing,

or disposal of hazardous waste in solution-mined salt domes or sulphur mines, there is no alternative action that could accomplish this specific purpose.

#### CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the proposed rulemaking and found that the rule amendments are neither identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11, Actions and Rules Subject to the Texas Coastal Management Program (CMP), nor will they affect any action or authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11. Therefore, the proposed rules are not subject to the CMP.

#### ANNOUNCEMENT OF HEARINGS

Public hearings on this proposal will be held in Wharton, on February 19, 2002, at 7:00 p.m. at the Wharton Community Civic Center, in the Main Hall located at 1924 North Fulton; in Mont Belvieu, on February 26, 2002, at 7:00 p.m. at the Barbers Hill High School, in the CTJ Conference Center located at 9600 Eagle Drive; and in Austin on February 28, 2002, at 2:00 p.m. in Building E, Room 201S at the commission's central office located at 12100 Park 35 Circle. The hearings will be structured for the receipt of oral or written comments by interested persons. Individuals may present oral statements when called upon in order of registration. Open discussions will not occur during the hearings; however, agency staff members will be available to discuss the proposal 30 minutes prior to the hearings and will answer questions before and after the hearings.

Persons with disabilities who have special communication or other accommodation needs who are planning to attend the hearings should contact the agency at (512) 239-4900. Requests should be made as far in advance as possible.

#### SUBMITTAL OF COMMENTS

Comments may be submitted to Lola Brown, Office of Environmental Policy, Analysis, and Assessment, MC 205, P.O. Box 13087, Austin, Texas 78711-3087, or faxed to (512) 239-4808. All comments should reference Rule Log Number 2001-080-331-WT. Comments must be received by 5:00 p.m., March 4, 2002. For further information contact Ray Henry Austin at (512) 239-6814.

#### STATUTORY AUTHORITY

The amendment is proposed under Texas Water Code (TWC), §5.103, which provides the commission authority to adopt any rules necessary to carry out its powers and duties under this code and other laws of this state and to adopt rules when adopting, repealing, or amending any agency statement of general applicability that interprets or prescribes law or policy, or describes the procedure or practice requirements of an agency; §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; §27.019, which requires the commission to adopt rules reasonably required for the regulation of injection wells; and THSC, §336.114, which requires the commission to prohibit by rule the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine.

The proposed amendment implements TWC, Chapter 27, Injection Wells, and THSC, §361.114.

**SUBCHAPTER A: GENERAL PROVISIONS**

**§331.14**

**§331.14. Prohibition of Class I Salt Cavern Solid Waste Disposal Wells and Associated Caverns in Geologic Structures or Formations Other Than Salt Stocks of Salt Domes and Prohibition of Disposal of Hazardous Waste into Certain Geological Formations.**

(a) Construction and operation of Class I salt cavern solid waste disposal wells and associated caverns in geologic structures or formations other than salt stocks of salt domes is prohibited until such time at which this section is amended to provide for authorization of such facilities and activities, and specific rules for such facilities and activities are promulgated.

(b) Notwithstanding any provision to the contrary in this chapter, Chapter 335 of this title (relating to Industrial Solid Waste and Municipal Hazardous Waste), or any other chapter of this title, the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine is prohibited.

**SUBCHAPTER G: CONSIDERATION PRIOR TO PERMIT ISSUANCE**

**§331.121**

**STATUTORY AUTHORITY**

The amendment is proposed under Texas Water Code (TWC), §5.103, which provides the commission authority to adopt any rules necessary to carry out its powers and duties under this code and other laws of this state and to adopt rules when adopting, repealing, or amending any agency statement of general applicability that interprets or prescribes law or policy, or describes the procedure or practice requirements of an agency; §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; §27.019, which requires the commission to adopt rules reasonably required for the regulation of injection wells; and THSC, §336.114, which requires the commission to prohibit by rule the storage, processing, or disposal of hazardous waste in a solution-mined salt dome cavern or a sulphur mine.

The proposed amendment implements TWC, Chapter 27, Injection Wells, and THSC, §361.114.

**§331.121. Class I Wells.**

(a) - (c) (No change.)

(d) The commission shall also consider the following additional information [criteria], which must be submitted in the technical report of the application as part of demonstrating that the facility will

meet the performance standard in §331.162 of this title (relating to Performance Standard) [addressed in the technical report of the application], before issuing a salt cavern Class I injection well permit:

(1) a thorough characterization of the salt dome to establish the geologic suitability of the location , including:

(A) data and interpretation from all appropriate geophysical methods (such as well logs, seismic surveys, and gravity surveys), subject to the approval of the executive director, necessary to: [a thorough geologic characterization of the salt dome, including the geometry of the salt stock and its calculated movement and calculated salt loss rate. Data submitted must be sufficient to image underneath all overhangs, to delineate the edge of the salt stock, to define any other caverns or co-uses of the salt stock, and to address any conditions that may result in potential adverse impact on the salt stock. Well logs, seismic reflection surveys, gravity surveys, and any other appropriate geophysical methods necessary to characterize the salt dome are to be utilized. Seismic reflection data submitted must include a surface recorded three-dimensional seismic grid survey sufficient to image underneath all suspected overhangs and to delineate the edge of the stock;]

(i) map the overall geometry of the salt dome, including all edges and any suspected overhangs of the salt stock;

(ii) demonstrate the existence of a minimum distance of 500 feet between the boundaries of the proposed salt cavern injection zone and the boundaries of the salt stock;

(iii) define the composition and map the top and thickness of the sedimentary rock units between the caprock and surface, including the flanks of the salt stock;

(iv) define the composition and map the top and thickness of the caprock overlying the salt stock;

(v) map the top of the salt stock;

(vi) calculate the movement and the salt loss rate of the salt stock;

(vii) define any other caverns and other uses of the salt dome, and address any conditions that may result in potential adverse impact on the salt dome; and

(viii) satisfy any other requirement of the executive director necessary to demonstrate the geologic suitability of the location;

(B) a surface-recorded three-dimensional seismic survey, subject to the following minimum requirements:

(i) the lateral extent of the survey will be determined by the executive director; and

(ii) the survey must provide information as part of demonstrating that the location is geologically suitable for the purpose of meeting the performance standard in §331.162 of this title;

(C) [(B)] identification of any unusual features, such as depressions or lineations observable at the land surface or within or detectable within the subsurface, which may be indicative of underlying anomalies in the caprock or salt stock, which might affect construction, operation, or closure of the cavern;

(D) [(C)] the petrology of the caprock, salt stock, and deformed strata; and

(E) [(D)] for strata surrounding the salt stock, information on their nature, structure, hydrodynamic properties, and relationships to USDWs, including a demonstration that the proposed salt cavern injection zone will not be in or above a formation which within 1/4 mile of the salt cavern injection zone contains a USDW;

(2) - (5) (No change.)

(e) - (g) (No change.)

**SUBCHAPTER J: STANDARDS FOR CLASS I SALT CAVERN SOLID WASTE  
DISPOSAL WELLS**

**§331.161, §331.163**

**STATUTORY AUTHORITY**

The amendments are proposed under TWC, §5.103, which provides the commission authority to adopt any rules necessary to carry out its powers and duties under this code and other laws of this state and to adopt rules when adopting, repealing, or amending any agency statement of general applicability that interprets or prescribes law or policy, or describes the procedure or practice requirements of an agency; §5.105, which authorizes the commission to establish and approve all general policy of the commission by rule; and §27.019, which requires the commission to adopt rules reasonably required for the regulation of injection wells.

The proposed amendments implement TWC, Chapter 27, Injection Wells.

**§331.161. Applicability.**

The sections of this subchapter apply to all Class I salt cavern solid waste disposal wells and their associated salt caverns located in the salt stocks of salt domes, and not to such facilities in horizontally bedded or non-domal salt. As provided by §331.14 of this title (relating to Prohibition of Class I Salt Cavern Solid Waste Disposal Wells and Associated Caverns in Geologic Structures or Formations Other Than Salt Stocks of Salt Domes and Prohibition of Disposal of Hazardous Waste into Certain Geological Formations), salt cavern solid waste disposal wells and associated caverns in

geologic structures or formations other than salt stocks of salt domes [horizontally bedded or non-domal salt] are prohibited until such time at which §331.14 of this title and this subchapter are amended to allow the subject facilities, and any necessary specific rules for such facilities [in horizontally bedded or non-domal salt] are added by amendment to this subchapter or promulgated as a new subchapter.

**§331.163. Well Construction Standards.**

(a) (No change.)

(b) Casing and cementing.

(1) All Class I salt cavern disposal wells shall be cased and all casings which extend to the surface shall be cemented to the surface to prevent the movement of fluids and waste into or between underground sources of drinking water (USDWs) or freshwater aquifers, and to prevent potential leaks of fluids and waste from the well. Cementing shall be by the pump and plug or other method approved by the commission, and cement circulated shall be of a volume equivalent to at least 120% of the calculated volume needed to fill the annular space between the hole and casing and between casing strings to the surface of the ground. Circulation of cement may be accomplished by staging. The executive director may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the owner or operator can demonstrate by using logs that the cement is continuous or does not allow any fluid and waste movement behind the well

casings. Casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well, including the post-closure care period.

(A) - (C) (No change.)

(2) (No change.)

(c) Injection tubings [tubing]. Except for circulation of drilling fluids during well construction, all injection activities for salt cavern construction and waste disposal in a salt cavern shall be performed using two concentric and removable injection tubings suspended from the wellhead [through removable injection tubing installed inside of the cemented long string casing and extending from the wellhead at ground surface to the salt borehole or salt cavern below the long string casing seat].

(1) All injection activities during cavern construction shall be performed with the annulus between the tubing and long string casing filled with a noncorrosive [corrosion inhibiting] fluid sufficient to protect the bond between salt, cement, and the long string casing seat.

(2) All injection of waste into a salt cavern shall be performed through the inner tubing [removable injection tubing] with a packer to seal the annulus between the tubing and long string casing near the bottom of the long string casing.

(d) Well annulus system factors for consideration. All elements of the design of the well's tubing-long string [tubing-longstring] casing annulus system, including the outer tubing and packer, shall be approved by permit or by the executive director's approval that any proposed modifications to the plans and specifications in the permit application will provide protection equivalent to or greater than the original plans and specifications. In determining and specifying requirements for a tubing and packer system, the following factors shall be considered:

(1) (No change.)

(2) characteristics of injection fluid and waste;

(3) - (7) (No change.)

(e) Logs and tests.

(1) Geophysical logging [Logging]. Appropriate logs and other tests shall be conducted during the drilling and construction phases of the well including drilling into the salt. All logs and tests shall be interpreted by the service company which processed the logs or conducted the test; or by other qualified persons. A minimum of the following logs and tests shall be conducted:

(A) - (D) (No change.)

(E) fracture detector log from the base of the surface casing to the total investigated depth including all core hole or pilot hole; and [.]

(F) a vertical seismic profile.

(2) Pressure tests.

(A) After installation and cementing of casings, and prior to drilling out the cemented casing shoe, surface casing shall be pressure tested at mill test pressure or 80% of the calculated internal pressure at minimum yield strength [to 1,000 psi for 30 minutes], and the intermediate and long string casing shall be tested to 1,500 pounds per square inch (psi) [psi] for 30 minutes, unless otherwise specified by the executive director.

(B) - (C) (No change.)

(3) Coring.

(A) - (C) (No change.)

[(D) Upon satisfactory completion of all coring requirements of this subsection and all reports and certification requirements of subsection (i) of this section, for at least one salt cavern

disposal well in a multi-cavern waste disposal project, the executive director may modify or waive provisions in subparagraphs (A), (B), and (C) of this paragraph.]

(4) (No change.)

(f) - (i) (No change.)