EPA REGION 6 END-OF-YEAR EVALUATION OF THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) UNDERGROUND INJECTION CONTROL (UIC) PROGRAM

State Fiscal Year, 2008 (FY08)
July 1, 2007 - June 30, 2008

To increase ground water protection, a federal UIC program was established under the provisions of the Safe Drinking Water Act of 1974. Delegation of the federal program to the State of Oklahoma can be found in 40 CFR 147, Subpart LL; the program was delegated to the State in July 1982. The ODEQ has jurisdiction over Class I wells, and Class III and Class V wells excluding those under the jurisdiction of the Oklahoma Corporation Commission. ("The OCC has jurisdiction over Class II wells, Class V wells utilized in the remediation of contaminated ground water associated with underground or above ground storage tanks that are regulated by the OCC, and those wells used for the recovery, injection or disposal of mineral brines as defined in the Oklahoma Brine Development Act.") At the end of FY08, the ODEQ's UIC inventory consisted of five facilities operating six Class I non-hazardous wells, one Class III solution mining site operating two solution mining injection wells, one Class IV well site operating four remediation wells, and 1070 individual Class V wells.

Two facilities, Permafix and Amerex, plugged and abandoned their Class I UIC wells during the fiscal year. Amerex's permit expired and was not renewed. Perma-Fix, which had been operating under a Consent Order, met the conditions of the Order and it was closed. Neither company retains authority to operate an injection well at these sites. The Class V UIC well count reported represents an increase of 223 over the total reported at the end of FY07. This increase number is the result of a significant, on-going effort on the part of the state to improve their Class V UIC well inventory. It is expected the count will increase by approximately 500 Class V wells by the end of the next fiscal year. We commend the state for their efforts in expanding the Class V well inventory.

FY08 PERFORMANCE PARTNERSHIP AGREEMENT (PPA) COMMITMENTS

Deliverables: The ODEQ's last updated Quality Assurance Project Plan (QAPP) was approved on March 5, 2009 and expires on March 5, 2010. The current Quality Management Plan (QMP) was approved on November 10, 2008 and expires on November 10, 2009. The QAPP and QMP must be updated annually. The ODEQ submitted all quarterly reports (EPA Forms 7520) on time in FY08.

FY08 UIC Performance Partnership Grant (PPG) Award: The first ODEQ PPG award was made in the summer of 2007, and included the UIC portion of $24,536. The next ODEQ PPG award was made in 2nd quarter 2008, and included the UIC portion of $56,498. The third and final award of $10,160 in UIC funds was awarded in 3rd quarter 2008. The total of all these awards is: $91,194. This full award included: $90,400 in ODEQ UIC FY2008 programmatic funds (the allocated amount), and $794 in UIC Special Project Funds.

ODEQ FY08 Focus Document Commitments: ODEQ's UIC PPG commitments are part of their Focus document commitments. The UIC program commitments are detailed in Table 1 below along with comments on the state's achievements in meeting those commitments.

Table 1: ODEQ FY08 Focus Document Commitments

ODEQ UIC Program Deliverables per FOCUS 2008 Document		
Goal and Objective	**Task**	**Comments**
Goal 1 Objective C Administration	4. Use of Risk Based Data Management System -- work toward connectivity with EPA	ODEQ is using the RBDMS to log basic information, including permitting activity, location and reporting requirements for the Class I non-hazardous wells in Oklahoma. The state is able and willing to connect the Region to the RBDMS if the Region takes the technical steps necessary to complete the process.
	5. Implement SWIFT/Surfer Software (Reservoir Simulator/Contour) / (Plume Movement / Mapping) and Training	The state is using Swift/Surfer software as it is needed in the performance of their work. Updates to the software have not been needed this fiscal year.
	6. Acquire Digital Vacuum Gauges	Digital vacuum gauges have been acquired by the ODEQ and are in use. The state reports they are functioning well and are a significant improvement over the instruments formally in use.
	7. Use of Technical References	Existing texts and references are used by staff as needed. No new texts were purchased during the reporting period.
	8.Personnel Training—Ongoing	Over the past fiscal year, ODEQ staff attended the Region's Quality Assurance Program Plan/Quality Management Program training presented in Oklahoma City and the AWMA CO2 Sequestration conference.
Goal 1 Objective D State / Federal Issues	2. Revise and Update UIC Program Authorization.	ODEQ met with representatives of the Oklahoma Corporation Commission (OCC) once this fiscal year to discuss the effort to revise and update Oklahoma's statewide UIC program. At this point the effort is contingent on completion of OCC's "crosswalk" comparing their regulations to the federal requirements for program implementation. ODEQ staff has provided comments and updates to their regulations to

ODEQ UIC Program Deliverables per FOCUS 2008 Document		
Goal and Objective	**Task**	**Comments**
		forward completion of this task.
Goal 1 Objective D State / Federal Issues (cont.)	3. Implement Class V Regulations in the state. Report Class V automotive wells discovered, permitted and/or closed.	ODEQ staff, using an EPA funded special grant, canvassed Oklahoma state offices and located accurate records of about 200 previously untallied Class V wells during this fiscal year. This task is on-going and expected to identify more of these wells during the upcoming fiscal year. No Class V automotive wells were reported.
	4. Submit 7520s & Annual report.	Quarterly 7520 reports were submitted for the first, second and third quarters of the fiscal year. The fourth quarter report and annual 7520 report was submitted in October of 2008.
Goal 2 Objective A Permit Program	4. Review Class I Applications (new & renewals) Review annual fall-off tests	No new Class I well applications were received during the fiscal year. Renewal applications for the Pryor Plant Chemical Co. and Horsehead Industries permit were reviewed during the fiscal year. The Pryor Plant Chemical Co. renewal was issued January 23, 2008. Four FY08 fall-off tests were reviewed by ODEQ staff during the fiscal year; Horsehead, OG&E, Pryor Plant Chem., and Spirit. Aleris submitted a fall-off test report on July 12, 2007, which the state reviewed during FY08. The Aleris International site did not conduct their FY08 fall-off test during the fiscal year, but submitted a test plan in July of 08. That test was conducted September 09, 2008 and a report submitted on October 17, 2008.
	5. Identify Class V wells not previously inventoried in cooperation with ODEQ's Environmental Complaints and Local Services Division (ECLS).	ECLS has forwarded information on 18 new Class V wells not previously inventoried. These are in addition to the more than 200 Class V wells inventoried and discussed above.
Goal 3 Objective A Community Involvement	19. Use supplemental environmental projects (SEP) p 19 Promote SEPs p20	ODEQ did not have opportunities to pursue enforcement actions that would have resulted in the creation of SEPs.

ODEQ UIC Program Deliverables per FOCUS 2008 Document		
Goal and Objective	**Task**	**Comments**
Goal 5 Objective A Monitor Ambient Environment	1. Fair/timely enforcement and compliance efforts.	ODEQ reported they had achieved their goal of carrying out UIC enforcement and compliance efforts in a fair and timely manner during the past fiscal year
Goal 5 Objective A (cont.)	7. 18 UIC Inspections Reduce to 16 if Amerex goes P& A by FY '08 as planned.	The Amerex facility wells were plugged and abandoned at the end of June, 2008. They were inspected during the fiscal year. The Permafix well was plugged during the year, but was inspected once during the year. In all, 17 Class I well inspections were performed during the fiscal year.
Goal 5 Objective B Enforcement Presence	10. Take enforcement actions as needed.	ODEQ did take enforcement actions as appropriate during the fiscal year. Eight notices of violation and four notices of deficiency were issued during the fiscal year.
Enforcement Programs – Criminal	11. Work with criminal law enforcement as needed.	No criminal enforcement activity was needed during the fiscal year.
Goal 5 Objective C Enforcement Programs – Quality Assurance	12. Participate in EPA's Quality Assurance/Quality Control (QA/QC) program.	ODEQ participates as an agency in EPA's QA/QC program. The ODEQ's QA/QC and Quality Management Program were updated and submitted to the region in fiscal year 2008.

ODEQ FY08 UIC Program Activity: ODEQ has met the basic needs of administering the Class I non-hazardous UIC and Class III solution mining UIC program for FY08. A summary of accomplishments are detailed in Tables 2 and 3 below.

Table 2: ODEQ FY08 Class I and Class III UIC Activity Summary

ODEQ UIC Program Activity Summary July 1, 2007 to June 30, 2008	
Class I Non-hazardous Mechanical Integrity Tests/Inspections: Aleris – 2, Amerex (2 wells) – 4, Horsehead (2 wells) – 4, Permafix – 1, Pryor Plant Chem. Co. – 2, OG&E – 2, Spirit – 2	17
Notices of Violation Issued: Aleris – 2, Amerex – 2, Permafix – 2, Sayre – 1 OG&E – 1	8

ODEQ UIC Program Activity Summary July 1, 2007 to June 30, 2008	
Notices of Deficiency Issued: Amerex – 1, Horsehead – 2 Aleris - 1	4
Two Part Mechanical Integrity Tests Reviewed (5-year MITs)	0
Fall off Pressure Tests Reviewed (Site Based): Horsehead – 1, OG&E – 1, PPCC – 1, Spirit – 1, Aleris - 1	5
New Permits Issued Note: Mid-way has had a valid construction permit for several years, however they have not drilled their permitted well as they awaited issuance of the solid waste permit needed for operation of the site. The solid wasted permit has been issued and it is expected the Mid-way well will be drilled in FY '09.	0
Permit Renewals Issued: Pryor Plant Chem (1/23/08). Note: The Horsehead permit has been under review for renewal over the past fiscal year. The permit was extended to allow the company to review a draft of the proposed renewal. The draft permit is now in Public Notice. Also, the Amerex permit was extended from 12/19/07 to 6/18/08 to allow the company to plug the well bores and abandon the injection site.	1
Permit Applications canceled or withdrawn	0
Class III Solution Mining Well Site Inspections: Sayre – 1	1

CLASS I INJECTION WELLS:

Table 3 below details the Class I UIC well sites and milestone dates in the state's administration of the UIC program for Class I injection wells in the state.

Table 3: Class I Non-hazardous Mechanical Integrity Tests, Fall-Off Pressure Tests, and Inspections

ODEQ Class I Non-hazardous Mechanical Integrity Tests (MIT), Fall-Off Pressure (FOP) Tests, and Inspections July 1, 2007 to June 30, 2008				
Operator	**Injection Well**	**FOP Test Submitted**	**Inspection and Semi-Annual MIT**	**Last 2-part MIT**
Aleris International	WDW-1	Scheduled for 9/9/08	12/19/07, 5/14/08	8/16/05
Amerex Companies, Inc	WDW-1	P&A*	12/19/07, 5/28/08	P&A*
	WDW-2		12/19/07, 5/28/08	

ODEQ Class I Non-hazardous Mechanical Integrity Tests (MIT), Fall-Off Pressure (FOP) Tests, and Inspections July 1, 2007 to June 30, 2008				
Operator	**Injection Well**	**FOP Test Submitted**	**Inspection and Semi-Annual MIT**	**Last 2-part MIT**
Horsehead Industries	WDW-1	4/16-21/08 Submitted 6/3/08	12/12/07, 5/14/08	1/9/07
	WDW-2		12/12/07, 5/14/08	
OG&E McClain Energy Facility	WDW-1	5/13-14/08 Submitted 8-21-08	10/24/07, 5/21/08	5/08/08
Perma-Fix Treatment Services, Inc.	WDW-2	P&A*	1/15/08	P&A*
Pryor Plant Chemical Co.	WDW-1	5/19-23/08 Submitted 6/11/08	12/11/07, 5/28/08	7/27/04
Spirit Aerosystems	WDW-1	12/21-26/07 Submitted 1/22/08	11/8/07, 5/30/08	8/16/05

*Plugged and Abandoned.

CLASS III INJECTION WELLS:

Table 4 below gives details of the ODEQ's administration of the UIC program for Class III injection wells in Oklahoma.

Table 4: Class III Non-hazardous Mechanical Integrity Tests, Fall-Off Pressure Tests, and Inspections

ODEQ Class III Solution Mining Operations UIC Wells MITs and Inspections FY08			
Operator	**Wells**	**Inspection and Annual MIT**	**Last 2-part MIT**
Sayre Brine	Brine Wells 1 and 3	6/04/08	7/16/07

HIGHLIGHTS FROM CLASS I NON-HAZARDOUS INJECTION SITES FOR FY08

Aleris International (formerly IMCO Recycling, Inc.):

Aleris failed their semi-annual MIT December 19, 2007, due to a pressure loss noted during the test. ODEQ issued a Notice of Violation (NOV) to the facility January 22, 2008 instructing the company to cease injection until the source found the reason for the pressure loss. The facility determined that the pressure loss was due to a surface leak and the well was re-tested on February 1, 2008. The annulus held pressure as required and was returned to compliance. The following May, Aleris performed the second required MIT on their well and passed without a problem.

The facility did not conduct their annual fall-off pressure (FOP) test during the last fiscal year. They did submit a plan to do the FOP at the end of the fiscal year which was found to be deficient by ODEQ. A revised plan was received in July of 2008, and was subsequently approved. The test was scheduled to take place in September, 2008.

Amerex Companies, Inc. (formerly Kaiser Chemical Corporation):

Amerex's original permit to operate had an expiration date of December 18, 2007. The company requested a six month extension of the permit to allow for the orderly closure of the facility's injection wells. ODEQ issued an extension after appropriate public notice and comment. ODEQ inspected the facility December 19, 2007 and found Well number 1 to be disconnected. This prevented the semi-annual mechanical integrity testing of the well and resulted in ODEQ issuing an NOV to the facility on February 5, 2008. The NOV instructed the company to submit a plugging and abandonment plan for the wells within 30 days. That was received March 10th and, after review, ODEQ issued a NOD on the plan March 27th. A response to the NOD was submitted April 10th and the plan was approved on May 2, 2008. During the semi-annual MIT conducted May 25th, it was discovered the company had not regularly changed temperature charts on the monitoring equipment and had exceed permitted flow rates for the wells in the months preceding the test. Due to the plugging of the wells the NOV was resolved at the time of issuance.

The facility completed plugging the wells June 12, 2008. The plugging and abandonment (P&A) report was submitted to the ODEQ August 4th and approved August 26, 2008.

Horsehead Industries:

Horsehead requested a renewal of their permit in FY07. Review of the company's application resulted in ODEQ issuing a NOD August 7, 2007. The company responded in October, 2007 and a second NOD, again concerning the application, was issued December 13, 2007. The company responded February 19, 2008. The ODEQ issued a draft permit April 22, 2008 with significantly reduced injection rates and pressures. After the company made a formal request to extend the permit while they reviewed the draft permit, ODEQ issued an extension to the company. The permit renewal went to public notice on August 15, 2008.

The annual FOP was submitted for review on June 3, 2008. The pressure rise calculations in the 2008 test conflicted with a previous annual FOP submittal from the site. ODEQ did issue a third NOD to the company for FY08 activities on July 7, 2008. (This NOD is not counted as part of the state's actions for FY08.)

Mid-Way Environmental Services, Inc.:

The facility has spent the fiscal year working on obtaining a solid waste processing facility permit necessary for operation and did not construct their permitted well during this time, although the facility has an approved construction permit. At the end-of-year meeting, the ODEQ informed EPA Region 6 that the solid waste permit had been issued and construction of the well is expected to begin during FY09.

OG&E

In May, 2008 OG&E self reported the improper configuration of a transmitter at the site. The improperly functioning transmitter caused the company to under report the injection rates and volumes going through the well and into the receiving formation. A recalculation of flow rates and volumes revealed the only exceedance of the permit occurred during the annual fall-off pressure test. ODEQ informed the company on July 15, 2008 that this constituted a violation and requested any back fees the company owes the state. The company responded on August 21, 2008 stating they have calculated the past due fees.

Perma-Fix Treatment Services, Inc.:

Perma-Fix's permit to operate the WDW #2 well expired October 15, 2006. (WDW #1 was P&A'd in 2003.) ODEQ negotiated a closure date for the well of October 15, 2008 after it became apparent the reservoir pressures in the Arbuckle and Simpson formations in the Tulsa area would not allow continued injection activities. In the interim, the company applied for a renewal of its permit and made reasonable efforts to locate an alternative disposal method for their business. In December 2007, ODEQ issued a consent order allowing continued operation of the site until the closure date. The company completed P&A activities June 4, 2008 and submitted their P&A report July 30, 2008. Because WDW #2 was plugged in June there was no need to perform the second semi-annual MIT for the well.

The company informed ODEQ eight loads of treated waste had not been properly analyzed for the presence of mercury from January, 2007 to July, 2007. ODEQ has issued an NOV stemming from this violation on July 18, 2008. The ODEQ's staff believes the final resolution of this violation to result in a supplemental environmental project as part of the penalty phase of the enforcement process.

Pryor Plant Chemical Company (formerly LSB Chemical, formerly Wil-Gro):

Pryor Plant Chemical Co.'s (PPCC) permit was renewed January 23, 2008. The renewed permit went through appropriate public notice. ODEQ reduced the well's injection rate by 33% and the injection pressure by 10%. Currently, PPCC is not operating and the well is used for storm water

injection. During the end of year interview, ODEQ indicated the company is exploring reopening the plant and, if it is reopened, the well would be used to dispose of the plant's non-hazardous process waste stream.

The state has not reported any repeat of the high pH values previously observed in one of the sites's monitoring wells. The annual fall-off pressure test for the well did not indicate an increase in formation pressure. In the past there has been an indication of hydrostatic pressure in the formation. ODEQ and EPA have had concerns that the presence of the nearby Amerex wells may cause a localized overpressure condition. Amerex has closed its two wells and the PPCC will soon restart operations. ODEQ will continue to evaluate the pressure conditions of the formation PPCC is using for injection.

Spirit Aerosystems, Inc. (formerly The Boeing Company, Inc.):

Spirit conducted their fall-off and mechanical integrity testing on schedule. The site remains on-track to cease injection operations when their permit expires in 2011.

CLASS III SOLUTION MINING WELL:

Sayre Brine Station:

Sayre Brine owns and operates a brine production facility that consists of two solution injection wells and a third well used exclusively for extraction. The two injection wells are subject to the UIC program as Class III solution mining wells. A third well at the facility is used exclusively for extraction and is not considered part of the program, but is typically inspected for mechanical integrity on the same schedule as the two injection wells. Sayre conducted their required annual inspection on schedule.

ODEQ issued one NOV to the company dated July 31, 2008 stemming from this fiscal year's annual inspection. The company had been using 24-hour charts instead of 30-day charts for record keeping. The NOV also cited the company for failure to regularly submit monthly reports.

CLASS V SHALLOW INJECTION WELLS:

The ODEQ's Land Protection Division (LPD) has stated their Environmental Complaints and Local Services Division (ECLS) continues to cooperate in reviewing their records to find large capacity septic systems and cesspools not previously identified as Class V injection wells. LPD has received notice of 21 Class V wells identified as part of that review to date, which is three more than reported at the end of FY07. These are existing wells. In FY08 the Region funded an effort by LPD to visit ECLS's field offices and search their paper records for any information on previously unidentified Class V injection wells. This effort resulted in the identification 243 Class V wells. It is expected another 500 will be discovered as the effort continues in FY09. At least four of the additional wells are duplicates of wells previously reported to the LPD by ECLS

and it is possible, as the effort continues and the new and older databases are refined, other duplicates will be discovered.

FISCAL YEAR 2008 ISSUES REVISITED:

1. ODEQ needs to continue to press all facilities to perform formation pressure fall-off testing on an annual basis.

   The state received and reviewed fall-off pressure tests for four of the five operating UIC Class I sites subject to this requirement during the fiscal year. Aleris submitted a fall-off test plan dated June 8, 2008; however, because DEQ sent a Notice of Deficiency, it caused the test to run later than usual.

2. ODEQ needs to continue to coordinate outreach and surveillance activities in order to identify Class V injection wells not previously documented. ODEQ's LPD staff should work with their ECLS counterparts to develop an easily accessible database identifying known Class V UIC wells, closed and operating, within the state.

   ODEQ's UIC program continues to work with the ODEQ's ECLS Division to systematically review existing information in their paper files that could identify Class V injection well sites in the state. ECLS also continues to inform the UIC program of Class V wells identified in their field work. The state, with EPA's help, has undertaken an effort to review their field office files for Class V wells not in the state's inventories. The state is commended for this increased effort to identify and bring under regulation these potential threats to useful sources of potable water in the state.

3. ODEQ needs to assure Class I facilities perform their 2-part mechanical integrity tests in the required time frame. In particular, operators of the Amerex, the Pryor Plant Chemical, and the Perma-Fix Treatment Services (if Perma-Fix is open at the time) sites should be alerted to prepare for testing in FY09.

   No 2-part mechanical integrity tests were reviewed in FY08. Both Amerex and Perma-Fix closed their wells in FY08 and their permits were withdrawn. They will not be required to perform the test in FY09. Pryor Plant's 2-part mechanical integrity test is due to be performed by the end of July of 2009.

4. ODEQ should assure the pH values in the Pryor Plant Chemical Company's monitoring wells do not show a spread of contamination.

   No abnormal pH values were noted in FY08.

5. ODEQ needs to continue populating RBDMS with more information as it becomes available.

   ODEQ states they continue to populate the RBDMS as information becomes available.

6. ODEQ needs to ensure their QAPP and QMP are updated as appropriate in FY08.

   ODEQ's QAPP and QMP were current at the end of FY08.

FISCAL YEAR 2009 ISSUES:

1. ODEQ needs to continue to press all facilities to perform formation pressure fall-off testing on an annual basis.

2. ODEQ needs to continue their effort to identify Class V injection wells not previously documented. ODEQ' LPD staff should work with their ECLS counterparts to develop an easily accessible database identifying known Class V UIC wells, closed and operating, within the state.

3. ODEQ needs to assure Class I facilities perform their 2-part mechanical integrity tests in the required time frame. In particular, the operator of the Aleris site should be alerted to prepare for testing in FY10.

4. ODEQ should assure the pH values in the Pryor Plant Chemical Company's monitoring wells do not show a spread of contamination.

5. ODEQ should evaluate the formation pressure at the Pryor Plant Chemical Company's site. With the closing of the nearby Amerex facility, pressure interference between the two sites' injection wells will no longer factor into determinations on the capacity of the underlying injection zone to receive injection fluids.

6. ODEQ needs to continue populating RBDMS with more information as it becomes available.

7. ODEQ needs to ensure their QAPP and QMP are updated as appropriate in FY09.