

The Texas Commission on Environmental Quality (TCEQ, agency, or commission) proposes amendments to §§331.2, 331.7, 331.13, 331.45, 331.46, 331.82, 331.84 - 331.86, 331.103 - 331.107, and 331.143. The commission proposes new §§331.87, 331.108, 331.109, and 331.220 - 331.225.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE PROPOSED RULES

The changes proposed to this chapter are part of a larger proposal to revise the commission's radiation control and underground injection control (UIC) rules. The purpose of this rulemaking is to implement the remaining portions of Senate Bill (SB) 1604, 80th Legislature, 2007, its amendments to Texas Health and Safety Code (THSC), Chapter 401 (also known as the Texas Radiation Control Act (TRCA)), Texas Water Code (TWC), Chapter 27 (also known as the Injection Well Act), and House Bill (HB) 3838, 80th Legislature, 2007. This proposed rulemaking intends to incorporate new provisions for Production Area Authorizations and UIC Area Permits, financial assurance requirements, and new state fees on gross receipts associated with the radioactive waste disposal. HB 3838 specifically addresses the period between uranium exploration, which is regulated by the Railroad Commission of Texas (RRC), and permitting of injection wells for in situ uranium mining, which is regulated by TCEQ. The bill requires TCEQ to establish a registration program for exploration wells permitted by the RRC that are used for development of the UIC area permit application. In response to a previous petition for rulemaking, the commission has also directed staff to review, seek stakeholder input on, and recommend revision of commission rules related to in situ uranium recovery.

The proposed amendments to Chapter 331 implement legislative requirements in SB 1604, establishing requirements for area permits and production area authorizations for in situ recovery of uranium, and HB 3838 establishing registration requirements for wells used in the development of an application for an

injection well permit authorizing in situ recovery of uranium and proposes revisions based on the commission directed staff review of the in situ program and stakeholder input received.

Corresponding rulemaking is published in this issue of the *Texas Register* concerning 30 TAC Chapters 37, 39, 55, 305, and 336.

SECTION BY SECTION DISCUSSION

The commission proposes to amend §331.2 by revising nine existing definitions and adding two new definitions. Existing definitions under §331.2(83), (85), and (87) - (112) will be renumbered to (84), (86), and (88) - (114), respectively to accommodate the two new definitions.

Proposed revision to the existing definition of "Activity" under §331.2(2) is to include the construction or operation of an injection or production well for the recovery of minerals, or any other classes of injection wells regulated by the commission. This proposed change is necessary for completeness of the term "activity", which is used throughout the rules that apply to underground injection. With this proposed revision, any references to activities regulated under the TCEQ UIC Program will include construction and operation of injection wells.

The proposed revision to the existing definition of "Area permit" under §331.2(1) is to specify that an area permit is for two or more production or monitor wells used in operations associated with Class III well activities. This proposed change is necessary to specify that area permits are issued only for Class III wells and not for other types of injection wells regulated by the commission.

The proposed revision to the existing definition of "Control parameter" under §331.2(28) is to clarify that the term includes physical parameters, such as pH or specific conductivity, and that monitoring of a control parameter includes measurement with instrumentation or laboratory analysis of a groundwater sample from a monitoring well. Control parameters are characteristics of the groundwater that are monitored to detect the movement of mining solutions out of the production zone at a Class III well site. In the past, control parameters were almost always a chemical attribute of the groundwater, such as the concentration of certain metals. Groundwater samples were collected and shipped to a laboratory where the concentrations of control parameters were measured using chemical analytical techniques. Physical characteristics of groundwater, however, also can serve as control parameters. Furthermore, advances in technology now allow measurement of certain parameters in the borehole. The proposed change is necessary to allow physical parameters to be used as control parameters, and to allow for measurement of certain control parameters using suitable instrumentation.

The proposed revision to the existing definition of "Excursion" under §331.2(38) is to clarify that the determination of movement of mining solutions into a monitor well must be based on chemical analysis or instrument measurement of control parameters from groundwater.

The proposed revision to the existing definition of "Mine plan" under §331.2(63) would expand the term to include a schedule of proposed mining activities at a Class III well site. Currently, the definition includes only a map of the permit area. The expanded definition would address the need for the holder of a Class III well area permit to provide the commission information regarding the sequence and timing of mining, and a schedule for aquifer restoration.

The proposed revision to the existing term "Monitor well" under §331.2(64) would clarify that the term has the same meaning as "monitoring well" as defined in TWC, §27.002. "Monitor well" is used throughout the Chapter 331 rules, and this proposed change would provide consistency between these rules and the TWC with regards to the meaning of the two terms. Also, the commission proposed to revise §331.2(64)(A) to clarify that designated monitor wells are those wells for which water quality sampling or measurements with instrumentation is required. This change is necessary to clarify that water quality sampling may be accomplished by measuring water quality with appropriate instruments in addition to determining water quality through conventional chemical analysis of groundwater samples.

The proposed revision to the existing term "Production area authorization" under §331.2(82) would clarify that the term refers to an authorization issued under the terms of a Class III well area permit, and that this authorization includes requirements regarding production and aquifer restoration. The current definition does not clearly indicate that this term applies to Class III well operations.

Proposed §331.2(83) would define "Production well." This term is used in existing rules, and should be defined. The proposed definition would clarify that a production well is a well that is used for mineral recovery, not for waste injection.

The commission proposes to amend the term "Restored aquifer" under existing §331.2(88) to restrict the term to that portion of an aquifer that is within the boundaries of an area permit, and that the aquifer has been restored in accordance with the requirements of §331.104, Establishment of Baseline and Restoration Values. This proposed change is necessary to clarify that "aquifer restoration" applies to the aquifer within the permit boundary, not the entire aquifer.

Proposed §331.2(87) would define the term "Registered well." HB 3838 required the commission to establish a registration system for wells that would be used to develop applications for Class III well area permits. This new definition is necessary to define this term that is used in proposed Chapter 331, new Subchapter M, which is discussed further in this section.

The proposed rule would amend the existing term "Verifying analysis" under current §331.2(108) to include measurements with instrumentation. Physical characteristics of groundwater also can serve as control parameters, and advances in technology now allow measurement of certain parameters in the borehole. The proposed change is necessary to allow physical parameters to be used as control parameters, and to allow for measurement of certain control parameters using suitable instrumentation.

Proposed §331.7(g) would address term limits of existing Class III well area permits. This proposed change would implement the requirements of SB 1604, which amended the TWC by adding TWC, §27.0513. Prior to adoption of SB 1604, Class III well area permits were issued without an expiration date. Under SB 1604, the holder of a Class III area well permit issued prior to September 1, 2007 must submit an application for permit renewal before September 1, 2012. Any permit issued prior to September 1, 2007 will expire on September 1, 2012 if an application for renewal is not submitted to the commission before September 1, 2012, although the holder of the permit would not be relieved of obligations under the permit or applicable rules to restore groundwater or to plug and abandon wells authorized under the permit.

The commission proposes to amend §331.13(e) to allow the commission to delegate to the executive director the authority to designate an aquifer exempt if no request for a public hearing is received during the comment period provided in public notice. Delegation of authority by the commission to the executive director in uncontested matters is a common practice for most permitting matters addressed by the commission, including injection well permits that may be associated with an aquifer exemption. Delegation in this matter would reduce the time needed to process requests for aquifer exemptions.

The commission proposes to amend §331.45(3)(B) to clarify that a demonstration of mechanical integrity is not necessary for baseline wells. The existing rule currently excludes monitor wells from this requirement, and baseline wells are constructed and operated similarly to monitor wells. Unlike Class III injection and production wells through which mining fluids are being pumped on a near-continuous basis, no injection occurs in baseline and monitor wells, and only native groundwater periodically is pumped from baseline wells.

The commission proposes to amend §331.46(d) to remove any apparent implication regarding the approval of the use of materials other than cement for plugging wells. Under the current language in subsection (d), use of a material other than cement for plugging wells requires approval in writing by the executive director. This current language implies that this approval may be granted by means other than a permit amendment or modification. Closure of wells must be in accordance with an approved plugging and abandonment plan. A request to plug a well with material other than cement should be subject to the applicable rules for amendments or modifications, and subject to applicable public notice and public participation requirements.

The commission proposes to amend §331.82(a) to clarify that the casing in Class III wells must be cemented from the bottom of the casing to the surface. The proposed revision is necessary as the current rule requires casing be cemented to the surface, which implies casing could be cemented from a point above the bottom of the casing to the surface.

The commission proposes to amend §331.82(c)(2) to require a demonstration of mechanical integrity prior to injection or production from a Class III well and to require a pressure test each time a tool is placed in a Class III well when that tool could affect the mechanical integrity of the well. The current rule requires a demonstration of mechanical integrity following construction of the well, but not specifically before the well is put into operation. Although it is unlikely an operator of a Class III well would inject or produce fluids from the well prior to testing it for mechanical integrity, the proposed rule revision would clarify that the mechanical integrity of a well must be demonstrated prior to operation of the well. Under existing §331.82(c), an additional test for mechanical integrity on a well may be required if the well has been repaired. During the life of a well, tools may be placed in and withdrawn from a well for various reasons such as to inspect casing, change or repair pumps or tubing, or to clean well screens. These types of actions can result in damage to the well casing, which could affect the mechanical integrity of a well. The proposed revision would allow the executive director to require an operator to pressure test a well whenever tools have been placed into the well that could damage casing and affect the mechanical integrity of a well.

The commission proposes to amend §331.82(c)(2)(A)(i) to clarify that Class III wells can be tested for significant leaks using either a single point resistivity survey or a pressure test. The language in the

current rule is unclear, and suggests that both tests are required. The intent of the rule is either method may be used to test for significant leaks in a Class III well.

The commission proposes to amend §331.82(c)(2)(A)(ii) to clarify that cement records can be used to demonstrate the absence of significant fluid movement in a Class III well.

The commission proposes to amend §331.84(c) to clarify that the fluid level in a Class III well must be measured when such measurement is required in a permit. Section 331.84(c) is also amended to clarify that the required bi-monthly samples must be taken at 15-day intervals so as to ensure the collection of independent samples. The proposed 15-day interval would replace the current two-week interval that resulted in three samples a month for two months in each year.

The commission proposes an amendment to replace requirements in existing §331.85(a) with new reporting requirements in §331.85(a). Under the existing rule, an updated map illustrating all newly constructed or newly discovered wells was required under existing subsection (a). Proposed subsection (a) would require an annual report by December 31st of each year. This report, in addition to the updated map that is presently required, must also include data on any newly constructed or newly discovered wells, and updated cost estimates for well closure and aquifer restoration, an update mine map, an updated mining schedule, and an inventory of all injection, production, and monitor wells. This information has been required in the past, and the proposed rule would consolidate it into one report due at the end of the year, which would assist commission staff in reviewing this information in a timely manner.

The commission proposes §331.85(h) to require an operator of a Class III well facility to maintain at the facility copies of all information required under §331.85. Proposed §331.85(h) would assist TCEQ field personnel to more expeditiously determine facility compliance with all applicable rules and permit requirements during an inspection of a facility.

The commission proposes to amend §331.86(a) to remove language that implies plugging and abandonment plans may be modified through written approval from the executive director. The intent of this section is that any revision of plugging and abandonment plans must be done through a permit amendment or modification, which would be approved by the executive director.

The commission proposes new §331.87. Under this proposed new section, field measurements, using instrumentation, of groundwater parameters is allowed for monitoring purposes provided the field measurement is at least equivalent in quality and sensitivity as that of a chemical analysis. This proposed new section is necessary to address advancements in technology that allow field measurements for certain groundwater quality parameters.

The commission proposes to amend §331.103(a) to clarify that the placement of monitor wells to meet the spacing requirements of subsection (a) may be based on information from exploration drilling, as updated with information from production drilling. It is the commission's belief that information from these types of wells is sufficient for the determination of monitor well placement to meet the spacing requirements in subsection (a). As a further point of clarification, monitor wells must meet the spacing requirements in §331.103(a) with respect to the outermost injection and production wells within the production area, not with respect to injection and production wells in the interior of the production area.

The commission proposes to amend §331.104 to address both the establishment of baseline groundwater values for restoration and the establishment of parameters for excursion detection.

The commission proposes to amend §331.104(a) to require that groundwater samples from monitor and baseline wells be both independent and representative, as both of these characteristics are necessary for valid statistical analysis. A statistically-independent sample is required so that one sampling event will not affect the results or quality of a subsequent sampling event from the same well.

The commission proposes an amendment to re-designate existing §331.104(b) as subsection (d) with no other changes, and would remove existing subsection (c), as discussed elsewhere in this section. Under proposed §331.104(b) all baseline wells must be completed within the production zone. Under existing §331.104(d), baseline water quality values for determination of restoration can be based on analytical measurements of groundwater samples from either the baseline wells completed in the production zone within the production area, or from monitor wells completed in the production zone but outside of the production area (that is, outside of the zone of uranium mineralization that is to be mined using in situ techniques). It is the commission's belief that aquifer restoration goals should be based on data from groundwater samples collected from the baseline wells only, as these are the wells that are completed in the production zone within the area of mineralization. Information from wells outside of the production area does not provide pre-mining information on the quality of groundwater within the production zone of the production area. Proposed §331.104(b) would also require the owner or operator to propose a suite of groundwater parameters for restoration. This suite of parameters must include all parameters that occur in the groundwater within the production zone of the production area prior to in situ operations, all

parameters that are in the solutions injected into the production zone, all parameters that may be dissolved from the production zone into the groundwater during in situ operations, uranium, and radium 226. The commission's current application form for Class III well area permits (form TCEQ-10313) requires analysis for 26 constituents for aquifer restoration, but current rules do not specify what parameters should be used as a basis for aquifer restoration. It is the commission's belief that the determination of the suite of parameters for aquifer restoration should be based on rule, and therefore is proposing §331.104(b). Furthermore, experience has indicated that certain parameters in the list of 26 specified in the permit application do not always occur in the groundwater at sites mined in Texas. Conversely, other parameters, not included in the list of 26 parameters, also could occur in Texas groundwater or be introduced into the groundwater by in situ operations. Therefore, proposed §331.104(b) is designed to allow (and require) an applicant to establish a suite of aquifer restoration parameters based on the characteristics of the groundwater on a site-by-site basis.

The commission proposes §331.104(c), under which a minimum of five baseline wells or one baseline well for every four acres of production area, whichever is greater, are required. Under existing §331.104(a)(2), which would be removed under the proposed amendment, the production area baseline value must be based on samples from at least five wells completed in the production zone. Although this current rule allows for more than five baseline wells, owners and operators typically propose only five baseline wells. Because a production area may range in size from a few acres to several tens of acres, five wells may or may not provide sufficient characterization of the groundwater for establishment of restoration goals. The proposed amendment would ensure a minimum number of baseline wells based on acreage of a production area. Proposed §331.104(c) would also require all baseline wells to be sampled and the results of analyses of those samples be used to determine the suite of restoration parameters.

The commission proposes to remove existing §331.104(c), under which an owner or operator is required to determine control parameter upper limits from baseline water quality values. It is the commission's belief that control parameter upper limits should be based on information from monitor wells, not baseline wells. Control parameter upper limits are the values of certain parameters that are monitored in the monitor wells that encircle a production area. The purpose of this monitoring is to determine if mining fluids have migrated from the production area by detection of changes in water quality in the monitor wells. In order to do so, the water quality in the monitor wells must be established. Water quality in the monitor wells should be established from information from the monitor wells, which are located outside the zone of mineralization, not from baseline wells, which are completed within the zone of mineralization.

As discussed previously, existing §331.104(b) is being relettered to §331.104(d) under this proposed rulemaking. No other changes to §331.104(d) are proposed. Existing §331.104(d) is proposed to be deleted so that the requirements for establishing restoration table values can be placed in §331.107.

The commission proposes §331.104(e) to require operators to determine control parameters for production and nonproduction wells. The proposed rule also allows an operator to determine the presence of an excursion by either of two methods. First, the value of a control parameter may be taken to be the mean of at least 30 measurements from groundwater samples collected from monitor wells prior to in situ mining activities. The presence of an excursion is determined by directly comparing a sample result from a monitor well to this mean value for a control parameter. Second, the presence of an excursion may be determined using a statistical hypothesis test proposed by the operator and approved by the commission.

Under existing §331.104(c), upper limits for control parameters are to be determined from baseline water quality values. Many operators make this determination by taking the highest pre-mining measurement for a control parameter, either from the baseline sample measurements or the monitor well sample measurements, and applying a multiplier to this value. It is the commission's belief that values for control parameters for determining the occurrence of an excursion should be based on information from monitor wells, not baseline wells. Also, the method of selecting the highest pre-mining value, then increasing this value by some factor appears to be a modification of a nonparametric upper prediction limit statistical method. This method, without modification, may provide adequate detection of an excursion, provided the number of future comparison is taken into account and provided a sufficient number of measurements are used to determine a nonparametric upper prediction limit. Otherwise, depending on the conditions at a site, a nonparametric upper prediction limit may be an inappropriate method for detecting an excursion.

The proposed requirement that the upper value for a particular control parameter be the average of at least 30 measurements of that parameter would ensure that the average value for that parameter is an acceptable estimation of the true mean of that parameter in the groundwater. The proposed subsection would allow for a direct comparison methodology for determining if an excursion had occurred.

Alternatively, an owner or operator may propose a statistical method to be approved by the executive director. This allows the owner or operator to propose a statistical method other than a direct comparison methodology for the detection of excursions.

The commission proposes to amend §331.104(f) to address requirements for groundwater restoration in the case where an owner or operator has requested to re-enter a previously-mined area for additional mining. Under this subsection, an owner or operator would be required to meet the groundwater

restoration goals previously established for the production area to be re-entered. It is the commission's belief that when a previously mined area is to be re-entered for additional in situ recovery of uranium, the groundwater restoration goals should be those established prior to in situ mining operations, or as modified by any amendments in accordance with §331.104, Establishment of Baseline and Restoration Values and Control Parameters for Excursion Detection and §331.107, Restoration.

The commission proposes to amend to §331.105(1) - (4) to refer to Routine Monitoring, Monitoring Duration, Verifying Analysis, and Excursion Monitoring, respectively, instead of Routine Sampling, Duration of Monitoring Program, Verifying Analysis, and Sampling Frequency when mining solutions are present, respectively. The proposed rule also would amend existing §331.105(1), (3), and (4) to clarify that monitoring includes instrument measurements. Additionally, the proposed amendment would revise existing §331.105(3) to clarify that a verifying analysis must be done if the upper control limit is equaled or exceeded in any monitor well. Lastly, the proposed amendment would revise existing §331.105(1) and (4) to require monitoring results for control parameters to be completed by the second working day after a sample is collected.

The commission proposes to amend §331.106 to refer to the existence of an excursion rather than that mining solutions are present. By making this change, the language in §331.106 would refer to a term, in this case, "excursion" that is defined in existing §331.2, Definitions, rather than the undefined phrase, "that mining solutions are present."

The commission proposes to amend §331.106(2) to require, in addition to other parameters identified in this paragraph, analysis for uranium and radium-226 for a verifying analysis. These two parameters are

mobilized into the groundwater during in situ mining. Their presence in a verifying analysis of a groundwater sample from a monitor well would provide evidence that an indication of an excursion was associated with the movement of a mining solution from the production area to a monitor well.

The commission proposes to amend §331.107(a) to require that groundwater in the production zone of the production area must be restored when mining is complete, to require restoration be achieved for all parameters specified in the suite of restoration parameters, and to specify that restoration may be demonstrated by either of two methods. The first method is a direct comparison between the measurement from a groundwater sample for a restoration parameter and the mean for that parameter as determined from all measurements from groundwater samples collected from baseline wells prior to mining activities. The second method is a statistical test proposed by the owner or operator and approved by the executive director. As part of a permit of production area authorizations application, the applicant would need to provide a sufficient explanation for the use of alternative statistical methodology for determining restoration table values. These proposed methods are similar to those for excursion detection and provide the owner or operator two statistical methods for determining if restoration has been achieved.

The commission proposes to amend §331.107(b) and (c) to specify that aquifer restoration applies to a production area, not the entire permitted area.

The commission proposes to amend §331.107(d) to identify the information that must be submitted with the required semi-annual restoration progress report. This information includes analytical data, graphs of analytical data for each restoration parameter, the volume of fluids injected and produced, the volume of fluids disposed, water level measurements, hydrographs for each baseline and monitor well, a

potentiometric map for each production area, and a summary of progress achieved towards aquifer restoration.

The commission proposes §331.107(e) under which stability sampling is required once restoration has been demonstrated. Existing §331.107(e) would be re-designated as subsection (f), and would be amended to extend the period for stability sampling from 180 days to one year. This proposed extended period for stability sampling would allow the owner or operator to determine if water quality is affected by seasonal changes.

The commission proposes an amendment to re-designate existing §331.107(f) as subsection (g), and amend the subsection to require a permittee to notify the executive director of a determination to cease restoration operations if the permittee decided to request amendment of the restoration values. Under existing §331.107(f), if a permittee is unsuccessful in restoring the groundwater in a production zone within a production area, he or she may cease restoration operations without notifying the executive director, and request the restoration values to be raised, and the executive director can approve such an amendment after considering the factors identified in §331.107(g)(1). Under the proposed rule, written permission from the executive director would be required for a permittee to cease restoration activities. The permittee would also be required to submit the request for amendment of restoration values within 120 days of receipt of authorization from the executive director to cease restoration operations. These proposed changes would allow the executive director to evaluate the permittee's decision to cease restoration operations, and would require the permittee to submit a request for amendment in a timely manner.

The commission proposes to amend §331.107(g)(3) to require a permittee to conduct stability sampling for a period of two years (instead of one year) if restoration values are amended. The inability to restore groundwater to the initial restoration values is an indication that in situ mining may have altered the chemistry of the groundwater within the production zone of a production area, and that this change has resulted in making the affected groundwater resistant to a reduction in the concentrations of parameters in the groundwater. As this affected groundwater moves through natural groundwater flow, it would migrate into areas adjacent to the production zone that are unaffected by in situ mining. Once in these areas, it is the commission's belief that chemically reducing conditions in these areas could immobilize these parameters, decreasing the risk of offsite contamination. However, because there may be some risk of offsite contamination in such a case, the commission is requiring a stability period of two years when restoration values are amended. Under the proposed rule, the commission would allow a permittee to provide a demonstration that a period of less than two years is appropriate.

The commission proposes to amend §331.107(g)(4) to require a permittee to resume restoration efforts if an amendment to the restoration values is not granted.

The commission proposes new §331.108. Under the proposed revision to §55.201, an application for a production area authorization is not subject to a contested case hearing when the application addresses the initial establishment of monitor wells, and the executive director uses the recommendations of an independent, third-party expert. Under SB 1604, the TWC was amended by adding TWC, §27.0513(e), under which the requirements for use of an independent third-party expert are identified.

The commission proposes new §331.108(a) under which the executive director may use the recommendations of an independent third-party expert if requested by an applicant. Under this proposed subsection, the executive director would use the recommendations from an expert provided the expert meets the qualifications identified in §331.108(b), the applicant pays for the cost of the work of the expert, the applicant is not involved in the selection of the expert or the direction of the expert's work, the expert's recommendations meet all applicable statutory and regulatory requirements for the initial establishment of monitor wells, and, in the opinion of the executive director, the expert's recommendations are necessary for the protection of underground sources of drinking water.

The commission proposes new §331.108(b) to require that an expert be either a licensed professional engineer or a licensed professional geoscientist who currently is authorized to practice engineering or geology, respectively, in Texas. In determining whether to designate a person as an expert, the executive director would also consider the person's experience in geology and hydrogeology, experience with in situ mining of uranium, current and previous work experience with the applicant, current and previous work experience with person's or entities that are in opposition to in situ uranium mining, and any other factors the executive director considers to be relevant.

The commission proposes new §331.108(c), under which the executive director would not designate an expert unless a written request from the applicant is received. It is the commission's belief that the choice to use an expert lies with the applicant, who would have to pay the cost of the expert.

The commission proposes new §331.108(d). Under this new subsection, an application for a production area authorization for the initial establishment of monitor wells is not subject to opportunity for a hearing if the executive director uses the recommendations of an expert.

Under proposed new §331.108(e), if the executive director does not use the recommendations of an expert, the application is subject to opportunity for a contested case hearing.

The commission proposes new §331.108(f), under which a person may request to be considered an expert by submitting information to the executive director to demonstrate qualifications under this section.

The commission proposes new §331.108(g), the use of an expert does not constitute the applicant's selection of the expert.

The commission proposes new §331.108(h), an expert cannot be an employee of the commission.

The commission proposes new §331.109(a), under which financial assurance for groundwater restoration must be based on cost estimates provided under §331.143, Cost Estimates for Plugging and Abandonment and Aquifer Restoration.

The commission proposes new §331.109(b), under which financial assurance for plugging and abandonment of wells must be based upon cost estimates provided under §331.143.

The commission proposes to amend §331.143(a) to include a cost estimate for aquifer restoration for each production area authorization. Existing §331.143(a) requires a cost estimate for plugging and abandonment only. Although financial assurance for aquifer restoration is held under a radioactive materials license, cost estimates for aquifer restoration are reviewed by the UIC program staff. This proposed change would formalize an interagency arrangement to clearly indicate that responsibility for review of cost estimates for aquifer restoration lies with the UIC program and establish that an applicant must submit the cost estimates for groundwater restoration of a permit or production area as part of the application. Also, the requirement that plugging and abandonment cost estimates, as well as aquifer restoration cost estimates, must equal the maximum cost of each of these items at the point in a facility's operating life is moved to proposed subsection (b). This proposed change is necessary to more clearly state the requirements for cost estimates for both plugging and abandonment as well as for aquifer restoration.

The commission proposes the replacement of existing §331.143(b) with proposed subsection (b) that would require that both the cost estimates for plugging and abandonment and for aquifer restoration must be included. The current rule only refers to plugging and abandonment cost estimates.

The commission proposes an amendment to re-designate existing §331.143(b) to subsection (c).

Proposed subsection (c) would refer to cost estimates both for plugging and abandonment and for aquifer restoration.

The commission proposes §331.143(d), under which the owner or operator of a Class III well facility would be required, on or before December 31st of each year, to review and update as necessary the cost estimates required under §331.143(a). Amended §331.143(a) also requires the owner or operator to

submit these updates to the executive director no later than January 31st of each year. Although these estimates currently are submitted to the executive director, there is no specific date on which they must be submitted. The proposed rule would establish a specific date for submission of this information.

The proposed rules would amend Chapter 331 by adding proposed Subchapter M: Requirements for Existing Wells Used for Development of Class III UIC Well Applications. This new subchapter would implement the requirements of HB 3838. Under this legislation, the TWC was amended to add TWC, §27.023 and §27.024, and amended TWC, §27.073. These new statutory sections establish requirements for the registration of wells that are used for the development of a Class III injection well permit application. These wells, which initially are drilled under an exploration permit issued by the RRC, are not plugged because they can be used to develop an application for a Class III injection well area permit. Currently, these wells continue to be regulated by the RRC until they are cased, at which time regulation of these wells is transferred to the TCEQ through an informal agreement with the RRC. Although regulation of these wells is transferred to the TCEQ, current rules do not address how they are to be regulated. The proposed new subchapter would establish regulatory requirements for these wells, including development of a register to document their existence. Ultimately, these wells would either be permitted under a Class III injection well area permit or would be plugged and abandoned.

The commission proposes new §331.220 to establish that the requirements of new subchapter M apply to wells that are used to obtain information to develop an application for a Class III injection well area permit for in situ mining of uranium.

Under the requirements of HB 3838, any wells that are used for the development of an application for a Class III injection well area permit must be registered with the TCEQ. The commission proposes new §331.221(a) to require all existing wells used to develop a Class III injection well permit application be registered with the TCEQ within 30 days of completion and prior to submission of the application, and would require wells drilled after submission of the application to be registered within 30 days of well completion.

The commission proposes new §331.221(b), under which the type of information required for well registration is identified. This information includes a unique well designation, well location, well depth, well construction information, well operator, name of person who owns land on which the well is located, water level data, and, if applicable, the groundwater conservation district in which the well is located.

The commission proposes new §331.221(c), under which the owner or operator would be required to maintain mechanical integrity of any registered well, as defined in proposed §331.2(87). This proposed subsection also requires that any registered well not cause or allow movement of fluid that would result in groundwater pollution. Also, this proposed subsection prohibits injection in a registered well.

The commission proposes new §331.221(d), under which an owner or operator is required to plug and abandon any registered well that is not subsequently authorized under a Class III injection well area permit.

The commission proposes new §331.221(e), under which registered wells are not subject to the commission's permitting, public notice, or hearing requirements. Under TWC, §27.023(b), registered

wells are excluded from these requirements, unless they are converted to a well authorized under a Class III injection well permit under proposed new §331.222.

The commission proposes new §331.222, which addresses changing the status of a registered well. Under this proposed new section, once a registered well is authorized under a Class III injection well area permit, the registration status of the well ceases and the well is subject to all applicable commission rules, including those regarding permitting, public notice, and hearing requests.

The commission proposes new §331.223(a), under which an owner or operator is required to provide certain information on registered wells to a groundwater conservation district if the proposed permit boundary is within the district's area. The owner or operator must provide to the district information regarding wells that are not in the public record when such wells are encountered, locations of all wells that are recorded in the public record and that are within the proposed permit area, pre-mining water quality data collected from registered wells, the amount of water produced monthly from each registered well, and a record of strata encountered from each registered well, except for information that is confidential.

The commission proposes new §331.223(b), under which an owner or operator of a registered well is required to provide the information required under proposed new §331.223(a) to the groundwater conservation district within 90 days of receipt of the final information for that well.

The commission proposes new §331.224, under which the executive director may require a person who receives a Class III injection well area permit or a production area authorization to maintain and provide

accurate records regarding the character of strata encountered in drilling an injection well, monitor well, or production well.

The commission proposes new §331.225 under which the commission may require an applicant for a Class III injection well permit to provide a geophysical or drilling log of an existing well.

FISCAL NOTE: COSTS TO STATE AND LOCAL GOVERNMENT

Jeff Horvath, Analyst, Strategic Planning and Assessment Section, has determined that for the first five-year period the proposed rules are in effect, fiscal implications are anticipated for the agency and the Texas Department of State Health Services (DSHS or Department) due to administration or enforcement of the proposed changes to the Chapter 331 rules. The proposed changes to Chapter 331 are part of a larger proposal to implement the second phase of the transfer of certain regulatory responsibilities for radioactive waste from DSHS to the TCEQ as required by SB 1604, 80th Legislature, 2007. The second phase rulemaking also incorporates changes required by HB 3838, 80th Legislature, 2007, relating to in situ uranium mining. The 80th Legislature provided additional staff and funding to the TCEQ to implement the transfer of the regulatory responsibilities. No significant fiscal implications are anticipated for regulated entities as a result of the administration or enforcement of the proposed Chapter 331 rule revisions.

The primary purpose of the proposed rules is to implement SB 1604. The bill transfers responsibilities for the regulation and licensing of source material recovery, by-product disposal, and commercial radioactive substances storage and processing from the Department to the commission. Technical

requirements for these programs have been transferred from the Department's rules into new subchapters of the commission's radioactive substantive rules in Chapter 336.

The proposed rules to Chapter 331 implement legislative requirements in SB 1604, establishing requirements for area permits and production area authorizations for in situ recovery of uranium, and HB 3838, establishing registration requirements for wells used in the development of an application for an injection well permit authorizing in situ recovery of uranium. The proposed rules also contain revisions based on the commission directed staff review of the in situ program and stakeholder input that the agency received.

Among the proposed rules would be a change to require that a permit for Class III wells for uranium mining issued before September 1, 2007 expire on September 12, 2012 unless an application for permit renewal is submitted before September 1, 2012. If the permit for the Class III wells for uranium mining expires, the permit holder is still obligated to operate under the existing permit or applicable rules. The proposed rules also require that all new wells associated with the mining operations be cased and cemented from the bottom of the casing to the surface and that the spacing of the designated production zone monitor wells be no greater than 400 feet from the production area based on the exploratory drilling and updated by production drilling. The distance between the mine area monitor wells should be 400 feet or less. The proposed rules also provide well registration requirements for wells that will be used to gather information needed for a Class III well application. These wells must be registered with the TCEQ until they either are permitted as Class III wells or they are plugged.

The new requirements proposed under Chapter 331 are not expected to result in significant fiscal implications for the agency or other units of state or local government. The agency will use current legislative appropriations to implement the proposed changes.

PUBLIC BENEFITS AND COSTS

Mr. Horvath also determined that for each year of the first five years the proposed rules are in effect, the public benefit anticipated from the changes seen in the proposed rules will be compliance with state law and increased efficiency of the regulation of radioactive substance processing, storage and disposal through consolidation of these activities at one state agency.

In general, no significant fiscal implications are anticipated for businesses or individuals as a result of the proposed rule changes. Permits for Class III wells for uranium mining operations issued before September 1, 2007 will expire on September 12, 2012 unless an application for permit renewal is submitted before September 1, 2012. The cost of preparing a renewal application for a Class III well permit will vary from operator to operator. The permit itself would cost approximately \$150. Because the renewals of Class III well permits are a new requirement, historical information projecting any other costs necessary to prepare the permit renewal are not available, but consultant fees may cost \$20,000 to \$40,000.

Proposed monitoring well spacing and well casing requirements are not new. The intent of the current rule has been that wells are cemented from the base of the casing to the surface. The proposed rule is meant to specifically state this requirement and therefore there are no new costs for this requirement. In addition, the proposed rules do not change any of the spacing requirements for monitor wells. The

proposed rule clarifies that spacing of monitor wells may be based on information from exploratory drilling, and that adjustments to the locations of monitor wells to meet spacing requirements may be required as new information is obtained through production drilling. There are no new costs associated with this requirement.

The proposed rules also provide well registration requirements for wells that will be used to gather information needed for a Class III well application. These wells must be registered with the TCEQ until they either are permitted as Class III wells or they are plugged. There is no fee for registration. However, the operator will be required to provide information from these wells to groundwater conservation districts if the wells are in the district's jurisdiction. There will be some costs for these notification requirements but they are not expected to be significant.

SMALL BUSINESS AND MICRO-BUSINESS ASSESSMENT

No adverse fiscal implications are expected for small or micro-businesses as a result of the proposed rules. The changes proposed are part of a larger proposal to revise the commission's radiation control rules. The proposed rules establish requirements for area permits and production area authorizations for in situ recovery of uranium, and HB 3838 required registration requirements for wells used in the development of an application for an injection well permit authorizing in situ recovery of uranium. No small or micro-businesses are anticipated to be affected by the proposed rules.

SMALL BUSINESS REGULATORY FLEXIBILITY ANALYSIS

The commission has reviewed this proposed rulemaking and determined that a small business regulatory flexibility analysis is not required because the proposed rules do not adversely affect a small or micro-

business in a material way for the first five years that the proposed rules are in effect and the proposed rules are required by SB 1604 and HB 3838.

LOCAL EMPLOYMENT IMPACT STATEMENT

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

DRAFT REGULATORY IMPACT ANALYSIS DETERMINATION

The commission proposes the rulemaking action under the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the action is not subject to §2001.0225 because it does not meet the definition of "a major environmental rule" as defined in the statute. "A major environmental rule" means 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 proposed rulemaking action implements legislative requirements in SB 1604, establishing requirements for area permits and production area authorizations for in situ recovery of uranium, and HB 3838 establishing registration requirements for wells used in the development of an application for an injection well permit authorizing in situ recovery of uranium. The proposed rulemaking is not anticipated 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 or a sector of the state, because the amendments do not alter in a material way the existing requirements for injection wells used for in situ recovery of uranium. The proposed rulemaking action also amends

technical requirements and for radioactive materials licenses and establishes fees for applications and waste disposal in Chapter 336, amends license application requirements and permit term limits in Chapter 305, amends financial assurance requirements in Chapter 37, amends public notice requirements in Chapter 39, and amends public participation requirements in Chapter 55.

Furthermore, the proposed rulemaking action does not meet any of the four applicability requirements listed in Texas Government Code, §2001.0225(a). Texas Government Code, §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. The proposed rulemaking action does not exceed a standard set by federal law, an express requirement of state law, a requirement of a delegation agreement, nor does it adopt a rule solely under the general powers of the agency.

The commission's UIC program is authorized by the United States Environmental Protection Agency and the proposed changes for injection well permits, production area authorizations, and exempt aquifers do not exceed a standard of federal law or requirement of a delegation agreement. There are no federal standards for production area authorizations or for registrations for wells used in the development of a permit application. The proposed rules are compatible with federal law.

The proposed rules do not exceed a requirement of state law. TWC, Chapter 27, the Injection Well Act, establishes requirements for the commission's UIC program. SB 1604 amended the Injection Well Act to establish requirements for area permits used for in situ recovery of uranium, and production area authorizations. HB 3838 amended the Injection Well Act to require the registration of wells used in the development of a permit application. The purpose of the rulemaking is to implement requirements consistent with TWC, Chapter 27, as amended by SB 1604 and HB 3838.

The proposed rules are compatible with the requirements of a delegation agreement or contract between the state and an agency of the federal government. The commission's UIC program is authorized by the United States Environmental Protection Agency, and the proposed rules are compatible with the state's delegation of the UIC program.

The proposed rules are adopted under specific laws. TWC, Chapter 27, establishes requirements for the commission's UIC program and TWC, §27.019, requires the commission to adopt rules reasonably required to implement the Injection Well Act, and TWC, §27.0513 authorizes the commission to adopt rules to establish requirements for production area authorizations.

Written comments on the draft regulatory impact analysis determination may be submitted to the contact person at the address listed under the SUBMITTAL OF COMMENTS section of this preamble.

TAKINGS IMPACT ASSESSMENT

The commission evaluated these proposed rules and performed a preliminary assessment of whether the Private Real Property Rights Preservation Act, Texas Government Code, Chapter 2007 is applicable. The

commission's preliminary assessment is that implementation of these proposed rules would not constitute a taking of real property.

The purpose of these proposed rules is to implement legislative requirements in SB 1604, establishing requirements for area permits and production area authorizations for in situ recovery of uranium, and HB 3838 establishing registration requirements for wells used in the development of an application for an injection well permit authorizing in situ recovery of uranium. The proposed rule changes in Chapter 331 would substantially advance this purpose by amending the requirements applicable to in situ uranium mining.

Promulgation and enforcement of these proposed rules would be neither a statutory nor a constitutional taking of private real property. The proposed rules do not affect a landowner's rights in private real property because this rulemaking action does not constitutionally burden, nor restrict or limit, the owner's right to property and reduce its value by 25% or more beyond which would otherwise exist in the absence of the regulations. The proposed rules for injection wells, permits, production area authorizations and well registrations do not affect real property. The proposed rules apply only to those who use or apply for authorization of injection wells for in situ recovery of uranium. Significant requirements for wells used for in situ recovery of uranium apply in the absence of these proposed rules, including statutory requirements from SB 1604 and HB 3838. Therefore, the proposed rules do not affect real property in a manner that is different than would have been affected without these revisions.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the proposed rules and found that they are neither identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(b)(2) or (4), nor will they affect any action/authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(a)(6). Therefore, the proposed rules are not subject to the Texas Coastal Management Program.

ANNOUNCEMENT OF HEARING

The commission will hold a public hearing on this proposal in Austin on September 16, 2008, at 10:00 a.m. at the Texas Commission on Environmental Quality complex located at 12100 Park 35 Circle in Building E, Room 201S. The hearing is 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 discussion will not be permitted during the hearing; however, commission staff members will be available to discuss the proposal 30 minutes prior to the hearing.

Persons who have special communication or other accommodation needs who are planning to attend the hearing should contact Patricia Duron, Office of Legal Services at (512) 239-6087. Requests should be made as far in advance as possible.

SUBMITTAL OF COMMENTS

Written comments may be submitted to Patricia Duron, MC 205, Office of Legal Services, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087, or faxed to (512) 239-4808. Electronic comments may be submitted at: <http://www5.tceq.state.tx.us/rules/ecomments/>. File size restrictions may apply to comments being submitted via the eComments system. All comments should reference Rule Project Number 2007-029-336-PR. The comment period closes October 6, 2008.

Copies of the proposed rulemaking can be obtained from the commission's Web site at

http://www.tceq.state.tx.us/nav/rules/propose_adopt.html. For further information, please contact Susan

Jablonski, Director, Radioactive Materials Division, (512) 239-6466.

SUBCHAPTER A: GENERAL PROVISIONS

§§331.2, 331.7, and 331.13

STATUTORY AUTHORITY

The amendments are proposed under Texas Water Code (TWC), §5.103, concerning Rules, and §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under the TWC and other laws of the state. The amendments are also proposed under TWC, §27.019, which requires the commission to adopt rules reasonably required for the performance of duties and functions under the Injection Well Act; and §27.0513, which requires the commission to establish rules for procedural, application and technical requirements for production area authorizations.

The proposed amendments implement Senate Bill 1604 and House Bill 3838, 80th Legislature, 2007, and TWC, §27.023 and §27.0513.

§331.2. Definitions.

General definitions can be found in Chapter 3 of this title (relating to Definitions). The following words and terms, when used in this chapter, have the following meanings.

(1) **Abandoned well**--A well which has been permanently discontinued from use or a well for which, after appropriate review and evaluation by the commission, there is no reasonable expectation of a return to service.

(2) **Activity**--The construction or operation of any of the following:

(A) an injection well for disposal of waste;

(B) an injection or production well for the recovery of minerals;

(C) pre-injection units for processing or storage of waste; or [of]

(D) any other class of injection well regulated by the commission.

(3) **Affected person**--Any person whose legal rights, duties, or privileges may be adversely affected by the proposed injection operation for which a permit is sought.

(4) **Annulus**--The space in the wellbore between the injection tubing and the long string casing and/or liner.

(5) **Annulus pressure differential**--The difference between the annulus pressure and the injection pressure in an injection well.

(6) **Aquifer**--A geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

(7) **Aquifer restoration**--The process used to achieve or exceed water quality levels established by the commission for a permit/production area.

(8) **Aquifer storage well**--A Class V injection well used for the injection of water into a geologic formation, group of formations, or part of a formation that is capable of underground storage of water for later retrieval and beneficial use.

(9) **Area of review**--The area surrounding an injection well described according to the criteria set forth in §331.42 of this title (relating to Area of Review) or in the case of an area permit, the project area plus a circumscribing area the width of which is either 1/4 mile or a number calculated according to the criteria set forth in §331.42 of this title.

(10) **Area permit**--A [An injection well] permit that [which] authorizes the construction and operation of two or more similar injection [wells], production, or monitoring wells used in operations associated with Class III well activities within a specified area.

(11) **Artificial liner**--The impermeable lining of a pit, lagoon, pond, reservoir, or other impoundment, that is made of a synthetic material such as butyl rubber, chlorosulfonated polyethylene, elasticized polyolefin, polyvinyl chloride (PVC), other manmade materials, or similar materials.

(12) **Baseline quality**--The parameters and their concentrations that describe the local groundwater quality of an aquifer prior to the beginning of injection activities.

(13) **Baseline well**--A well from which groundwater is analyzed to define baseline quality in the permit area (regional baseline well) or in the production area (production area baseline well).

(14) **Buffer area**--The area between any mine area boundary and the permit area boundary.

(15) **Caprock**--A geologic formation typically overlying the crest and sides of a salt stock. The caprock consists of a complex assemblage of minerals including calcite (CaCO_3), anhydrite (CaSO_4), and accessory minerals. Caprocks often contain lost circulation zones characterized by rock layers of high porosity and permeability.

(16) **Captured facility**--A manufacturing or production facility that generates an industrial solid waste or hazardous waste that is routinely stored, processed, or disposed of on a shared basis in an integrated waste management unit owned, operated by, and located within a contiguous manufacturing complex.

(17) **Casing**--Material lining used to seal off strata at and below the earth's surface.

(18) **Cement**--A substance generally introduced as a slurry into a wellbore which sets up and hardens between the casing and borehole and/or between casing strings to prevent movement of fluids within or adjacent to a borehole, or a similar substance used in plugging a well.

(19) **Cementing**--The operation whereby cement is introduced into a wellbore and/or forced behind the casing.

(20) **Cesspool**--A drywell that receives untreated sanitary waste containing human excreta, and which sometimes has an open bottom and/or perforated sides.

(21) **Commercial facility**--A Class I permitted facility, where one or more commercial wells are operated.

(22) **Commercial underground injection control (UIC) Class I well facility**--Any waste management facility that accepts, for a charge, hazardous or nonhazardous industrial solid waste for disposal in a UIC Class I injection well, except a captured facility or a facility that accepts waste only from other facilities owned or effectively controlled by the same person.

(23) **Commercial well**--An underground injection control Class I injection well which disposes of hazardous or nonhazardous industrial solid wastes, for a charge, except for a captured facility or a facility that accepts waste only from facilities owned or effectively controlled by the same person.

(24) **Conductor casing or conductor pipe**--A short string of large-diameter casing used to keep the top of the wellbore open during drilling operations.

(25) **Cone of influence**--The potentiometric surface area around the injection well within which increased injection zone pressures caused by injection of wastes would be sufficient to drive fluids into an underground source of drinking water or freshwater aquifer.

(26) **Confining zone**--A part of a formation, a formation, or group of formations between the injection zone and the lowermost underground source of drinking water or freshwater aquifer that acts as a barrier to the movement of fluids out of the injection zone.

(27) **Contaminant**--Any physical, biological, chemical, or radiological substance or matter in water.

(28) **Control parameter**--Any physical parameter or chemical constituent of groundwater monitored on a routine basis used to detect or confirm the presence of mining solutions in a designated monitor well. Monitoring includes measurement with instrumentation or sample collection and laboratory analysis.

(29) **Desalination brine**--The waste stream produced by a desalination operation containing concentrated salt water, other naturally occurring impurities, and additives used in the operation and maintenance of a desalination operation.

(30) **Desalination concentrate**--Same as desalination brine

(31) **Desalination operation**--A process which produces water of usable quality by desalination.

(32) **Disposal well**--A well that is used for the disposal of waste into a subsurface stratum.

(33) **Disturbed salt zone**--Zone of salt enveloping a salt cavern, typified by increased values of permeability or other induced anomalous conditions relative to undisturbed salt which lies more distant from the salt cavern, and is the result of mining activities during salt cavern development and which may vary in extent through all phases of a cavern including the post-closure phase.

(34) **Drilling mud**--A heavy suspension used in drilling an injection well, introduced down the drill pipe and through the drill bit.

(35) **Drinking water treatment residuals**--Materials generated, concentrated or produced as a result of treating water for human consumption.

(36) **Drywell**--A well, other than an improved sinkhole or subsurface fluid distribution system, completed above the water table so that its bottom and sides are typically dry except when receiving fluids.

(37) **Enhanced Oil Recovery Project**--The use of any process for the displacement of oil from the reservoir other than primary recovery and includes the use of an immiscible, miscible,

chemical, thermal, or biological process. This term does not include pressure maintenance or water disposal projects.

(38) **Excursion**--The movement of mining solutions, as determined by analysis for control parameters, into a designated monitor well.

(39) **Existing injection well**--A Class I well which was authorized by an approved state or United States Environmental Protection Agency-administered program before August 25, 1988, or a well which has become a Class I well as a result of a change in the definition of the injected waste which would render the waste hazardous under §335.1 of this title (relating to Definitions).

(40) **Fluid**--Material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.

(41) **Formation**--A body of rock characterized by a degree of lithologic homogeneity which is prevailing, but not necessarily, tabular and is mappable on the earth's surface or traceable in the subsurface.

(42) **Formation fluid**--Fluid present in a formation under natural conditions.

(43) **Fresh water**--Water having bacteriological, physical, and chemical properties which make it suitable and feasible for beneficial use for any lawful purpose.

(A) For the purposes of this subchapter, it will be presumed that water is suitable and feasible for beneficial use for any lawful purpose only if:

- (i) it is used as drinking water for human consumption; or
- (ii) the groundwater contains fewer than 10,000 milligrams per liter (mg/L) total dissolved solids; and
- (iii) it is not an exempted aquifer.

(B) This presumption may be rebutted upon a showing by the executive director or an affected person that water containing greater than or equal to 10,000 mg/L total dissolved solids can be put to a beneficial use.

(44) **General permit**--A permit issued under the provisions of this chapter authorizing the disposal of nonhazardous desalination concentrate and nonhazardous drinking water treatment residuals as provided by Texas Water Code, §27.023.

(45) **Groundwater**--Water below the land surface in a zone of saturation.

(46) **Groundwater protection area**--A geographic area (delineated by the state under Safe Drinking Water Act, 42 United States Code, §300j-13) near and/or surrounding community and non-transient, non-community water systems that use groundwater as a source of drinking water.

(47) **Hazardous waste**--Hazardous waste as defined in §335.1 of this title (relating to Definitions).

(48) **Improved sinkhole**--A naturally occurring karst depression or other natural crevice found in carbonate rocks, volcanic terrain, and other geologic settings which has been modified by man for the purpose of directing and emplacing fluids into the subsurface.

(49) **Individual permit**--A permit, as defined in the Texas Water Code (TWC), §27.011 and §27.021, issued by the commission or the executive director to a specific person or persons in accordance with the procedures prescribed in the TWC, Chapter 27 (other than TWC, §27.023).

(50) **Injection interval**--That part of the injection zone in which the well is authorized to be screened, perforated, or in which the waste is otherwise authorized to be directly emplaced.

(51) **Injection operations**--The subsurface emplacement of fluids occurring in connection with an injection well or wells, other than that occurring solely for construction or initial testing.

(52) **Injection well**--A well into which fluids are being injected. Components of an injection well annulus monitoring system are considered to be a part of the injection well.

(53) **Injection zone**--A formation, a group of formations, or part of a formation that receives fluid through a well.

(54) **In service**--The operational status when an authorized injection well is capable of injecting fluids, including times when the well is shut-in and on standby status.

(55) **Intermediate casing**--A string of casing with diameter intermediate between that of the surface casing and that of the smaller long-string or production casing, and which is set and cemented in a well after installation of the surface casing and prior to installation of the long-string or production casing.

(56) **Large capacity cesspool**--A cesspool that is designed for a flow of greater than 5,000 gallons per day.

(57) **Large capacity septic system**--A septic system that is designed for a flow of greater than 5,000 gallons per day.

(58) **Licensed professional geoscientist**--A geoscientist who maintains a current license through the Texas Board of Professional Geoscientists in accordance with its requirements for professional practice.

(59) **Liner**--An additional casing string typically set and cemented inside the long string casing and occasionally used to extend from base of the long string casing to or through the injection zone.

(60) **Long string casing or production casing**--A string of casing that is set inside the surface casing and that usually extends to or through the injection zone.

(61) **Lost circulation zone**--A term applicable to rotary drilling of wells to indicate a subsurface zone which is penetrated by a wellbore, and which is characterized by rock of high porosity and permeability, into which drilling fluids flow from the wellbore to the degree that the circulation of drilling fluids from the bit back to ground surface is disrupted or "lost."

(62) **Mine area**--The area defined by a line through the ring of designated monitor wells installed to monitor the production zone.

(63) **Mine plan**--A plan for operations at a mine, consisting of: [A map of adopted mine areas and an estimated schedule indicating the sequence and timetable for mining and any required aquifer restoration.]

(A) a map of the permit area identifying the location and extent of existing and proposed production areas; and

(B) an estimated schedule indicating the sequence and timetable for mining and any required aquifer restoration.

(64) **Monitor well**--Any well used for the sampling or measurement with instrumentation of any chemical or physical property of subsurface strata or their contained fluids. The term "monitor well" shall have the same meaning as the term "monitoring well" as defined in Texas Water Code, §27.002.

(A) Designated monitor wells are those listed in the production area authorization for which routine water quality sampling or measurement with instrumentation is required.

(B) Secondary monitor wells are those wells in addition to designated monitor wells, used to delineate the horizontal and vertical extent of mining solutions.

(C) Pond monitor wells are wells used in the subsurface surveillance system near ponds or other pre-injection units.

(65) **Motor vehicle waste disposal well**--A well used for the disposal of fluids from vehicular repair or maintenance activities including, but not limited to, repair and maintenance facilities for cars, trucks, motorcycles, boats, railroad locomotives, and airplanes.

(66) **New injection well**--Any well, or group of wells, not an existing injection well.

(67) **New waste stream**--A waste stream not permitted.

(68) **Non-commercial facility**--A Class I permitted facility which operates only non-commercial wells.

(69) **Non-commercial underground injection control (UIC) Class I well facility**--A UIC Class I permitted facility where only non-commercial wells are operated.

(70) **Non-commercial well**--An underground injection control Class I injection well which disposes of wastes that are generated on-site, at a captured facility or from other facilities owned or effectively controlled by the same person.

(71) **Notice of change (NOC)**--A written submittal to the executive director from a permittee authorized under a general permit providing changes to information previously provided to the agency, or any changes with respect to the nature or operations of the facility, or the characteristics of the waste to be injected.

(72) **Notice of intent (NOI)**--A written submittal to the executive director requesting coverage under the terms of a general permit.

(73) **Off-site**--Property which cannot be characterized as on-site.

(74) **On-site**--The same or geographically contiguous property which may be divided by public or private rights-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing, as opposed to going along, the right-of-way. Noncontiguous

properties owned by the same person but connected by a right-of-way which the owner controls and to which the public does not have access, is also considered on-site property.

(75) **Out of service**--The operational status when a well is not authorized to inject fluids, or the well itself is incapable of injecting fluids for mechanical reasons, maintenance operations, or well workovers or when injection is prohibited due to the well's inability to comply with the in-service operating standards of this chapter.

(76) **Permit area**--The area owned or under lease by the permittee which may include buffer areas, mine areas, and production areas.

(77) **Plugging**--The act or process of stopping the flow of water, oil, or gas into or out of a formation through a borehole or well penetrating that formation.

(78) **Point of injection**--For a Class V well, the last accessible sampling point prior to fluids being released into the subsurface environment.

(79) **Pollution**--The contamination of water or the alteration of the physical, chemical, or biological quality of water:

(A) that makes it harmful, detrimental, or injurious:

(i) to humans, animal life, vegetation, or property; or

(ii) to public health, safety, or welfare; or

(B) that impairs the usefulness or the public enjoyment of the water for any lawful and reasonable purpose.

(80) **Pre-injection units**--The on-site above-ground appurtenances, structures, equipment, and other fixtures including the injection pumps, filters, tanks, surface impoundments, and piping for wastewater transmission between any such facilities and the well that are or will be used for storage or processing of waste to be injected, or in conjunction with an injection operation.

(81) **Production area**--The area defined by a line generally through the outer perimeter of injection and recovery wells used for mining.

(82) **Production area authorization**--An authorization, [A document] issued under the terms of a Class III [an] injection well area permit, approving the initiation of mining activities in a specified production area within a permit area, and setting specific conditions for production and restoration in each production area within an area permit.

(83) **Production well**--A well used to recover minerals through in situ solution recovery.
The term does not include a well used to inject waste.

(84) [(83)] **Production zone**--The stratigraphic interval extending vertically from the shallowest to the deepest stratum into which mining solutions are authorized to be introduced.

(85) [84] **Public water system**--A system for the provision to the public of water for human consumption through pipes or other constructed conveyances as defined in §290.38(47) of this title (relating to Definitions).

(86) [(85)] **Radioactive waste**--Any waste which contains radioactive material in concentrations which exceed those listed in 10 Code of Federal Regulations Part 20, Appendix B, Table II, Column 2, and as amended.

(87) **Registered Well**--A well registered in accordance with the requirements of §331.221 of this title (relating to Registration of Wells).

(88) [(87)] **Restoration demonstration**--A test or tests conducted by a permittee to simulate production and restoration conditions and verify or modify the fluid handling values submitted in the permit application.

(89) [(88)] **Restored aquifer**--An aquifer whose groundwater quality, within the boundaries of the permit area, has, by natural or artificial processes, returned to the restoration table values established in accordance with the requirements of §331.107 of this title (relating to Restoration) [levels consistent restoration table values or better as verified by an approved sampling program].

(90) [(89)] **Salt cavern**--A hollowed-out void space that has been purposefully constructed within a salt stock, typically by means of solution mining by circulation of water from a well or wells connected to the surface.

(91) [(90)] **Salt cavern confining zone**--A zone between the salt cavern injection zone and all underground sources of drinking water and freshwater aquifers, that acts as a barrier to movement of waste out of a salt cavern injection zone, and consists of the entirety of the salt stock excluding any portion of the salt stock designated as an underground injection control (UIC) Class I salt cavern injection zone or any portion of the salt stock occupied by a UIC Class II or Class III salt cavern or its disturbed salt zone.

(92) [(91)] **Salt cavern injection interval**--That part of a salt cavern injection zone consisting of the void space of the salt cavern into which waste is stored or disposed of, or which is capable of receiving waste for storage or disposal.

(93) [(92)] **Salt cavern injection zone**--The void space of a salt cavern that receives waste through a well, plus that portion of the salt stock enveloping the salt cavern, and extending from the boundaries of the cavern void outward a sufficient thickness to contain the disturbed salt zone, and an additional thickness of undisturbed salt sufficient to ensure that adequate separation exists between the outer limits of the injection zone and any other activities in the domal area.

(94) [(93)] **Salt cavern solid waste disposal well or salt cavern disposal well**--For the purposes of this chapter, regulations of the commission, and not to underground injection control (UIC)

Class II or UIC Class III wells in salt caverns regulated by the Texas Railroad Commission, a salt cavern disposal well is a type of UIC Class I injection well used:

(A) to solution mine a waste storage or disposal cavern in naturally occurring salt; and/or

(B) to inject hazardous, industrial, or municipal waste into a salt cavern for the purpose of storage or disposal of the waste.

(95) [(94)] **Salt dome**--A geologic structure that includes the caprock, salt stock, and deformed strata surrounding the salt stock.

(96) [(95)] **Salt stock**--A geologic formation consisting of a relatively homogeneous mixture of evaporite minerals dominated by halite (NaCl) that has migrated from originally tabular beds into a vertical orientation.

(97) [(96)] **Sanitary waste**--Liquid or solid waste originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned.

(98) [(97)] **Septic system**--A well that is used to emplace sanitary waste below the surface, and is typically composed of a septic tank and subsurface fluid distribution system or disposal system.

(99) [(98)] **Stratum**--A sedimentary bed or layer, regardless of thickness, that consists of generally the same kind of rock or material.

(100) [(99)] **Subsurface fluid distribution system**--An assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground. This definition includes subsurface area drip dispersal systems as defined in §222.5 of this title (relating to Definitions).

(101) [(100)] **Surface casing**--The first string of casing (after the conductor casing, if any) that is set in a well.

(102) [(101)] **Temporary injection point**--A method of Class V injection that uses push point technology (injection probes pushed into the ground) for the one-time injection of fluids into or above an underground source of drinking water.

(103) [(102)] **Total dissolved solids**--The total dissolved (filterable) solids as determined by use of the method specified in 40 Code of Federal Regulations Part 136, as amended.

(104) [(103)] **Transmissive fault or fracture**--A fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.

(105) [(104)] **Underground injection**--The subsurface emplacement of fluids through a well.

(106) [(105)] **Underground injection control**--The program under the federal Safe Drinking Water Act, Part C, including the approved Texas state program.

(107) [(106)] **Underground source of drinking water**--An "aquifer" or its portions:

(A) which supplies drinking water for human consumption; or

(B) in which the groundwater contains fewer than 10,000 milligrams per liter total dissolved solids; and

(C) which is not an exempted aquifer.

(108) [(107)] **Upper limit**--A parameter value established by the commission in a permit/production area authorization which when exceeded indicates mining solutions may be present in designated monitor wells.

(109) [(108)] **Verifying analysis**--A second sampling and analysis or measurement with instrumentation of control parameters for the purpose of confirming a routine sample analysis or measurement which indicated an increase in any control parameter to a level exceeding the upper limit. Mining solutions are assumed to be present in a designated monitor well if a verifying analysis confirms that any control parameter in a designated monitor well is present in concentration equal to or greater than the upper limit value.

(110) [(109)] **Well**--A bored, drilled, or driven shaft whose depth is greater than the largest surface dimension, a dug hole whose depth is greater than the largest surface dimension, an improved sinkhole, or a subsurface fluid distribution system but does not include any surface pit, surface excavation, or natural depression.

(111) [(110)] **Well injection**--The subsurface emplacement of fluids through a well.

(112) [(111)] **Well monitoring**--The measurement by on-site instruments or laboratory methods of any chemical, physical, radiological, or biological property of the subsurface strata or their contained fluids penetrated by the wellbore.

(113) [(112)] **Well stimulation**--Several processes used to clean the well bore, enlarge channels, and increase pore space in the interval to be injected thus making it possible for wastewater to move more readily into the formation including, but not limited to, surging, jetting, blasting, acidizing, and hydraulic fracturing.

(114) [(113)] **Workover**--An operation in which a down-hole component of a well is repaired, the engineering design of the well is changed, or the mechanical integrity of the well is compromised. Workovers include operations such as sidetracking, the addition of perforations within the permitted injection interval, and the addition of liners or patches. For the purposes of this chapter, workovers do not include well stimulation operations.

§331.7. Permit Required.

(a) Except as provided in §331.9 of this title (relating to Injection Authorized by Rule) and by subsections (d) - (f) of this section, all injection wells and activities must be authorized by an individual permit.

(b) For Class III in situ uranium solution mining wells, Frasch sulfur wells, and other Class III operations under commission jurisdiction, an area permit authorizing more than one well may be issued for a defined permit area in which wells of similar design and operation are proposed. The wells must be operated by a single owner or operator. Before commencing operation of those wells, the permittee may be required to obtain a production area authorization for separate production or mining areas within the permit area.

(c) The owner or operator of a large capacity septic system, a septic system which accepts industrial waste, or a subsurface area drip dispersal system, as defined in §222.5 of this title (relating to Definitions) must obtain a wastewater discharge permit in accordance with Texas Water Code, Chapter 26 or Chapters 26 and 32, and Chapter 305 of this title (relating to Consolidated Permits), and must

submit the inventory information required under §331.10 of this title (relating to Inventory of Wells Authorized by Rule).

(d) Pre-injection units for Class I nonhazardous, noncommercial injection wells and Class V injection wells permitted for the disposal of nonhazardous waste must be either authorized by a permit issued by the commission or registered in accordance with §331.17 of this title (relating to Pre-Injection Units Registration). The option of registration provided by this subsection shall not apply to pre-injection units for Class I injection wells used for the disposal of byproduct material, as that term is defined in Chapter 336 of this title (relating to Radioactive Substance Rules). Pre-injection units for Class I wells authorized to inject only nonhazardous desalination concentrate or nonhazardous drinking water treatment residuals are not subject to authorization by registration but are subject to authorization by an individual permit or under the general permit issued under Subchapter L of this chapter (relating to General Permit Authorizing Use of a Class I Injection Well to Inject Nonhazardous Desalination Concentrate or Nonhazardous Drinking Water Treatment Residuals).

(e) The commission may issue a general permit under Subchapter L of this chapter. The commission may determine that an injection well and the injection activities are more appropriately regulated under an individual permit than under a general permit based on findings that the general permit will not protect ground and surface fresh water from pollution due to site-specific conditions.

(f) Notwithstanding subsection (a) of this section, an injection well authorized by the Railroad Commission of Texas to use nonhazardous desalination concentrate or nonhazardous drinking water treatment residuals as an injection fluid for enhanced recovery purposes does not require a permit from

the commission. The use or disposal of radioactive material under this paragraph is subject to the applicable requirements of Chapter 336 of this title [(relating to Radioactive Substance Rules)].

(g) Permits issued before September 1, 2007 for Class III wells for uranium mining will expire on September 1, 2012 unless the permit holder submits an application for permit renewal under §305.65 of this title (relating to Renewal) before September 1, 2012. Any holders of permits for Class III wells for uranium mining issued before September 1, 2007 who allow those permits to expire by not submitting a permit renewal application by September 1, 2012 are not relieved from the obligations under the expired permit or applicable rules, including obligations to restore groundwater and to plug and abandon wells in accordance with the requirements of the permit and applicable rules.

§331.13. Exempted Aquifer.

(a) An exempted aquifer is an aquifer or a portion of an aquifer which meets the criteria for fresh water but which has been designated an exempted aquifer by the commission after notice and opportunity for public hearing. Those aquifers or portions of aquifers which were designated for exemption by the Texas Department of Water Resources in its original application for program approval submitted to the United States Environmental Protection Agency shall be considered to be exempted aquifers.

(b) Except for injection authorized by rule, the commission may require a permit for injection into an exempted aquifer to protect fresh water outside the exempted aquifer which may be subject to pollution caused by the injection.

(c) An aquifer or portion of an aquifer may be designated as an exempted aquifer if the following criteria are met:

(1) It does not currently serve as a source of drinking water for human consumption; and

(2) Until exempt status is removed according to procedures in subsection (f) of this section, it will not in the future serve as a source of drinking water for human consumption because:

(A) It is mineral, hydrocarbon or geothermal energy bearing with production capability;

(B) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;

(C) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or,

(D) It is located above a Class III well mining area subject to subsidence or catastrophic collapse.

(d) No designation of an exempted aquifer submitted as part of a UIC Program shall be final until approved by the EPA as part of the delegated UIC program.

(e) Subsequent to program approval or promulgation, the commission may, after notice and opportunity for a public hearing, identify additional exempted aquifers. The commission delegates to the executive director the authority to designate an exempt aquifer under this section if no request for a public hearing is received within the designated comment period provided in the public notice.

(f) After notice and opportunity for public hearing, the designation of exempted aquifer may be removed by the commission thereby eliminating the exempt status, provided restoration has been accomplished if required.

SUBCHAPTER C: GENERAL STANDARDS AND METHODS

§331.45, §331.46

STATUTORY AUTHORITY

The amendments are proposed under Texas Water Code (TWC), §5.103, concerning Rules, and §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under the TWC and other laws of the state. The amendments are also proposed under TWC, §27.019, which requires the commission to adopt rules reasonably required for the performance of duties and functions under the Injection Well Act; and §27.0513, which requires the commission to establish rules for procedural, application and technical requirements for production area authorizations.

The proposed amendments implement Senate Bill 1604 and House Bill 3838, 80th Legislature, 2007; and TWC, §27.023 and §27.0513.

§331.45. Executive Director Approval of Construction and Completion.

The executive director may approve or disapprove the construction and completion for an injection well or project. In making a determination whether to grant approval, the following shall be reviewed for compliance with the standards of this chapter:

- (1) for Class I wells, other than salt cavern disposal wells and associated salt caverns:
 - (A) actual as-built drilling and completion data on the well;

(B) all logging and testing data on the well;

(C) a demonstration of mechanical integrity;

(D) anticipated maximum pressure and flow rate at which the permittee will operate;

(E) results of the injection zone and confining zone testing program as required in §331.62(7) of this title (relating to Construction Standards) and §331.65(a) of this title (relating to Pre-operation Reports);

(F) the actual injection procedure;

(G) the compatibility of injected wastes with fluids in the injection zone and minerals in both the injection zone and the confining zone and materials used to construct the well;

(H) the calculated area of review and cone of influence based on data obtained during logging and testing of the well and the formation, and where necessary, revisions to the information submitted under §331.121 of this title (relating to Class I Wells);

(I) the status of corrective action required for defective wells in the area of review;

(J) compliance with the casing and cementing performance standard in §331.62(5) of this title [(relating to Construction Standards)], and where necessary, changes to the permit to provide for additional testing and/or monitoring of the well to insure the continuous attainment of the performance standard; and

(K) compliance with the cementing requirements in §331.62(6) of this title.

(2) for salt cavern disposal wells and associated salt caverns:

(A) actual as-built drilling and completion data on the well;

(B) all logging, coring, and testing program data on the well and salt pilot hole;

(C) a demonstration of mechanical integrity of the well;

(D) the anticipated maximum wellhead and casing seat pressures and flow rates at which the well will operate during cavern development and cavern waste filling;

(E) results of the salt cavern injection zone and salt cavern confining zone testing program as required in §331.163(e)(3) of this title (relating to Salt Cavern Solid Waste Disposal Wells);

(F) the injection and production procedures for cavern development and cavern waste filling;

(G) the compatibility of injected materials with the contents of the salt cavern injection zone and the salt cavern confining zone, and with the materials of well construction;

(H) land subsidence monitoring data and groundwater quality monitoring data, including determinations of baseline conditions for such monitoring throughout the area of review;

(I) the status of corrective action required for defective wells in the area of review;

(J) actual as-built specifications of the well's surface support and monitoring equipment; and

(K) conformity of the constructed well system with the plans and specifications of the permit application;

(3) for Class III wells:

(A) logging and testing data on the well;

(B) a satisfactory demonstration of mechanical integrity for all new wells, excluding monitor and baseline wells;

(C) anticipated operating data;

(D) the results of the formation testing program;

(E) the injection procedures; and

(F) the status of corrective action required for defective wells in the area of review.

§331.46. Closure Standards.

(a) For Class I wells, other than salt cavern disposal wells, prior to closing the well, the owner or operator shall observe and record the pressure decay for a time specified by the executive director. The executive director shall analyze the pressure decay and the transient pressure observations conducted pursuant to §331.64 of this title (relating to Class I Wells) and determine whether the injection activity has conformed with predicted values.

(b) For all Class I wells, including salt cavern disposal wells, prior to well closure, appropriate mechanical integrity testing shall be conducted to ensure the integrity of that portion of the long string casing and cement that will be left in the ground after closure. Testing methods may include:

(1) pressure tests with liquid or gas;

(2) radioactive tracer surveys for wells other than salt cavern disposal wells;

(3) noise logs, temperature logs, pipe evaluation logs, cement bond logs, or oxygen activation logs; and

(4) any other test required by the executive director.

(c) For Class I wells, other than salt cavern disposal wells, prior to well closure the well shall be flushed with a non-hazardous buffer fluid.

(d) In closure of all Class I wells, including salt cavern disposal wells, Class III wells, and permitted Class V wells, a well shall be plugged in a manner which will not allow the movement of fluids through the well, out of the injection zone either into or between underground sources of drinking waters (USDWs) or to the land surface. Well plugs shall consist of cement or other materials that [approved in writing by the executive director, which] provide protection equivalent to or greater than that provided by cement.

(e) The permittee shall notify the executive director before commencing closure according to an approved plan. For Class I wells this notice shall be given at least 60 days before commencement. At the discretion of the executive director, a shorter notice period may be allowed. The executive director shall review any revised, updated, or additional closure plans.

(f) Placement of the plugs in the wellbore shall be accomplished by an approved method that may include one of the following:

(1) the balance plug method;

(2) the dump bailer method;

(3) the two-plug method; or

(4) an alternate method, approved by the executive director, that will reliably provide a comparable level of protection.

(g) Prior to closure, the well shall be in a state of static equilibrium with the mud or nonhazardous fluid weight equalized top to bottom, either by circulating the mud or fluid in the well at least once or by a comparable method prescribed by the executive director.

(h) Each plug used shall be appropriately tagged and tested for seal and stability before closure is completed.

(i) The closure plan shall, in the case of a Class III production zone which underlies or is in an exempted aquifer, also demonstrate that no movement of contaminants that will cause pollution from the production zone into a USDW or freshwater aquifer will occur. The commission shall prescribe aquifer cleanup and monitoring where deemed necessary and feasible to ensure that no migration of contaminants that will cause pollution from the production zone into a USDW or freshwater aquifer will occur.

(j) The following shall be considered in determining the adequacy of a plugging and abandonment plan for Class I and III wells:

- (1) the type and number of plugs to be used;
- (2) the placement of each plug including the elevation of the top and bottom;
- (3) the type, grade, and quantity of plugging material to be used;
- (4) the method of placement of the plugs;
- (5) the procedure used to plug and abandon the well;
- (6) any newly constructed or discovered wells, or information, including existing well data, within the area of review;
- (7) geologic or economic conditions;
- (8) the amount, size, and location by depth of casings and any other materials left in the well;
- (9) the method and location where casing is to be parted if applicable;

(10) the estimated cost of the plugging procedure; and

(11) such other factors that may affect the adequacy of the plan.

(k) For Class I wells only, a monument or other permanent marker shall be placed at or attached to the plugged well before abandonment. The monument shall state the permit number, date of abandonment, and company name.

(l) Each owner of a Class I hazardous waste injection well, and the owner of the surface or subsurface property on or in which a Class I hazardous waste injection well is located, must record, within 60 days after approval by the executive director of the closure operations, a notation on the deed to the facility property or on some other instrument which is normally examined during a title search that will, in perpetuity, provide any potential purchaser of the property the following information:

(1) the fact that land has been used to manage hazardous waste;

(2) the name of the state agency or local authority with which the plat was filed, as well as the Austin address of the Underground Injection Control [(UIC)] staff of the commission, to which it was submitted; and

(3) the type and volume of waste injected, the injection interval or intervals, and for salt cavern wells, the maximum cavern radius into which it was injected, and the period over which injection occurred.

(m) Within 30 days after completion of closure, the permittee shall file with the executive director a closure report on forms provided by the commission. The report shall be certified as accurate by the owner or operator and by the person who performed the closure operation (if other than the owner or operator). This report shall consist of a statement that the well was closed in accordance with the closure plan previously submitted and approved by the executive director. Where the actual closure differed from the plan previously submitted, a written statement shall be submitted specifying the differences between the previous plan and the actual closure.

(n) For salt cavern disposal wells, prior to sealing the cavern and plugging the well, the owner or operator shall complete any pre-closure monitoring of the cavern and its contents required by rule or permit.

(o) For salt cavern disposal wells, the cavern shall be closed according to §331.170 of this title (relating to Cavern Closure).

(p) The obligation to implement the closure plan survives the termination of a permit or the cessation of injection activities. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the closure plan requirement is a condition of the permit.

SUBCHAPTER E: STANDARDS FOR CLASS III WELLS

§§331.82, 331.84 - 331.86, and 331.87

STATUTORY AUTHORITY

The amendments and new section are proposed under Texas Water Code (TWC), §5.103, concerning Rules, and §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under the TWC and other laws of the state. The amendments and new section are also proposed under TWC, §27.019, which requires the commission to adopt rules reasonably required for the performance of duties and functions under the Injection Well Act; and §27.0513, which requires the commission to establish rules for procedural, application and technical requirements for production area authorizations.

The proposed amendments and new section implement Senate Bill 1604 and House Bill 3838, 80th Legislature, 2007; and TWC, §27.023 and §27.0513.

§331.82. Construction Requirements.

(a) Casing and cementing. All new Class III wells, baseline wells, and monitor wells associated with the mining operations shall be cased, cemented from the bottom of the casing to the surface, and capped to prevent the migration of fluids which may cause the pollution of underground sources of drinking water (USDWs) and maintained in that condition throughout the life of the well. In addition, existing wells in areas where there is the potential for contamination and other harmful or foreign matter to enter groundwater through an open well, shall also be cemented to the surface and capped. The casing

and cement used in the construction of each well shall be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the following factors shall be considered:

- (1) depth to the injection zone;
 - (2) injection pressure, external pressure, internal pressure, axial loading, etc.;
 - (3) hole size;
 - (4) size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, and construction material);
 - (5) corrosiveness of injected fluids and formation fluids;
 - (6) lithology of injection and confining zones; and
 - (7) type and grade of cement.
- (b) Alterations to construction plans. Any proposed changes or alterations to construction plans after permit issuance shall be submitted to the executive director and written approval obtained before incorporating such changes.

(c) Logs and tests. Appropriate logs and other tests shall be conducted during the drilling and construction of all new Class III wells and after an existing well has been repaired. A descriptive report interpreting the results of those logs and tests shall be prepared by a knowledgeable log analyst and submitted to the executive director. The logs and tests appropriate to each type of Class III well shall be determined based on the intended function, depth, construction, and other characteristics of the well, availability of similar data in the area of the drilling site, and the need for additional information that may arise from time to time as the construction of the well progresses.

(1) During the drilling and construction of Class III wells, appropriate deviation checks shall be conducted on holes, where pilot holes and reaming are used, at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drilling.

(2) Mechanical integrity, as described in §331.43 of this title (relating to Mechanical Integrity Standards), shall be demonstrated following construction of the well, and prior to production or injection. For Class III uranium solution mining wells, a pressure test shall also be conducted each time a tool that could affect mechanical integrity is placed into the well.

(A) Except as provided by subparagraph (B) of this section, the following tests shall be used to evaluate the mechanical integrity of the injection well:

(i) to test for significant leaks under §331.43(a)(1) of this title, monitoring of annulus pressure, or pressure test with liquid or gas, or radioactive tracer survey. For [, or

for] Class III uranium solution mining wells only, a single point resistivity survey in conjunction with a pressure test can be used to detect any leaks in the casing, tubing, or packer; and

(ii) to test for significant fluid movement under §331.43(a)(2) of this title, temperature log, noise log, radioactive tracer survey, cement bond log, oxygen activation log. For [, or for] Class III uranium solution mining wells only, cement records that demonstrate the absence of significant fluid movement can be used where other tests are not suitable. For Class III wells where the cement records are used to demonstrate the absence of significant fluid movement, the monitoring program prescribed by §331.84 of this title (relating to Monitoring Requirements) shall be designed to verify the absence of significant fluid movement.

(B) The executive director may allow the use of a test to demonstrate mechanical integrity other than those listed in subparagraph (A) of this paragraph with the written approval of the administrator of the United States Environmental Protection Agency (EPA) or his authorized representative. To obtain approval, the executive director shall submit a written request to the EPA administrator, which shall set forth the proposed test and all technical data supporting its use. The EPA administrator shall approve the request if it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. Any alternate method approved by the EPA administrator shall be published in the *Federal Register* and may be used unless its use is restricted at the time of approval by the EPA administrator.

(3) Additional logs and tests may be required by the executive director when appropriate.

(d) Construction and testing supervision. All phases of well construction and testing shall be supervised by a person who is knowledgeable and experienced in practical drilling engineering and who is familiar with the special conditions and requirements of injection well construction.

(e) Injection zone characteristics - water bearing formation. Where the injection zone is a water bearing formation, the following information concerning the injection zone shall be determined or calculated:

- (1) fluid pressure;
- (2) temperature;
- (3) fracture pressure;
- (4) other physical and chemical characteristics of the injection zone;
- (5) physical and chemical characteristics of the formation fluids; and
- (6) compatibility of injected fluids with formation fluids.

(f) Injection zone characteristics - non-water bearing formations. Where the injection formation is not a water bearing formation, the fracture pressure shall be determined or calculated.

(g) Monitor well location. Where injection is into a formation which contains water with less than 10,000 mg/l TDS, monitoring wells shall be completed into the injection zone and into any USDW above the injection zone which could be affected by the mining operation. These wells shall be located to detect any excursion of injection fluids, production fluids, process by-products, or formation fluids outside the mining area or zone. If the operation may be affected by subsidence or catastrophic collapse, the monitoring wells shall be located so that they will not be physically affected. Designated monitoring wells shall be installed at least 100 feet inside any permit area boundary, unless excepted by written authorization from the executive director.

(h) Subsidence or catastrophic collapse. Where the injection wells penetrate a USDW in an area subject to subsidence or catastrophic collapse an adequate number of monitor wells shall be completed into the USDW to detect any movement of injected fluids, process by-products or formation fluids into the USDW. The monitor wells shall be located outside the physical influence of the subsidence or catastrophic collapse.

(i) Monitor well criteria. In determining the number, location, construction, and frequency of monitoring of the monitor wells the following criteria shall be considered:

(1) the population relying on the USDW affected or potentially affected by the injection operation;

(2) the proximity of the injection operation to points of withdrawal of drinking water;

- (3) the local geology and hydrology;
- (4) the operating pressures and whether a negative pressure gradient is being maintained;
- (5) the chemistry and volume of the injected fluid, the formation water, and the process by-products; and
- (6) the injection well density.

§331.84. Monitoring Requirements.

(a) Injection fluid shall be analyzed for physical and chemical characteristics with sufficient frequency to yield representative data on its characteristics. Whenever the injection fluid is modified to the extent that the analysis is incorrect or incomplete, a new analysis shall be submitted to the executive director.

(b) The injection pressure, the injection volume, and the production volume shall be recorded.

(c) Fluid level when required by permit [where appropriate] and the parameters chosen to measure water quality in monitor wells completed in the injection zone shall be monitored twice a month [at two-week intervals]. For a given month, the second sample shall be collected 15 days after the first sample is collected.

(d) Specified wells within 1/4 mile of the injection site shall be monitored at least once every three months to detect any migration from the injection zone into fresh water.

(e) All Class III wells may be monitored on a field or project basis rather than on an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well operating with a common manifold. Separate monitoring systems for each well are not required, provided the owner/operator demonstrates that manifold monitoring is comparable to individual well monitoring.

(f) Quarterly monitoring of wells required by §331.82(h) of this title (relating to Construction Requirements).

§331.85. Reporting Requirements.

(a) Annual report. The permittee shall submit annually, by January 31st, a report including: [An updated map of the area of review showing locations of all newly constructed or newly discovered wells not included in the technical report accompanying the permit application or in later reports shall be submitted annually to the executive director.]

(1) an updated map of the area of review showing locations of newly constructed or newly discovered wells that penetrate the production zone within the area of review, not included in the technical report accompanying the permit application or in later reports; and

(2) a tabulation of data as required by §331.122(2)(B) of this title (relating to Class III Wells) for wells within the area of review that penetrate the production zone;

(3) For Class III uranium mining permits:

(A) an update of the cost estimate for well closure and groundwater restoration;

(B) an updated mine map;

(C) an updated mining schedule;

(D) an inventory of all injection, production, baseline, and monitor wells; and

(E) a document, signed by the owner or operator, or his or her designated representative, that the inventory of wells required in subparagraph (D) of this paragraph is true and correct to the best of his or her knowledge.

(b) Except for routine monitoring required in §331.84(d) of this title (relating to Monitoring Requirements), results of required monitoring shall be maintained on site and reported to the executive director upon request or as specified in the permit.

(c) Results of mechanical integrity and any other periodic test required by the executive director shall be reported upon request or as specified in the permit.

(d) Monitoring may be reported on a project or field basis rather than on an individual well basis where manifold monitoring is used.

(e) Routine monitoring data required in §331.84(c) and (d) of this title [(relating to Monitoring Requirements)] shall be reported at least quarterly to the executive director on a form provided by the executive director and in accordance with the form completion instructions. These reports must be postmarked no later than the 10th day of the following reporting period.

(f) In the event an excursion is verified in a designated monitor well, the permittee shall submit a written remedial action report at least every month to include for each well affected:

(1) an explanation of required and other actions since the verifying analysis was taken.

The explanation should include the date on which actions were initiated and completed;

(2) a description of actions to be taken during the following report period;

(3) sample analysis results for control parameters;

(4) permittee's efforts to define the extent and probable cause of the presence of mining solutions in a designated monitor well.

(g) The first report required by subsection (f) of this section shall include a groundwater analysis in the manner required by §331.106(2) of this title (relating to Remedial Action for Excursion). A copy

of all reports shall be mailed to the executive director, postmarked within two days of the end of each report period. The first report period shall begin with the day the presence of mining solution in a designated Monitor Well is verified. The permittee shall continue to make remedial action reports until clean-up is accomplished.

(h) Copies of all data required under this section shall be maintained at the permitted facility such that these documents are available for inspection at all times by the executive director.

§331.86. Closure.

(a) Mine facilities. Within 120 days after acknowledgment of completion of mining activities, or if final restoration of the mine area aquifers is required, upon completion of final restoration, the permittee shall accomplish closure of the mining facilities in accordance with approved plugging and abandonment plans submitted as part of the supplementary technical report. An [Modification to plugging and abandonment plans or] extension of time limit past 120 days must be approved in writing by the executive director.

(b) Acknowledgment of closure. When closure has been accomplished, the permittee shall notify the executive director. The executive director will conduct a final inspection of the site to certify that closure has been accomplished in accordance with the permit terms. If closure is certified by the executive director, he shall issue written acknowledgment and permit cancellation procedures will be initiated.

§331.87. Methods of Measurement.

Determination of a physical or chemical parameter in groundwater may be by chemical analysis of a sample or by field measurement by an instrument. Any field measurement of a groundwater parameter using instrumentation must be done using methods and instruments that yield a measurement that is at least equivalent in quality and sensitivity as a measurement determined by chemical analysis.

**SUBCHAPTER F: STANDARDS FOR CLASS III WELL PRODUCTION AREA
DEVELOPMENT**

§§331.103 - 331.107, 331.108, and 331.109

STATUTORY AUTHORITY

The amendments and new sections are proposed under Texas Water Code (TWC), §5.103, concerning Rules, and §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under the TWC and other laws of the state. The amendments and new sections are also proposed under TWC, §27.019, which requires the commission to adopt rules reasonably required for the performance of duties and functions under the Injection Well Act; and §27.0513, which requires the commission to establish rules for procedural, application and technical requirements for production area authorizations.

The proposed amendments and new sections implement Senate Bill 1604 and House Bill 3838, 80th Legislature, 2007; and TWC, §27.023 and §27.0513.

§331.103. Production Area Monitor Wells.

(a) Production zone monitoring. Designated Production Zone Monitor Wells shall be spaced no greater than 400 feet from the production area, as determined by exploratory drilling. [and] The distance between each of the mine area monitor wells shall be no greater than 400 feet [between wells]. The angle formed by lines drawn from any production well to the two nearest monitor wells will not be greater than 75 degrees. Changes or adjustments in designated production zone monitor well locations may be

authorized by the executive director so as to assure adequate containment. These wells shall be subject to the sampling, corrective action, and reporting requirements in §331.105 of this title (relating to Monitoring Standards) and §331.106 of this title (relating to Remedial Action for Excursion).

(b) Nonproduction zone monitoring. At a minimum, designated nonproduction zone monitor wells shall be completed in the production area in any freshwater aquifer overlying the production zone. These wells shall be located not more than 50 feet on either side of a line through the center of the production area with a minimum of one per every four acres of production area for wells completed in the first overlying freshwater aquifer and one per every eight acres for wells completed in any additional overlying freshwater aquifers. Changes or adjustments in designated nonproduction zone monitor well locations may be authorized by the executive director so as to assure adequate containment. Those wells completed in the first overlying freshwater aquifer shall be subject to sampling, remedial action, and reporting requirements of §331.105 of this title (relating to Monitoring Standards) and §331.106 of this title (relating to Remedial Action for Excursion). Monitor wells completed in any additional overlying freshwater aquifers shall be subject to monitoring, remedial action, and reporting requirements specified in the permit.

§331.104. Establishment of Baseline and [Restoration Values] Control Parameters for Excursion Detection.

(a) Independent and representative [One or more] water samples shall be collected from each of the following: [designated monitor well (Production and Non-Production Zone) and each designated

production well in the permit or production area. These samples will be analyzed and the results for each well submitted and summarized on forms provided by the executive director as follows:]

(1) mine area monitor wells completed in the production zone;

(2) mine area monitor wells completed in nonproduction zones; and

(3) baseline wells completed in the production zone within the production area.

[(1) mine area baseline - The averages and ranges of the parameter values determined for the designated production zone monitor wells;]

[(2) production area baseline - The averages and ranges of the parameter values determined from at least five designated production zone in the production area; and]

[(3) nonproduction zone baseline - The averages and ranges by zone of the parameter values determined for designated nonproduction zone monitor wells.]

(b) All baseline wells must be completed in the production zone within the production area. The owner or operator shall analyze all groundwater samples from the baseline wells for an appropriate suite of parameters proposed by the operator and approved by the executive director. This suite of parameters shall be the basis for the aquifer restoration required under §331.107 of this title (relating to Restoration). In determining the suite of parameters for restoration, the owner or operator shall include:

(1) all parameters that occur in the groundwater within the production zone prior to in situ recovery;

(2) all parameters that are in the solutions injected into the production zone;

(3) all parameters that may be dissolved from the aquifer material into the groundwater during in situ recovery; and

(4) uranium and radium-226.

(c) A minimum of five baseline wells, or one baseline well for every four acres of production area, whichever is greater, shall be completed in the production zone within the production area. All baseline wells shall be sampled in accordance with subsection (a) of this section and analyzed in accordance with subsection (d) of this section. All valid analytical measurements shall be used to determine the suite of restoration parameters required under subsection (b) of this section.

(d) [(b)] All samples shall be collected, preserved, analyzed, and controlled according to accepted methods as stated in the permit and in accordance with the TCEQ Quality Assurance Project Plan(QAPP).

(e) [(c)] The permittee shall propose for subsequent approval by the commission control parameters for detection of excursions in production and nonproduction wells. Control parameters shall be those constituents in the groundwater that will provide timely and reliable detection of the presence of

mining solutions in production and nonproduction wells. Determination of the presence of an excursion shall be based on one of the following methods: [The baseline water quality values for a permit or production area shall be used to determine control parameter upper limits.]

(1) a direct comparison between the measurement from a groundwater sample for a control parameter from a monitor well and the mean for that control parameter as determined from at least 30 sample measurements from groundwater samples collected from monitor wells prior to mining activities. If a sample measurement from a groundwater sample for a control parameter exceeds the mean, then an excursion will be assumed to have occurred; or

(2) a statistical hypothesis test proposed by the owner or operator and approved by the executive director.

(f) [(d)] If a previously mined permit or production area is to be re-entered for additional in situ mining before completion of restoration under §331.107 of this title or completion of closure under §331.83 of this title (relating to Closure), baseline water quality values for determination of control parameter upper limits and aquifer restoration requirements for the area to be re-entered for mining shall be as originally required by the existing production area authorization or as modified by any amendments to the authorization pursuant to §331.104 of this title (relating to Establishment of Baseline and Restoration Values and Control Parameters for Excursion Detection) and §331.107 of this title. [The baseline water quality values for a permit or production area shall be used to determine restoration table values. Each production area authorization shall contain a restoration table. The table may be developed by using either:]

[(1) the higher value in either the column headed "Mine Area Average" or the column headed "Production Area Average" for parameters shown on the production area baseline water quality form for the production zone;]

[(2) predictions of restoration quality in the production area that are reasonably certain after giving consideration to the factors specified in §331.107(f) of this title (relating to Restoration).]

(g) If a previously mined and restored area is to be re-entered for additional in situ uranium mining, baseline water quality values for determination of control parameter upper limits and aquifer restoration requirements for the area to be re-entered for mining shall be determined as required by subsections (a) - (d) of this section.

§331.105. Monitoring Standards.

The following shall be accomplished to detect mining solutions in designated monitor wells:

(1) Routine monitoring [sampling]. Water samples and, if applicable, instrument measurements, shall be conducted in accordance with the requirements of §331.84(c) of this title (relating to Monitoring Requirements) [taken at least twice a month at two-week intervals] from all monitor wells for permit/production area(s) in which mining solutions have been introduced. Monitoring results [These shall be analyzed] for the control parameters shall be completed by the second working day and reported as required in §331.85(e) of this title (relating to Reporting Requirements). The determined values shall

be entered on appropriate forms within three working days after analysis or instrument measurement.

These data shall be kept readily available on site for review by commission representatives.

(2) Monitoring duration. [Duration of monitoring program.] The program of monitoring detailed in paragraph (1) of this subsection shall be continued in each permit/mine area until the executive director is officially notified that restoration has commenced. Further monitoring as required by permit shall continue until aquifer restoration and stabilization in that particular permit/mine area has been achieved in compliance with §331.107 of this title (relating to Restoration).

(3) Verifying analysis. If the results of a routine sample analysis or instrument measurement show that the value of any control parameter in any well is equal to or above the upper limit established for that permit/mine area, the operator shall complete a verifying analysis of samples taken from each apparently affected well within two days.

(4) Excursion monitoring. [Sampling frequency when mining solutions are present.] During the period of time when mining solutions are present in a designated monitor well, water samples or measurements will be taken at least two times per week and monitoring results [analyzed] for all control parameters shall be completed by the second day after the sample or measurement is taken.

§331.106. Remedial Action for Excursion.

If the verifying analysis indicates the existence of an excursion [that mining solutions are present] in a designated monitor well, the operator shall take the following actions:

(1) notification--notify the commission regional office by the next working day by telephone and notify the executive director by letter postmarked within 48 hours of identification of the excursion. The notification must identify the affected monitor well and the control parameter concentrations.

(2) analysis--complete a groundwater analysis report for each affected well on forms provided by the executive director (including accuracy checks and stiff diagram) for the following: pH, calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulfate, chloride, silica, total dissolved solids (180 degrees Celsius), specific conductance and dilute conductance, uranium, radium-226 and any other specified constituents. Results shall be reported in accordance with §331.85 (f) [(e)] of this title relating to Reporting Requirements).

(A) The permittee will clean up all designated monitor wells, all zones outside of the production zone, and the production zone outside of the mine area that contain mining solutions. The permittee may use any method judged necessary and prudent to define the extent of the mining solutions and to effect this clean-up in an expeditious and practical manner. Well clean-up is deemed to be accomplished when the water quality in the affected monitor well(s) has been restored to values consistent with current local baseline water quality as confirmed by three consecutive daily samples for the control parameters.

(B) The executive director may determine that cleanup is not necessary if the permittee can demonstrate that the change in water quality is not due to the presence of mining solutions or fluids from other mining activities.

§331.107. Restoration.

(a) Aquifer restoration [Restoration table]. Groundwater in the production zone within the production area must be restored when mining is complete. Upon issuance and renewal, Class III permits or [and] production area authorizations shall contain a description of the method for determining that groundwater in the production zone within the production area has been restored. Restoration must be achieved for all values in the restoration table of all parameters in the suite established in accordance with the requirements of §331.104(b) of this title (relating to Establishment of Baseline and Control Parameters for Excursion Detection). [table listing restoration goals as provided by §331.104 of this title (relating to Establishment of Baseline and Restoration Values).]

(1) Restoration table. Each permit or production area authorization shall contain a restoration table for all parameters in the suite established in accordance with the requirements of §331.104(b) of this title. A restoration table value for a parameter shall be established by:

(A) The mean concentration or value for that parameter based on all measurements from groundwater samples collected from baseline wells prior to mining activities; or

(B) A statistical analysis of baseline well information proposed by the owner or operator and approved by the executive director that demonstrates that the restoration table value is representative of baseline quality.

(2) Achievement of restoration. Achievement of restoration shall be determined using one of the following methods:

(A) When all sample measurements from groundwater samples from all baseline wells for a restoration parameter are equal to or below (or, in the case of pH, within an established range) the restoration table value for that parameter, then restoration for that parameter will be assumed to have occurred. Complete restoration will be assumed to have occurred when the measurements from all samples from all baseline wells for all restoration parameters are equal to or below (or, in the case of pH, within an established range) each respective restoration table value; or

(B) A statistical analysis of information from groundwater samples from baseline wells proposed by the owner or operator and approved by the executive director that demonstrates that the groundwater quality is representative of the restoration table values.

(b) Mining completion. When the mining of a permit or production area is completed, the permittee shall notify the appropriate commission regional office and the executive director and shall proceed to reestablish groundwater quality in the affected permit or production [mine] area aquifers to levels consistent with the values listed in the restoration table for that permit or production [mine] area. Restoration efforts shall begin as soon as practicable but no later than 30 days after mining is completed in a particular production area. The executive director, subject to commission approval, may grant a variance from the 30-day period for good cause shown.

(c) Timetable. Aquifer restoration, [where appropriate] for each permit or production [mine] area, shall be accomplished in accordance with the timetable specified in the currently approved mine plan, unless otherwise authorized by the commission. Authorization for expansion of mining into new production areas may be contingent upon achieving restoration progress in previously mined production areas within the schedule set forth in the mine plan. The commission may amend the permit to allow an extension of the time to complete restoration after considering the following factors:

- (1) efforts made to achieve restoration by the original date in the mine plan;
- (2) technology available to restore groundwater for particular parameters;
- (3) the ability of existing technology to restore groundwater to baseline quality in the area;
- (4) the cost of achieving restoration by a particular method;
- (5) the amount of water which would be used or has been used to achieve restoration;
- (6) the need to make use of the affected aquifer; and
- (7) complaints from persons affected by the permitted activity.

(d) Reports. Beginning six months after the date of initiation of restoration of a permit or production area, as defined in the mine plan, the operator shall provide to the executive director semi-annual restoration progress reports until restoration is accomplished for the [permit or mine] production area. This report shall contain the following information:

(1) all analytical data generated during the previous six months;

(2) graphs of analysis for each restoration parameter for each baseline well;

(3) the volume of fluids injected and produced;

(4) the volume of fluids disposed;

(5) water level measurements for all baseline and monitor wells, and for any other wells being monitored;

(6) hydrographs for each baseline and monitor well;

(7) a potentiometric map for the area of the production area authorization, based on the most recent water level measurements; and

(8) a summary of the progress achieved towards aquifer restoration.

(e) Restoration table values achieved. When the permittee determines that constituents in the aquifer have been restored to the values in the Restoration Table, the restoration shall be demonstrated by stability sampling in accordance with subsection (f) of this section.

(f) [e] Stability sampling. The permittee shall obtain stability samples and complete an analysis for certain parameters listed in the restoration table from all production area baseline wells. Stability samples shall be conducted at a minimum of 30-day intervals for a minimum of three sample sets and reported to the executive director. The permittee shall notify the executive director at least two weeks in advance of sample dates to provide the opportunity for splitting samples and for selecting additional wells for sampling, if desired. To insure water quality has stabilized, a period of one calendar year [180 days] must elapse between cessation of restoration operations and the final set of stability samples. [The executive director shall determine within 45 days of the receipt of all sample analysis results whether or not restoration has been achieved.] Upon acknowledgment in writing by the executive director confirming achievement of final restoration, the permittee shall accomplish closure of the area in accordance with §331.86 of this title (relating to Closure).

(g) [f] Amendment of restoration table values. [Restoration table values not achieved.] After an appropriate effort has been made to achieve restoration to levels consistent with values listed in the restoration table for a production area, the permittee may cease restoration operations, reduce bleed and request that the restoration table be amended. With the request for amendment, the permittee shall submit the results of three consecutive sample sets taken at a minimum 30-day intervals from all production area baseline wells used in determining the restoration table to verify current water quality. Stabilization sampling may commence 60 days after cessation of restoration operations. The permittee shall notify the

executive director of his or her intent to cease restoration operations and reduce the bleed 30 days prior to implementing these steps. The permittee shall submit an application for an amendment to the restoration table within 120 days of receipt of authorization from the executive director to cease restoration operations and reduce the bleed.

(1) In determining whether the restoration table should be amended, the commission will consider the following items addressed in the request:

(A) uses for which the groundwater in the production area was suitable at baseline water quality levels;

(B) actual existing use of groundwater in the production area prior to and during mining;

(C) potential future use of groundwater of baseline quality and of proposed restoration quality;

(D) the effort made by the permittee to restore the groundwater to baseline;

(E) technology available to restore groundwater for particular parameters;

(F) the ability of existing technology to restore groundwater to baseline quality in the area under consideration;

(G) the cost of further restoration efforts;

(H) the consumption of groundwater resources during further restoration; and

(I) the harmful effects of levels of particular parameter.

(2) The commission may amend the restoration table if it finds that:

(A) reasonable restoration efforts have been undertaken, giving consideration to the factors listed in paragraph (1) of this subsection;

(B) the values for the parameters describing water quality have stabilized for a period of one year [180 days];

(C) the formation water present in the exempted portion of the aquifer would be suitable for any use to which it was reasonably suited prior to mining; and

(D) further restoration efforts would consume energy, water, or other natural resources of the state without providing a corresponding benefit to the state.

(3) If the restoration table is amended, restoration sampling shall commence and proceed as described in subsection (f) [(e)] of this section, except the stability period shall be for a period of two

years unless the owner or operator can demonstrate through modeling or other means that a period of less than two years is appropriate for a demonstration of stability.

(4) If the request for an amendment of the restoration table values is not granted, the permittee shall restart restoration efforts.

§331.108. Independent Third-Party Experts.

(a) If requested by an applicant for a production area authorization submitted after September 1, 2007, the executive director may use the recommendations from an independent third-party expert regarding the initial establishment of requirements pertaining to monitoring wells for any area covered by the application, provided:

(1) the expert meets the qualifications in subsection (b) of this section;

(2) the applicant for the production area authorization pays the cost of the work of the expert;

(3) the applicant for the production area authorization is not involved in the selection of the expert or the direction of the work by the expert;

(4) the recommendations of the independent third-party expert, in the opinion of the executive director, meet all applicable statutory and regulatory requirements for monitoring wells authorized under a production area authorization; and

(5) the recommendations of the independent third-party expert, in the opinion of the executive director, are necessary for the protection of underground sources of drinking water or fresh water.

(b) In order to be considered for designation as an independent third-party expert, a person must be either a licensed professional engineer currently authorized to practice engineering in the State of Texas (unless exempted under the Texas Occupations Code, Chapter 1001, Subchapter B), or a licensed professional geoscientist currently authorized to practice geoscience in the State of Texas (unless exempted under Texas Occupations Code, §1002.252). In determining whether to designate a person as an independent third-party expert, the executive director also will consider the following:

(1) the person's work experience in geology and hydrogeology, in particular the person's experience in the area of the proposed in situ mining operation;

(2) the person's work experience related to in situ mining of uranium;

(3) the person's current and previous work experience with the applicant;

(4) the person's current and previous work experience with persons or entities that are in opposition to in situ uranium mining; and

(5) any other factors that may be relevant to determine the person's objectivity regarding their function as an independent third-party expert.

(c) The executive director will not designate an independent third party expert for the purposes of subsection (a) of this section unless requested to do so in writing by the applicant.

(d) If the executive director determines that the recommendations from the designated independent third-party expert meet the requirements for the initial establishment of monitor wells in accordance with §331.103 of this title (relating to Production Area Monitor Wells), those recommendations will be incorporated into the production area authorization, and, in accordance with §55.201(i)(11)(B) of this title (relating to Requests for Reconsideration or Contested Case Hearing), in regards to the initial establishment of monitoring wells for the area covered by the requested authorization, no opportunity for a contested case hearing will exist.

(e) If the executive director determines that the recommendations from the designated independent third-party expert do not meet the requirements for the initial establishment of monitor wells in accordance §331.103 of this title, either in whole or in part, the application for a production area authorization will be subject to opportunity for contested case hearing, regardless of subsequent changes to the application.

(f) Any person may request to be considered an independent third-party expert under this section by submitting information to the executive director to demonstrate qualifications under this section.

(g) The use of an independent third-party expert qualified and approved under this section does not constitute the applicant's selection of the expert under subsection (a)(3) of this section.

(h) A person providing an independent third-party recommendation under this section shall not be an employee of the commission.

§331.109. Cost Estimates for Financial Assurance.

(a) Each production area authorization must establish the amount of financial assurance for aquifer restoration of the production area based upon cost estimates provided under §331.143 of this title (relating to Cost Estimate for Plugging and Abandonment and Aquifer Restoration) approved by the executive director.

(b) Each area permit or production area authorization must establish the amount of financial assurance for plugging and abandonment of the injection wells, production wells, recovery wells, monitor wells, and baseline wells of the permit area or production area based upon cost estimates provided under §331.143 of this title approved by the executive director.

SUBCHAPTER I: FINANCIAL RESPONSIBILITY

§331.143

STATUTORY AUTHORITY

The amendment is proposed under Texas Water Code (TWC), §5.103, concerning Rules, and §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under the TWC and other laws of the state. The amendment is also proposed under TWC, §27.019, which requires the commission to adopt rules reasonably required for the performance of duties and functions under the Injection Well Act; and §27.0513, which requires the commission to establish rules for procedural, application and technical requirements for production area authorizations.

The proposed amendment implements Senate Bill 1604 and House Bill 3838, 80th Legislature, 2007; and TWC, §27.023 and §27.0513.

§331.143. Cost Estimate for Plugging and Abandonment and Aquifer Restoration.

(a) The owner or operator must prepare a written estimate, in current dollars, of the cost of: [plugging the well in accordance with the plugging and abandonment plan as specified in this chapter. The plugging and abandonment cost estimate must equal the cost of plugging and abandonment at the point in the facility's operating life when the extent and manner of its operation would make plugging and abandonment the most expensive, as indicated by its plugging and abandonment plan.]

(1) plugging the well(s) in accordance with the plugging and abandonment plan as specified in this chapter; and

(2) aquifer restoration for each production area authorization.

(b) Cost Estimates.

(1) The cost estimates required under subsection (a)(1) of this section must equal the cost of plugging and abandonment at the point in the facility's operating life when the extent and manner of its operation would make plugging and abandonment the most expensive, as indicated by its plugging and abandonment plan.

(2) The cost estimate required under subsection (a)(2) of this section must equal the cost of aquifer restoration at the point in the facility's operating life when the extent and manner of its operation would make aquifer restoration most expensive.

(c) [(b)] During the operating life of the facility, the owner or operator must keep at the facility the latest cost estimates for plugging and abandonment and for aquifer restoration [cost estimate] prepared in accordance with subsection (a) of this section.

(d) On or before December 31st of each year, the owner or operator shall review and update as necessary the written estimate of the cost of plugging all wells to account for changes in costs exclusive of the inflation adjustment required under §37.131 of this title (relating to Annual Inflation Adjustments to Closure Cost Estimates). This update shall be submitted to the executive director no later than January 31st of each year.

**SUBCHAPTER M: REQUIREMENTS FOR EXISTING WELLS USED FOR
DEVELOPMENT OF CLASS III UIC WELL APPLICATIONS**

§§331.220 - 331.225

STATUTORY AUTHORITY

The new sections are proposed under Texas Water Code (TWC), §5.103, concerning Rules, and §5.105, concerning General Policy, which authorize the commission to adopt rules necessary to carry out its powers and duties under the TWC and other laws of the state. The new sections are also proposed under TWC, §27.019, which requires the commission to adopt rules reasonably required for the performance of duties and functions under the Injection Well Act; and §27.0513, which requires the commission to establish rules for procedural, application and technical requirements for production area authorizations.

The proposed new sections implement Senate Bill 1604 and House Bill 3838, 80th Legislature, 2007; and TWC, §27.023 and §27.0513.

§331.220. Applicability.

The requirements of this subchapter apply to wells used to obtain information for the development of an application for a Class III injection well area permit for in situ mining of uranium.

§331.221. Registration of Wells.

(a) All wells described in §331.220 of this title (relating to Applicability) that are completed prior to submission of an application for a Class III injection well area permit must be registered within 30 days of completion and prior to submission of such an application. All wells described in §331.220 of this title that are completed after submission of such an application must be registered within 30 days of well completion.

(b) Registration of wells described in §331.220 of this title shall be completed on forms provided by the executive director. The owner or operator of any well to be registered shall provide the following information for each well:

(1) a unique, site-specific, designation for the well;

(2) the location of the well on a map;

(3) latitude and longitude of the well, with datum specified;

(4) the depth of the well;

(5) construction, completion and casing information on the well;

(6) the identification of the operator of the well;

(7) the identification of the landowner for the property on which the well is located;

(8) water level data, and

(9) identification of the groundwater conservation district in which the well is located, if applicable.

(c) The owner or operator of a well registered under this subchapter must maintain mechanical integrity of the well. A well registered under this subchapter shall be cased and cemented so as to not cause or allow the movement of fluid that would result in the pollution of an underground source of drinking water or fresh water. No injection may be authorized into a well registered under this subchapter.

(d) Any well, registered in accordance with the requirements of this subchapter, that is not subsequently authorized under a Class III injection well area permit in accordance with §331.222 of this title shall, immediately upon permit issuance, be plugged and abandoned in a manner that prohibits the movement of fluids into underground sources of drinking water or fresh water. Within 30 days of completion of plugging and abandonment, the owner or operator shall submit a certification to the executive director that the well has been plugged and abandoned in accordance with the requirements of this subsection.

(e) The registration of a well under this subchapter is not subject to the commission permitting, public notice, and hearing requirements, until such time as it is converted to a Class III well in accordance with §331.222 of this title.

§331.222. Conversion of Registered Wells to Class III Wells.

If a well registered under this subchapter is authorized under a Class III injection well area permit, the registration status for the well ceases and the well is subject to all applicable commission rules, including those regarding permitting, public notice, and hearing requirements. At such time a registered well is authorized under a Class III injection well area permit, the permittee shall submit a request to the executive director that the well be removed from the list of registered wells.

§331.223. Sharing of Data.

(a) After a person developing an application for a Class III injection well area permit has identified a permit boundary, that person shall determine if the permit boundary is within the area of a groundwater conservation district. If the proposed permit boundary is within the area of a groundwater conservation district, either wholly or in part, the person shall provide to the district:

(1) information regarding wells not recorded in the public record when such wells are encountered by that person during the development of the permit application. Information to be provided to the groundwater conservation district shall include the location and ownership of the well, and any other available information for the well, including but not limited to depth, completion method, completion interval, water quality information, and lift method;

(2) a map with the locations of all wells that are recorded in the public record and that are inside the proposed permit area and within one-quarter mile of the proposed permit area;

(3) pre-mining water quality information collected from wells registered in accordance with §331.221 of this title (relating to Registration of Wells);

(4) the amount of water produced each month from each registered well; and

(5) a record of strata as described in §331.224 of this title (relating to Record of Strata) for each registered well, except for information considered confidential in accordance with Natural Resource Code, §131.048.

(b) After receipt of the final information described by subsection (a) of this section to perform standard quality and assurance procedures, the owner or operator of a registered well may not take more than 90 days to submit the information to the groundwater conservation district.

§331.224. Record of Strata.

The executive director may require a person receiving a Class III well permit or production area authorization to maintain and provide, upon request, complete and accurate records of the depth, thickness, and character of the strata penetrated in drilling an injection well, monitoring well, or production well.

§331.225. Geophysical or Drilling Log.

If an existing well is to be converted to an injection well, monitoring well, or production well, the commission may require the applicant to provide a geophysical log or a drilling log of the existing well.