



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 - 2733

AUG 15 2016

CERTIFIED MAIL -- RETURN RECEIPT REQUESTED: 7004 1160 0003 0358 5306

Ms. Lori Wrotenbery, Director
Oil and Gas Division
Railroad Commission of Texas
1701 N. Congress
P.O. Box 12967
Austin, Texas 78711-2967

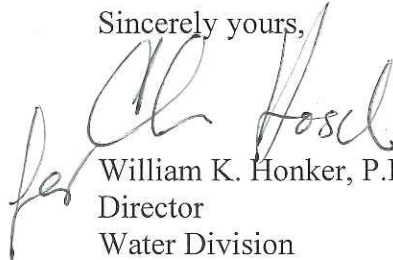
Dear Ms. Wrotenbery:

This letter transmits the Environmental Protection Agency's (EPA) end-of-year evaluation (EOY) of the Texas Underground Injection Control (UIC) program implemented by the Railroad Commission of Texas (RRC) for Fiscal Years 2010 through 2015. EPA's last evaluation of the RRC's UIC program covered Fiscal Year 2009. The RRC provided comments on our draft EOY via letter from Mr. David Hill, RRC's Manager of Injection-Storage, dated July 21, 2016; our EOY report includes Mr. Hill's letter in Appendix III. The comments were considered in the finalization of the report.

We wish to thank you and your staff for your work in protecting underground sources of drinking water from underground injection activities under your authority. We look forward to working with you to resolve our oversight issues outlined in the enclosed report. As always, we offer our technical support and cooperation to you and your staff as we move forward.

If you wish to discuss any aspect of this EOY evaluation, call me at (214) 665-7101, or you or your staff may call Mr. Philip Dellinger at (214) 665-7150. If your staff has specific questions about UIC grant performance, please contact Mr. Michael Vaughan at (214) 665-7313 or Mr. Mike Frazier at (214) 665-7236, for questions regarding EPA's program oversight.

Sincerely yours,


William K. Honker, P.E.
Director
Water Division

Enclosure

cc: Leslie Savage, RRC Chief Geologist, w/encl.
David Hill, RRC UIC Manager, w/encl.

**FISCAL YEAR 2015
EPA REGION 6 END-OF-YEAR EVALUATION
RAILROAD COMMISSION OF TEXAS
UNDERGROUND INJECTION CONTROL PROGRAM**

Introduction

Since 1982, the Railroad Commission of Texas (RRC) has maintained its Underground Injection Control (UIC) primacy enforcement responsibility for Class II oil and gas related injection wells authorized by the federal Environmental Protection Agency (EPA) pursuant to Safe Drinking Water Act (SDWA) requirements. EPA later approved RRC's primacy program for Class III brine mining wells and energy related Class V injection wells. The RRC implements State UIC primacy permitting and enforcement programs for Class II wells through an alternative demonstration under SDWA Section 1425 and for their limited Class III and V primacy program under SDWA Section 1422.

As part of the EPA/RRC primacy agreements, EPA Region 6 retains oversight responsibilities that includes an annual end-of-year evaluation. This annual oversight report summarizes RRC activities since EPA's last end-of-year evaluation for FY2009, as reported by the RRC in fulfillment of its primacy program and Federal UIC grant and workplan commitments. Specific RRC comments on the draft of this report dated June 30, 2016, is included in Appendix III.

Section 1 FY2015 Grant Workplan

Pursuant to receiving federal assistance through SDWA Part C authorization, the RRC submitted and EPA approves an annual grant application and associated workplan that outlines goals, expected milestones for key program activities, and estimated funding to toward achieving those goals and milestones. The grant application and workplan for FY2015 were approved by Region 6 on July 1, 2014.

Section 1.1 FY2015 Grant Award and Allocation

The federal FY2015 grant allotment for the Texas Railroad Commission's (RRC) UIC program was \$631,720 in UIC programmatic funds; these funds are determined annually based on the annual well inventory numbers submitted by State UIC Primacy programs. In addition, the RRC received \$8,900 in UIC special project funds during FY2015.

Section 1.2 Grant Deliverables

Pursuant EPA regulations and policies, environmental programs conducted on behalf of EPA will establish and implement effective quality systems. The Quality Management Plan (QMP) and Quality Assurance Project Plan (QAPP) must be up dated annually. If both the QMP and QAPP are current and valid, EPA requires each state to annually certify that both plans are current by submitting updated signatory pages and organizational charts as

applicable. The FY2015 QMP [QTRAK #15-326] was approved by Region 6 on 7/17/2015, and expires on 7/17/2016. The FY2015 QAPP [QTRAK #16-036] was approved by Region 6 on 11/12/2015, and expires on 11/12/2016. Table 1 includes the workplan due dates and date of receipt for documents submitted by RRC as specified in the grant workplan.

Table 1. Grant deliverables in FY2015 UIC Workplan.

Grant Deliverable	Due Date	Date Received
Quarterly Reports (EPA Forms 7520)	4/30/2015; 10/31/2015	Submitted on schedule
FY2014/2015 Grant Application FY2014/2015 Grant Workplan	7/01/2014	Application received- 5/16/2014 Workplan received- 5/16/2014 Approved - 5/20/2014
Final Financial Status Report (FY15)	11/30/2015	The Final FSR reviewed and processed 2/01/2015. Grant is closed.
Annual UIC Program Report (FY15)	10/31/2015	9/28/2015
Update on Program, Regulatory or Statutory Changes	10/31/2015	9/28/2015
Annual QMP/QAPP Updates*	QMP	Received- 6/23/15 Approved- 7/17/15 Expires- 7/17/16
	QAPP	Received- 11/06/15 Approved-11/12/15 Expires- 11/12/16
UIC Well Inventory for FY15	12/18/2014	12/18/2014

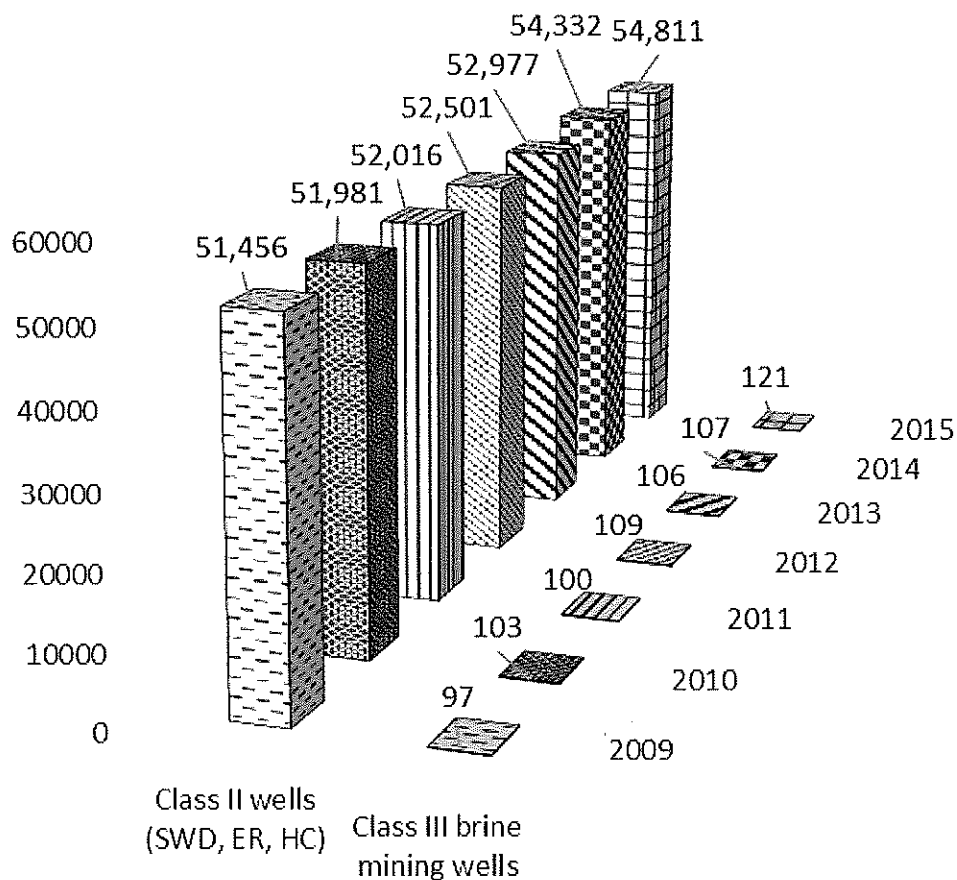
* The Quality Management Plan (QMP) and Quality Assurance Project Plan (QAPP) are updated annually.

Section 2 Inventory

Chart 1 illustrates the number of injection wells reported by class to EPA annually by the RRC from 2009 through 2015; the State UIC program annual inventory numbers are usually submitted during or near December each year. These values (along with values reported by other

State and EPA UIC programs) are used by EPA to calculate the annual grant funds allocated to each State UIC program. Since SDWA regulation of underground injection wells began, the RRC UIC program is still the nation's largest State Class II program based on the total number of Class II injection wells [salt water disposal (SWD), enhanced recovery (ER), and hydrocarbon storage wells (HC) combined] reported annually. Injection wells used in natural gas storage operations are regulated by the RRC, but are exempt from regulation under the SDWA and not generally subject of EPA UIC oversight.

Chart 1. Annual well inventory by well class 2009-2015



The annual number of Class II wells (all types) reported since 2009 has increased by 3,355, an approximate 6.5 percent increase during the six-year period. Between 2009 and 2013, the number of Class II wells increase by less than 1 percent annually; in 2014 and 2015, the reported number increase by 2.6 percent and 1.6 percent, respectively.

The number of Class III brine mining wells increased from 97 in 2009 to 121 in 2015, an increase of 24 or an approximate 25 percent increase during the six-year period. In 2015 alone, the number of authorized Class III brine mining wells increased by 14, a 13 percent increase from 2014.

In addition to the inventory submitted to EPA annually, the RRC also includes inventory values in their annual narrative report pursuant to the EPA/State UIC grant workplan; the inventory values in the narrative report seem to include all types of injection wells, Class II, III, and possibly V, based on the larger numbers. Those inventory numbers are not used in this evaluation. The RRC annual narrative reports between 2009 and 2015 are attached to this annual evaluation as Appendix I.

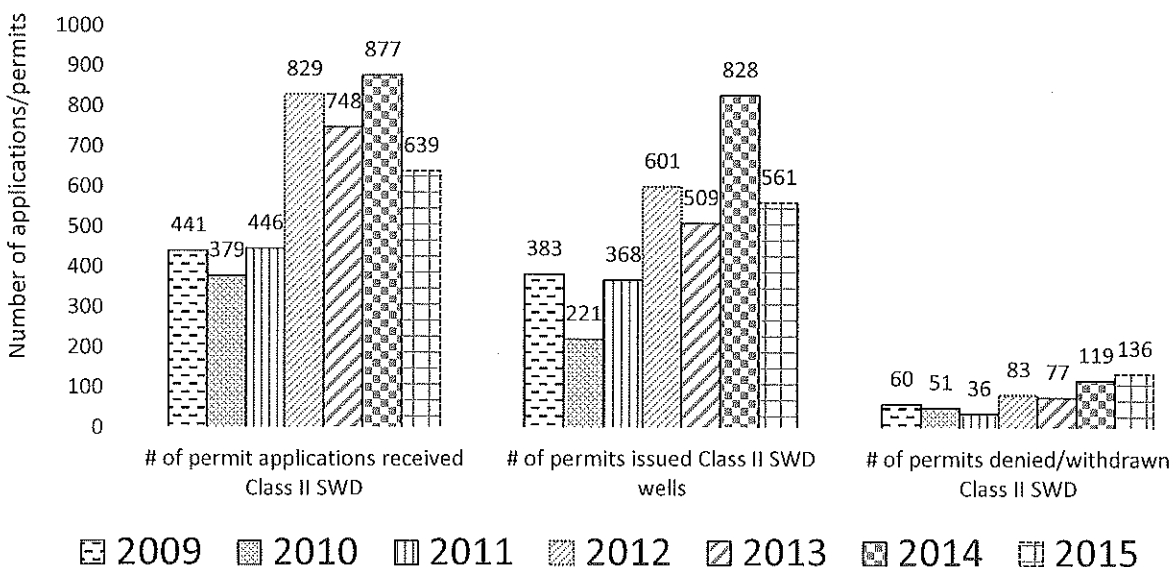
Section 3 Key Program Activities

This section includes an evaluation of key program measures as reported annually to EPA by the RRC through EPA's Forms 7520 and the annual narrative required in the annual UIC grant workplan. The charts in this section includes information submitted by the RRC from 2009 through 2015.

Section 3.1 Permitting

The previous Section 2 includes information on permitted wells regulated by the RRC; all injections wells authorized by the RRC are authorized by RRC permit. There are no authorized-by-rule injections wells regulated by the RRC. Chart 2 presents the number of Class II UIC permit applications received for salt water disposal (SWD), the number of new Class II SWD UIC permits issued, and the number of SWD UIC permit applications either denied or withdrawn from 2009 through 2015, and also include applications to amend existing permits (see RRC letter dated July 21, 2016, in Appendix III). The values were taken from EPA Forms 7520 submitted by the RRC annually since 2009.

Chart 2. Reported number of permit applications received/issued/denied or withdrawn for Class II Salt Water Disposal wells 2009-2015

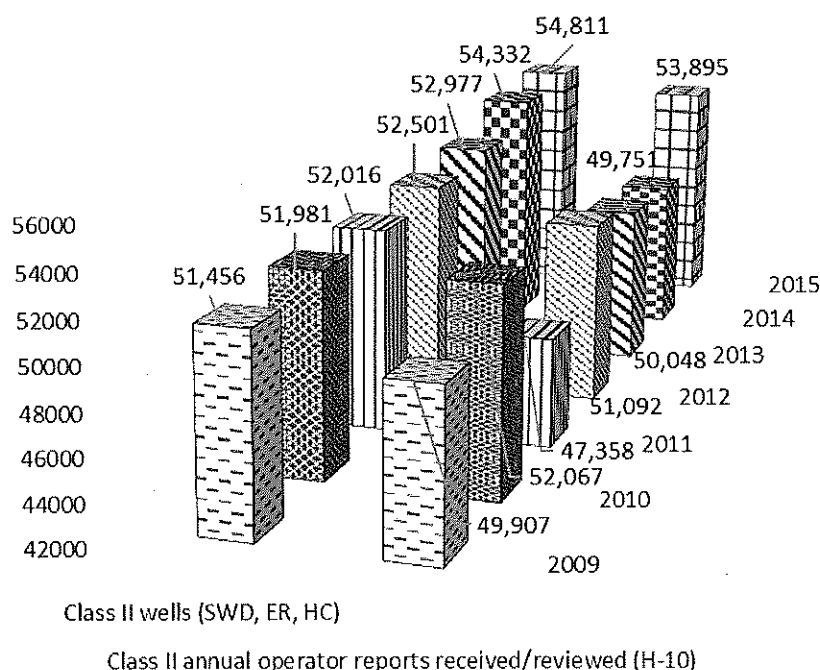


The number of permits received increased in 2012 by about 85 percent from 2011 numbers, remains relatively constant during 2013 and 2014 and declines approximately 27 percent in 2015; that same decline is not reflected in the number of permits denied or withdrawn in 2015.

Section 3.2 Annual UIC Operator Reports

Chart 3 illustrates the annual Class II well inventory graphed with the number of annual monitoring reports submitted by operators for Class II injection wells (SWD, ER, and HC) since 2009.

Chart 3. Class II well inventory and number of operator annual reports received and reviewed 2009-2015



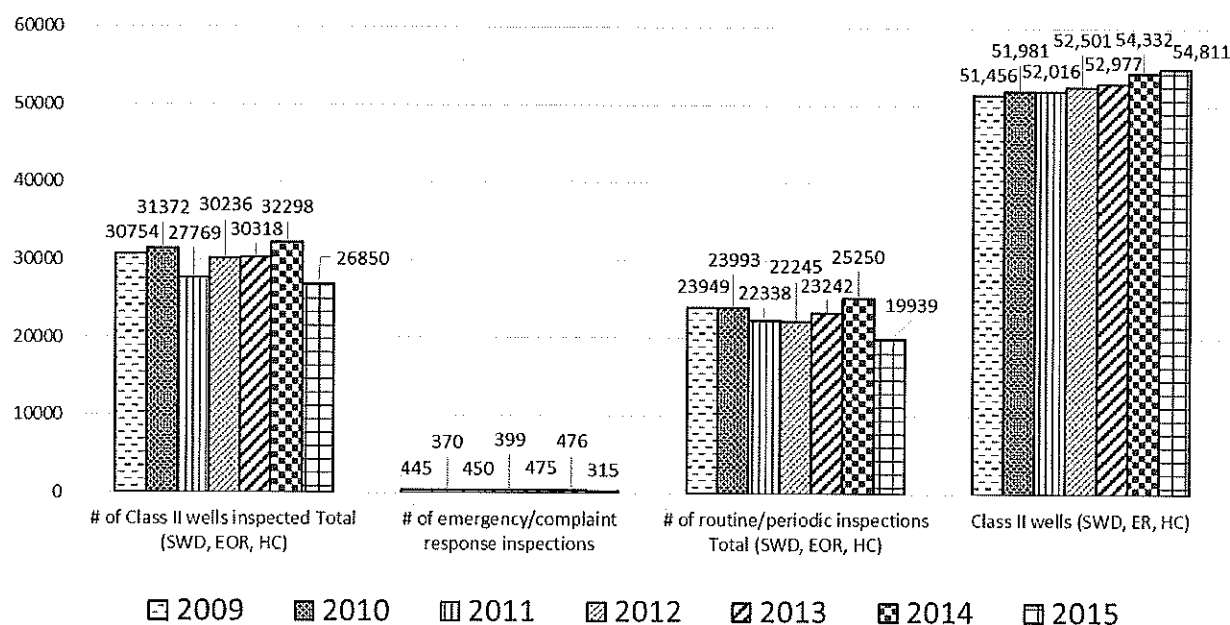
The RRC requires operators of injection wells to complete and submit Form H-10 annually; Form H-10 includes specific well identification information and monthly measurements of injection pressures, injected volumes, and casing/tubing annulus pressures. During the last seven annual reporting periods included in this report, the RRC received and reviewed annual reports of almost 97 percent of all Class II permitted injection wells. Annually, the percentage of H-10s collected ranged from over 100 percent in 2010 to almost 91 percent in 2011. The annual numbers of H-10s received and reviewed were taken from the RRC's annual narrative report, while the Class II inventory values throughout this report were taken from annual well inventory report submitted annually by RRC to EPA near the end of each calendar year. The annual narrative reporting period is the state fiscal year, July 1-June 30; while the annual well inventory report is the number of regulated wells near the end of each calendar year as requested by EPA. For this reason, the comparison percentage of Class II well inventory and operator annual

monitoring reports is an approximation. The low number of wells for which the operators of record did not submit a form H-10 may be a result of the operator being no longer in business or non-reported wells being either transferred, plugged, or abandoned.

3.3 Class II Injection Well Inspections, Mechanical Integrity Testing, and Enforcement

For Class II wells, Chart 4 compares the annual inventory with the number of wells inspected, number of routine/periodic inspections, and number of inspections in response to emergencies or complaints. From 2009 through 2015, the average number of inventoried Class II injection wells inspected for compliance in the field was near 57 percent, with the lowest percentage of about 49 percent in 2015. Based on the reported values, more than half of the reported number of authorized injection wells in Texas are inspected annually, and from Chart 3, the RRC collects and reviews operator-submitted monitoring information of approximately 97 percent of the Class II well inventory annually. Those numbers assure more than adequate inspection and monitoring surveillance actions.

Chart 4. Class II well inventory, wells inspected, routine/periodic inspections, and emergency/complaint response inspections 2009-2015

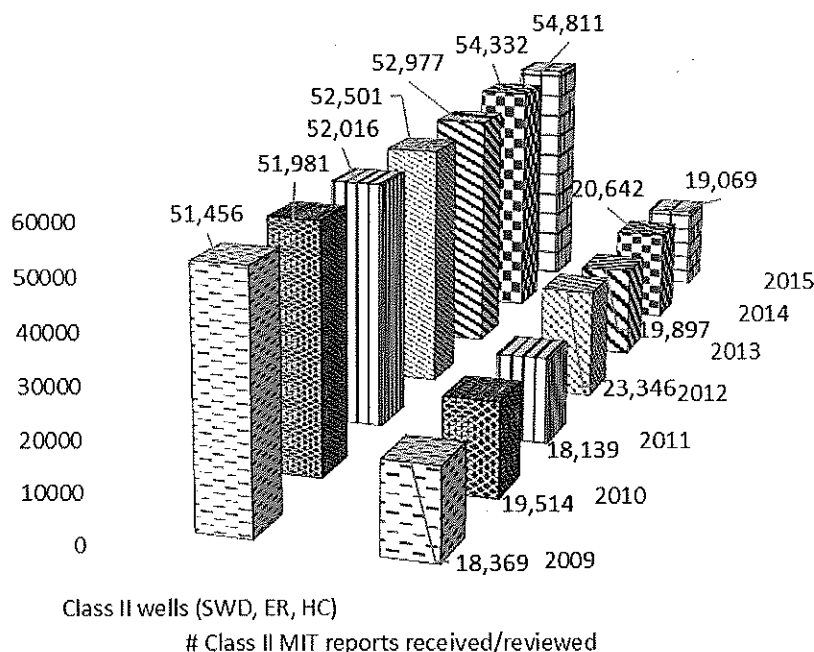


Most of the reported inspections are performed as routine or periodic injection wells inspections. On average, inspections performed under emergency or complaint response conditions comprise just over 1 percent of all Class II inspections (2,930 of 209,597 from 2009-2015). These values reflect an outstanding enforcement monitoring program.

The most important indicator of ground water protection in any UIC program is the mechanical integrity testing program, or MIT. A properly conducted MIT evaluates the condition of the well casing, tubing and packer to assure acceptable operating conditions. In most cases, an MIT is a pressure test of the casing/tubing annulus and the associated packer; a test failure indicates a possible pathway for injected fluid to move out of the approved injection zone into or toward an

underground source of drinking water. This procedure is fundamental in any UIC program and is required at least every five years for Class II wells. Chart 5 shows the number of Class II MIT reports received and reviewed by the RRC compared to the inventory of Class II wells from 2009-2015.

Chart 5. Class II well inventory and number of mechanical integrity test reports received and reviewed 2009-2015



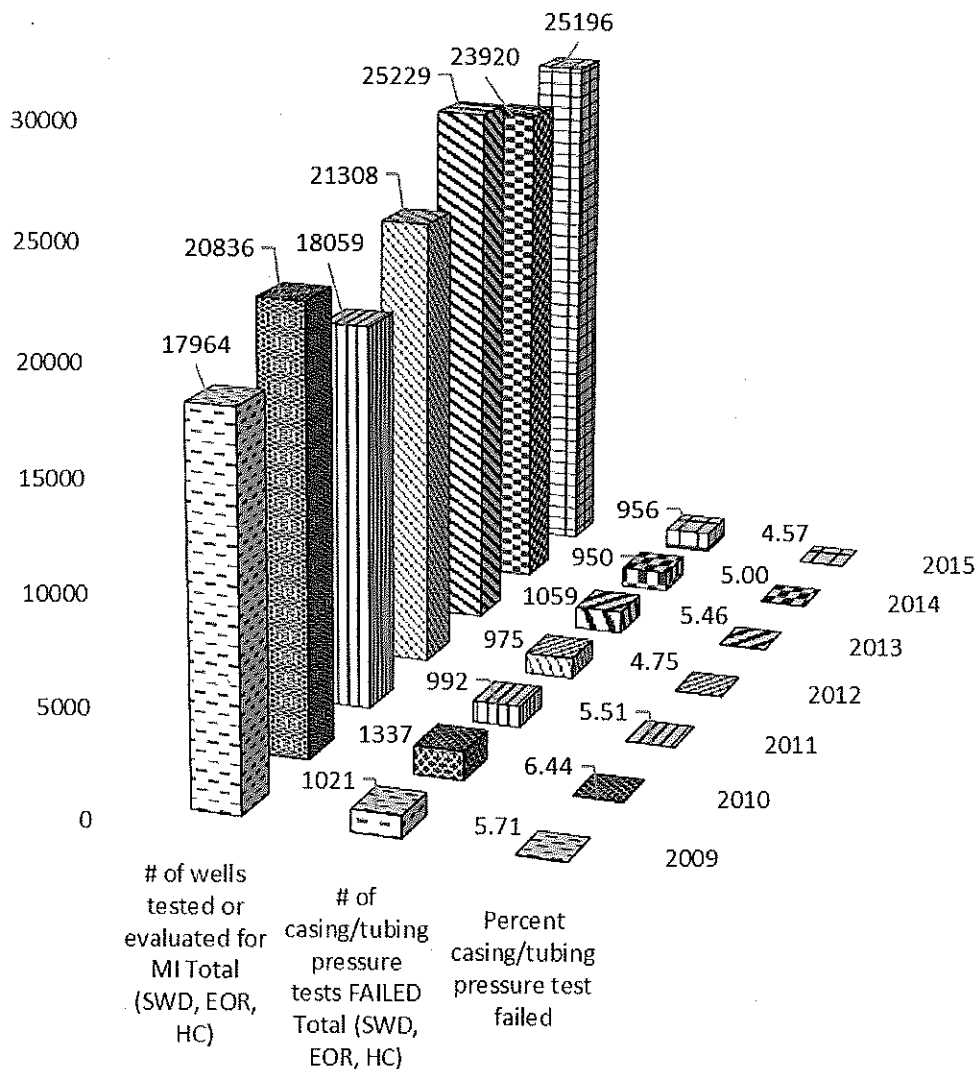
On average, the number of injection wells tested for mechanical integrity annually equals about 37 percent of the reported annual inventory of Class II wells, with the greatest frequency, 45 percent, reported for 2012. In summary, these MIT values indicate that over one-third of the reported annual inventory of Class II wells are likely tested for mechanical integrity annually. Based on these reported MIT values, the RRC testing and surveillance program exceeds the testing requirement for the MIT five-year performance measure.

If any injection well fails MIT, the applicable regulatory agency, whether State or EPA, disallows further operation until the operator shows the well has been repaired and passes a subsequent MIT. MIT failures are reported to EPA annually through Forms 7520 and may also be included in the State UIC program's annual narrative; the reporting period for Forms 7520 is the Federal fiscal year, October 1 – September 30, while a State's annual narrative generally covers the State fiscal year. A large percentage of Class II wells are tested for mechanical integrity by a pressure test of the casing/tubing annulus; the RRC states that more than 95 percent of RRC injection well permits require pressure testing to determine mechanical integrity (see RRC letter dated July 21, 2016, in Appendix III).

Chart 6 below illustrates the number of wells reported by the RRC through the annual Forms 7520s for the number of Class II wells tested for mechanical integrity and the number that failed

casing/tubing pressure testing from 2009 through 2015. Other MIT evaluations may include cement record evaluations and geophysical logging techniques including radioactive tracer surveys, temperature or noise logs, and oxygen activation logs.

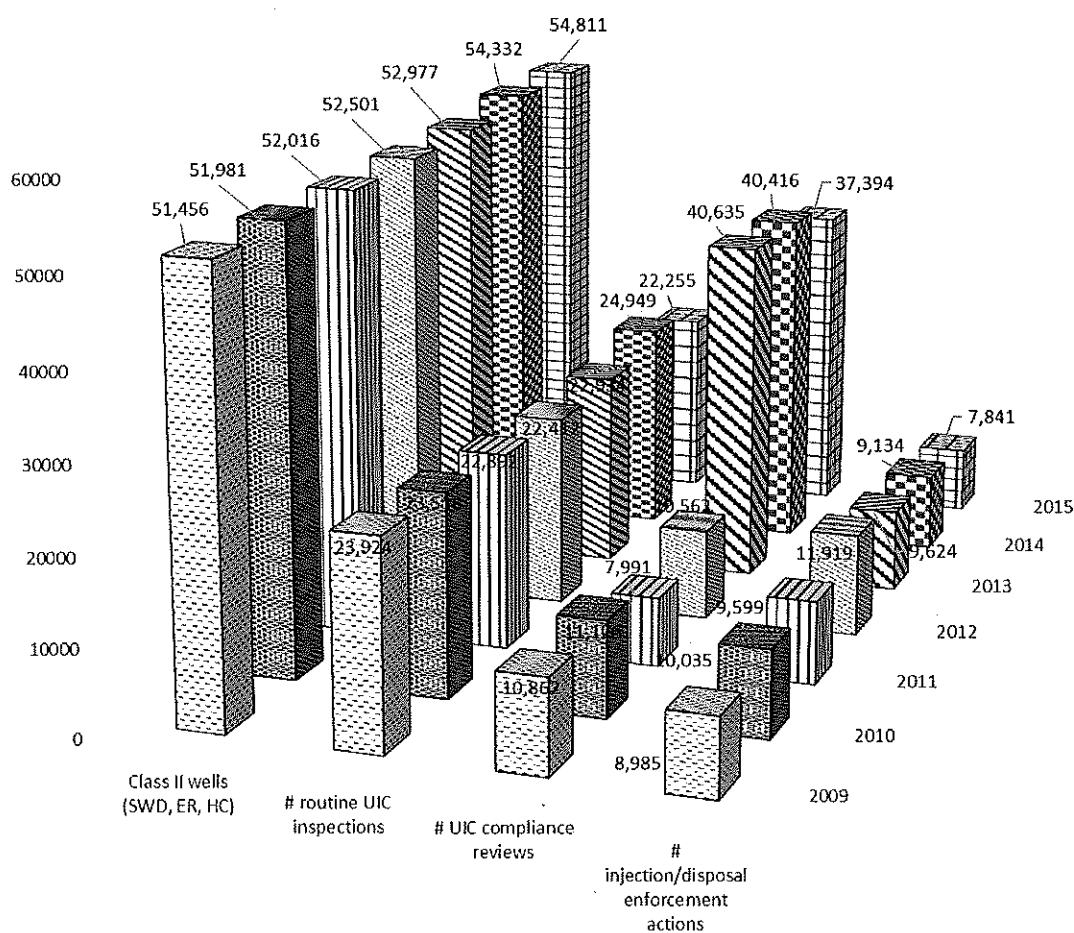
Chart 6. Number of Class II wells tested for mechanical integrity and number that failed testing 2009-2015



Since 2009, the percentage of MIT failures reported by the RRC ranges between 4 and 7 percent of the Class II wells tested. This failure percentage range is consistent with the percentage in other State Class II UIC programs in Region 6.

Most Class II State UIC programs strive toward inspecting all their wells at least annually to assure proper surface operations and monitor for any pressure related issues. Chart 7 compares the number of routine UIC inspections, compliance reviews, and enforcement actions with the annual reported Class II well inventory submissions. The inspections, compliance reviews, and enforcement actions values were taken from the RRC's annual narratives from 2009 through 2015. Based on these data, approximately 44 percent of Class II injection wells undergo routine UIC inspections annually. Prior to 2013, the RRC reports show approximately 20 percent of Class II wells were reviewed for compliance with applicable State UIC requirements; beginning in 2013, the number of reported Class II compliance reviews increased approximately 300 percent from 10,000 plus in 2012 to over 40,000 in 2013. In the last three years approximately 75 percent of Class II wells in Texas were reviewed for compliance annually.

Chart 7. Number of Class II wells inventory, number inspected, number reviewed for compliance, and number with enforcement actions 2009-2015



The number of Class II enforcement actions from 2009 through 2015 range from under 8,000 in 2015 to almost 12,000 in 2012. On average, the number of injection/disposal enforcement actions reported during this period represent about 18 percent of Class II wells in Texas.

In total, EPA Region 6 believes the RRC compliance surveillance and enforcement program appears responsive to operator reports and received complaints based on the information provided by the RRC. A summary of specific oversight issues are summarized in the remainder of this evaluation.

Section 4 Specific Oversight Issues

Since 2009, EPA Region 6 has communicated with the RRC about three primary UIC program concerns:

1. Increased seismic activity related to authorized Class II disposal,
2. Apparent formation pressure increases in East Texas associated with authorized Class II disposal, and
3. Identification and delineation of aquifers exempted at Class II program primacy in 1982, and any aquifers exempted by the RRC since 1982 related to oil and gas operations.

Section 4.1 Seismic Activity Correlated with Class II Disposal Injection

The EPA/State UIC National Technical Workgroup report on injection induced seismicity was released in February 2015. The report provides recommendations and strategies to injection well regulators for managing and minimizing suspected injection induced seismicity, and is available at the following website: <http://www.epa.gov/sites/production/files/2015-08/documents/induced-seismicity-201502.pdf>. Among other things, development of the report involved a comprehensive review of scientific literature, detailed analysis of four recent case examples (including North Texas) and exploring the applicability and value of petroleum engineering methods in the assessment of potential induced seismicity. RRC was one of the state agencies that participated in this effort and is commended for its influential involvement. RRC is also commended for establishing new regulations specific to seismicity, including solidifying RRC authority to take appropriate action related to injection well operations. A summary of related injection well permitting developments since these regulations took effect are described in Appendix III.

Although several areas in Texas experienced potential injection induced seismicity over the last several years, recent public, media and regulator interests have focused on the North Texas activity, specifically the Dallas-Ft Worth area. This includes activity in and around the cities of Azle, Cleburne, as well as near DFW Airport. The strategies RRC employed in these cases included early engagement of disposal well operators near the seismic activity. This action resulted in successful voluntary closure or injection volume reduction for several Class II disposal wells. Seismic activity in these three areas substantially diminished in frequency and

magnitude; however, earthquake events continue in other areas of North Texas, most notably, frequent events in and near the city of Irving in Dallas County.

RRC representatives have publicly indicated that available scientific data do not sufficiently support a causal relationship between Class II waste disposal wells in North Texas and recorded earthquakes. In light of findings from several researchers, its own analysis of some cases, and the fact that earthquakes in some areas diminished following shut-in or reduced injection volume in targeted wells, EPA believes there is a significant possibility that North Texas earthquake activity is associated with disposal wells.

As indicated in the EPA/State workgroup report mentioned above, naturally fractured injection formations may transmit pressure buildup from injection for miles. The Ellenberger Formation, a deep naturally fractured formation, is the preferred disposal zone for most disposal wells in North Texas. This geophysical characteristic of the Ellenberger may allow pressure from authorized injection activities to follow existing fracture pathways toward existing fault zones miles away. These fractures may also be transmitting pressure buildup downward to basement rock along faults that were previously dormant.

EPA is concerned with the level of seismic activity during 2015 in the Dallas/Ft. Worth area because of the potential to impact public health and the environment, including underground sources of drinking water. EPA recommends close monitoring of injection activity through daily recording and reporting of accurate injection pressures and volumes from area disposal wells, coupled with appropriate data analysis methods, in a coordinated effort to detect possible correspondence with seismic activity.

Section 4.2 East Texas Formation Pressure Increases Related to Class II Disposal

A large volume of produced brine in East Texas is injected underground into authorized Class II disposal wells. Many of those wells are permitted commercial facilities that receive exploration and production (E&P) oilfield wastes produced from East Texas and Northwest Louisiana. The volume of produced oilfield wastewater historically increases as hydrocarbon reservoirs produce less oil and gas proportionate to associated formation salt water brine. Injection of the increasing volumes of produced brine into Class II disposal wells in East Texas is believed to be the cause of documented pressure increases in some geologic formations, primarily the late-Cretaceous Rodessa Formation. RRC records indicate that many production wells in East Texas lack cement between the well casing and Rodessa Formation; this cement void may provide a pathway for pressure transfer into another zone. Such pressure transfer could cause the observed high bradenhead pressures in some production wells in the area.

In 1991, EPA first authorized the disposal of restricted hazardous waste into a Class I hazardous disposal well at the current Pergan Marshall LLC facility near Marshall in Harrison County, a county in the East Texas area of focus. This authorization is required under Section 3004 of the Resource Conservation and Recovery Act. As early as 2006, the regulatory required annual pressure fall-off well tests that monitor pressure changes began to show a significant increase in formation pressure; the Pergan Marshall disposal well injects waste fluid into the Rodessa

Formation. In 2014, the pressure fall-off tests showed pressures non-compliant with EPA-approved conditions. In September 2014, EPA published its denial decision for continued operation of the Pergan Marshall Class I hazardous disposal well (see Appendix II). During the time of the observed significant increases in the Pergan Marshall Class I well, the RRC also authorized a large number of Class II wells in Harrison County to dispose of produced brine. EPA believes the recorded pressure build-up in the Rodessa Formation in the area is a direct result of authorized Class II disposal in a large number of authorized injection wells.

As early as 2012, the RRC recognized a regional increase in geologic formations used to dispose of produced brine associated with oil and gas production. The RRC documented an increase of bradenhead pressure for a large number of production wells in a three county area in East Texas: Harrison, Panola, and Shelby.

Beginning in 2012, RRC's Oil and Gas Division requested bottom-hole pressure (BHP) data from operators of 86 commercial disposal wells in those East Texas counties; in April 2014, the RRC modified permitted injection pressures for many of those wells and required continuing annual pressure fall-off testing and BHP monitoring to assure protection of underground sources of drinking water. The BHP data received and analyzed ranged from approximately 0.106 pounds per square inch per foot of depth (psi/ft) to 0.92 psi/ft. Most of these data are from disposal in the Rodessa Formation for which a salt water gradient of 0.46 psi/ft is often used by the RRC. Based on historical and the new operator data including pressure fall-off test reports, the RRC found areas with elevated pressures and areas where pressure is not a problem, but no clear trend has emerged as nearly all operators have reported only once.

RRC staff are using all available data when reviewing new disposal well applications for both commercial and non-commercial Class II disposal wells in the three county area. Factors considered in the RRC permitting process include:

1. The construction and completion of all wells within a ½-mile area of review,
2. The BHP of the proposed disposal formation, if available, and
3. The proposed injection rate of wastewater, both volume and pressure.

Permits have been issued for some wells where application data indicate that pressures will not be a problem; those permits contain special monitoring and reporting conditions that will help the RRC determine how formation pressures change over time. The RRC expects additional data from identified operators in late 2015 and early 2016; after analysis of these new data, the RRC will update Region 6 on this issue.

Section 4.3 Identification and Delineation of Aquifer Exemptions, Pre and Post-Primacy

The RRC 1982 UIC primacy documents contain correspondence between EPA Region 6 and then RRC Director of Underground Injection Control, Jerry Mullican, specifically addressing aquifers proposed for exemption related to oil and gas production activities. Ultimately, an executed letter agreement between Region 6 Administrator, Dick Whittington, and Mr. Mullican

dated March 29, 1982, crystallized proposed actions by both agencies at UIC primacy (see Appendix II).

In an effort to determine the historical outcome of this agreement, EPA Region 6 UIC staff met with RRC staff in Austin in December 2014; agreements reached in that meeting are documented in a letter dated July 14, 2015, from Bill Honker, Water Division Director, Region 6) to Leslie Savage, Assistant Director of Technical Permitting, Oil and Gas Division, RRC (see Appendix II). On November 10, 2015, Region 6 UIC staff again met with RRC representatives in Austin on this and other issues. RRC reported the effort is very resource intensive and staff continue to gather information in their records. The RRC is moving forward with identifying and delineating historical and current aquifer exemption areas which are considered exempt from full UIC regulation. Once the RRC completes its research, EPA anticipates further actions to document the areas of exemption. EPA recommends continued high prioritization of this effort.

Appendix I

Annual UIC program narrative reports

of

The Railroad Commission of Texas

2009-2015

VICTOR G. CARRILLO, CHAIRMAN
ELIZABETH A. JONES, COMMISSIONER
MICHAEL L. WILLIAMS, COMMISSIONER



TOMMIE SEITZ
DIRECTOR, OIL AND GAS DIVISION
GIL BUJANO, P.E.
ASSISTANT DIRECTOR, TECHNICAL PERMITTING

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

September 30, 2009

MR. RAY LEISSNER
GROUND WATER/UIC SECTION (6WQ-SG)
U. S. ENVIRONMENTAL PROTECTION AGENCY
1445 ROSS AVENUE
DALLAS TX 75202-2733

Re: FY 2009 UIC ANNUAL NARRATIVE

Dear Mr. Leissner,

Attached is the Railroad Commission's annual narrative report for its Underground Injection Control activities during the state fiscal year 2009.

We will be glad to discuss any of the annual narrative items. Please call me at (512) 463-4513 or email Gil.Bujano@rrc.state.tx.us if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Gil Bujano".

Gil Bujano P.E.
Assistant Director
For Technical Permitting

GB/mfb

Attachments

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ANNUAL NARRATIVE OF UIC ACTIVITIES FOR FY 2009

The following is a description of the Railroad Commission's activities and accomplishments in administering the Underground Injection Program for Class II injection wells, hydrocarbon storage wells, and Class III brine mining wells in the state fiscal year 2009.

The Railroad Commission processed 49,907 annual reporting forms (Form H-10) for disposal/injection wells and 568 annual reporting forms (Form H-10H) for hydrocarbon storage and brine mining wells. The inventory of UIC wells was 52,116 at the end of FY 2009.

The Railroad Commission met the FY 2009 UIC work plan goal of 31% of witnessed mechanical integrity pressure tests (Form H-5) submitted by operators. In FY 2009, staff received and reviewed 18,369 reports for mechanical integrity pressure tests of disposal/injection wells. The operators reported RRC inspectors witnessed 5620 (30.5%) of the integrity tests. However, the district offices reported inspectors witnessed 7107 mechanical integrity tests of 18,369 (38.6%) tests that operators performed. These statistics parallel closely the witness percentage reported by operators for submitted mechanical integrity tests although some operators still did not file reports for some tests, including failed tests. The Railroad Commission continues to emphasize to operators the importance of filing test reports for wells that failed the mechanical integrity test. The continuing increase in the number and percentage of witnessed tests in FY 2009 reflects Commission's continuing effort in this program activity area.

The Railroad Commission's district offices reported 23,924 routine inspections of injection, disposal, and storage wells in FY 2009. The district offices continue to maintain a high level of activity in support of the Underground Injection Control program.

An additional 17 injection/disposal wells had radioactive tracer surveys or temperature surveys performed and reported instead of pressure tests. Operators also performed mechanical integrity tests on 88 hydrocarbon storage wells and 20 brine-mining wells.

The Railroad Commission received 2014 applications for 3098 disposal/injection wells. In FY 2009, the Commission issued 1985 permits for 3713 wells. UIC staff sent 71 applications to Docket Services for resolution by public hearing. The Railroad Commission received 5 applications for 6 brine mining wells and 2 permits have been issued for 2 wells. The Commission received 4 amendment applications for a total of 29 hydrocarbon storage wells and none of these permits have yet been issued. The Commission received no applications for salt cavern disposal wells or area of review variances in FY 2009.

The Railroad Commission continued to perform reviews for operator compliance with well completion and operation requirements at a significant rate. In FY 2009, UIC staff performed 10,862 compliance reviews. Enforcement actions totaled 8985 for injection/disposal wells. Most of the actions were notices of violation for failure to timely file the annual reporting forms (5077) or to conduct a pressure test within the time period scheduled by the commission (3889). Commission staff also sent violation notices for 2 operating violations, primarily for operating without an injection or disposal permit, and for 17 well completion violations.

Operators brought most wells into compliance as directed by the violation notice letters, which precluded the need for stronger enforcement actions. In FY2009, the Commission issued seal orders for 179 disposal/injection wells and severed pipeline connections on 1501 wells due to delinquent annual reporting forms and failure to conduct their required pressure tests.

Form H-10 online filing programming was completed and implemented in FY2008. This new online filing system has continued to increase the availability of injection and disposal volumes for public as well as internal queries. It has also continued to increase the number of annual reviews of UIC permit compliance according to information submitted on each H-10 form. The H-10 online system initiated the review and subsequent mailing of 2016 permit violation letters representing 6328 violations for 4250 wells in FY2009, doubling last year's figures. Follow-up enforcement for these violation letters in the form of seal and pipeline severance orders numbered 267.

The Commissioners signed 71 consent agreements and agreed orders for enforcement actions under Rule 46 (42 actions) and Rule 9 (29 actions). Enforcement actions initiated by Railroad Commission staff recovered \$586,675 for violations associated with injection and disposal wells.

In 2008, Railroad Commission staff began developing more stringent permitting criteria for disposal wells in the Fort Worth Basin and other areas of Texas experiencing similar development trends. Development of the Barnett Shale over the past few years has created a high demand for oil and gas waste disposal capacity. Applicants for commercial disposal permits or high volume disposal into porous strata overlying the Barnett Shale were required to prepare pressure influence analyses demonstrating the proposed injection operation will not allow offset penetrations to become conduits for fluid migration from the proposed injection interval up to useable quality groundwater. As a result of these new initiatives, one application was subject to this criterion in FY09. It was an amended application by Encore Energy pertaining to disposal well permit No. 12407. The application was submitted to increase the maximum allowable wellhead injection pressure from 0.25 psi/ft to 0.45 psi/ft (950 to 1700 psi) and included the requisite pressure influence analysis. This permit was amended in February 2009.

Staff prepared for additional training on the UIC program at the Railroad Commission's two-day Oil and Gas Seminars for oil and gas operators, which were scheduled in April and May of 2009.

The UIC issue group continues to review and update UIC Reference Manual as well as interactive data and information on the RRC website.

The Railroad Commission continues to actively participate in UIC and other ground water protection issues that involve activities external to the Commission, including the Texas Groundwater Protection Committee (TGPC).

VICTOR G. CARRILLO, CHAIRMAN
ELIZABETH A. JONES, COMMISSIONER
MICHAEL L. WILLIAMS, COMMISSIONER



GIL BUJANO, P.E.
ACTING DEPUTY DIRECTOR, OIL AND GAS DIVISION

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

September 15, 2010

MR. RAY LEISSNER
GROUND WATER/UIC SECTION (6WQ-SG)
U. S. ENVIRONMENTAL PROTECTION AGENCY
1445 ROSS AVENUE
DALLAS TX 75202-2733

Re: FY 2010 UIC ANNUAL NARRATIVE

Dear Mr. Leissner,

Attached is the Railroad Commission's annual narrative report for its Underground Injection Control activities during the state fiscal year 2010.

We will be glad to discuss any of the annual narrative items. Please call me at (512) 463-4513 or email Gil.Bujano@rrc.state.tx.us if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Gil Bujano".

Gil Bujano P.E.
Acting Deputy Director
For Oil and Gas Division

GB/mfb

Attachments

RECEIVED
SOURCE WATER
PROTECTION BRANCH
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ANNUAL NARRATIVE OF UIC ACTIVITIES FOR STATE FY 2010

The following is a description of the Railroad Commission's activities and accomplishments in administering the Underground Injection Program for Class II injection wells, hydrocarbon storage wells, and Class III brine mining wells in the state fiscal year 2010.

The Railroad Commission processed 52,067 annual reporting forms (Form H-10) for disposal/injection wells and 681 annual reporting forms (Form H-10H) for hydrocarbon storage and brine mining wells. The inventory of UIC wells was 52,372 at the end of FY 2010.

The Railroad Commission exceeded the FY 2010 UIC work plan goal of 29% of witnessed mechanical integrity pressure tests (Form H-5) submitted by operators. In FY 2010, staff received and reviewed 19,514 reports for mechanical integrity pressure tests of disposal/injection wells. The operators reported RRC inspectors witnessed 6681 (34%) of the integrity tests. However, the district offices reported inspectors witnessed 7,731 mechanical integrity tests of 19,514 (39.6%) tests that operators performed. These statistics parallel closely the witness percentage reported by operators for submitted mechanical integrity tests although some operators still did not file reports for some tests, including failed tests. The Railroad Commission continues to emphasize to operators the importance of filing test reports for wells that failed the mechanical integrity test. The continuing increase in the number and percentage of witnessed tests in FY 2010 reflects Commission's continuing effort in this program activity area.

The Railroad Commission's district offices reported 23,518 routine inspections of injection, disposal, and storage wells in FY 2010. The district offices continue to maintain a high level of activity in support of the Underground Injection Control program.

An additional 21 injection/disposal wells had radioactive tracer surveys or temperature surveys performed and reported instead of pressure tests. Operators also performed mechanical integrity tests on 64 hydrocarbon storage wells and 65 brine-mining wells.

The Railroad Commission received 1798 applications for 2780 disposal/injection wells. In FY 2010, the Commission issued 1278 permits for 2074 wells. UIC staff sent 44 applications to Docket Services for resolution by public hearing. The Railroad Commission received 3 applications for 6 brine mining wells but no permits have been issued in FY 2010. The Commission received 5 expansion applications for a total of 19 hydrocarbon storage wells and 7 of these permits have yet been issued for a total of 47 wells. The Commission received no applications for salt cavern disposal wells or area of review variances in FY 2010.

The Railroad Commission continued to perform reviews for operator compliance with well completion and operation requirements at a significant rate. In FY 2010, UIC staff performed 11,126 compliance reviews. Enforcement actions totaled 10,035 for injection/disposal wells. Most of the actions were notices of violation for failure to timely file the annual reporting forms (4997) or to conduct a pressure test within the time period scheduled by the commission (4997). Commission staff also sent violation notices for 9 operating violations, primarily for operating without an injection or disposal permit, and for 32 well

completion violations. Operators brought most wells into compliance as directed by the violation notice letters, which precluded the need for stronger enforcement actions. In FY2010, the Commission issued seal orders for 101 disposal/injection wells and severed pipeline connections on 1562 wells due to delinquent annual reporting forms and failure to conduct their required pressure tests.

Form H-10 online filing programming was completed and implemented in FY 2008. This new online filing system has continued to increase the availability of injection and disposal volumes for public as well as internal queries. It has also continued to increase the number of annual reviews of UIC permit compliance according to information submitted on each H-10 form. The H-10 online system initiated the review and subsequent mailing of 1121 permit violation letters representing 3720 violations for 2247 wells in FY 2010. Follow-up enforcement for these violation letters in the form of seal and pipeline severance orders numbered 108.

The Commissioners signed 53 consent agreements and agreed orders for enforcement actions under Rule 46 (28 actions) and Rule 9 (24 actions). Enforcement actions initiated by Railroad Commission staff recovered \$340,925 for violations associated with injection and disposal wells.

In 2008, Railroad Commission staff began developing more stringent permitting criteria for disposal wells in the Fort Worth Basin and other areas of Texas experiencing similar development trends. Development of the Barnett Shale over the past few years has created a high demand for oil and gas waste disposal capacity. Applicants for commercial disposal of any amount and/or lease disposal over 5000 bbls per day who wish to inject above the Ellenberger Formation in the Barnett Shale trend area are to provide pressure influence information demonstrating that the injected fluids will be confined to the injection interval. Staff would then evaluate whether similar criteria are warranted in other geographic areas subject to similar oil field development pressures like the Barnett Shale. In FY 2010, RRC received no applications that were subject to this procedure.

Staff initiated a review of cap rock injection wells in the area of the Daisetta sink hole. As a result four injection permits were modified to include expiration dates. Staff will be reviewing permits for all cap rock injection and considering similar action.

Staff prepared for additional training on the UIC program at the Railroad Commission's two-day Oil and Gas Seminars for oil and gas operators, which were scheduled in April and June of 2010. Technical staff also attended the Cased Hole and Production Log Analysis Training in Austin in December 2009.

The UIC issue group continues to review and update the Injection/Disposal Well Permit Testing and Monitoring Seminar Manual as well as interactive data and information on the RRC website. The GIS Mapping program was modified giving the user the ability to highlight commercial disposal wells. This modification made it easier for the permitting staff to ensure all commercial wells were considered when reviewing pressure front analysis. It enhanced the reviewer's ability to consider public interest issues within protested permit applications. It also reinforced the Commission's desire to provide service to both the public and industry.

The RRC has implemented the new online system for filing and processing of Completion Reports for Oil, Gas, and Injection wells (Forms W-2/G-1). The web-based system, part of the RRC Online System, also serves as a tracking system that includes attachments necessary for the process of the completions packets.

In April 2010, mechanical integrity test (MIT) delays due to tubing-casing annulus monitoring credit (TCAM) became possible only after a district office inspection confirmed the presence of credible wellhead monitoring. Approximately 3500 permitted wells were affected by the restriction. In addition to more well inspections being conducted, an estimated 700 more wells per year were scheduled for an MIT.

The RRC continues to improve the efficiency and effectiveness of its Class II program through the digitization of UIC well mechanical integrity test reports (Form H-5) and disposal well permits into non-productive formations (Form W-14). The migration of 53,011 MIT files from 1992-1994 from Visiflow to the current Neubus platform provides internet access to scanned images of these well records. Digitizing of 13,100 disposal well permit files allows greater public, industry and staff access than is currently feasible and provides the ability to search disposal well records for the entire State of Texas. We anticipate these images to be available in the fall of 2010.

In June 2010, the Commission modified injection/disposal well permits issued for wells that have not yet been drilled to include a standard permit condition requiring that the well be drilled within three (3) years of the injection/disposal well permit date. Statewide Rules 9 and 46 require that operators provide notice of the permit application to affected parties and review data of public record for wells within the area of review that penetrate the injection/disposal interval. Because affected parties and the status of the well in the area may change over time, the Oil & Gas Division implemented this change to ensure that the conditions at the time of permitting remain valid.

The Railroad Commission continues to actively participate in UIC and other ground water protection issues that involve activities external to the Commission, including the Texas Groundwater Protection Committee (TGPC).

ELIZABETH AMES JONES, CHAIRMAN
DAVID PORTER, COMMISSIONER
HARRY T. SMITH, COMMISSIONER



GIL BUJANO, P.E.
DEPUTY DIRECTOR, OIL AND GAS DIVISION

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

September 27, 2011

MR. RAY LEISSNER
GROUND WATER/UIC SECTION (6WQ-SG)
U. S. ENVIRONMENTAL PROTECTION AGENCY
1445 ROSS AVENUE
DALLAS TX 75202-2733

Re: FY 2011 UIC ANNUAL NARRATIVE

Dear Mr. Leissner,

Attached is the Railroad Commission's annual narrative report for its Underground Injection Control activities during the state fiscal year 2011.

We will be glad to discuss any of the annual narrative items. Please call me at (512) 463-4513 or email Gil.Bujano@rrc.state.tx.us if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Gil Bujano".

Gil Bujano P.E.
Deputy Director
For Oil and Gas Division

GB/mfb

Attachments

ANNUAL NARRATIVE OF UIC ACTIVITIES FOR STATE FY 2011

The following is a description of the Railroad Commission's activities and accomplishments in administering the Underground Injection Program for Class II injection wells, hydrocarbon storage wells, and Class III brine mining wells in the state fiscal year 2011.

The Railroad Commission processed 47,358 annual reporting forms (Form H-10) for disposal/injection wells and 658 annual reporting forms (Form H-10H) for hydrocarbon storage and brine mining wells. The inventory of UIC wells was 52,918 at the end of FY 2011.

The Railroad Commission exceeded the FY 2011 UIC work plan goal of 29% of witnessed mechanical integrity pressure tests (Form H-5) submitted by operators. In FY 2011, staff received and reviewed 18,139 reports for mechanical integrity pressure tests of disposal/injection wells. The operators reported RRC inspectors witnessed 4,869 (27%) of the integrity tests. However, the district offices reported inspectors witnessed 7,297 mechanical integrity tests of 18,139 tests (40%) that operators performed. These statistics parallel closely the witness percentage reported by operators for submitted mechanical integrity tests although some operators still did not file reports for some tests, including failed tests. The Railroad Commission continues to emphasize to operators the importance of filing test reports for wells that failed the mechanical integrity test. The continuing increase in the number and percentage of witnessed tests in FY 2011 reflects Commission's continuing effort in this program activity area.

In recognition of the large volume of mechanical integrity tests received, the Commission has reassigned one FTE position from another section and added another staff member to review H-5 forms. Technical Permitting has also received authorization to post and fill yet another position within this area.

An additional 51 injection/disposal wells had radioactive tracer surveys or temperature surveys performed and reported instead of pressure tests. Operators also performed mechanical integrity tests on 62 hydrocarbon storage wells and 39 brine-mining wells.

The Railroad Commission's district offices reported 22,892 routine inspections of injection, disposal, and storage wells in FY 2011. The district offices continue to maintain a high level of activity in support of the Underground Injection Control program.

The Railroad Commission received 2,027 applications for 3,062 disposal/injection wells. In FY 2011, the Commission issued 1,852 permits for 2,920 wells. UIC staff sent 70 applications to Docket Services for resolution by public hearing. The Railroad Commission received 4 applications for 4 brine-mining wells and 8 new permits have been issued in FY 2011. The Commission received 5 expansion applications for a total of 75 hydrocarbon storage wells and 1 of these permits has been issued for a total of 11 wells. The Commission received no applications for salt cavern disposal wells in FY 2011. There are several areas in which UIC wells are permitted without the benefit of an AOR review, such as the East Texas field. For FY2011 there were 4 injection wells permitted without an Area of Review. However, as a result of recent policy changes, commercial disposal wells in the East Texas field are now subject to

the AOR requirement. For FY2011, there were no commercial disposal wells permitted within the East Texas field footprint.

The Railroad Commission continued to perform reviews for operator compliance with well completion and operation requirements at a significant rate. In FY 2011, UIC staff performed 7,991 compliance reviews. Enforcement actions totaled 9,599 for injection/disposal wells. Most of the actions were notices of violation for failure to timely file the annual reporting forms (5,700) or to conduct a pressure test within the time period scheduled by the commission (3,820). Commission staff also sent violation notices for 52 operating violations, primarily for operating without an injection or disposal permit, and for 27 well completion violations. Operators brought most wells into compliance as directed by the violation notice letters, which precluded the need for stronger enforcement actions. In FY2011, the Commission issued seal orders for 115 disposal/injection wells and severed pipeline connections on 1,305 wells due to delinquent annual reporting forms and failure to conduct their required pressure tests.

Form H-10 online filing programming was completed and implemented in FY 2008. This new online filing system has continued to increase the availability of injection and disposal volumes for public as well as internal queries. It has also continued to increase the number of annual reviews of UIC permit compliance according to information submitted on each H-10 form. The H-10 online system initiated the review and subsequent mailing of 919 permit violation letters representing 2904 violations for 2048 wells in FY 2011. Follow-up enforcement for these violation letters in the form of seal and pipeline severance orders numbered 79.

The Commissioners signed 32 consent agreements and administrative orders for enforcement actions under Rule 46 (23 actions) and Rule 9 (9 actions). Enforcement actions initiated by Railroad Commission staff recovered \$549,250 for violations associated with injection and disposal wells.

In 2008, Railroad Commission staff began developing more stringent permitting criteria for disposal wells in the Fort Worth Basin and other areas of Texas experiencing similar development trends. Development of the Barnett Shale over the past few years has created a high demand for oil and gas waste disposal capacity. Applicants for commercial disposal of any amount and/or lease disposal over 5000 bbls per day who wish to inject above the Ellenberger Formation in the Barnett Shale trend area are to provide pressure influence information demonstrating that the injected fluids will be confined to the injection interval. Staff would then evaluate whether similar criteria are warranted in other geographic areas subject to similar oil field development pressures like the Barnett Shale. In FY 2011, RRC received no applications that were subject to this procedure.

In FY 2010, staff initiated a review of cap rock injection wells in the area of the Daisetta sinkhole. As a result, staff has reviewed all permits for all cap rock injection and has permitted 1 new and 1 amended permit in FY2011.

Staff prepared for additional training on the UIC program at the Railroad Commission's two-day Oil and Gas Seminars for oil and gas operators, which were scheduled in May and July of 2011. Technical staff also attended a 2-day EPA sponsored well logging course in Dallas in March and in Austin in June 2011 as well as the EPA Geophysical Techniques Workshop

Training in Dallas in May 2011. It is our understanding that EPA will be providing additional training in the next fiscal year.

The UIC issue group continues to review and update the Injection/Disposal Well Permit Testing and Monitoring Seminar Manual as well as interactive data and information on the RRC website. The GIS Mapping program was modified giving the user the ability to highlight commercial disposal wells. This modification made it easier for the permitting staff to ensure all commercial wells were considered when reviewing pressure front analysis. It enhanced the reviewer's ability to consider public interest issues within protested permit applications. It also reinforced the Commission's desire to provide service to both the public and industry.

The RRC has implemented the new online system for filing and processing of Completion Reports for Oil, Gas, and Injection wells (Forms W-2/G-1). The web-based system, part of the RRC Online System, also serves as a tracking system that includes attachments necessary for the process of the completions packets. Approximately 2,250 completion packets for injection/disposal wells have been processed through the online system this fiscal year.

In April 2010, mechanical integrity test (MIT) delays due to tubing-casing annulus monitoring credit (TCAM) became possible only after a district office inspection confirmed the presence of credible wellhead monitoring. In addition to more well inspections being conducted, an estimated 650 more wells were scheduled for an MIT within the last year.

The RRC continues to improve the efficiency and effectiveness of its Class II program through the digitization of UIC well mechanical integrity test reports (Form H-5). After receiving EPA approval, the Commission was able to continue digitization of an additional 34,609 MIT files from 1986 and 1991 as well as purchase 8 salinity meters and 5 combustible gas detection meters that were distributed to district office staff for UIC related issues in our rapidly expanding Shale play fields; Eagle Ford, Barnett and Haynesville.

In June 2010, the Commission modified injection/disposal well permits issued for wells that have not yet been drilled to include a standard permit condition requiring that the well be drilled within three (3) years of the injection/disposal well permit date. Statewide Rules 9 and 46 require that operators provide notice of the permit application to affected parties and review data of public record for wells within the area of review that penetrate the injection/disposal interval. Because affected parties and the status of the well in the area may change over time, the Oil & Gas Division implemented this change to ensure that the conditions at the time of permitting remain valid.

The Railroad Commission continues to actively participate in UIC and other ground water protection issues that involve activities external to the Commission, including the Texas Groundwater Protection Committee (TGPC).

BARRY T. SMITHERMAN, CHAIRMAN
DAVID PORTER, COMMISSIONER
BUDDY GARCIA, COMMISSIONER



GIL BUJANO, P.E.
ACTING DIRECTOR, OIL AND GAS DIVISION

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

September 28, 2012

MR. RAY LEISSNER
GROUND WATER/UIC SECTION (6WQ-SG)
U. S. ENVIRONMENTAL PROTECTION AGENCY
DALLAS TX 75202-2733

RE: FY 2012 UIC ANNUAL NARRATIVE

Dear Mr. Leissner,

Attached is the Railroad Commission's Annual Narrative Report for its Underground Injection Control activities during the state fiscal year 2012.

We will be glad to discuss any of the Annual Narrative items. Please call me at (512) 463-4513 or email gil.bujano@rrc.state.tx.us if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Gil Bujano".

Gil Bujano P. E.
Acting Director
For Oil and Gas Division

GB/sam

Attachments

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UIC permitting procedures can also be found at <http://www.rrc.state.tx.us/divisions/og/uic/manual/HTML/index.html>.

ANNUAL NARRATIVE OF UIC ACTIVITIES FOR STATE FY 2012

The following is a description of the Railroad Commission's activities and accomplishments in administering the Underground Injection Program for Class II injection wells, hydrocarbon storage wells, and Class III brine mining wells in the state fiscal year 2012.

The Railroad Commission processed 51,092 annual reporting forms (Form H-10) for disposal/injection wells and 688 annual reporting forms (Form H-10H) for hydrocarbon storage and brine mining wells. The inventory of UIC wells was 54,006 at the end of FY 2012.

The Railroad Commission exceeded the FY 2012 UIC work plan goal of 32% of witnessed mechanical integrity pressure tests (Form H-5) submitted by operators. In FY 2012, staff received and reviewed 23,346 reports for mechanical integrity pressure tests of disposal/injection wells. The operators reported RRC inspectors witnessed 7848 (34%) of the integrity tests. However, the district offices reported inspectors witnessed 7173 mechanical integrity tests of 23396 tests (31%) that operators performed. These statistics parallel closely the witness percentage reported by operators for submitted mechanical integrity tests although some operators still did not file reports for some tests, including failed tests. The Railroad Commission continues to emphasize to operators the importance of filing test reports for wells that failed the mechanical integrity test. The continuing increase in the number and percentage of witnessed tests in FY 2012 reflects Commission's continuing effort in this program activity area.

In recognition of the large volume of mechanical integrity tests received, the Commission has added two additional FTE's to review mechanical integrity test reports (H-5 Forms). The unit has now increased staff by 100% totaling four. Future changes in staffing levels may occur as report volumes and processing times are evaluated.

An additional 77 injection/disposal wells had radioactive tracer surveys or temperature surveys performed and reported instead of pressure tests. Operators also performed mechanical integrity tests on 68 hydrocarbon storage wells and 31 brine-mining wells.

The Railroad Commission's district offices reported 22,412 routine inspections of injection, disposal, and storage wells in FY 2012. The district offices continue to maintain a high level of activity in support of the Underground Injection Control program.

The Railroad Commission received 2,512 applications for 3,342 disposal/injection wells. In FY 2012, the Commission issued 2,094 permits for 3,124 wells. UIC staff sent 76 applications to Docket Services for resolution by public hearing. The Railroad Commission received 3 applications for 3 brine-mining wells and 2 new permits have been issued in FY 2012. The Commission received 1 expansion application for a total of 1 hydrocarbon storage well. The Commission received 1 application for a salt cavern disposal well in FY 2012. There are several areas in which UIC wells are permitted without the benefit of an AOR review, such as the East Texas field. For FY 2012 there were no injection wells permitted without an Area of Review. However, as a result of recent policy changes, commercial disposal wells in the East Texas field

are now subject to the AOR requirement. For FY 2012, there was 1 commercial disposal well permitted within the East Texas field footprint.

The Railroad Commission continued to perform reviews for operator compliance with well completion and operation requirements at a significant rate. In FY 2012, UIC staff performed 10,562 compliance reviews. Enforcement actions totaled 11,919 for injection/disposal wells. Most of the actions were notices of violation for failure to timely file the annual reporting forms (8,290) or to conduct a pressure test within the time period scheduled by the commission (3,571). Commission staff also sent violation notices for 45 operating violations, primarily for operating without an injection or disposal permit, and for 13 well completion violations. Operators brought most wells into compliance as directed by the violation notice letters, which precluded the need for stronger enforcement actions. In FY 2012, the Commission issued seal orders for 119 disposal/injection wells and severed pipeline connections on 1,258 leases due to delinquent annual reporting forms and failure to conduct their required pressure tests.

Form H-10 online filing programming was completed and implemented in FY 2008. This new online filing system has continued to increase the availability of injection and disposal volumes for public as well as internal queries. It has also continued to increase the number of annual reviews of UIC permit compliance according to information submitted on each H-10 form. The H-10 online system initiated the review and subsequent mailing of 927 permit violation letters representing 3,429 violations for 2,554 wells in FY 2012. Follow-up enforcement for these violation letters in the form of seal and pipeline severance orders numbered 83.

The Commissioners signed 28 consent agreements and administrative orders for enforcement actions under Rule 46 (17 actions) and Rule 9 (11 actions). Enforcement actions initiated by Railroad Commission staff recovered \$281,087.50 for violations associated with injection and disposal wells.

In 2008, Railroad Commission staff began developing more stringent permitting criteria for disposal wells in the Fort Worth Basin and other areas of Texas experiencing similar development trends. Development of the Barnett Shale over the past few years has created a high demand for oil and gas waste disposal capacity. Applicants for commercial disposal of any amount and/or lease disposal over 5000 bbls per day who wish to inject above the Ellenberger Formation in the Barnett Shale trend area are to provide pressure influence information demonstrating that the injected fluids will be confined to the injection interval. Staff would then evaluate whether similar criteria are warranted in other geographic areas subject to similar oil field development pressures like the Barnett Shale. In FY 2012, RRC received no applications that were subject to this procedure.

In FY 2010, staff initiated a review of cap rock injection wells in the area of the Daisetta sinkhole. As a result, staff has reviewed all permits for all cap rock injection and issued 1 new permit in FY 2012.

Continuing education in 2012 included a March RRC staff presentation to the American Institute of Professional Geologists concerning the Commission's regulation of Shale Energy

Trends in Texas. In June, staff spoke in Odessa about regulations pertaining to the midstream infrastructure related to the Permian Basin Shale energy development. Staff offered additional training in August to oil and gas operators with a two-day seminar in San Marcos for the Eagleford Shale formation. RRC staff attended the April 2012 EPA sponsored Quarterly Management training in Dallas and the technical staff attended a one-day presentation by the Applied Petroleum Technology Academy on carbon capture and storage associated with the enhanced oil recovery in the Permian Basin. It is our understanding that EPA will be providing additional training opportunities in the next fiscal year.

The UIC issue group continues to review and update the Injection/Disposal Well Permit Testing and Monitoring Seminar Manual as well as interactive data and information on the RRC website. The GIS Mapping program was modified giving the user the ability to highlight commercial disposal wells. This modification made it easier for the permitting staff to ensure all commercial wells were considered when reviewing pressure front analysis. It enhanced the reviewer's ability to consider public interest issues within protested permit applications. It also reinforced the Commission's desire to provide service to both the public and industry.

The RRC has implemented the new online system for filing and processing of Completion Reports for Oil, Gas, and Injection wells (Forms W-2/G-1). The web-based system, part of the RRC Online System, also serves as a tracking system that includes attachments necessary for the process of the completions packets. Approximately 1,815 completion packets for injection/disposal wells have been processed through the online system this fiscal year.

In April 2010, mechanical integrity test (MIT) delays due to tubing-casing annulus monitoring credit (TCAM) became possible only after a district office inspection confirmed the presence of credible wellhead monitoring. In addition to more well inspections being conducted, an estimated 650 more wells were scheduled for an MIT within the last year. This standard resulted in 26 District Offices inspections for extensions to MIT testing in 2012.

The RRC continues to improve the efficiency and effectiveness of its Class II program through the digitization of UIC well mechanical integrity test reports (Form H-5). In 2011, after receiving EPA approval, the Commission was able to continue digitization of an additional 34,609 MIT files from 1986 and 1991 as well as purchase 8 salinity meters and 5 combustible gas detection meters that were distributed to district office staff for UIC related issues in our rapidly expanding Shale play fields; Eagle Ford, Barnett and Haynesville. In 2012, the Commission digitized 4,844 MIT files for 1985 and purchased 2 more salinity meters and 4 more combustible gas detection meters. Currently, each Commission District Office has at least one salinity meter and one combustible gas detection meter.

All disposal permits have been digitized and the Commission has started digitizing day forward injection permits and those issued within the San Antonio District Office. The Commission hopes, with EPA support, to continue digitization efforts of injection permits statewide.

In June 2010, the Commission modified injection/disposal well permits issued for wells that have not yet been drilled to include a standard permit condition requiring that the well be

drilled within three (3) years of the injection/disposal well permit date. Statewide Rules 9 and 46 require that operators provide notice of the permit application to affected parties and review data of public record for wells within the area of review that penetrate the injection/disposal interval. Because affected parties and the status of the well in the area may change over time, the Oil & Gas Division implemented this change to ensure that the conditions at the time of permitting remain valid.

The Railroad Commission continues to actively participate in UIC and other ground water protection issues that involve activities external to the Commission, including the Texas Groundwater Protection Committee (TGPC).

BARRY T. SMITHERMAN, CHAIRMAN
DAVID PORTER, COMMISSIONER
CHRISTI CRADDICK, COMMISSIONER



GIL BUJANO, P.E.
DIRECTOR, OIL AND GAS DIVISION
DOUG O. JOHNSON, P.E.
ASSISTANT DIRECTOR, TECHNICAL PERMITTING

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

September 30, 2013

MR. RAY LEISSNER
GROUND WATER/UIC SECTION (6WQ-SG)
U. S. ENVIRONMENTAL PROTECTION AGENCY
DALLAS TX 75202-2733

RE: FY 2013 UIC ANNUAL NARRATIVE

Dear Mr. Leissner,

Attached is the Railroad Commission's Annual Narrative Report for its Underground Injection Control activities during the state fiscal year 2013.

We will be glad to discuss any of the Annual Narrative items. Please call me at (512) 463-6760 or email douglas.johnson@rrc.state.tx.us if you have any questions.

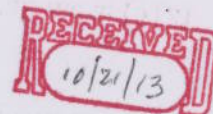
Sincerely,

A handwritten signature in blue ink, appearing to read "Doug Johnson".

Doug Johnson P. E.
Assistant Director
For Technical Permitting

DJ/sam

Attachments



UIC permitting procedures can also be found at <http://www.rrc.state.tx.us/divisions/og/uic/manual/HTML/index.html>.

ANNUAL NARRATIVE OF UIC ACTIVITIES FOR STATE FY 2013

The following is a description of the Railroad Commission's activities and accomplishments in administering the Underground Injection Program for Class II injection wells, hydrocarbon storage wells, and Class III brine mining wells in the state fiscal year 2013.

The Railroad Commission processed 50,048 annual reporting forms (Form H-10) for disposal/injection wells and 518 annual reporting forms (Form H-10H) for hydrocarbon storage and brine mining wells. The inventory of UIC wells was 55,092 at the end of FY 2013.

The Railroad Commission exceeded the FY 2013 UIC work plan goal of 30% of witnessed mechanical integrity pressure tests (Form H-5) submitted by operators. In FY 2013, staff received and reviewed 19,897 reports for mechanical integrity pressure tests of disposal/injection wells. The operators reported RRC inspectors witnessed 6,641 (33%) of the integrity tests. However, the district offices reported inspectors witnessed 7,623 mechanical integrity tests of 19,897 tests (36%) that operators performed. These statistics parallel closely the witness percentage reported by operators for submitted mechanical integrity tests although some operators still did not file reports for some tests, including failed tests. The Railroad Commission continues to emphasize to operators the importance of filing test reports for wells that failed the mechanical integrity test. The district offices inspections of credible wellhead monitoring to obtain tubing-casing annulus credit (TCAM) resulted in 47 additional district office inspections for extension to MIT testing in FY 2013. The continuing increase in the number and percentage of witnessed tests in FY 2013 reflects the Commission's continuing effort in this program activity area.

In recognition of the large volume of mechanical integrity tests received, the Commission added two additional FTE's during FY 2011 to review mechanical integrity test reports (H-5 Forms). The initial FTE's were promoted and replaced in FY 2013. Efforts are ongoing to upgrade the technologic applications needed to more efficiently process the H-5's including a two-year, multi-million dollar, IT modernization project with a significant module with the specific goal of moving to an 'on-line' H-5 scheduling and filing system. Future changes in staffing levels may occur as report volumes and processing times are evaluated.

An additional 36 injection/disposal wells had radioactive tracer surveys or temperature surveys performed and reported instead of pressure tests. Operators also performed mechanical integrity tests on 98 hydrocarbon storage wells and 93 brine-mining wells.

The Railroad Commission's district offices reported 22,934 routine inspections of injection, disposal, and storage wells in FY 2013. The district offices continue to maintain a high level of activity in support of the Underground Injection Control program.

The Railroad Commission received 2,537 applications for 3,353 disposal/injection wells. In FY 2013, the Commission issued 1,895 permits for 2,580 wells. UIC staff sent 114 applications to Docket Services for resolution by public hearing. The Railroad Commission received 8 applications for 8 brine-mining wells and no new permits have been issued in FY

2013. The Commission received 2 expansion applications for a total of 15 hydrocarbon storage wells. The Commission received no applications for salt cavern disposal wells in FY 2013.

There are several areas in which UIC wells are permitted without the benefit of an AOR review, such as the East Texas field. For FY 2013 there were no injection wells permitted without an Area of Review, and commercial disposal wells in the East Texas field are now subject to the AOR requirement. For FY 2013, there were no commercial disposal wells permitted within the East Texas field footprint.

The Railroad Commission continued to perform reviews for operator compliance with well completion and operation requirements at a significant rate. In FY 2013, UIC staff performed 40,635 compliance reviews. Enforcement actions totaled 9,624 for injection/disposal wells. Most of the actions were notices of violation for failure to timely file the annual reporting forms (6,908) or to conduct a pressure test within the time period scheduled by the commission (2,708). Commission staff also sent violation notices for 8 operating violations, primarily for operating without an injection or disposal permit. Operators brought most wells into compliance as directed by the violation notice letters, which precluded the need for stronger enforcement actions. In FY 2013, the Commission issued seal orders for 112 disposal/injection wells and severed pipeline connections on 1,158 leases due to delinquent annual reporting forms and failure to conduct their required pressure tests.

The Form H-10 online filing system has continued to increase the availability of injection and disposal volumes for public as well as internal queries. It has also continued to increase the number of annual reviews of UIC permit compliance according to information submitted on each H-10 form. The H-10 online system initiated the review and subsequent mailing of 871 permit violation letters representing 2,546 violations for 1,770 wells in FY 2013. Follow-up enforcement for these violation letters in the form of seal and pipeline severance orders numbered 43.

The Commissioners signed 26 consent agreements and administrative orders for enforcement actions under Rule 46 (13 actions) and Rule 9 (13 actions). Enforcement actions initiated by Railroad Commission staff recovered \$146,262.50 for violations associated with injection and disposal wells.

The Railroad Commission maintains more stringent permitting criteria for disposal wells in the Fort Worth Basin and other areas of Texas experiencing similar development trends. Applicants for commercial disposal of any amount and/or lease disposal over 5000 bbls per day who wish to inject above the Ellenberger Formation in the Barnett Shale trend area are to provide pressure influence information demonstrating that the injected fluids will be confined to the injection interval. In FY 2013, the RRC received no applications that were subject to this procedure. Portions of the Brown Dolomite in the Texas Panhandle region is also an area of potential concern and the Commission has imposed special conditions that require some operators to obtain a bottom hole pressure measurement when certain wells are subject to annual mechanical integrity testing. Additionally, there was no cap rock injection permits issued in FY 2013.

The UIC staff has continued to study effects of a large increase in oil and gas waste disposal operations in the Rodessa formation of the tri-county area of Harrison, Panola, and Shelby Counties of east Texas related to development of the Haynesville Shale.

In FY 2013 the technical staff has continued to enhance their knowledge by visiting operator sites in order to help them perform their tasks more proficiently. These field trips included observing drilling operations, hydraulic fracturing operations, mechanical integrity testing, and viewing a salt dome facility. In FY 2013 RRC staff offered training to oil and gas operators with an Austin Expo and Seminars in San Antonio and Midland. Railroad Commission staff is pursuing possible future amendments to Statewide Rules 9 and 46 to incorporate current requirements, clarify language, update references, and add new requirements. To this end, staff has presented multiple workshops on this topic and will update the progress of this effort in FY 2014.

The UIC group continues to review and update the Injection/Disposal Well Permit Testing and Monitoring Seminar Manual as well as interactive data and information on the RRC website. In July of 2013 the public GIS Map Viewer was enhanced to provide modernized functionality with improved search and navigation through the GIS database, as well as providing nine distinct up-to-date base map layer options which include streets, aerial imagery, address locations, operator cleanup sites, and orphaned wells. These modifications, along with the continued ability to highlight commercial wells, make it easier for the permitting staff to ensure all wells are considered when reviewing pressure front analysis. It will also enhance the reviewer's ability to consider public interest issues within protested permit applications. It continues to reinforce the Commission's desire to provide service to both the public and industry.

The Commission's online system for filing and processing Completion Reports for Oil, Gas, and Injection wells (Forms W-2/G-1) has tracked approximately 2,218 completion packets for injection/disposal wells through the online system this fiscal year.

The RRC continues to improve the efficiency and effectiveness of its Class II program through the digitization of UIC well mechanical integrity test reports (Form H-5). With the EPA's Special Grant awarded for FY 2014 the Commission will continue the digitization of MIT files on a day forwards basis. In FY 2013, the Commission purchased 2 additional salinity meters that were distributed to district office staff for UIC related issues. Currently, each Commission District Office has at least one salinity meter and one combustible gas detection meter.

The EPA's Special Grant awarded for FY 2014 will enable the continued digitization of day forward injection and disposal permits. The Commission continues to work toward finalization of the agreement with the EPA to exchange Underground Injection Control (UIC) program data through the National Exchange Network.

The Railroad Commission continues to actively participate in UIC and other ground water protection issues that involve activities external to the Commission, including the Texas Groundwater Protection Committee (TGPC).



RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

September 29, 2014

MR. MIKE FRAZIER
GROUND WATER/UIC SECTION (6WQ-SG)
U. S. ENVIRONMENTAL PROTECTION AGENCY
1445 ROSS AVE
DALLAS TX 75202-2733

RE: FY 2014 UIC ANNUAL NARRATIVE

Dear Mr. Frazier,

Attached is the Railroad Commission's Annual Narrative Report for its Underground Injection Control activities during the state fiscal year 2014.

We will be glad to discuss any of the Annual Narrative items. Please call me at (512) 463-3011 or email david.hill@rrc.state.tx.us if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "David Hill".

David Hill, P.E., P.G.
Manager for Injection-Storage
Permits and Support

DH/sam

Attachments

RECEIVED
SOURCE WATER
PROTECTION BRANCH
14 OCT -6 AM 7:49
6WQ-S

UIC permitting procedures can also be found at <http://www.rrc.state.tx.us/divisions/og/uic/manual/HTML/index.html>.

ANNUAL NARRATIVE OF UIC ACTIVITIES FOR STATE FY 2014

The following is a description of the Railroad Commission's activities and accomplishments in administering the Underground Injection Program for Class II injection wells, hydrocarbon storage wells, and Class III brine mining wells in the state fiscal year 2014.

The Railroad Commission processed 49,751 annual reporting forms (Form H-10) for disposal/injection wells and 622 annual reporting forms (Form H-10H) for hydrocarbon storage and brine mining wells. The inventory of UIC wells was 56,371 at the end of FY 2014.

In FY 2014, staff received and reviewed 20,642 reports for mechanical integrity pressure tests of disposal/injection wells. The operators reported RRC inspectors witnessed 6,328 (31%) of the integrity tests. However, the district offices reported inspectors witnessed 8,899 mechanical integrity tests of 20,642 tests (43%) that operators performed. The Railroad Commission continues to enforce the requirement of filing test reports for wells that failed the mechanical integrity test. District offices inspection of credible wellhead monitoring to obtain tubing-casing annulus credit (TCAM) resulted in 38 additional district office inspections for extension to MIT testing in FY 2014. The continuing increase in the number and percentage of witnessed tests in FY 2014 reflects the Commission's continuing effort in this program activity area.

Efforts are ongoing to upgrade the technology applications needed to more efficiently process the H-5s including a two-year, multi-million dollar, IT modernization project with a significant module that has the specific goal of moving to an 'on-line' H-5 scheduling and filing system. Future changes in staffing levels may occur as report volumes and processing times are evaluated.

An additional 23 injection/disposal wells had radioactive tracer surveys or temperature surveys performed and reported instead of pressure tests. Operators also performed mechanical integrity tests on 54 hydrocarbon storage wells and 44 brine-mining wells.

The Railroad Commission's district offices reported 24,949 routine inspections of injection, disposal, and storage wells in FY 2014. The district offices continue to maintain a high level of activity in support of the Underground Injection Control program.

The Railroad Commission received 2,761 applications for 3,423 disposal/injection wells. In FY 2014, the Commission issued 3,041 permits for 3,836 wells. UIC staff sent 149 applications to Docket Services for resolution by public hearing. The Railroad Commission received 16 applications for 16 brine-mining wells, and 15 new permits for 15 wells were issued in FY 2014. The Commission received 5 expansion applications for a total of 41 hydrocarbon storage wells. The Commission received 1 amended application for a salt cavern disposal well in FY 2014.

The East Texas field is the only area in which UIC wells are permitted without the benefit of an Area of Review (AOR). For FY 2014 there were 32 new injection wells permitted without an AOR, and these were non-commercial. Commercial disposal wells in the East Texas

field are subject to the AOR requirement. For FY 2014, there were no commercial disposal wells permitted within the East Texas field footprint.

The Railroad Commission continued to perform reviews for operator compliance with well completion and operation requirements at a significant rate. In FY 2014, UIC staff performed 40,416 compliance reviews. Enforcement actions totaled 9,134 for injection/disposal wells. Most of the actions were notices of violation for failure to timely file the annual reporting forms (6,075) or to conduct a pressure test within the time period scheduled by the commission (2,874). Commission staff also sent violation notices for 14 operating violations, primarily for operating in an unauthorized zone. Operators brought most wells into compliance as directed by the violation notice letters, which precluded the need for stronger enforcement actions. In FY 2014, the Commission issued seal orders for 95 disposal/injection wells and severed pipeline connections on 944 leases due to delinquent annual reporting forms and failure to conduct their required pressure tests.

The Form H-10 online filing system has continued to increase the availability of injection and disposal volumes for public as well as internal queries. It has also continued to increase the number of annual reviews of UIC permit compliance according to information submitted on each H-10 form. The H-10 online system initiated the review and subsequent mailing of 819 permit violation letters representing 2,278 violations for 1,539 wells in FY 2014. Follow-up enforcement for these violation letters in the form of seal and pipeline severance orders numbered 72.

The Commissioners signed 42 consent agreements and administrative orders for enforcement actions under Rule 46 (33 actions) and Rule 9 (18 actions). Enforcement actions initiated by Railroad Commission staff recovered \$579,109.00 for violations associated with injection and disposal wells. In FY 2014 there were 978 UIC seal orders and pipeline severances resulting in \$733,500.00 lease reconnection fees.

The Railroad Commission maintains more stringent permitting criteria for disposal wells in the Fort Worth Basin and other areas of Texas experiencing similar development trends. Applicants for commercial disposal of any amount and/or lease disposal over 5000 bbls per day who wish to inject above the Barnett Shale Formation in the Barnett Shale trend area are to provide pressure influence information demonstrating that the injected fluids will be confined to the injection interval. Permitted injection below the Barnett Shale Formation, in the Ellenburger Formation, must be at least 250 feet below the top of the Ellenburger Formation, and is restricted to a maximum of 25,000 barrels per day. In FY 2014, the RRC received no applications that were subject to this procedure. Portions of the Brown Dolomite in the Texas Panhandle region is also an area of potential concern and the Commission has imposed special conditions that require some operators to obtain a bottom hole pressure measurement when certain wells are subject to annual mechanical integrity testing. Additionally, there were 3 new cap rock injection permits issued in FY 2014.

The UIC staff has continued to study effects of a large increase in oil and gas waste disposal operations in the Rodessa formation of the tri-county area of Harrison, Panola, and Shelby Counties of east Texas related to development of the Haynesville Shale.

In FY 2014 the technical staff has continued to enhance their knowledge by visiting operator sites in order to help them perform their tasks more proficiently. These field trips include observing drilling operations, hydraulic fracturing operations, mechanical integrity testing, and viewing salt dome facilities. In FY 2014 RRC staff offered training to oil and gas operators with an Austin Regulatory Conference in September 2013 and a Completion Report Workshop in February 2014. Seminars were held in Midland, Houston, and San Antonio. Railroad Commission staff is still considering possible future amendments to Statewide Rules 9 and 46 to incorporate current requirements, clarify language, update references, and add new requirements.

In June 2014, the RRC launched a new website as part of the agency's IT Modernization program. The new website allows us to keep pace with the regulated industry, as well as providing greater ease and access to our agency's data. The July 2013 enhancement of the public GIS Map Viewer improved the search and base map layers of the GIS database. In October 2014, the public GIS Map Viewer will be enhanced again, this time to provide navigation capabilities by surveys, lease IDs, and pipeline permits. All of these modifications aid the permitting staff in ensuring that all well types are considered when reviewing permits. It also enhances the reviewer's ability to consider public interest issues within protested permit applications. The enhanced GIS Viewer continues to reinforce the Commission's desire to provide service to both the public and industry.

The Commission's online system for filing and processing Completion Reports for Oil, Gas, and Injection wells (Forms W-2/G-1) has tracked approximately 2,669 completion packets for injection/disposal wells through the online system this fiscal year.

The RRC continues to improve the efficiency and effectiveness of its Class II program through the digitization of UIC well mechanical integrity test reports (Form H-5). Using FY 2014 Special Project funds, the Commission was able to scan 11,722 MIT documents in the six month period from February 2014 to August 2014. In FY 2014, the Commission purchased 17 additional salinity meters that were distributed to district office staff for UIC related issues. Currently, each Commission District Office is equipped with salinity meters and a combustible gas detection meter.

The EPA's Special Grant awarded for FY 2015 will enable the continued digitization of day forward injection and disposal permits, as well as MIT files. The Commission continues to work toward finalization of the agreement with the EPA to exchange Underground Injection Control (UIC) program data through the National Exchange Network.

The Railroad Commission continues to actively participate in UIC and other ground water protection issues that involve activities external to the Commission, including the Texas Groundwater Protection Committee (TGPC).

DAVID PORTER, CHAIRMAN
CHRISTI CRADDICK, COMMISSIONER
RYAN SITTON, COMMISSIONER



LORI WROTENBERY,
DIRECTOR, OIL AND GAS DIVISION
LESLIE SAVAGE, P.G.,
ASSISTANT DIRECTOR, TECHNICAL PERMITTING

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

September 28, 2015

MR. MIKE FRAZIER
GROUND WATER/UIC SECTION (6WQ-SG)
U. S. ENVIRONMENTAL PROTECTION AGENCY
1445 ROSS AVE
DALLAS TX 75202-2733

RE: FY 2015 UIC ANNUAL NARRATIVE

Dear Mr. Frazier,

Attached is the Railroad Commission's Annual Narrative Report for its Underground Injection Control activities during the state fiscal year 2015.

We will be glad to discuss any of the Annual Narrative items. Please call me at (512) 463-3011 or email david.hill@rrc.texas.gov if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "David Hill".

David Hill, P.E., P.G.
Manager for Injection-Storage
Permits and Support

DH/sam

Attachments

ANNUAL NARRATIVE OF UIC ACTIVITIES FOR STATE FY 2015

The following is a description of the Railroad Commission's activities and accomplishments in administering the Underground Injection Program for Class II injection wells, hydrocarbon storage wells, and Class III brine mining wells in the state fiscal year 2015.

The Railroad Commission processed 53,895 annual reporting forms (Form H-10) for disposal/injection wells and 445 annual reporting forms (Form H-10H) for hydrocarbon storage and brine mining wells. The inventory of UIC wells was 56,330 at the end of FY 2015.

In FY 2015, staff received and reviewed 19,069 reports for mechanical integrity pressure tests of disposal/injection wells. The operators reported RRC inspectors witnessed 6,444 (34%) of the integrity tests. However, the district offices reported inspectors witnessed 7,140 mechanical integrity tests of 19,069 tests (37%) that operators performed. The Railroad Commission continues to enforce the requirement of filing test reports for wells that failed the mechanical integrity test. The district offices inspections of credible wellhead monitoring to obtain tubing-casing annulus credit (TCAM) resulted in 40 additional district office inspections for extension to MIT testing in FY 2015.

Due to cost and scheduling constraints the effort to upgrade the H-5 processing to an 'on-line' H-5 scheduling and filing system has been rescheduled. However, with the additional staffing, the Mechanical Integrity Tests are being processed immediately. Once processed, the imaged Form H-5 is instantly available for viewing online.

An additional 81 injection/disposal wells had radioactive tracer surveys or temperature surveys performed and reported instead of pressure tests. Operators also performed mechanical integrity tests on 95 hydrocarbon storage wells and 33 brine-mining wells.

The Railroad Commission's district offices reported 22,255 routine inspections of injection, disposal, and storage wells in FY 2015. The district offices continue to maintain a high level of activity in support of the Underground Injection Control program.

The Railroad Commission received 2,327 applications for 2,671 disposal/injection wells. In FY 2015, the Commission issued 2,183 permits for 2,599 wells. UIC staff sent 230 applications to Docket Services for resolution by public hearing. The Railroad Commission received 19 applications for 41 brine-mining wells, and issued 12 new permits for 34 wells and 5 amended permits for 6 wells in FY 2015. The Commission received no new applications and 6 expansion applications for a total of 32 hydrocarbon storage wells, and issued 4 amended permits for 8 wells. The Commission received 3 new applications and 1 amended application for salt cavern disposal wells in FY 2015. Additionally, there were 2 new and 3 amended cap rock injection permits issued in FY 2015.

The East Texas Field is the only area in which Rule 46 UIC wells are permitted without the benefit of an AOR review. For FY 2015, there were 8 new and 3 amended non-commercial injection wells permitted without an Area of Review. Commercial disposal wells in the East Texas field are subject to the AOR requirement and special permit conditions that include open-hole logs to verify formation tops, cement bond logs to confirm formation isolation, and

radioactive tracer surveys to ensure continued injection confinement. These permit conditions are now standard with all operations witnessed by District Office staff. For FY 2015, there were no commercial disposal wells permitted within the East Texas field footprint.

The Railroad Commission maintains more stringent permitting criteria for disposal wells in the Fort Worth Basin and other areas of Texas experiencing similar development trends. Applicants for commercial disposal of any amount and/or lease disposal over 5000 bbls per day who wish to inject above the Barnett Shale Formation in the Barnett Shale trend area are to provide pressure influence information demonstrating that the injected fluids will be confined to the injection interval. In FY 2015, the RRC received no applications for injection above the Ellenburger Formation. Permitted injection below the Barnett Shale Formation, in the Ellenburger Formation, must be at least 250 feet below the top of the Ellenburger Formation, and is restricted to a maximum of 25,000 barrels per day. In FY 2015, there were 1 new and 1 amended applications received for injection below the Ellenburger Formation which are subject to these requirements.

Portions of the Brown Dolomite in the Texas Panhandle region is also an area of potential concern and the Commission has imposed special conditions that require some operators to obtain a bottom hole pressure (BHP) measurement when certain wells are subject to annual mechanical integrity testing.

The UIC staff has continued to study effects of a large increase in oil and gas waste disposal operations in the Rodessa formation of the tri-county area of Harrison, Panola, and Shelby Counties of east Texas related to development of the Haynesville Shale. In FY 2015, 8 new permits were granted with the BHP special condition. The test results will be submitted to and reviewed by UIC staff.

The Railroad Commission continued to perform reviews for operator compliance with well completion and operation requirements at a significant rate. In FY 2015, UIC staff performed 37,394 compliance reviews. Enforcement actions totaled 7,841 for injection/disposal wells. Most of the actions were notices of violation for failure to timely file the annual reporting forms (4,592) or to conduct a pressure test within the time period scheduled by the commission (3,206). Commission staff also sent violation notices for 5 operating violations, primarily for operating in an unauthorized zone. Operators brought most wells into compliance as directed by the violation notice letters, which precluded the need for stronger enforcement actions. In FY 2015, the Commission issued seal orders for 113 disposal/injection wells and severed pipeline connections on 693 leases due to delinquent annual reporting forms and failure to conduct their required pressure tests.

The Form H-10 online filing system has continued to increase the availability of injection and disposal volumes for public as well as internal queries. It has also continued to increase the number of annual reviews of UIC permit compliance according to information submitted on each H-10 form. The H-10 online system initiated the review and subsequent mailing of 853 permit violation letters representing 2,517 violations for 1,804 wells in FY 2015. Follow-up enforcement for these violation letters in the form of seal and pipeline severance orders numbered 50.

The Commissioners signed 13 consent agreements and administrative orders for enforcement actions under Rule 46 (10 actions), Rule 9 (2 actions), and Rule 81 (1 action). Enforcement actions initiated by Railroad Commission staff recovered \$438,788.00 for violations associated with injection, disposal, and brine mining wells. In FY 2015 there were 745 UIC seal orders and pipeline severances resulting in \$558,750.00 lease reconnection fees.

In January 2015, UIC staff attended, and senior staff presented talks on groundwater protection topics at the annual GWPC Conference held in Austin. Senior staff traveled to Philadelphia in April 2015 for the EPA UIC Training. In July 2015, RRC staff conducted a Seminar in Austin for continued operator training. In FY 2015 the technical staff has continued to enhance their knowledge by visiting operator sites in order to help them perform their tasks more proficiently. These field trips include observing drilling operations, hydraulic fracturing operations, mechanical integrity testing, and viewing salt dome facilities. Railroad Commission staff is still considering possible future amendments to Statewide Rules 9 and 46 to incorporate current requirements, clarify language, update references, and add new requirements.

Effective November 2014, Statewide Rule 9 and 46 were amended requiring operators to provide information from the United States Geological Survey (USGS) regarding the locations of any historical seismic events within a circular area of 100 square miles centered around the proposed disposal well location. This applies to all new disposal wells and similar amendment applications where pressure, volume, or interval changes are requested.

As of December 2014, the new public GIS Map Viewer was launched to provide navigation capabilities by surveys, lease ID's, and pipeline permits. All of these modifications aid the permitting staff in ensuring that all well types are considered when reviewing permits. It also enhances the reviewer's ability to consider public interest issues within protested permit applications. The enhanced GIS Viewer continues to reinforce the Commission's desire to provide service to both the public and industry.

The Commission's online system for filing and processing Completion Reports for Oil, Gas, and Injection wells (Forms W-2/G-1) has tracked approximately 3,172 completion packets for injection/disposal wells through the online system this fiscal year.

The RRC continues to improve the efficiency and effectiveness of its Class II program through the digitization of UIC well mechanical integrity test reports (Form H-5). With the EPA's Special Grant awarded for FY 2016 the Commission will continue the digitization of MIT files on a day forward basis.

The EPA's Special Grant awarded for FY 2016 will enable the continued digitization of day forward injection and disposal permits. The Commission continues to work toward finalization of the agreement with the EPA to exchange Underground Injection Control (UIC) program data through the National Exchange Network.

The Railroad Commission continues to actively participate in UIC and other ground water protection issues that involve activities external to the Commission, including the Texas Groundwater Protection Committee (TGPC).

Appendix II

1. May 19, 2014, EPA letter to RRC regarding East Texas pressure build-up issue.
2. September 29, 2014, EPA proposed denial package for Pergan Marshall LLC exemption petition.
3. March 29, 1982, EPA/RRC primacy letter agreement on aquifer exemptions.
4. July 14, 2015, EPA letter to RRC related to aquifer exemptions.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAY 19 2014

Mr. Gil Bujano
Director, Oil and Gas Division
Railroad Commission of Texas
1701 North Congress Avenue
P.O. Box 12967
Austin, TX 78711-2967

CERTIFIED MAIL 7010 2780 0002 4354 1505 RETURN RECEIPT REQUESTED

Dear Mr. Bujano:

We understand your agency recognizes the problem of regional pressure buildup from authorized Class II disposal into geologic formations in East Texas, specifically in Shelby, Panola, and Harrison Counties. EPA Region 6 has received multiple submittals of relevant information about this problem from your office and from Pergan Marshall LLC ("Pergan"), the operator of a hazardous waste disposal well in Harrison County. Our initial evaluation of these data identified critical problems with Pergan's "no migration" reissuance application. As such, we also understand there are likely pressure impacts from Class II disposal in East Texas on Pergan's Class I disposal operations jointly authorized by the Texas Commission on Environmental Quality and EPA's Land Ban exemption.

The most recent information we received from your office provides specific details about multiple disposal formation pressure-related problems recognized by your agency in this three county area, including high bradenhead pressures in oil and gas production wells, construction problems with existing and new production wells, and the apparent pressure effect of authorized Class II disposal operations on Pergan's hazardous waste disposal operations. Potential injection induced seismicity may also be of concern.

Sometime this summer, Pergan will conduct testing to evaluate the ability of their hazardous waste disposal well to continue to comply with the formation pressure limit in the EPA approved Land Ban "no migration" demonstration. If their operations no longer meet that demonstration, EPA anticipates Pergan will no longer be able to use their disposal well. This could impact Pergan's ability to operate their Marshall chemical plant.

In addition to the impacts described above, we are concerned the East Texas pressure buildup situation may pose significant risk to underground sources of drinking water (USDWs) in the area. Finally, we believe there may be potential litigation or liability issues should the pressure buildup result in the violation of the land disposal restrictions; specifically, if the pressure buildup results in migration of historically injected restricted hazardous waste from the injection zone.

We look forward to continuing to work with you to find a solution to this issue and ensure that USDWs in East Texas are protected. Please let us know what assistance we can provide you in this effort.

If you would like to discuss these matters or have questions, please contact me or Philip Dellinger of my staff at (214) 665-8324.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'W.K. Honker', written in a cursive style.

William K. Honker, P.E.

Director

Water Quality Protection Division

cc: Charles Maguire, Radioactive Materials Division Director TCEQ (MC 233)
Jerry Saunders, 6EN-W



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

SEP 29 2014

CERTIFIED MAIL 7010 2780 0002 4354 1512 RETURN RECEIPT REQUESTED

Mr. Tim Rens
Manufacturing Director, N.A.
710-B Bussey Road
Marshall, TX 75670

RE: Pergan Marshall, LLC - Proposed Petition Reissuance Denial Decision

Dear Mr. Rens:

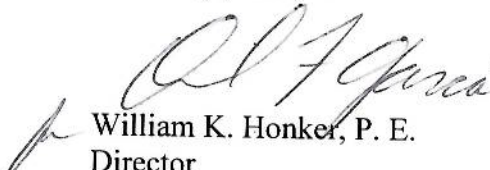
Based on a detailed technical review of the submitted petition reissuance and supporting documents, EPA is proposing to deny the Pergan Marshall, LLC petition reissuance request. This request is seeking the reissuance of an exemption to the land disposal restrictions of the Hazardous and Solid Waste Amendments of 1984, to the Resource Conservation and Recovery Act.

The reason for the proposed denial of this reissuance request is based on the recent dramatic increase in the reservoir pressure that prevents Pergan from demonstrating that they can meet the non-endangerment and no migration standards. EPA acknowledges that this dramatic reservoir pressure increase is due to multiple Class II injection wells permitted by the Railroad Commission of Texas in recent years and currently operating around Pergan's site. The negative impact of these Class II injectors on the injection interval pressure conditions does not change Pergan's regulatory burden for the demonstration.

Enclosed are the public notice and the fact sheet document associated with this proposed decision. A final decision regarding this petition reissuance will be made after the end of the public comment period.

If you have any questions regarding this matter, please call Brian Graves (214) 665-7193.

Sincerely yours,


William K. Honker, P. E.
Director
Water Quality Protection Division

Enclosures

cc: Lorrie Council, TCEQ
Rich Heitzenrater, TCEQ Region 14

PUBLIC NOTICE OF A PROPOSED HAZARDOUS WASTE EXEMPTION REISSUANCE DENIAL

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

The U.S. Environmental Protection Agency (EPA), Region 6, proposes to deny a reissuance of a petition for an exemption to the land disposal restrictions of the Hazardous and Solid Waste Amendments of 1984 (HSWA) to the Resource Conservation and Recovery Act (42 U.S.C. §6901, et seq) for the following facility:

Applicant:	Pergan Marshall, LLC Marshall Texas Plant
Facility Location:	710-B Bussey Road Marshall, TX 75670
Injection Well Permit Numbers:	WDW-180 & 243

Development of the proposed decision was based on a detailed technical review of the submitted petition reissuance request with support documents.

The land disposal restrictions prohibit the injection of untreated restricted hazardous waste. However, the amendments mentioned above provide that an exemption to these restrictions may be granted if the Administrator determines that the method of land disposal (i.e., injection well) is protective of human health and the environment. A method of land disposal may not be determined to be protective, "unless, upon application by an interested person, it has been demonstrated to the Administrator, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit or injection zone for as long as the wastes remain hazardous." (42 U.S.C. § 6924 (g)(5)) Regulations establishing the criteria for petitioning for an exemption to the land disposal restrictions were published in Volume 53, Number 143 of the Federal Register, July 26, 1988, (53 Fed. Reg. 28118 (1988)). Those regulations are now codified at 40 CFR Part 148.

A final decision for this reissuance of a petition for an exemption to the land disposal restrictions request will be made after the close of the comment period, which ends at the close of business on November 18, 2014.

All persons, including the applicant, who wish to comment on the proposed decision to deny the petition reissuance may do so by submitting comments along with their name and address to the EPA address shown below. All written comments must be postmarked by November 18, 2014, to be considered in formulating a final decision. EPA is not required to hold a public hearing. However, if there is sufficient public interest in the proposed decision, EPA may hold a public hearing. Anyone desiring such a hearing must submit a written request identifying the issue(s) for discussion at the hearing to the office in Dallas, Texas, before the close of business on November 18, 2014. EPA will give at least 30 days notice of a public hearing, if a hearing is held.

Written comments, requests for information regarding the Agency's decision on this petition reissuance, and requests for copies of the fact sheet (description of the rationale supporting the proposed decision)

should be sent to EPA Region 6 at the address shown below. Information on the Agency's decision may also be obtained by contacting Brian Graves at (214) 665-7193 or graves.brian@epa.gov.

U.S. Environmental Protection Agency - Region 6
Source Water Protection Branch (6WQ-S)
1445 Ross Avenue
Dallas, Texas 75202-2733

The administrative record for the proposed petition decision is available for review beginning October 2, 2014, between 8:00 a.m. and 4:00 p.m., Monday through Friday, for the extent of the comment period, at EPA's Dallas office shown above.

Pertinent EPA comment and public hearing procedures may be found in 40 CFR §124.10 and §124.12.

EPA will notify the applicant and each person who has submitted written comments of the final reissuance of an exemption decision. The final decision will also be published in the Federal Register.

September 18, 2014

FACT SHEET

EPA is proposing to deny a reissuance of an exemption to the land disposal restrictions for the following injection well facility:

Applicant:	Pergan Marshall, LLC Marshall Texas Plant
Street Address:	710-B Bussey Road Marshall, TX 75670
Mailing Address:	710-B Bussey Road Marshall, TX 75670
Permit Numbers:	WDW-180 WDW-243
Issuing Office:	U.S. Environmental Protection Agency Region 6 1445 Ross Avenue Dallas, TX 75202-2733

Decision

The Environmental Protection Agency (EPA) proposes to deny the Pergan Marshall, LLC (Pergan) reissuance of an exemption to the land disposal restrictions request for the following reasons:

1. Pergan failed to demonstrate that fluids will not move from the injection zone into an Underground Source of Drinking Water (USDW) through area artificial penetrations, thereby failing the non-endangerment standard.
2. Pergan failed to demonstrate that hazardous waste will not migrate from the injection zone through area artificial penetrations, thereby failing the no migration standard.
3. The reissuance demonstration pressure buildup model, submitted by Pergan, could not properly account for the reservoir pressure increase effects of multiple Class II disposal wells in the Pergan facility area.

The following explains the derivation of the proposed decision, which is categorized according to the criteria outlined in 40 CFR Part 148. [53 Fed. Reg., 28118, (7/26/88)]

Summary

The EPA land disposal restrictions promulgated under Section 3004 of the Resource Conservation and Recovery Act prohibit the injection of restricted hazardous waste unless a

petitioner demonstrates to the EPA there will be no migration of hazardous constituents from the injection zone for as long as the waste remains hazardous. These no migration demonstrations must meet the regulatory standards promulgated in 40 CFR 148 Subpart C. The demonstration includes a description of the well operations, geologic siting, and waste stream characteristics. The demonstration also includes modeling strategies which incorporate all the previously mentioned information and utilize mathematical equations to predict injection reservoir pressure buildup and injected waste movement.

Pergan submitted its initial version of a petition reissuance application in 2003 to renew its original petition, which was approved 11/5/91, and to add a new injection well. Between 2003 and 2014, the facility underwent several changes in ownership, made multiple reissuance document submittals, changed their underground injection control (UIC) technical contractor several times, and received multiple notice of deficiencies from Region 6, both written and verbal. Pergan was allowed to continue injecting past the 12/31/10 cessation of injection date of their original petition because they had submitted a reissuance application prior to this cessation date and EPA Region 6 had not made a decision whether to approve or deny Pergan's reissuance application.

Starting in 2005 and continuing to 2014, Class II injection activity in the same injection interval as the Pergan injection wells increased significantly within a 15 mile radius around the Pergan facility, both in terms of active wells and injection volumes. The Class II injection well permitting program is administered by the Railroad Commission of Texas (RRC). The RRC permitted the Class II wells based on a ¼ mile area of review around each injector and did not consider the interaction between several injectors in a common large laterally continuous disposal interval area which can lead to undesirable reservoir pressure buildup effects.

Under 40 CFR §146.68(e), an annual falloff test is required for Class I hazardous waste injection wells. Pergan, as part of its compliance with its existing petition, submitted annual falloffs tests for WDW-243 to EPA for review. Beginning in 2006, an upward trend in static reservoir pressure was noted on the facility falloff test data as shown in enclosed figure. The increasing static pressure trend became more pronounced in 2007 through 2012. The static pressure leveled off in 2013 before again rising in 2014. In 2014 the flowing bottomhole pressure finally exceeded the compliance limit of Pergan's 11/5/91 approved petition. During the same period, multiple Class II injection wells were permitted by RRC and began injecting into the Rodessa formation.

Pergan's site geology, submitted as part of its reissuance application, demonstrated the continuous areal extent of its injection interval, the Rodessa formation, over a multi-mile area which correlated to the completion intervals for these newly operating Class II injectors. Accordingly, Pergan submitted revisions to the reissuance pressure buildup demonstration modeling in 2008, 2012, and 2013, attempting to account for the contributions of various area Class II injectors in the Rodessa formation.

The 2012 reissuance modeling submittal was also provided to the Texas Commission on Environmental Quality (TCEQ) which administers the Class I injection well program in Texas

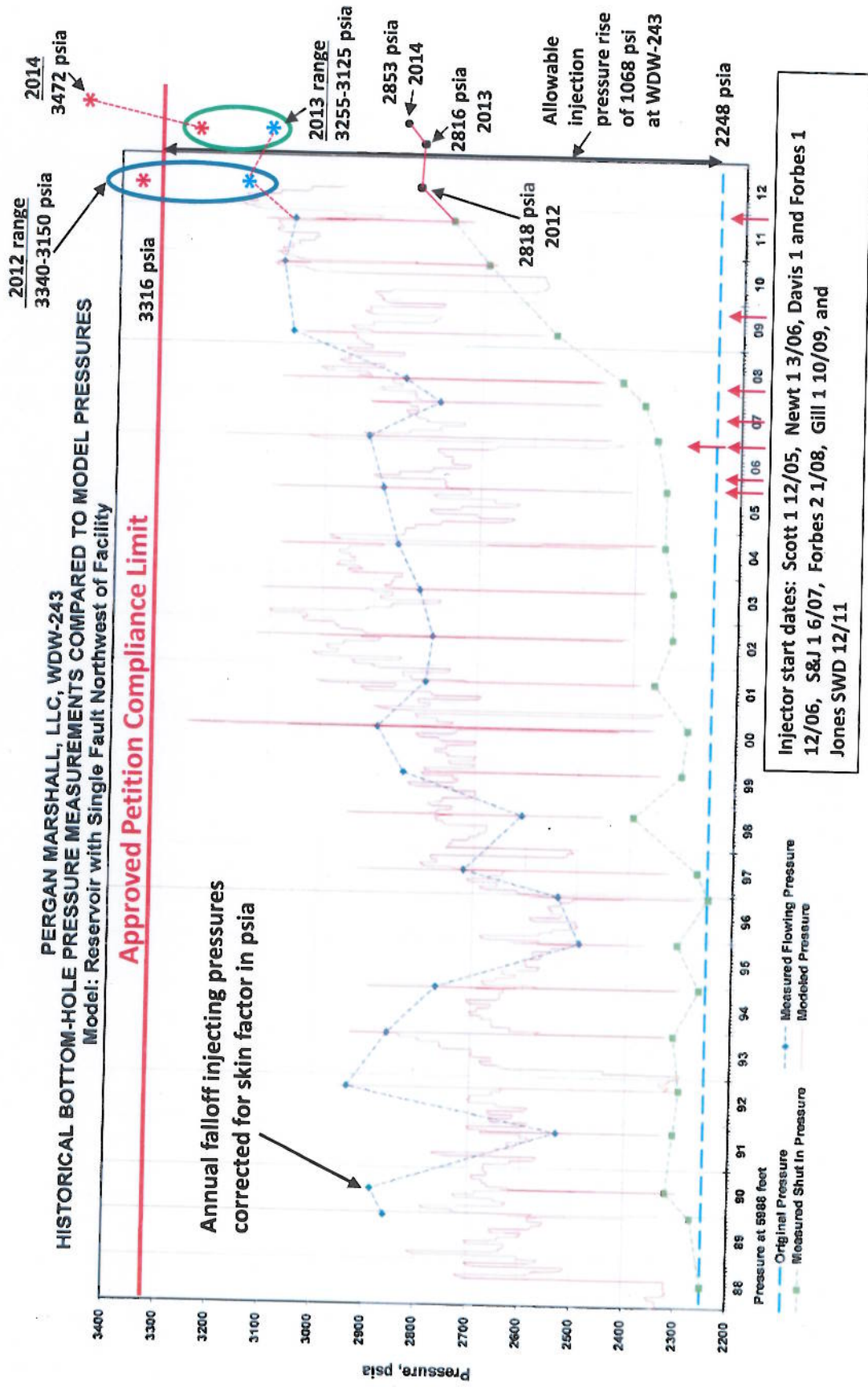
for all aspects other than no migration petition approval, including endangerment concerns. The 2012 submittal predicted potential worst case endangerment of underground sources of drinking water occurring at several area artificial penetrations in the Pergan area beginning as early as July 2013 and continuing into 2020 when the requested reissuance operating period would end. Both the 2012 and 2013 pressure buildup modeling were unable to match the operating pressures and injection volumes at the area Class II injection wells included in the model setup and may not account for all area injectors contributing to the reservoir static pressure increase.

EPA notes that in reviewing the reissuance demonstration modeling provided by Pergan, the majority of the pressure buildup in the reservoir has and would continue to be caused by Class II injection activity, not Pergan's Class I injection. The reservoir pressure buildup is projected to continue even with Pergan ceasing Class I injection due to the large Class II injection volume into the Rodessa formation.

Conclusions

Based on a detailed and thorough review of the Pergan reissuance document, the EPA proposes to deny the Pergan petition reissuance application for an exemption to the land disposal restrictions. This decision is based on Pergan's failure to meet both the no migration standard described in 40 CFR Part 148 and the non-endangerment standard described in 40 CFR Part 146, due to reservoir pressure buildup.

Pergan Static Reservoir Pressure Trend



APR 1 1982

O.G. - UIC.
AUSTIN, TEXAS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1201 ELM STREET
DALLAS, TEXAS 75270

March 29, 1982

Jerry Mullican
Director of Underground Injection Control
Texas Railroad Commission
Oil and Gas Division
P. O. Drawer 12967, Capitol Station
Austin, Texas 78711

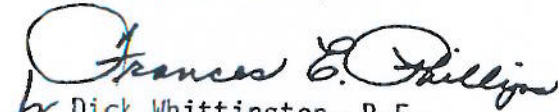
Dear Mr. Mullican:

Thank you for meeting with the Environmental Protection Agency (EPA) Headquarters and Regional staff in Washington, D.C. on March 26, 1982, to discuss the Texas Railroad Commission's (TRC) application for the Underground Injection Control (UIC) program under section 1425 of the Safe Drinking Water Act. As a result of this meeting, it is my understanding that the following practices will be implemented regarding aquifer exemptions:

- (1) EPA will recognize and approve aquifer exemptions for all existing production zones with the initial program approval. As stated in your letter of March 21, 1982, you will supply maps of the productive zones.
- (2) If any expansion of current production zones necessitates the extension of an exempted aquifer in the same horizon, the TRC will send the permit application for any proposed injection into this extended area to EPA Region 6 for concurrence prior to issuance of the permit.
- (3) EPA will take action on any application submitted under item #2 above within five working days.
- (4) Extension of aquifer exemptions for production zones will not be granted if the area proposed for exemption is currently being used as a drinking water source. This will be examined in the area of review for any proposed injection well in the area proposed for exemption.
- (5) Aquifer exemptions for any new production fields, or for any non-producing zones, will be submitted for EPA concurrence as outlined in 40 CFR 122.35 (b).

Please inform me immediately of your concurrence or nonconcurrence with the above points. Your letters of March 10, and March 21, 1982, satisfied all other concerns, and your concurrence with the above points will enable us to move forward with full approval of your program.

Sincerely yours,


for Dick Whittington, P.E.
Regional Administrator

cc: Alan Levin, WH-550

CONCUR:  Date: 4/1/82

NONCONCUR: _____ Date: _____



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 - 2733

July 14, 2015

Ms. Leslie Savage, Chief Geologist
Railroad Commission of Texas
P.O. Box 12967
Austin, TX 78711-2967

Dear Ms. Savage:

Thank you for arranging and participating in the meeting in Austin on December 19, 2014, between yourself, Milton Rister, Craig Pearson and Dave Hill of the Railroad Commission of Texas (RRC), and Philip Dellinger and Mike Frazier of my staff. I understand the discussions on a path forward for aquifer exemptions related to oil and gas production were productive. As mentioned in those discussions, Environmental Protection Agency (EPA) representatives were to prepare a letter documenting the agreements that were reached during this meeting, which is the purpose of this document.

Initially, you mentioned that authorization records for injection wells related to oilfields producing from Underground Sources of Drinking Water (USDWs) exist in your database, but would take significant resources to identify. Both yourself and Dave Hill reiterated the point that there are very few (<10) of these oilfields that have been authorized from the time of delegation in 1982. We understand the RRC imposes strict controls on injection wells associated with these fields, including no injection of lesser quality water than that being produced, and requirements that result in a net decrease in fluid volumes in the reservoir, thus creating a negative hydraulic gradient. Because of the administrative burden that identification of the records for these fields would create for the RRC, your representatives proposed finding records for one of these fields to demonstrate the low risk these operations pose to drinking water wells.

In addition, an agreement was made that from this point forward, the RRC will pursue aquifer exemptions for new oil and gas related injection operations in any new applicable field prior to granting injection well permits for these operations. EPA representatives are in agreement with this path forward and requested that the rationale for this approach (resource constraints, description of safeguards in existing permits, etc.) be described in detail in a letter from the RRC. The description should indicate how future applications for injection into USDWs will be identified and differentiated for aquifer exemption. Finally, RRC solicited additional financial support to identify existing fields from the relevant database. To that end, EPA suggests that you prepare and submit a phased project proposal that begins with the aquifer exemptions from the time of delegation. EPA will then evaluate the proposal and seek appropriate funding to assist your work.

I am pleased with the consensus that was reached at the meeting and I am in support of the proposed approach outlined above. I look forward to the continued communication and cooperation between the RRC and EPA Region 6 in order to finalize a strategy for resolving aquifer exemption issues. If you have any questions or wish to discuss this matter further, please contact me at 214-665-7150 or Philip Dellinger at 214-665-8324.

Sincerely,

A handwritten signature in black ink, appearing to read 'WK Honker', with a stylized flourish at the end.

William K. Honker, P.E.

Director

Water Quality Protection Division

Appendix III

July 21, 2016, RRC letter containing comments on draft EPA
UIC EOY report dated June 30, 2016



RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

July 21, 2016

Philip Dellinger, Chief
Ground Water/UIC Section
U. S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202

Re: Environmental Protection Agency Region 6,
Draft FY2015 End-of-Year Underground Injection Control Evaluation Report

Dear Mr. Dellinger:

We appreciate the opportunity to review a draft of the referenced report. There are several sections in the report on which we would like to comment.

Chart 2 in Section 3.1, relating to Permitting, should indicate that the number of permit applications received, issued, and denied/withdrawn include applications to amend existing permits.

Section 3.3, relating to Class II Injection Well Inspections, Mechanical Integrity Testing, and Enforcement, states that "[A] large percentage, greater than 80 percent, of Class II wells are tested for mechanical integrity by a pressure test of the casing/tubing annulus." Greater than 95 percent of injection well permits require pressure testing to determine mechanical integrity.

Section 4.1 of the draft report, relating to Seismic Activity Correlated with Class II Disposal Injection, immediately after a discussion of "earthquake events in and near the city of Irving in Dallas County," includes a statement that "RRC has publicly stated that available scientific data do not support a correlation between recorded earthquakes and Class II waste disposal." This statement should be stricken because it is taken out of context and is, therefore, false and misleading. The Commission takes the issue of induced seismicity very seriously and has in place some of the most stringent rules on disposal wells. The Commission's actions demonstrate a clear recognition of the potential correlation between injection and seismic activity. Such actions include the Commission's hiring of a seismologist and adoption of amendments to its Class II disposal well regulations, effective November 17, 2014 (39 Texas Register 8988, November 14, 2014). These rules include new requirements for applications for wells proposed to be located within a 100 square mile radius of an historic seismic event or in an area where conditions, such as complex geology, proximity of the injection interval to the basement rock, and/or transmissive faults, exist that may increase the risk that fluids will not be confined to the injection interval. The amendments also clarify the Commission's authority to modify, suspend or terminate an existing permit if injection authorized by the permit is suspected of or shown to be causing seismic activity.

Since these new rules went into effect, the Railroad Commission has received 56 disposal well applications in areas of historic seismicity. Of these, 28 permits have been issued with special conditions, such as requirements to reduce maximum daily injection volumes and pressure and/or to record volumes and pressures daily as opposed to monthly. Eleven applications were returned or withdrawn. Three applications were protested and sent to hearing. Ten permits were issued without special conditions, and four applications are pending.

Section 4.1 of the draft report includes a recommendation that the Commission closely monitor “injection activity through daily recording and reporting of accurate injection pressures and volumes from area disposal wells, coupled with appropriate data analysis methods, in a coordinated effort to detect possible correspondence with seismic activity.” The Commission will continue to monitor seismic activity in Texas, and will require daily recording of accurate pressures and volumes for appropriate wells. Monitoring will be greatly assisted by the TexNet Seismic Monitoring Program (TexNet) administered through the University of Texas at Austin’s Bureau of Economic Geology (BEG). TexNet will enhance the ability of the State of Texas to gather information about subsurface seismic activity by placing seismometers throughout the state and analyzing data resulting from any future seismic events. TexNet will include 22 permanent seismometers in key locations, augmenting the 16 existing seismometers currently in place in Texas. Another 36 portable seismometers will be staged across the state, ready to rapidly deploy to investigate key future earthquake activity. TexNet will allow more accurate location of critically stressed faults and provide valuable information regarding relative risk of seismic activity in those specific areas, enabling the Commission to better address those potential risks.

Again, we appreciate the opportunity to review the draft report and look forward to future discussions.

Sincerely,

A handwritten signature in blue ink that reads "David Hill". The signature is fluid and cursive, with the first name "David" and last name "Hill" clearly distinguishable.

David Hill, P.E., P.G.
Manager for Injection-Storage
Permits and Support

Cc: Kim Corley, Executive Director
Railroad Commission of Texas

Lori Wrotenbery, Director
Oil and Gas Division

Leslie Savage, Assistant Director for Technical Permitting
Oil and Gas Division