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

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

State Fiscal Year 2012 (FY12)
July 1, 2011 through June 30, 2012

I. INTRODUCTION

This report is broken into six main sections: Introduction, Grant Work Plan, Program Revisions, OCC Procedural Areas, UIC Oversight Issues, and Summary and Recommendations[1]. 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 certain 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, 2011 and June 30, 2012.

On June 20, 2012, 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 FY12 UIC grant work plan.

II. GRANT WORK PLAN

A. FY2012 Grant

OCC's FY2012 application was for a total of $1,124,888 in Federal funds. EPA approved $287,000 as the Federal 2012 allotment for the State of Oklahoma's UIC program administered by the OCC, and awarded this amount to OCC in FY2012. In addition, EPA awarded OCC $44,226 in UIC Special Project funds in 2012:

- $34,226 in general UIC Special Project funds,
- $10,000 in UIC Special Project travel funds to attend the May 2011 "EPA Geophysical Techniques for Shallow Ground Water", and

Work plan Deliverables–Table 1 identifies State program updates and other deliverables required during FY12. OCC submitted most quarterly and annual reporting items on time.

B. Special Projects

EPA commends OCC on their continuing commitment to improving their information resource base through Special Project initiatives, such as the Well Location Project; georeferenced archival aerial photos; Document Imaging; and attending the Cased Hole and Production Log Analysis Training. The OCC Narrative in Appendix B describes the status of OCC's special projects for the year.

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[1] 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 30 April 30 July 30 October 30	2012 on time 2012 on time 2012 on time 2012 on time, interim values+
Grant Work plan/Application: FY13	May 1	On time; revised by request
Annual UIC Narrative Report	August 15	2012 on time, revision requested
Final Financial Status	September 30	2012 on time
UIC Well Inventory	December 9	On time
Detailed Well Inventory	On request	On time (April 17, 2012)
EPA PAM* Reporting	Within 7 days of EPA request	On time
Revised QAPP	Nov. 2	On time Approved Nov. 16, 2011

* Program Activity Measures (PAM)
+ There was a temporary problem with the OCC database tracking 1012a's and violation tracking, pushing many of the reporting violations and enforcement actions into the next fiscal year (2013).

III. PROGRAM REVISIONS

Both EPA and OCC committed to recommencing efforts to update the 1425 and 1422 programs for the 40 CFR Part 147 submissions. EPA provided copies of the appropriate guidance documents and crosswalk information needed for the states and EPA to develop and process revisions to State UIC programs, on October 6, 2010. EPA received OCC's draft 1425 program revision on September 26, 2011.

Federal rule 40 CFR 145.32 requires crosswalks and program revisions from the original approved programs to Oklahoma's UIC programs as currently implemented. Ultimately, the revision will require EPA Headquarters' approval. A separate effort for Oklahoma's 1422 UIC program revisions requires both ODEQ and OCC participation. EPA understands that ODEQ has prepared its part.

IV. OCC PROCEDURE AND PUBLIC ACCESS

Like all state and federal agencies, OCC's UIC office has undergone numerous changes through advances in technology and personnel changes over the years. Each provides opportunities to review and modify procedures. All programs benefit from this reassessment, which is part of the basis of the Quality Management / Quality Assurance system that EPA requires of itself and all grantees.

EPA commends OCC on their continued improvements to their website, including in part:

- expanding the Imaging Web Application, *OAP Orders and Case Files* to include both the UIC Orders and Permits;
- providing the scanned permit packages to the *UIC 1012, 1072 and 1075 Forms*;
- offering e-filing options;
- linking the online well browser to the Risk Based Data Management System (RBDMS) records; and
- adding the first pass GIS mapping option for the wells.

EPA recommends the addition of notices or caveats, where records have either not been scanned or search options are not available. For example, under UIC 1012/1072/1075 Imaging:

- Legal locations, well names and operator codes are not searchable entries.
- A list of the years not yet scanned, i.e. 1072 between 1997 and 2001, 2003 through 2009.

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, and gaps in permit coverage. Through a combination of staff and procedural changes, a refined system is evolving.

Figure 1 shows the variation in UIC permit and order volume over the last five years.

Following up on a previous recommendation, EPA will provide OCC staff training in petroleum engineering fundamentals along with pressure transient analysis techniques to increase their ability to request and utilize operator submissions.

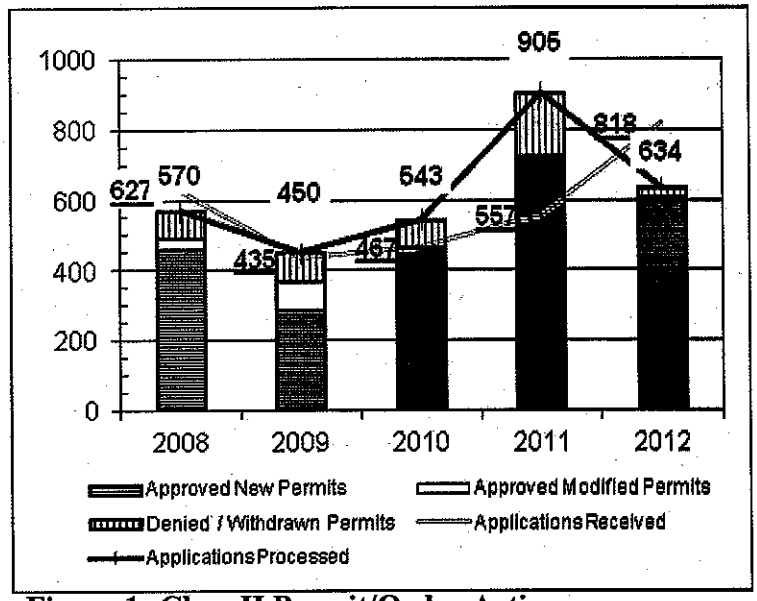


Figure 1: Class II Permit/Order Actions

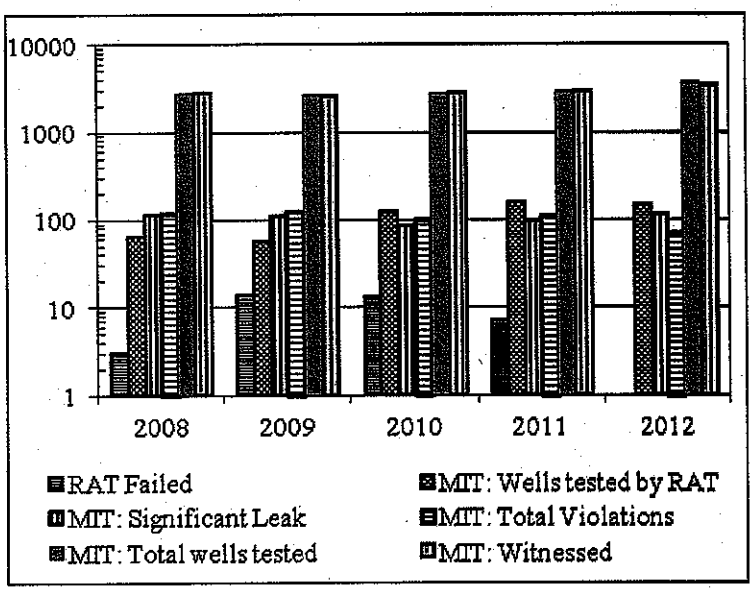
A. Investigations/Complaints

EPA commends OCC for keeping EPA informed of the most important UIC investigations and complaints.

On several occasions, citizens called EPA when they were unsatisfied with the results of OCC's investigations. Most of these situations involved complex multi-media complaints, and generally ended up passed on to either EPA's Emergency Response Team or the Spill Prevention Program.

B. 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 the majority of the MITs. Figure 2 shows the number of MIT's witnessed, and the number of site inspections.



EPA commends OCC for completing the 2010 scans and adding the up-to-date 2011 MIT's (F1075) into the online system with all the API and Order numbers.

C. Enforcement Actions

OCC's actions to improve operator annual reporting (F1012) shows in the jump in Monitoring and Reporting violations seen in 2010, followed by a significant decrease thereafter. This is one of several improvements following institution of improved tracking procedures.

D. Special Investigation

Over the last year, earthquake activity has received a high level of attention coinciding with the DOE requested National Academy of Science study on Induced Seismicity related to Energy.

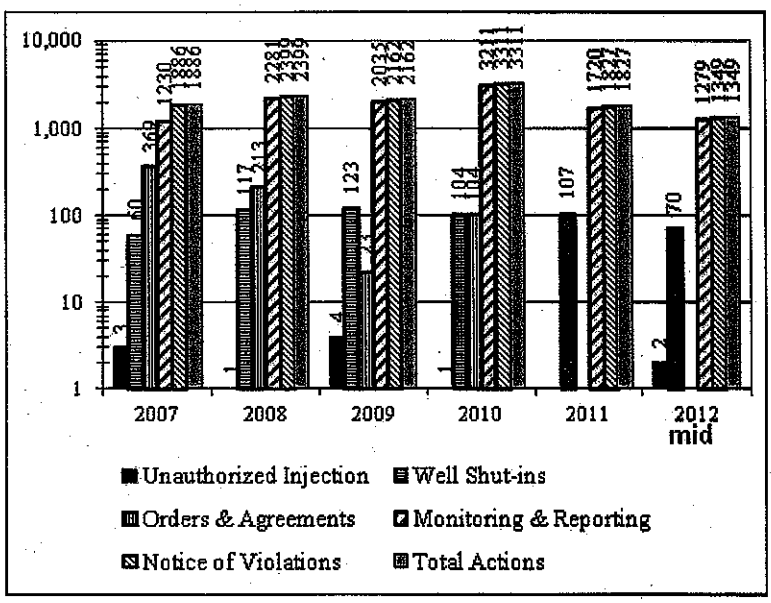


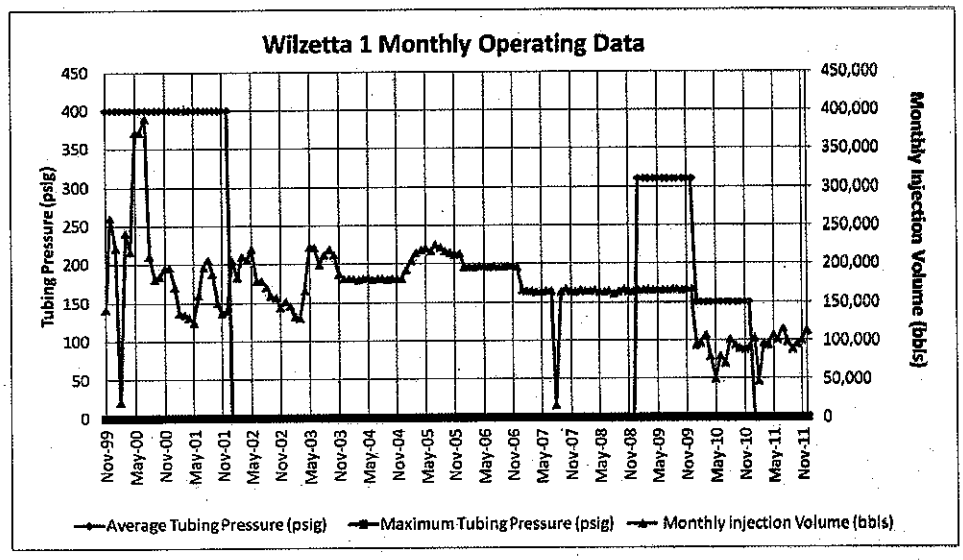
Figure 3: Enforcement Actions

Both the Oklahoma Geologic Survey (OGS) and the USGS Advanced National Seismic System have recorded a significant increase in earthquakes occurring within Oklahoma. Whether the increase is a result of increased recording capacity, increased crustal stress, increased pressures from human activities, or a combination of factors is unknown.

The Wilzetta area of Lincoln County has been under heavy scrutiny by the USGS, Universities and the press. EPA commends OCC for selecting the OGS as the primary investigative agency for the earthquake events potentially affected by disposal activities. Based on information EPA has collected and reviewed, the most effective investigations are multi-disciplinary. Actions several other State UIC programs found useful include increased monitoring frequency of injection parameters, and collaboration with specialists outside the agency. The additional support is useful for both refining the seismic events into analyzable fault patterns, and providing more detailed reservoir analysis from the injection well data. This analysis may indicate flow characteristics or changes indicative of increased flow capacity or other reservoir changes in the injection interval. EPA is willing to assist with this reservoir analysis, if requested to do so on selected wells of interest.

A quick plot of the Wilzetta SWD 1 Form 1012A injection data, appears to indicate the reported pressure information is not measured at the wellhead. This pressure information could not be used in an analysis. EPA recommends that OCC consider ways to improve the accuracy or verification of operator reported injection information. Further, when a question arises concerning reservoir flow behavior, such as linear or enhanced flow behavior, that OCC request an appropriate reservoir engineering test (fall-off or step-rate), and/or increased monitoring (daily rate and pressure—ideally bottom hole pressure).

VI. SUMMARY AND RECOMMENDATIONS



Considering the changes in personnel and increased permit applications, OCC has done well in maintaining review procedures, complaint response and handling the extra issues including allegations of induced seismicity.

EPA commends OCC's actions in a number of additional areas:

- For their efforts in bringing RBDMS GIS search capability on-line;
- For witnessing all mechanical integrity tests, far exceeding the EPA minimum recommended standard of 25%;
- For their commitment to submit for review the Class V well program revision package;
- For submitting for review the Class II well program revision package;
- For requesting the Nuts and Bolts training;
- For their Special Project initiatives;
- For their spreadsheet tracking and enforcement resultant improvement in related operator compliance;
- For updating their UIC 1012, 1072 and 1075 Forms to include simultaneous injection;
- For their brine complaint investigations; and
- For updating their on-line data collection.

Based on our review, while OCC has demonstrated a number of improvements, there are still areas that would benefit from additional changes. Implementation of our suggestions would require changes that may be difficult to accomplish, but would result in improved data quality for OCC and protection of ground water resources. To recapitulate recommendations made within the body of the report:

- Change the level of acceptable Form 1012's from simply filing the information, to supplying accurate information.
- EPA continues to recommend that OCC require all operators to provide initial reservoir pressure information on their UIC application.
- Request more detailed injection monitoring information or tests, where warranted by reasonable allegations or reservoir concerns.
- Add clarification elements to the website, with respect to digital data availability and search options. For example, locating UIC permits versus orders and noting what records are not yet included among searchable data.

APPENDIX A
STATE/EPA Staff in Attendance

June 20, 2012

FY 2012 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
Mr. Jeff Myers	Oklahoma Corporation Commission	(405) 522-2764
Ms. Nancy Dorsey	Environmental Protection Agency	(214) 665-2294
Mr. Michael Vaughan*	Environmental Protection Agency	(214) 665-7313

* via conference call

APPENDIX B
Oklahoma Corporation Commission
Underground Injection Control
Class II Wells
Year-end Narrative
Work-plan 2012
7/1/2011-6/30/2012

Oklahoma Corporation Commission implemented a successful Program in FY 2012 meeting or exceeding most of the established targets as determined in Work-plan 2012. The attached "Annual Report Card", depicts a summary of Activities.

Total UIC applications were at 856 for the year: 402 Disposals, 335 Injectors, 0 Annular, 0 SI, 60 Commercial Disposals and 59 Exceptions to the rules. There were 667 UIC approved orders/permits this year: 304 Disposals, 266 Injectors, 0 Simultaneous Injection, 77 Commercial Disposals and 37 exceptions to the rules. Total dismissals numbered 51.

UIC inspections for 2012 were 11,680, which is higher than the 10,000 target. MIT's numbered 3,694 this year.

In the area of GIS, UIC continues to sustain and add to the Oklahoma Corporation Commission's 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, 2008, 2009, 2010 in all 77 counties. Updated maps with well data current to 11/04/2012 should be in the hands of our field inspectors by the end of January of 2013. All of the data we have made available to the EPA.

In addition to the aerial photos from NAIP, the scanning and georeferencing of archival photos is ongoing. All archival photos (primarily from the 1940's) available at the Oklahoma State Library have been scanned and saved to the R Drive. Aerial photos available at the Oklahoma Geological Survey are being scanned and saved to the R drive for georeferencing. Subsequent georeferencing of these photos produces aerial photos of historic time frames that can be used. These maps will provide a more precise determination of well locations and a more detailed record of past surface pollution. This project is still in progress using Oklahoma Corporation Commission, UIC Special Project, and Brownfield funds.

UIC currently has received 99.5% of the 2010 1012A forms (Annual Fluid Injection Reports) from operators in Oklahoma. UIC staff continues to place an emphasis on the timely filing of these reports. Compliance for 2009 was 99.80% by January of 2011. Due to the delay in getting the UIC module online for RBDMS, UIC is unable to get accurate compliance data for 2011 1012A forms at this time.

The Document Imaging Project has been successful. All of the well records in District I, III, and IV have been imaged and made available in their office. Approximately 65% of District II has been imaged. Funds from this fiscal year will continue the project by completing imaging in District II.

Annual Report Card
UIC Program Activities
Work-plan 2012
(7-1-11 through 6-30-12)

Activity	Goals	Accomplishment
Inspections (On-site)	10,000	11,680
MITs (total)	2,300	3,694
MITs (Witnessed)	2,300	3,398
Permits (Total Issued)	NA	667
Technical Reviews	NA	772
Operatorship Transfers	NA	420
Technical conferences	NA	468

The Oklahoma Corporation Commission, Oil and Gas Conservation Division has committed to converting to the RBDMS database. We have converted to the system for the Oil and Gas Division. The UIC module will be fully operational by 2013.

Since the beginning of this project in FY-2008, many facets have been completed. RBDMS Entity-Bond was released in the fall of 2009 and has had much success in allowing the Oklahoma Corporation Commission Oil & Gas Conservation Division to help the oil & gas industry with their need in keeping operator records current. The system has automated processes to allow online sign up for operators and allow easy checking for commission staff of bonding information, address changes, officer changes and additional record keeping.

RBDMS WELL was released in the spring of 2010 and has been a great success in allowing us to have one stop shopping for the large state well inventory. The inventory includes over 513,000 plugged\active wells in the state and over 813,000 records associated with those wells; therefore, the task of data collection is very important. RBDMS has allowed us to move forward and implement some changes to insure data integrity. Also, the use of the 14 digit API# has also been released with this module to allow for event and laterals tracking. This will ensure we have all pertinent data attached to the well from cradle to grave. This module also connects operators and their well inventory on one page for easier data retrieval.

RBDMS EWFiles release came in June of 2010. The first three forms of this project were 1002A Completion Report, 1001A Spud Report and 1023 Comingle Report. The 1004 Production Report, 1016 Pressure Test, 1012A Annual Injection Report and the Mechanical Integrity Test are all in development. These E-forms allow commission staff and industry to use the same data entry screen to enter these critical reports and to insure data integrity. While the commission still accepts paper reports, the industry for the first time can now file them electronically and submit them for approval. The next year holds the prospect of several more of these forms being released for the industry to use and upon completion of this portion of the project 23 commission reports will go from paper to electronic saving both time and money.

Other parts of the RBDMS project that are under development are the Inspection and Incident Modules, Underground Injection Control Module, Soil Farming Module. We are very excited about the completion of this project and look forward to continued work with our partners (GWPC, DOE, EPA, Oklahoma Secretary of Energy) in its completion.