



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
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JUN 16 2010

Ms. Lori Wrotenbery, Director  
Oil and Gas Conservation Division  
Oklahoma Corporation Commission  
P.O. Box 52000-2000  
Oklahoma City, OK 73152-2000

Dear Ms. Wrotenbery:

Enclosed is our evaluation of Oklahoma's Class II Underground Injection Control (UIC) program performance during state fiscal year 2009 (FY09). On November 18, 2009, Ms. Nancy Dorsey, along with Mr. Ray Leissner, and Mr. Michael Vaughan of our Grants Section participated in a phone discussion with Oklahoma Corporation Commission (OCC) Mr. Charles Lord, Mr. Tim Baker and Ms. Patricia Downey about current UIC program implementation. By e-mail on April 5, 2010, we invited OCC's comments on the draft evaluation. This report includes OCC's comments received by e-mail on May 17, 2010.

First, we would like to commend OCC on the innovation and increased productivity with the addition of new members and reorganization of the department, with an overall workforce reduction that is especially impressive. We would also like to commend OCC on several program areas:

- ❖ The number of 5-year mechanical integrity tests (MITs) submitted, performed and witnessed continues to exceed minimum requirements.
- ❖ OCC showed continued innovation and effective use of special project funding as documented in OCC's Annual UIC Narrative for FY09, (see Appendix B).
- ❖ OCC made a strong push to get the new RBDMS system up and data discrepancies resolved. While not quite complete, OCC made major progress.
- ❖ The acquisitions in the archival photo project are complete. The mammoth task of merging and rectifying the images continues.

The primary issues discussed in this report involve changes in OCC procedures; final permit issues; enforcement trends; and needed program revisions. These were discussed with your staff during the November 18<sup>th</sup> End-of-Year (EOY) conference call or follow-up e-mail.

With respect to the program revisions, on November 30, 1998, the Oklahoma Corporation Commission (OCC) submitted a draft program revision from Oklahoma's Class II Underground Injection Control (UIC) program as part of an interagency agreement. Subsequently, our agencies worked toward resolution of both scope and authority issues as well as substantial changes to Oklahoma's applicable Class II UIC primacy program pursuant to the requirements of 40 CFR §145.32, in order to assure OCC's Class II primacy program meets Safe Drinking Water Act (SDWA) protection standards.

In addition to the SDWA 1425 primacy revision, OCC and the Oklahoma Department of Environmental Quality (ODEQ) submitted a draft program revision package to Region 6 in June 2000. Subsequent to continued dialogue between EPA, OCC and ODEQ, your agency adopted regulatory revisions in 2005 in consideration of applicable Class V federal permitting requirements. However, issues still exist regarding permitting of Class V wells for aquifer remediation activities associated with leaking aboveground and underground storage tanks.

In the FY08 EOY and again in my February 12, 2009 response to proposed rule making 200900001, I requested your agency submit both outstanding revision packages, neither comment nor packages have been received. I respectfully request these packages to be submitted by July 31, 2010. Please do not hesitate to communicate with us any major hindrance to the package submissions.

Upon receipt of either complete revision package (SDWA 1425 or 1422), Region 6 will evaluate and process the revisions pursuant to 40 CFR §145.32. I thank you and your staff for your efforts in the implementation of this challenging program. I consider our open dialogue a key component of effective communication between our agencies. If you have any questions on the evaluation report or the revision requests, you may contact me at (214) 665-7100, or your staff may call Philip Dellinger of my staff at (214) 665-8324.

Sincerely yours,



 Miguel Flores  
Director  
Water Quality Protection Division

Enclosure

cc: Charles Lord, OCC UIC Manager, w/encl.

**EPA Region 6  
End-Of-Year (EOY) Review**

**Oklahoma Corporation Commission (OCC)  
Underground Injection Control (UIC) Program**

**State Fiscal Year 2009 (FY09)  
July 1, 2008 through June 30, 2009**

**I. INTRODUCTION**

This report is broken into six main sections: [Introduction](#), [Grant Work Plan](#), [Program Revisions](#), [OCC Procedural Changes & Questions](#), [UIC Oversight Issues](#), and [Recommendations](#)<sup>1</sup>. Additional information is included in the appendices.

By EPA delegation, the Oklahoma Corporation Commission (OCC) is the lead agency for the State's Class II injection wells while the Oklahoma Department of Environmental Quality (ODEQ) implements the applicable State UIC program for all other injection wells in Oklahoma. (This does not match the state delegation—see Program Revisions.) EPA maintains authority for Class I, III, IV and V on all Indian Lands and Class II on some Indian Lands not under the authority of OCC. This annual review considers the approved State UIC program administered by OCC, including the UIC grant work plan and other program activities, between July 1, 2008 and June 30, 2009.

On November 18, 2009, EPA Region 6 representatives spoke with OCC management for EPA's annual end of year (EOY) evaluation (see [Appendix A](#) for attendees). [Appendix B](#) contains OCC's annual narrative required in the FY09 UIC grant work plan.

**II. GRANT WORK PLAN**

**A. FY2009 Grant**

EPA approved \$290,500 as the Federal FY09 allotment for the State of Oklahoma's UIC program administered by the OCC, and awarded this amount to OCC in FY2009. In addition, EPA awarded OCC \$90,291 in UIC Special Project Funds in FY2009. Also, please note EPA awarded OCC \$59,513 in UIC special project funds in FY2008, but owing to project delays, carried approximately \$29,191 of these UIC Special Project funds over into FY2009. In FY2009, OCC again could not complete one of their Special Projects and \$38,226.07 was returned. OCC's application was for a total of \$1,047,220 in federal funds.

Work plan Deliverables [Table 1](#) identifies State program updates and other deliverables required during FY09. OCC submitted all quarterly and annual reporting items although several were late:

- o All the 7520s as well as the annual narrative were late.
- o OCC only submitted the terminated injection orders, an attachment to Form 7520-4, for the first quarter.
- o OCC reported no quarterly exceptions this year. A letter listing the single, possible UIC violation in which leakage or discharge into a USDW occurred for FY08 was e-mailed and received January 9, 2009.

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<sup>1</sup> Blue, underlined words are hyperlinked for easier electronic navigation. You can add a 'back button' by going to View: Toolbars: Web.

**Table 1. Grant Deliverables**

Deliverable	Due Date	Date Received
Form 7520 Quarterly Reports	January 31, 2008 April 30, 2008 July 30, 2008 October 31, 2008	February 2, 2009 May 11, 2009* August 31, 2009* December 7, 2009*
Grant Work plan/Application: FY10	May 1, 2009	May 6, 2009
Annual UIC Narrative Report	August 15, 2009	January 15, 2010
Final Financial Status	September 30, 2009	September 23, 2009
UIC Well Inventory	October 30, 2009 or on request	Part of PAM**
EPA PAM Reporting	Within 7 days of EPA request	On time
Revised QAPP	July 7, 2009 + one extension to September 1, 2009	August 17, 2009

\* Without additional information listed in Workplan: quarterly terminations & leakage/discharge to USDW lists; semi-annual SNC summaries.

\*\* Program Activity Measures (PAM)

## B. Special Projects

The OCC Narrative in Appendix B describes the status of OCC's special projects for the year.

EPA eventually received a copy of the Brownfield's Pollution Abatement report on their helicopter electromagnetic survey work, a project partially funded by a UIC special project grant in Fiscal Year 07. Despite significant UIC funding, there is no inclusion of injection information in the evaluation of the results aside from a generic statement. EPA is concerned that no assessment of potential injection well contamination was apparently conducted.

OCC Response: *Maps of sample sites are being assembled to compare hits on the HEM with stream sampling. EM surveys will be run in June and July of 2010 to ground proof certain areas of interest. Surveys would have been run earlier but for necessary equipment repairs.*

## III. PROGRAM REVISIONS

In the FY08 EOY and in the February 12, 2009 response to proposed rule making 200900001, EPA requested submission of both outstanding revision packages. EPA has received neither comments nor packages. EPA is disappointed by the lack of progress on this fundamental program issue.

### A. Update of Draft Section 1425 Program Revision

Since OCC's submission of a draft Class II UIC program revision package in December 1998, many issues first identified during the region's program review dated December 15, 1997, remain unresolved. Correspondingly, Region 6 responded to OCC's 1998 draft Class II UIC program revision package on April 8, 2004, with a request for additional information on water quality protection standards, area of review effectiveness criteria, financial assurance, and corrective action authorities. While preparing a response to EPA's request, OCC requested multiple deadline extensions including the latest via e-mail on April 14, 2005, offering the end of June 2005 as a qualified answer date. The topic was broached again at the EOY review on September 7, 2007.

Resolution of this longstanding issue is important. OCC's Oil & Gas Conservation Division Director Lori Wrotenbery requested her Manager of Pollution Abatement, Mr. Baker, to review the initial draft response document and to provide EPA with a timeframe in which to expect their revised response.

This was to have been within a month of the July 11, 2007 conference call, though EPA's letter confirming the conversation did not go out until August 10, 2007. EPA received a formal response to the 1425 comments on February 20, 2008. EPA did not reply though, we considered this response did not address the ongoing concerns.

In the FY08 EOY and in my February 12, 2009 to proposed rule making 200900001, Miguel requested OCC submit to ODEQ their portion of a final submittal for the applicable Class V permitting requirements. To date EPA has received no response.

*OCC Response: It is difficult for the OCC to respond to EPA concerns on the draft program revision without a formal response. However, it will be the goal of this next state fiscal year to file a program revision package for the 1425 program. The only factor which would prohibit this goal will be budget constraints. If budget constraints become a factor in providing the formal submission of the program revision, EPA Region VI will be notified in writing.*

## **B. Update of Draft Section 1422 Program Revision**

In a draft joint program submission with ODEQ dated June 30, 2000, OCC seeks UIC Primacy authority for certain Class V activities: Re-injection of spent brine into the same formation following halogen removal; and aquifer remediation wells associated with leaking petroleum storage tanks. In 2002, at EPA's request, both Agencies submitted regulatory crosswalks that compare applicable State rules and regulations with the corresponding Federal regulations at 40 CFR 144 through 148. Region 6 sent comments to both agencies on May 28, 2002, and as of this report, EPA continues to await resubmission from Oklahoma's UIC Primacy agencies of an amended revision package for SDWA Section 1422 authority. Currently SDWA authorization of all Class V UIC activities lies with ODEQ, not OCC, and will remain so until EPA approves a revision to Oklahoma's applicable program pursuant to 40 CFR Part 145.

After renewed requests by EPA for both program revision packages, Mr. Tim Baker transmitted to Larry Wright in a letter dated August 5, 2005, OCC's proposed regulations for Class V wells under "jurisdiction" of OCC Oil and Gas Division "in response to Region 6 comments received in April, 2002." Those proposed regulations cite applicable Federal UIC regulations regarding applications for a "Class V underground injection well (a brine mining underground injection well)." The wells in question are spent brine return wells following halogen removal [Class V, by rule at 146.5(e)(14)] not Class III brine mining wells. In addition, the rulemaking does not address the Class V aquifer remediation wells associated with AST and UST cleanup operations under OCC Petroleum Storage Tank Division authority, referring only to "brine mining" wells, which are currently under ODEQ jurisdiction. Mr. Baker's transmittal letter indicates that the proposed regulations are in response to EPA's "April 2002" comments. Other issues regarding EPA's crosswalk comments remain to be addressed and resolved.

OCC's Oil & Gas Conservation Division Director requested Mr. Baker on her staff to set up a joint meeting between OCC, ODEQ and EPA to establish a realistic timetable and goals. This was to have taken place within a few weeks of our July 11<sup>th</sup> 2007, conference call, though EPA's letter confirming the conversation did not go out until August 10<sup>th</sup>. OCC met with ODEQ on August 24<sup>th</sup> 2007, to discuss the 1422 status. Following that meeting at, OCC's request, a copy of all related correspondence since 2002 was sent to OCC by the Region. On September 7, 2007, EPA met with OCC's Petroleum Storage Tank Division to discuss their participation in the program revision discussions. The meeting with all parties to discuss the 1422 revision was held December 12, 2007. EPA completed its two action items on December 21, 2007, and is awaiting response from OCC.

In the FY08 EOY and in a February 12, 2009 letter to proposed rule making 200900001, EPA requested OCC submit a complete revision package to us incorporating relevant rule changes pursuant to the requirements of 40 CFR. EPA has received no response.

OCC Response: *The OGCD is working with the Petroleum Storage Tank Division (PSTD) on the structure and organization of the filing of the 1422 program revision. If the organization of oversight can be worked out between the OGCD and the PSTD without a rules hearing and additional budget constraints do not further limit resources, the OGCD plans to submit a revision package to the ODEQ this next state fiscal year. In the event this cannot be accomplished, EPA Region VI will be notified in writing. In addition, EPA will be given notice of the status of the project.*

#### **IV. OCC PROCEDURAL CHANGES & QUESTIONS**

Effective July 11, 2009, OCC amended Title 165 Chapter 10 in the Oklahoma Register, changing the permitting process from authorized injection orders signed by the Commissioner, to authorized injection permits signed by the UIC Manager. It appears that both application systems (previous procedure through the Court Clerk's office) and the new one (through Pollution Abatement) are in use. OCC should integrate the tracking aspects of the procedures for searchable public access.

OCC has instituted a number of new, primarily spreadsheet based, systems to improve their tracking ability of the numerous permit applications, emergency orders, application protests, and order stipulations. EPA commends these initiatives and the individuals who created them, and looks forward to their successful implementation and use.

##### **A. Emergency Orders**

During a late March 2009 conference call, OCC mentioned a new tickler system for wells with Emergency Permits. Several times during the year, EPA supplied a list of Class II injection wells that have been injecting from a few months to several years under expired emergency permits. A return list showed that some of them received final permits, while others had the applications terminated. EPA has several questions:

- o What does OCC plan with respect to the operators who were/are illegally injecting? Some of the operators injected for almost three years without a valid final permit.

OCC Response: *OCC plans to pursue corrective action in all cases. This action will range from a letter of instruction to writing a ticket or filing contempt depending on gravity of violation.*

- o What changes need to take place, or have taken place, to make the tickler system effective?

OCC Response: *Staff has built an excel spreadsheet that was implemented last fall where our tech support gives notice to the compliance officer of wells with expired emergency orders. The compliance officer will then take appropriate action, if needed, to insure rules and regulations are observed. In the future RBDMS will give notice when an emergency order has expired.*

##### **B. Permit Stipulations**

Typical permit stipulations added to an injection permit include requirements to monitor nearby wells, and to run initial and/or periodic radioactive tracer surveys. These are an important part of ensuring ground water protection. EPA is pleased with OCC's special grant project to list all active order stipulations and have them accessible to the inspectors. EPA recommends eventual incorporation of the stipulation data into the main database.

During our review, we identified some wells whose operators may have ignored their Order stipulations (547776, 530351, 547775, 566033, and 528542) and have the following questions.

OCC Response: *Stipulations are entered into data base, and permits are emailed to field inspectors who check for immediate stipulations (wells producing, cementing etc.). At this moment there is not a system to image all evidence of stipulation compliance, but we plan to implement as soon as possible within budgets constraints.*

547776 – Operator had not used the Crooks 4B but is going to plug it.

530351 – CBL for Emery 5 has been submitted and operator will send in letter stating the Della Roberts was not found

547775 – Operator has shot FL and will send in results

566033 – FL shot late last year. Will send in.

528542 – Tracer was run 12-06. Sending it in

- o What action does OCC intend to take against non-compliant operators?

OCC Response: *OCC pursues corrective action when needed.*

- o Is there a penalty for failing to follow an order or permit requirement?

OCC Response: *Yes, actions will be taken if the operator does not follow a permit requirement.*

If the operator is not required to record and/or submit static fluid level measurements, how will the inspector or OCC verify if the static level does indeed comply with the Order? Will the inspector be required to run the static level tests along with the MIT? For example orders: 539613, 532861, 538997.

OCC Response: *539613 – Operator is sending in a letter explaining how he is monitoring the FLs. T. Baker has agreed to consider*

*532861 – See 539613 (Same operator)*

*538997 – FL was shot 4/15. Will scan and email to me.*

When is compliance with order/permit stipulations requiring plugging verified?

OCC Response: *Normally at initial MIT. More will be verified as order stipulation project continues.*

What about for wells the order/permit requires to produce, as protection against the pressure reaching problem wells, when is the well status verified?

OCC Response: *At initial MIT and again more will be verified as order stipulation project continues*

### **C. Annual Reporting**

Another system improvement instituted by OCC, is better tracking of F1002 reporting. EPA commends OCC for their efforts to improve their tracking of the numerous permits and related reporting requirements.

EPA understands a comparison of the reported values to permit/order conditions is now taking place. EPA applauds this, especially in light of the increasing number of permits issued with zero pressure when problem wells are present.

### **D. MIT Signatures**

EPA requests the signature validation process for the electronically filed MITs be specified. Some of these appear to have the inspector's signature pasted in over top of the image. Some forms show up in color, but the signature is a white block, for example recent test from June and July for orders: 44403, 41211, and especially 506567, but not for order 370528. Is this an artifact of the inspector's submission?

OCC Response: *Security for signatures is supplied by Topaz software. The FI's signature cannot be imprinted by anyone else and only on the Field Inspector's laptop.*

### **V. UIC OVERSIGHT ISSUES**

EPA has expressed concerns with some aspects of the OCC permit process over the years. These concerns primarily focus on OCC's area of review process, financial surety requirements, permit stipulation tracking, gaps in permit coverage and follow-through.

This year EPA did not systematically review a selection of FY09 UIC permit applications. As OCC is working hard to make the transition to their new RBMS database, EPA perused the existing database for potential problem areas, based on information shared or through website access. Most issues were topics of discussion in previous years, or database related, with one or two specific permits of concern, which are discussed later. As noted earlier, OCC has already worked to improve difficulties arising from expired permits and stipulations.

Figure 1 shows the change in permit applications over the last five years. The number of applications for this fiscal year was significantly down from last year.

**A. Permit Review**

EPA commends OCC for their effort in attempting to reconcile two disparate databases into a single user-friendly system (RBDMS).

**1. Fracture Potential**

As discussed in previous years, EPA has concerns over the review of wells requesting permits with a maximum injection pressure above 0.5 psi/ft, which may cause fracturing above the injection horizon. After these discussions, OCC added a Standard Operating Procedure to their Quality Assurance Project Plan. Most of the cases seen in the recent review were before this went into effect. However, rereading the information did bring up a few points for OCC's consideration.

Order exhibits for wells with fracture potential frequently contain fracture treatment reports for a well. This well is generally not the one receiving the permit, and has neither a location provided nor any supporting statement of its acceptability as an analog. In PD200800599, the fracture treatment record sited a well perforated from 654' to 656', during treatment the casing pressure went to 1300 psi. The fractured well was not an injector, so there is no indication of how the casing fared after the treatment.

EPA recommends that any documentation to support an injection pressure at or above 0.5 psi/ft contain appropriately detailed information, in-line with the technical requirements and OCC's QAPP.

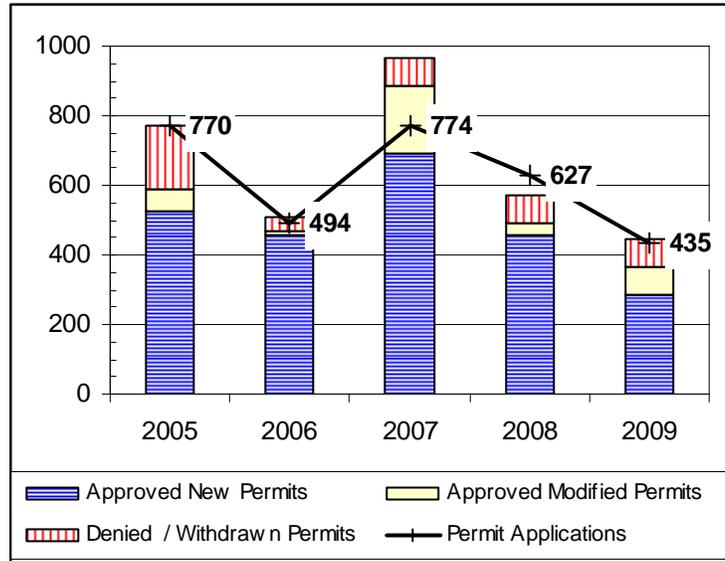
**2. Simultaneous Injection Wells**

*165:5-15 (3) (B) Mechanical integrity will be demonstrated by filing annual reports of surface casing pressure, production casing pressure and fluid level.*

How does OCC handle reporting for simultaneous injection wells, and how are the permit applications numbered?

OCC Response: *Will have a tracking system in RBDMS for the Simultaneous Injection wells, we have not tracked in the past.*

Are these orders subject to termination if the status of the well changes, specifically if it is no longer simultaneous injection, but pure disposal? For example, Order 177355 Robinson 1-9 (which may no longer be active) has an 1999 F1012 listing the well as exempt from MIT. The initial order



**Figure 1: Class II Permitting Actions**

was for upper Bartlesville gas production with lower Bartlesville disposal. A 1980 F1002A shows the gas zone as shut in. There is no indication fluid levels were ever reported. Is there a form for operators to supply all the required information?

OCC Response: *The SI order is good, as long as well is configured as permitted, for the life of the well. Only water produced in the well bore of an SI well can legally be disposed in the well.*

### **3. Application PD200700363, Capstone's Ring 3-7**

Last year's EOY report, covered application PD200700363 for Capstone's Ring 3-7 in detail. Since then, the operator received a new permit (556030). An interagency phone conference on March 23, 2009, covered additional details of the case highlighted here:

- o The operator paid a \$2500 fine for injecting without a permit after expiration of Emergency Order 543456.
- o With PD Order 566030 signed March 10, 2009, the injection zone is valid.
  - o The new offset operator had no objections to the proposed permit.
- o "Applicant is required to have radioactive tracer surveys or other tests performed on the subject well on an annual basis."
  - o OCC provided a copy of the pre-injection RAT to EPA. EPA and OCC did not completely agree on the interpretation.
  - o As a result of the tool hanging up in the well, OCC plans to allow an alternate test procedure, but this procedure is not specified.
  - o To justify the above decisions, OCC agreed to provide a copy of the first RAT run in August 2007. If EPA still has concerns, OCC will require a new RAT at the next time schedule to be run with a stationary time drive at 7690.
    - EPA is still waiting on the RAT from 8/07.
    - OCC Response: *Correct RAT will be sent to EPA.*

### **4. Public Notice**

In last year's EOY report, EPA discussed the difference in interpretation of OCC's public notice requirements with respect to Oklahoma County under OAC 165:5-7-27(d). This section is now under 165:5-5(d), but remains unchanged. EPA suggests OCC clarify the regulation during next year's changes.

### **5. Supplied Data Issues**

In previous years, the EPA reported problems with operators not submitting key permit information, i.e. actual reservoir pressure or measured depth-to-static water level, porosity and permeability. This trend continues. OCC cited the lack of this information, in support of their decision not to run a Zone of Endangering Influence calculation, except where problem wells exist.

EPA understands the OCC's practice, when mud plugged or problem wells are located, is to allow a zero pressure permit. To increase the protection to the USDW, EPA suggests requiring documentation of either a valid bottom hole pressure test or static fluid level as part of the application review, before deciding on granting the permit.

## 6. Data Review Issues

### a) Order 558640, PD 200700542, L Charley Tract 12-17

This order states 'Termination: Authority to inject shall terminate if: "f) Operator will not replug Bird Creek Unit, L. Charley #15 located. On enquiry of the Charley 15 well status, OCC staff responded the well neither was replugged, nor should be per the permit.

This is an excellent example of an unclear order combined with a record problem: there is no exhibit package to clarify the solution. However, there is a Form F1003 for Lemuel Charley 15, at the specified location, showing it was mud plugged in 1925, which lends support to EPA's interpretation that replugging L. Charley 15 is required by the permit. As the Charley 12-17 is not actually injecting, the stipulation itself is not the issue at this time. However, having all parties have a clear understanding of all parts of any Order is of paramount concern.

Order 558640 appears unenforceable.

OCC Response: *This is being investigated by our compliance officer.*

### b) Order 548227, PD 200600238, Oktex Boswell #3

There appear to be a number of issues that slipped by in this order. This was a contested permit with court hearing. The ALJ's specific recommendations for monitoring the pressure were not included in the permit stipulations.

Numerous certified and sworn errors of the Oktex president are in the exhibit package (EXHATT) and hearing report (IHREPT). For example, the Affidavit where Mr. Robinson swore "That I made a reasonable and diligent search to discover any fresh water wells within one (1) mile of the Boswell #3 SWD Well, including via available online sources, .... The OWRB online well search identifies two domestic water wells within 1 mile.

In the Hearing Report Mr. Robinson claims his innocence of the illegal injection, which OCC had discovered previously. Yet, he alternately testified that it was a producing well, and that he thought it was a disposal well.

Mr. Goode (the oil & gas consultant) testified that the well will take water on a vacuum, yet the application and amended applications list 175 psi formation pressure. There is a handwritten note in the exhibits that the base treatable water is at 680' and the fluid level is at 360'. A 360' static fluid level, gives a reservoir pressure around 700 psi.

OCC identified two problem wells within a 1/4 mile and did not directly bring these up in the hearing (from the report). The consultant testified, "The Maggie No. 1, the dry hole in the SW section of Section 17, has no plugging report on record. It was a dry hole. There is a concern if the pressure increased on the Boswell No. 3 disposal well, especially anything above 25 to 30 pounds. The Maggie No. 1 was probably plugged with cement, as there is no surface pipe in the well. It was probably cemented 300 to 400 feet to the surface and that should protect the fresh water resource in the area." The Maggie 1 (051-21291) F1002A (completion) record states there was no casing run or cement set.

The 1980 dry hole Boswell 4 (051-21069) was also without casing or cement run per the completion report. It did however have a plugging report, it is mud plugged between 300 to 2360', with cement from 300' to surface. Note that the Base of Treatable Water is 650'. There is no discussion recorded of this problem well in the hearing record.

The ALJ recommended that the permit should be granted with the following provisions:

- Injection pressure of '0' and must be monitored on a monthly basis.

- Monitoring to be conducted by operator and OCC field inspector.
- Monitoring to be reported to OCC, and the field inspector to inspect the pressure gauge to determine the injection pressure.
- Include the three specifications of OCC's witness:
  - additional downhole perforations (never specified)
  - submission of cement bond log (CBL) run from 780' to surface
  - Form F1073 showing Oktex as bonded purchaser

The well did not have a pressure gauge at the time of the hearing. The final permit does not require one, nor does it require any of the ALJs recommendations on pressure and monitoring. The permit did require running and filing a CBL log, as well as the three OCC witness specifications. Was a CBL run and submitted? No recompletion for the required change in the well's perforation interval has been scanned.

The operator since sold the well, which has other compliance issues that the new owner was apparently unaware of at the time of purchase.

*OCC Response: UIC's compliance officer has written a demand letter requiring the current operator to run a bond log or supply a copy of the cement bond log to prevent his well will being shut-in.*

c) Order 558173, PD200800297, Votravis 1-7 SWD

The authority for the type of well is inconsistent. The original application requested a commercial permit, while the amended application requested a disposal permit. The order is for a 'commercial disposal well', however, the order terminates (10a) if "The well is used for commercial disposal."

The order also requires a stipulation: "Plug or provide proof that the Courts Shelton 1 well located SE SE NW 7-7N-18E is plugged properly from 160 feet to surface." Well records for the Courts Shelton 1 were found under location search for API 00000000; F1002A 3/31/1934 and F1003 5/11/42—a well plugged in 1942 is unlikely to meet today's accepted standards.

There is no scanned drilling permit for the Votravis 1-7. EPA understands it has not yet been drilled and has until February 2010 to be drilled, pass the MIT and the other well plugged. However, the permit will still be unusable. What actions will be/have been taken to resolve this?

*OCC Response: If the well has not met its timeline for compliance, the order will be vacated. Vacating orders and dismissing old or invalid applications is something UIC does annually to semiannually.*

## **7. Database Issues**

Reconciliation of three database issues is required between the two OCC database systems for UIC and Oil & Gas, before RBDMS can be populated. These issues are

1. New well pluggings
2. Existing operators
3. Disconnect between UIC permits and completion permits

A number of unit wells either never had their MITs scanned or the identifying information was not entered. Searches of the online image system for Milroy Deese Unit or NE Fitts well F1075s by location, well name, order or API number came up blank.

In the case of the PD 200600238 discussed above, the exhibit package and protest letters where date stamped (1/11/08) after the permit was granted (12/26/07). Presumably, the documents were stamped when taken down to be filed, however this gives the erroneous impression that the hearing (9/19/07) was held before the protests were actually received.

### 8. Effective Surveillance & Enforcement

OCC's EPA reporting Form 7520-3 shows many null values. It suggests to anyone viewing the results (Table 2), that OCC does not witness UIC well construction, plugging or answer complaints. OCC maintains the problem is related to communication of data between its district and central office; however, EPA remains concerned with inaccurately reported data.

**Table 2. Inspections**

<b>Inspections:</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Wells with	11,365	15,439	11,914	9,727	11,649
Construction witnessed	0	0	0	0	0
Complaint/Emergency Responses	0	0	0	0	0
Plugging witnessed	131	0	0	0	0
MIT witnessed	2,952	2,446	2,335	2,793	2,623
Routine / Periodic	8,413	12,993	9,579	6,934	9,026
<b>Sum elements</b>	<b>11,496</b>	<b>15,439</b>	<b>11,914</b>	<b>9,727</b>	<b>11,649</b>

OCC Response: *It is not cost effective to pull construction witnessed data from our database because an overwhelming number of UIC wells begin life as oil or gas wells.*

*Field ops and district offices receive complaints and makes requests for assistance (ROA) from UIC. These are not tracked by UIC. Nor will UIC have an emergency response, as Field Ops are our first responders. We will, however, begin tracking complaints and ROA's that have a "possible" UIC component, whether they do or not. This will be tracked with an excel spreadsheet until it can be implemented into RBDMS.*

*Almost all UIC wells orders are terminated before they are plugged and are not listed as UIC wells at time of plugging.*

OCC reported the Jones 5 BDSF as a Significant Non-Compliant well. EPA used this investigation as a training case for a relatively new staff member. The staff member is currently on a six-month detail, so a final report is not available. However, after a review of the communications, OCC's actions and a visit to the site, EPA agrees with OCC's actions. EPA also forwarded case information to the Spill Prevention group for consideration under federal rules.

OCC Response: *Well has been plugged.*

### 9. Brine Complaint Response

The various EPA grant funded electromagnetic surveys continue to be popular with the districts in response to brine complaints.

#### **Order 397841, Williams 9**

In response to a citizen complaint, EPA accompanied OCC during part of their investigation of brine contaminated water wells in Creek County. Potential problems identified during the investigation included old brine pits, a producing well without surety, mud plugged wells, poorly written old UIC order and possible issues with that injector just under a ½ mile away.

A brine plume has affected several water wells in 22-18N-8E SW SW, Creek County. OCC identified two or three mud-plugged wells in the immediate vicinity from records. To expedite shutting off potential conduits, OCC plugged the wells (Catch 1 and 2 in October 2009) and listed the sites with OERB for surface clean-up.

The Williams 9 is the closest active injection well, order (397841). The order signed in 12/8/1995, contains the following unclear stipulations:

- o “This order shall become null and void if the following wells are plugged and abandoned:
  1. Williams #3, SE NW NE 27-18N-8E
  2. Williams #4, E/2 NE NW 27-18N-8E
  3. Williams #2, NE SW NE 27-18N-8E
  4. Williams #12\*, SW NW NE 27-18N-8E’\*Entry four is difficult to read



**Figure 2: Williams 4**

Three out of four of the above wells are abandoned, but not plugged. The three (Williams 2, 3, &4) are still registered to Taylor International. During a joint site visit on May 15, 2009, we located the Williams 4 (at E/2 NW NE 27-18N-8E ), see Figure 2, but could not find Williams 2 and 3 (casing pulled in 1930). The Williams 12, registered to Whitehead, is a producing oil well located at NW NW NE 27-18N-8E. (FYI, the Oil & Gas Database record is ‘misfiled’ under 7E.)

After the Williams 9 measured a static water level at surface for two days in a row, the operator was encouraged to submit a permit modification request, to recompleate the well into a deeper zone. The operator then submitted an application for administrative approval, (F1015A, PD200900123) and a motion for an emergency order. OCC identified a mud plugged well within the ¼ mile AOR, during review of the application, (per phone conversation). The operator stopped supplying required information and the application has stalled. Order 567065 dismissed the emergency order request. The well continues to inject in the original over-pressured zone, with mud-plugged wells within the area of pressure influence.

This area was drilled primarily in the 30s and 50s, with surface casing set between 150 and 200. The base treatable water is 600. Using average Layton porosity (17%) and permeability (18 md) from Osage County as the information is typically blank on OCC applications, a zone of endangering influence was calculated at 6.6 miles against a brine filled well, Appendix \_\_\_.

Considering all the circumstances, EPA is very concerned that OCC allows continued injection in the Williams 9, with an inadequate permit, and numerous wells of concern in an overpressured zone.

OCC Response: *UIC’s Compliance officer has written a demand letter requiring the operator of Williams #9 to shoot fluid levels on the following wells.*

1. Williams #3, SE NW NE 27-18N-8E
2. Williams #4, E/2 NE NW 27-18N-8E
3. Williams #2, NE SW NE 27-18N-8E
4. Williams #12\*, SW NW NE 27-18N-8E”

### 10. Mechanical Integrity Tests

OCC continues to annually conduct and witness (Appendix B) mechanical integrity tests for far greater than 20% of the inventoried injection wells, as required to meet the maximum five-year testing frequency for each well. OCC is again highly commended for this accomplishment and for witnessing all MITs. Figure 3 shows the number of MITs witnessed, failed or violations, as well as any radioactive tracers (RAT) run. MIT failures include not testing on schedule and tests with significant leaks, but exclude those tests that subsequently passed the MIT after a failed test.

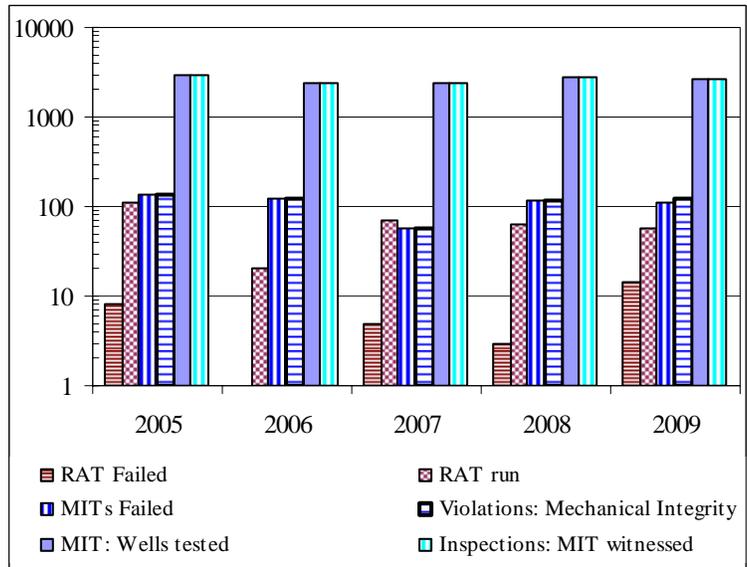


Figure 3. MIT & RAT Results

EPA commends OCC for getting the 2009 MITs (F1075) scanned and into the online system with all the API and Order numbers entered to facilitate locating the records. However, it would be helpful if the legal location and well name were included. Was there a decision not to include this information? Well names and locations are also missing from a large number of 2007 and 2008 scans. EPA understands there is still a large backlog of unscanned MITs from previous years. OCC Response: *RBDMS indexes everything off API number.*

One scanned MIT contains what we hope is only a typo, otherwise the MIT was not in accordance with either OCC rules for testing or fracture propagation, nor for permit considerations. Order 545517 for the Evan Collins UEDL 3 specifies a 0 psi maximum pressure, due to six mud plugged wells in the immediate vicinity of the 500 to 520 injection interval. The 4/7/08 MIT shows the test was conducted at 500 psi, this is out of line with normal OCC requirements. OCC Response: *Initial test should have been 300 psi even if permitted at zero pressure.*

### 11. Enforcement Actions

Figure 4 shows the number of overall enforcement actions reported in the Form 7520. (Year 2004 reflects a reporting error.) This figure also shows the percent of violations given a Notice of Violation (NOV), and the percent of enforcement actions past the NOV. Since 2006, the number of actions is significantly lower without a corresponding drop in inventory.

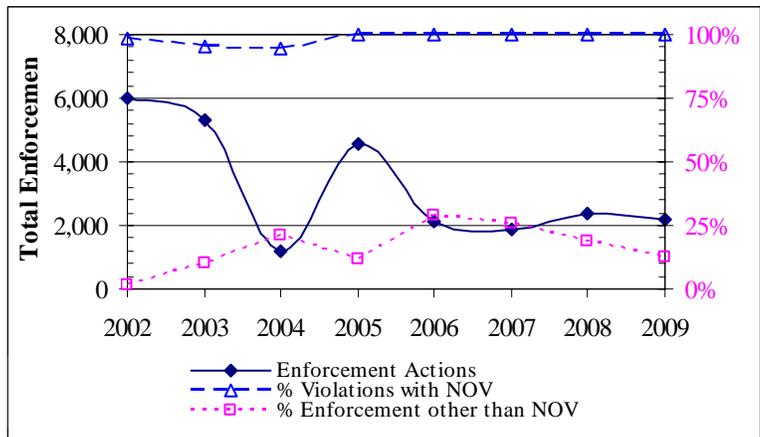


Figure 4. Overall Enforcement Actions

Figure 5 shows the NOVs and kind of enforcement actions taken. There was a significant drop in reported administrative orders and consent agreements. Even allowing for a difference in reporting method, the number of these actions has been steadily dropping in comparison to the total violations.

OCC Response: *Changes in UIC's enforcement personnel and tracking methods has increased the number of notifications and enforcement actions in 2010.*

## VI. SUMMARY AND RECOMMENDATIONS

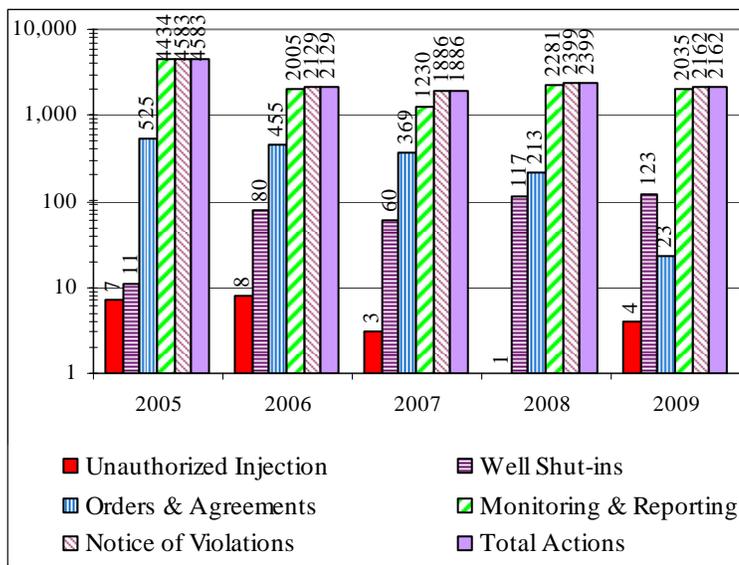
EPA commends OCC for witnessing all mechanical integrity tests, far exceeding the EPA minimum recommended standard of 25%. In this last fiscal year, OCC once again received a combined hit of increased workload and decreased staff. The result has been general difficulty in keeping up with the necessary workload. However, in some areas there has been improvement through new assignments and innovation. EPA commends OCC for their efforts in bringing RBDMS on-line.

It is imperative that OCC submit both program revision packages for the Class II and Class V wells for review to EPA.

This year several major permitting problems were uncovered. While one or two can slip through in any agency with a high volume of permits, EPA recommends OCC review their procedures to find ways to resolve the cause of these occurrences. EPA also recommends that OCC take action to fix the critical problems discussed earlier.

To recapitulate recommendations made within the body of the report OCC should:

- \* Ensure that all necessary information is included in the application, particularly with respect to either the current reservoir pressure or the static water level.
  - o For applications where problem wells are identified, require acquisition of a properly documented bottom hole pressure or a static water level.
  - o If the top of static water level is within the USDW, require either well treatment or a different reservoir to protect the USDW.
  - o For injection pressure requests over 0.5 psi/ft, require complete documentation according to OCC's SOP—particularly not accepting fracture treatment statements that do not meet the requirements, have no location, or are not an acceptable analog.
- \* Determine innovations needed to discover & resolve areas of critical permitting problems:
  - o All permits should be completely clear and written to be enforceable. If on review, past permits are discovered, which are not enforceable, OCC should require an amended permit—the new permitting system should facilitate this.
  - o In areas where there is a clear problem injection activities, fluid to surface, problem wells and problems with brine contamination to surface or not, OCC should exercise its authority to protect the USDW.
  - o In cases where brine problems are discovered in an active injection area, OCC should require the operator or responsible party to plug problem wells.
- \* Determine why reported enforcement actions have decreased so dramatically over the last four years, and determine corrective action needed to address this.
- \* Have effective enforcement of OCC's regulations and permit conditions:



**Figure 5. Kind of Enforcement**

- Make full use of the new Emergency Order and Stipulation tracking systems.
- Appropriately fine all operators who fail to follow OCC rules, especially:
  - \* injecting after an emergency order has expired, before receiving a final permit;
  - \* failing to follow Order/Permit stipulations;
  - \* or injecting at over the permitted pressure.
- \* Improve the quality and timeliness of reporting form 7520 and providing all other work-plan reporting requirements.
- \* Complete all Special Grant Projects within the year granted.

**APPENDIX A**  
STATE/EPA Staff via conference call  
**November 18, 2009**  
FY 2009 EOY Discussion

NAME	AGENCY	PHONE
Mr. Charles Lord	Oklahoma Corporation Commission	(405) 522-2751
Mr. Tim Baker	Oklahoma Corporation Commission	(405) 522-2763
Ms. Patricia Downey	Oklahoma Corporation Commission	(405) 522-2802
Ms. Nancy Dorsey	Environmental Protection Agency	(214) 665-2294
Mr. Ray Leissner	Environmental Protection Agency	(214) 665-7183
Mr. Michael Vaughan	Environmental Protection Agency	(214) 665-7313

**APPENDIX B**  
**Oklahoma Corporation Commission**  
**Underground Injection Control**  
**Class II Wells**  
**Year-end Narrative**  
**Work-plan 2009**

Oklahoma Corporation Commission implemented a successful Program in FY 09 meeting or exceeding established targets as determined in Work-plan 2008. The attached "Annual Report Card" depicts a summary of activities.

UIC inspections for 2009 were up from 10,267 to 11,642. Total UIC applications were at 435 for the year, 229 Disposals and 206 Injectors. Total for approved orders was 156 disposals and 130 injectors and total order dismissals numbered 82.

Field Operations is still collecting GPS data for UIC facilities in all four Districts. This is part of Field Operations long-term goal of obtaining a GPS position on all UIC wells within five years.

UIC began the Well Location Project which utilizes the GPS well location data from the districts. The purpose of project is to examine oil and gas well locations to determine if the approximate well locations were true to within a 50 feet from preexisting maps. To date, 24,621 well locations have been examined spanning 49 counties. Of these, 1663 locations have been corrected, with the updated map covering 63% of the state.

In the area of GIS, UIC has completed the OCC aerial photo library. We are current on all aerial photos from the NAIP. At this time we have county wide aerial photos for the years 1995, 2003, 2004, 2005, 2006 and 2008 in all 77 counties. Updated maps with well data current to 11/04/2009 should be in the hands of our field inspectors by the end of January of 2010. All of this data we have made available to the EPA.

In addition to the aerial photos from NAIP, the georeferencing of archival photos is ongoing. Our Brownfields program continued the georeferencing project after UIC's special project had expired. Thanks to renewed special project funding UIC is able to continue this project until 6/30/2010.

All archival photos (primarily from the 1940s) available at the Oklahoma State Library have been scanned and saved to the R Drive. Subsequent georeferencing of these photos produces a continuous historic map of this time frame. This map provides a more precise determination of well locations and a more detailed record past surface pollution. Currently, 5 counties are referenced in their entirety.

The OCC, Oil and Gas Conservation Division has committed to converting to the RBDMS database. We have a projected conversion to the system for the Oil and Gas Division by 06/30/2010.

Entity\Bond was released for use in November, 2009. We are currently working thru some bugs and glitches, but hope to have it fully functional soon. The Wells\_Module is in its 3rd release leaving only some data cleanup left to do. We also hope to release E-Inspect which is now in the developmental stage with user testing to begin in January. We hope to release Wells\_Module and E-Inspect together for final user acceptance and release. UIC is the reason for RBDMS and we hope to start testing on it in late February or early March with final release coming in May. We will then release E-Commerce which will be our data mining application by mid-August.

UIC has stepped up it's compliance effort with respect to the annual injection reporting. We currently have received 98.6% of the 2008 1012A forms (Annual Fluid Injection Reports) from operators in Oklahoma. UIC has built an excel spreadsheet including every well and operator who had not submitted these forms after the second notice. Also included are unsubmitted 1012As with overdue MITs

from all operators back to 2004. Starting in September 2009 all these operators were called and notified their wells were out of compliance. In early December the remaining operators were notified again by letter of fines and possible order terminations. In January 2010 action will be taken against any operator non compliant for 1012A submission and the orders of abandoned wells will be terminated.

To assist in this effort our compliance officer has been given authority to write tickets for UIC violations. This will speed up the enforcement process and give UIC a disciplinary action just short of a contempt citation.

The Order Stipulation Project was underway in spring 2009. In this project, UIC orders from each county are reviewed for any existing stipulation. They are then recorded in Excel spreadsheets and made available to the field inspectors. This project has proven to be highly beneficial to UIC personnel and the OCC legal department is now continuing the research utilizing their interns. UIC will apply for another grant to continue the project with additional temporary employees.

The Document Imaging Project was successful. Approximately 75% of the well records in District I have been imaged and made available in their office and to inspectors in the field. Special project funds has made possible a continuation of the project and we will be taking bids to complete imaging in District I and then move on to District IV.

Our new permitting system is has been implemented and images of the current permits are available on our OCC website in imaging.

**Annual Report Card  
UIC Program Activities  
Work-plan 2007  
(7-1-09 through 6-30-09)**

December 22, 2009

Activity	Goals	Accomplishment
Inspections (On-site)	10,000	11,649
MITs (total)	2,300	2,623
MITs (Witnessed)	2,300	2,623
Permits (Total Issued)	NA	286
Technical Reviews	NA	483
Operatorship Transfers	NA	379
Technical conferences	NA	352

EM surveys have continued to be an instrumental part of our UIC pollution investigations. For example, the contamination source of a water well in Logan County was determined with an extensive EM 34 survey as well as 1951 archival photos of the area. The source of the pollution was determined to be a leaking pit in a pasture to the south of the well. The case was referred to OERB who will remove the old pit. Archival photos and results of the EM survey are provided.

We experienced two brine breakouts in 2009.

The first was located in Carter County Oklahoma in Section 23-T04S-R03W in the Healon V unit. In technical meetings with the two operators in this section it was decided to file an application for remediation. After approximately 160 man hours of field work, case preparation, mapping, and three days of hearings the OCC administrative law judge ordered the plugging of Jones #5 Commercial

Disposal well. The Operator of this well, BDSP Inc. appealed to Commission court referee and lost. BDSP then appealed to the Commissioners and will be required to plug the Jones #5.

Since the Jones 5 has been shut-in, the purging in this area has ceased.

The second purge to surface occurred in Hughes County Oklahoma in Section 4-T05N-R11E in a mudplugged well called the Edward McClain #1. After flow to surface was discovered the commission ordered a commercial disposal well, the Anderson #1, in section 8-T05N-R11E be shut in. The original operator of the Edward McClain well was contacted and on their own initiative plugged the Edward McClain #1.



There has been no additional problems in this area since the plugging of the McClain well. However, UIC will not approve any additional disposal wells in the Bartlesville formation in a three mile radius surrounding the Anderson #1 until further studies can be done. In this instance, all parties cooperated and no time has been spent in court. Field work, mapping, and technical meetings totaled approximately 60 man hours.