

**Peer Review**  
of the  
**Oklahoma Class II**  
**Underground Injection Control Program**



**A Report of the**



**2001**

# OKLAHOMA OIL & GAS AGENCY PEER REVIEW

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GROUND WATER PROTECTION COUNCIL  
13208 North MacArthur Boulevard  
Oklahoma City, Oklahoma 73142  
405 516-4972  
[www.gwpc.org](http://www.gwpc.org)

Michel Paque, Executive Director

## **CLASS II UIC PEER REVIEW**

### **INTRODUCTION**

The findings included in this report and any comments added subsequent to this report are the result of an ongoing effort to evaluate the effectiveness of state programs to protect Underground Sources of Drinking Water (USDW) from potential contamination resulting from the operation of injection wells related to the production of oil and gas (Class II injection wells). A USDW is defined as an aquifer or the portion of an geologic unit which supplies a public water system (PWS), or contains sufficient water to supply a PWS, or contains a concentration of less than 10,000 mg/l total dissolved solids (TDS) and which is not otherwise exempted as a USDW. Individual states may have definitions, either by statute or regulation for waters designated as fresh, potable, usable, etc. Such waters generally have maximum TDS concentrations, which are equal to or more stringent than the Federal maximum TDS concentration for USDWs. These definitions were historically carried over into the UIC regulatory program from preexisting statutes, regulations and /or policies. In this report, where other definitions of a USDW are part of the state program, they are highlighted in the General Program Comments and Observations portion of the report. Readers will need to exercise care when using this report to understand specific relationships between USDWs and those more limited definitions of water used by the state. The Review Team's conclusions are in every case based on the protection of USDWs.

The UIC program examined in this study covers wells which are used for the injection of fluids into oil reservoirs for the purpose of maintaining producing formation pressure, stimulating or furthering their production when natural (primary) production mechanisms decline or cease (enhanced recovery wells, Class II EOR), and for the disposal of waters produced in conjunction with the production of oil and gas (disposal wells, Class II-D). If improperly constructed, operated, maintained, or abandoned, such wells may allow contaminants to enter USDWs, which would potentially deprive the public of current or future water supplies.

The program examined in this report is the Oklahoma Class II UIC program administered by the Oklahoma Corporation Commission (OCC) where primary enforcement authority was delegated to the state in 1981 by the US Environmental Protection Agency (EPA) under provisions of Section 1425 the Safe Drinking Water Act (SDWA) and EPA regulations. (See Underground Injection Control Development Section of this report). The Oklahoma UIC Class II program was first evaluated in 1989 as a part of a series of peer review which GWPC, then UIPC, sponsored between 1989 and 1992. This program evaluation was conducted under the auspices of the Ground Water Protection Council (GWPC). The GWPC is an association of state and federal UIC officials, representatives of the regulated community, consultants, environmental groups, academia and other interested parties. The GWPC promotes and facilitates communication and exchange of

information with regard to practices and regulation of injection wells. The organization also promotes the best practices for the protection of ground water and the principles of source water planning. The GWPC further promotes related research and the dissemination and exchange of technical data on injection well technologies and general protection of ground water through integrated and coordinated methodologies.

The purposes of the State Class II reviews are as follows:

- (1) To determine the effectiveness of state of UIC programs to protect USDWs.
- (2) To increase the knowledge of the oil and gas producing states of the content and operation of the various Class II programs and to identify evolutionary program changes since UIC programs were first granted primacy by EPA or instituted as Direct Implementation by EPA.
- (3) To assist the states and GWPC in identifying potential problem areas in the Class II UIC program resulting from statutory and philosophical changes at either the Federal or State level or from economic cycles within the oil and gas producing industry.
- (4) To provide states an independent evaluation of their Class II UIC program and to consider the recommendations in making program improvements.

This Peer Review was conducted and completed in the following manner:

- (1) A Review Questionnaire Workbook was prepared containing numerous questions about the important aspects of a state's Class II UIC program including: (A) permitting and file (compliance) review (the process by which new injection well applications are examined, technically reviewed and approved); (B) inspections (the process by which actual injection well operations are examined for compliance with rules and permit conditions by regulatory agency field personnel); (C) mechanical integrity testing (the process by which wells are tested to ensure that injected fluids are confined in the well bore and target formation and to certify no upward migration of fluids is occurring along the back side of the well casing); (D) compliance and enforcement (the process used to assure that compliance with all state UIC regulations and permitting requirements is achieved and, where appropriate, penalties are sought and enforced); (E) plugging and abandonment (the process by which assurance is made that when there is no longer any use for the well as an injection point, it can and will be plugged in a manner as to prevent the movement of fluid into a USDW); (F) inventory and data management (the process by which important program data is organized into usable formats to demonstrate program compliance and evaluate risk of injection well use); and (G) public outreach (the process used by the agency to keep the public aware of developments and permitting activities in the UIC program).

- (2) The Peer Review Questionnaire Workbook was furnished to the State and the questions were completed by State Class II and other qualified personnel. The State submitted whatever additional material they thought would be helpful to the reviewers in understanding the program
- (3) The Review Team was assembled and given copies of the completed State Workbook prior to traveling to the state. The Review Team consisted of two state UIC program directors or their immediate subordinates, a GWPC contract employee (a former state oil and gas division director) and the GWPC Associate Director. The Review Team members for the Oklahoma Review are identified at the beginning of this report and resumes' for each are included in the Oklahoma report appendix.
- (4) The Review Team traveled to Oklahoma City and, using the completed Workbook as a guide, questioned the UIC program supervisor and other persons designated by the State to participate in the Review extensively about the operation of the various program areas. Additionally, the Review Team was given a complete tour of the UIC offices and the area of operations where UIC data management activities were conducted.
- (5) The Review Team reviewed the Workbook responses to questions, the oral responses to questions given at the time of the visit, and the various documents supplied by the State and prepared a daily list of strength, areas of concern and subjects which required additional discussion clarification. These thoughts were shared with the UIC Department Head and others participating in the interview for the State of Oklahoma. The Reviewers also conducted an exit interview process, which consisted of a summary of major points of concern. A draft report was then prepared by the GWPC contractor and sent to the State and the Review Team for final comment. Where appropriate, corrections supplied by the State in the form of clarification or supplemental information was incorporated into the report.
- (6) The Review Team report and evaluations are generally arranged in the same order as the Workbook. Each Workbook section is followed by identified strengths and other considerations of the Review Team. Any such comments are followed by the Review Teams conclusions relative to the effectiveness of that portion of the State's UIC program in protecting USDWs. Where portions of the report, strengths, other considerations or conclusions did not fit within one of the major program areas identified in the Workbook, they were placed in a General Program Comments and Observations of the Report. An Executive Summary precedes the specific technical subject sections. "Data Management" and "Program Changes since 1990" were included in the Workbook for each Section. In a sense, data management is a crosscutting issue and a State response may apply to more than one Section. These issues are included in the report at the most appropriate place for the discussion.

## UNDERGROUND INJECTION CONTROL PROGRAM DEVELOPMENT

The Underground Injection Control (UIC) programs have been developed and implemented as a result of the federal Safe Drinking Water Act (SDWA) of 1974. Under Part C of the SDWA (Public Law 93-523), as amended by Public Law 96-502; 42 USC 300f et seq.) Congress directed the USEPA to develop regulations for a nationwide UIC program that would control the permitting and operation of injection wells to protect Underground Sources of Drinking Water (USDWs). The EPA was given the responsibility for developing minimum requirements for state UIC programs. States had the option of developing regulations that were more stringent than the federal regulations, however, the states could not adopt regulations, which were less strict than the minimum federal requirements.

The EPA promulgated the current regulations, which they use to implement UIC programs in 1980 under authorities of Section 1422 of SDWA. The Congressional intent was for individual states to assume administration of the UIC program. States could receive grant money from EPA to develop a UIC program and apply to EPA for primary enforcement responsibility (“primacy”) for that program. In states, which have not sought or have not received primacy, the EPA administers the program directly (“direct implementation” programs). States have the option of applying for primacy for all or only a portion of the injection wells classes with some restriction by EPA. For example, in Alaska, the EPA administers the UIC program for Class I, III, IV and V, while the state administers the program for Class II injection wells. Although there has been some subsequent modification to these regulations since 1980, the only real changes have been regarding regulatory interpretations and program implementation as the UIC program has matured.

EPA regulations established five classes of injection wells, which were defined and delineated, in part, by the source of the injected fluids and the physical relationship of the injection zone to a USDW. Class I wells are those that inject hazardous and non-hazardous industrial waste fluids and also municipal liquid wastes into formations located stratigraphically beneath the lowermost USDW. Class II wells are those used for injection related to oil and gas activities or some types of hydrocarbon storage. Class III wells are those that inject fluids for the extraction of minerals as in solution mining operations. Class IV wells, those directly injecting hazardous waste above or into a USDW, were banned nationwide on May 13, 1980 (40CFR Part 122.36) and all other Class IV wells were banned on and after May 11, 1984 (40CFR Part 144.13). Class IV is now restricted to those injection wells, which are part of contamination remediation operations at Federal Superfund sites. Class V wells are injection wells not covered by the other classes and generally include wells injecting fluids into formations above USDWs.

In 1980, Congress amended the SDWA to include Section 1425, which established a method for a state to obtain primary enforcement authority for its Class II program by

substituting the existing state regulatory program for the prescribed EPA program. This alternative program could be approved by the EPA if the state demonstrated a level of equivalent effectiveness for USDW protection as defined by the SDWA, specifically subparagraphs (A) through (D) of Section 1421 b)(1), and that such program represented an effective program to prevent injection which endangers USDWs.

## **OKLAHOMA CLASS II PEER REVIEW**

### **EXECUTIVE SUMMARY**

The peer review of the Oklahoma Corporation Commission, Oil and Gas Division, Underground Injection Control Department Class II UIC program was conducted from April 9-12, 2001. The Review Team consisted of one state UIC deputy department chief, one state natural resource manager from an oil and gas commission, one former state oil and gas division director and a GWPC Associate Director.

The review was conducted using a comprehensive questionnaire completed by the state UIC personnel and on the basis of the response, asked in-depth questions of the OCC UIC staff and other personnel made available for responding to specific areas of agency operations which have some effect on UIC activities. The OCC staff also provided statutes and rules, and other administrative and technical documents and materials relating to agency procedures, interagency agreements and statistical information, which gave insight and understanding to program operation. The questionnaire originally completed by the OCC is included in the appendix of this report along with other materials on organizational structure of the Commission and its UIC Department. Principal forms used for UIC inspections, MITs, complaint investigations and required operator reporting forms are also included for reference.

### **PERMITTING/ FILE (COMPLIANCE) REVIEW**

The Review Team believes the UIC Department generally uses good permitting and file review procedures. The UIC Department staff in the Oklahoma City office conducts all UIC permitting and file review activities. During recent years, the file review has taken on more the characteristics of a compliance review where review of amendments to existing permits and injection well ownership transfers afford an opportunity to determine compliance with permit condition through reports submitted by the Operator. Casing and cementing requirements are set out by rule and permits contain requirements for tubing and packer, injection well pressure limitations, and reporting of measured pressures and injection volumes. Plugging bonds or other financial assurances are required for all wells although the amounts of financial assurance may be set too low for current financial liabilities. In 1986, the OCC made a major commitment to document reviews of every injection well and by the early 1990's this task was complete. Documentation and well files exist in the Oklahoma City office for each injection well;

however, the Review team understood that the district offices do not have a complete set of permit records for all UIC wells under their responsibility.

The State has adequately mapped the base of the USDW in each producing county and protects such USDWs uniformly both in its UIC and oil and gas production programs. The OCC is currently revising all county maps to use Sea Level Datum Elevations as a basis for surface pipe setting and cementing requirements to better standardize protection of USDWs. The project is about one-third complete, however, the completed counties represent more than one-half of all UIC wells. OCC now requires 250 feet of cement above the perforated interval on all newly completed wells. This was intended to address one concern in the 1989 Report.

The Review Team believes the permitting and compliance review procedures are being carried out in a manner that will protect USDWs.

## **INSPECTIONS**

The basics of the inspection program have not changed during the last ten years. Field inspections are still performed by state employees operating from their homes. Each inspector works an assigned geographical area and is responsible for establishing his or her own daily schedules based on contacts with operators, required MI testing in accordance with the permit conditions, citizen complaints and directives from their supervisors. Inspectors are in daily contact with their supervisors in the district offices both by cell phones and pagers. The OCC has not provided e-mail capability nor laptop computers to the inspectors who work out of their homes but this enhancement is incorporated into the Division's future data management plan. To meet this data management goal, OCC informed the review team that laptops have been purchased but are not ready for distribution for field inspection use. Each inspector is provided an extensive field manual that is currently being revised to include new or amended program elements. The revised version is planned for release at the end of August 2001. Each inspector is also provided a map of the base of the USDW. These maps are being revised to provide more accurate information and the revised maps will be provided to the field inspectors as they are completed. Inspection reports are promptly completed and sent to district office supervisors where they are reviewed. Inspectors also have the authority to issue field citations for certain violations and to ensure the non-complying conditions are corrected.

The Review team concluded that the State's inspection program is providing a high degree of protection to USDWs. The area of concern expressed in the 1989 Peer Review report over the relatively high injection well / inspector ratio remains unchanged. However, given the realities of state funding, ideal inspection personnel numbers will be at a level desired by some parties outside the regulatory regime. The Review team also had some concern that the MIT scheduling was established by the UIC Department in Oklahoma City and imposed on the routine district inspection program. There is no

person in the district office strictly dedicated to UIC who is responsible for coordinating the UIC activity flow between district and central office.

## **MECHANICAL INTEGRITY TESTING**

The OCC uses annulus pressure testing (APT), and in some cases, annulus pressure monitoring to determine mechanical integrity of a well (Part I MI). Radioactive tracer surveys, temperature surveys and review of cementing records are used to satisfy external integrity (Part II MI). The procedures being used to establish that wells have mechanical integrity are protective of USDWs. The OCC does have the authority to require other types of logs if circumstances dictate. APTs require no more than a 10% decline in pressure within a 30-minute period to pass. The field inspectors make an attempt to witness all MI tests and come close to 100 %. They also witness the retests of all wells where repairs have been made. The results are entered into a computer database in the central offices. Technical review of MIT reports, tracking of wells on the 5 year testing cycle, and notification of an upcoming test is done in the Oklahoma City office. Commercial disposal wells are tested annually. Field inspectors make arrangements with operators to schedule the actual date and time of the test. The OCC, at times, has difficulty in getting the required 20 percent of all injection wells tested within a given year. Oklahoma ranks second in the number of Class II injection wells to be tested. Economic downturns in the industry, frequent lease ownership transfers, and the lack of available service testing equipment all hamper the periodic testing of wells. The Review Team concluded giving the districts a more substantial role in the annual scheduling might assist the OCC in reaching its annual commitment under the Federal UIC program.

## **COMPLIANCE/ ENFORCEMENT**

The OCC has tremendous authority to obtain compliance from the regulated industry. The shut-in authority given to field inspectors is the most effective deterrent to discourage non-compliance by operators. The OCC central office in Oklahoma City may also initiate UIC enforcement actions. Multi-level enforcement is used to achieve voluntary enforcement. The field inspectors also have the authority to issue Notices of Violation (NOVs) to operators for less serious matters and subsequently work with the operator to resolve the non-compliance problem. In recent years, the EPA Region VI has expressed concerns to the OCC about the reporting of instances of Significant Non-Compliance (SNCs). The Review Team recommends the OCC incorporate the accounting of UIC contamination cases into its revised and improving data management program so that long- term program effectiveness can be quantified.

The Review Team concluded that the compliance and enforcement portion of the UIC programs has been very well structured, effective and is more than adequate for the protections of USDWs.

## **ABANDONMENT and PLUGGING**

The OCC well plugging program has been in place for a long time and the plugging of injection wells is an extension of the plugging program for producing wells. The plugging of any well may only take place after a plugging plan for a well has been filed and approved by the OCC. The operator works closely with the field inspector to ensure the approved plan is followed and has been effective. The base of USDW maps provides a good framework for the correct placement of plugs to isolate injection and producing zones from USDW's. Well cementers and operators are required to certify the setting of cement plugs. State inspectors witness a very high percentage of injection well plugs.

The Review team concluded that this portion of the Oklahoma UIC program is technically effective in causing injection wells to be plugged in a manner protective of USDWs. Currently, OCC does not recognize injection wells as having a status of temporary abandonment as it does producing wells. Some Review Team members felt uniquely tracking and accounting of idle injection wells may be important to the future of the primacy program with EPA as production declines on mature leases toward the economic limit.

## **DATA MANAGEMENT**

The OCC has been working at improving and modernizing its data management system for almost twenty years and the system has gone through several stages in the upgrading. The UIC files and associated records such as well pluggings, inspections and MIT records use the same data management system. OCC is currently trying to further upgrade the system to track wells within an Area of Review. OCC has the same problem most states have where several hundred thousand wells have been drilled, i.e. selection of a data management system that accommodates a large flow of diverse daily reports. The final stage of the current program will be when the field inspectors have laptop computers or can access the data management system from their homes. The Review Team encourages the OCC to continue to explore ways to enhance its data management system to the extent where it can efficiently accommodate the vast amount of information needed for reference on well tests, inspections, and permit review.

## **PUBLIC OUTREACH**

The public outreach program for the OCC UIC program is designed to give the regulated community, interest groups, the public and any persons who may be affected by any particular permit an opportunity to present their concerns at public hearings. The Oklahoma Administrative Procedures Act guides the hearing process and the notification process. In addition, the EPA is always given an opportunity to review any proposed rule prior to hearing. Published notices of proposed injection wells are required in Oklahoma

Courts and the county where the injection well is to be located. Since the mid 1990's, the OCC has been required to develop an agency Water Quality State Implementation Plan that enhances cooperation with other agencies. The OCC also established a citizen's advisory committee in the mid-1990's to enhance receipt of public comment.

The Review Team found this portion of the Oklahoma's UIC program to be both adequate and appropriate. The OCC does use mailing lists to inform both the regulated community and interest groups of proposed rule changes. A quarterly newsletter that reiterates the information supplements this. Operators have to ask to be on the mailing list and if they don't, the newsletter is the only notification of rule changes. OCC may consider sending notification of rule changes via mailing list to all operators who receive the newsletter.

## **PEER REVIEW OF THE OKLAHOMA CLASS II UIC PROGRAM**

### **OKLAHOMA CORPORATION COMMISSION**

#### **REVIEW TEAM REPORT**

#### **REVIEW TEAM MEMBERS**

Wendy Mahan	Natural Resource Manager Alaska Oil and Gas Conservation Commission
Joe Ball	Assistant UIC Program Manager Injection and Mining Division Louisiana Office of Conservation
William R. Bryson	GWPC Staff Consultant Former Director of Kansas Corporation Commission Oil and Gas Conservation Division
Ben Grunewald	Associate Director GWPC

### **PART I: GENERAL: ADMINISTRATIVE OVERVIEW**

#### **A, Statutory Authorities and Regulatory Jurisdictions.**

The OCC derives its statutory authority to regulate all phases of the oil and gas production regime from Chapters 17 and 52 of the Oklahoma Statutes. Overall responsibility for the Oklahoma Corporation Commission's (OCC) Class II program is contained within its Oil and Gas Division's Underground Injection Control (UIC)

Department. The UIC Department is completely responsible for carrying out administrative and technical activities related to the permitting, review of injection well files for accuracy and compliance with permit conditions, scheduling of mechanical integrity tests, and reporting to the Environmental Protection Agency in accordance with the Federal – State Class II UIC Program primacy agreement as conditioned under Section 1425 of the SDWA. The UIC Department coordinates with other divisions within the OCC and with the other departments of the Oil and Gas Conservation Division (OGCD) on matters relating to budgeting, personnel, mapping, records, hearings, enforcement initiatives, environmental matters, corrective actions and inspections. The OCC also maintains four district offices throughout the state, which are instrumental in carrying out the inspection assignments for the OGCD. Even though the primary responsibility for these latter functions is centered within those other Departments within the Division, or in the case of legal services, within the OCC administrative hierarchy, there appears to be a good degree of cooperation and coordination among all Divisions. This greatly assists the UIC Department in accomplishing its primary objective; the protection of Underground Sources of Drinking Water (USDWs). The Department also works in close coordination with the Oklahoma Department of Environmental Quality (DEQ) where UIC matters come under the provisions of the Jurisdictional Guidance Document between the DEQ and OCC.

The OCC rules contain two definitions of water that must be protected. Treatable water is defined as “subsurface water in its natural state, useful or potentially useful for drinking water for human consumption, domestic, livestock, irrigation, industrial, municipal and recreational purposes, and which will support aquatic life, contains less than 10,000 mg/l total dissolved solids (TDS) or less than 5,000 ppm chloride. Treatable water includes but is not limited to fresh water.” OAC 65-10-1-2: Definitions: also contains a definition of “fresh water strata” as any “strata from which fresh water may be produced in economical quantities. The definition of “treatable water” was modified in 1981 to 10,000 TDS to conform to the Federal UIC program definition of USDW from a numerical standard standpoint. In this report, both terms may be used, even though the level of protection alluded to is the same. The statutes of Oklahoma do not contain specific definitions of any oil, gas or injection well. These are defined under OAC 65-10-1.

The OCC is a quasi-judicial agency in which oil and gas production, injection and other matters follows definite legal procedures and results in the issuing of Orders, allow Operators to carry out an activity under a set of specific conditions. The injection of produced water is one of those activities. The operator is entitled to proceed with that activity until such time as he or she does not follow the conditions of the Order or ceases to carry out the activity. At this time, the authority to proceed with the activity is withdrawn by official Order of the Commission, unless transferred to another party. The Commission style of oil and gas regulation is distinctive and its origin came in the early days of the regulation of the industry when every produced lease became a legal relationship between a landowner and a company who wanted to extract petroleum from under the property. The OCC, like other Commissions of the Mid-Continent Region, became the entity to prevent senseless overproduction or premature depletion of oil and

gas reservoirs (waste and protection of correlative rights of royalty owners) with a secondary objective to prevent contamination of water resources. Through the years, Oklahoma's oil production has reached maturity and the issues of waste and conservation, while still important considerations, have been equaled, if not superceded by matters of water and environmental resource protection. Oklahoma has had an Underground Injection Control program since the mid- 1930's and has a long history of regulating injection practices. Whereas the focus of injection of produced water was always toward proper disposal into saline subsurface formations or the reinjection of water back into the producing formations to effect the recovery of additional oil, the mission since 1981 has been directed strongly toward using injection practices that will prevent contamination.

The OCC regulates oil and gas operations in 76 of 77 counties. Injection wells located on the Osage Indian Reservation (Osage County) are regulated by EPA Region VI under Section 1422 Direct Implementation in agreement with the Osage Indian Bureau. The OCC has no authority to regulate any waste generation or disposal activities on Osage Indian lands.

### **Facts on Oklahoma Oil and Gas Production and Injection (1)**

The first commercial oil well was drilled at Bartlesville in 1897, when Oklahoma was still a territory. In 1905, the Glenpool Field was discovered near Tulsa and was the first stratigraphic trap discovery. Discovery of the Glenpool Field was followed by several other major discoveries:

- The Hugoton Panhandle Gas Field in 1918, which eventually became the largest gas field in the United States (now more than 10,000 wells in Kansas, Oklahoma and the Texas Panhandle);
- The Burbank Field in Osage County in 1920;
- The Oklahoma City Field in 1927, which soon became the nation's largest oil field; and
- The giant West Edmond Field in 1943

(1) The above was taken from the 1992 Oklahoma State Review published by the Interstate Oil and Gas Compact Commission (IOGCC).

In 1999, Oklahoma produced 71,047,405 barrels of oil and condensate and compared with 112,321,064 barrel in 1990 after the first UIC Peer Review was done. The peak production year was in 1927 when 277,775,000 barrel was produced. Oklahoma production is currently from 88,000 oil wells and 20,000 gas wells. In 1999, 841 oil wells were plugged and 193 new oil wells were completed. At the end of the year 1999 there were 15,610 injection wells as opposed to 22,309 wells in 1989. Other statistics could be provided, however, the ones presented show a dramatic decline in oil production over the past ten years and consequently, reflects a similar decline in the number of injection wells. Producing wells vary in depth from 320 feet in Craig County in Northeastern

Oklahoma to more than 25,000 feet in western portion of the state in the Anadarko Basin. Throughout history, oil or gas has been produced in 71 of 77 counties.

Major sources of ground water include the Ogallala (High Plains) aquifer in the Oklahoma Panhandle, the Cambro-Ordovician Roubidoux in Northeastern Oklahoma where oil and gas is not produced, the Garber-Wellington aquifer (Oklahoma City area), the Rush Spring sandstone (west central) and the Vamoosa formation (east central). The Garber-Wellington aquifer is protected through a federal sole source aquifer designation.

### **Staffing and Funding**

The UIC program is a Unit within the Pollution Control Department and is currently allocated 13 positions in the OCC Oklahoma City Central Office. The currently filled positions include a Program Manager, 7 Oil and Gas Specialists and 3 administrative support staff. Two positions are currently unfilled, one Oil and Gas Specialist and one Administrative Technician. The field inspectors are under the Department of Field Operations, however, 7.5 FTEs are allocated to UIC program activities.

The total FY2001 budget for UIC is \$1,249,562 of which about \$356,000 is Federal UIC program grant money. The total salary allocation for UIC is \$887,558. The OCC indicated that the technical and administrative support is adequate to maintain the UIC program based on the concept the state is willing to fund 72% of the program. A fully-funded program with parity from the Federal UIC grant would allow for a more efficient program. For example, the database needs to be cleaned-up and a large number of orders need to be prepared to vacate abandoned well orders. Other funding for UIC activities comes from permit fees and fine payments, which go into a Revolving Fund. The OGCD budget is \$6.1 million of which the UIC program represents 10%.

The OCC staff indicated the responsibilities for administering the Non-Point Source program (Storm Water) drains funds that used to support UIC. State dollars are harder to get as previously available federal money is diverted to other programs. The OGCD is prohibited by law from using General Fund money.

### **Data Management**

The Peer Review Questionnaire was formatted in such a way to have the State describe the data management system for each major part of the report; i.e. permitting, mechanical integrity testing and inspection. The UIC Department uses the same data management system for all phases of the program. All data is captured in one well file using the O’Lalle system. In 1998, the UIC program converted to the Oracle data base which replaced the Dbase III Program that had been used since 1986 for the Permitting /File Review activities. The Oracle database was described as “adequate for entering data and for keeping records but not efficient for tracking problem wells within one-half mile radius”. Running reports off the system can be difficult. The OCC’s data management system is locally (intramural) designed and is not linked to any other state databases.

The OCC has been trying to grapple with a suitable data management system for almost twenty years. The OCC purchased a 168 Platter Jukebox and has imaged every Commission Order and historic wells records using inmate labor from the Department of Corrections at the cost of \$300,000. The agency is working toward linking the data management systems to these images so staff will be able to query well records and view documents online.

The Deputy Director of the OGCD provided an overview of future plans, pending approval of budget requests by the Oklahoma Legislature for web based application and linkage to the state Geographical Information System (GIS) servers, which would allow the agency to build base maps. Even if the additional funding is not approved, the OCC will continue toward a system, which accommodates online electronic filing of reports and applications. The Department of Environmental Quality currently cannot access oil, gas and UIC data but will be able to in the future. The Division is considering using the Risk Based Data Management System (RBDMS).

The OCC data management system is only available to the field inspector who works out of a home base if he or she physically travels to the district office or has someone in the district office relay the information by phone. The OCC is working toward an automated system that would allow field inspectors to access the system through from home.

### **Summary of Program Changes in the Last Ten Years**

The UIC Program for Oklahoma has not changed appreciably in terms of activities during the past ten or twelve years since the last Peer Review was conducted. In 1994, a Citizen's Advisory Committee was created to advise the OCC on UIC issues. The primary outgrowth was the adoption of stricter requirements for commercial disposal wells. Commercial wells now receive annual MITs and stricter construction requirements for well bore tubing. The Area of Review radius for non- commercial UIC wells was reduced from ½ mile to ¼ mile, which is more in conformance with other Class II primacy programs.

The UIC program also added a Compliance (Enforcement Officer) in 1994 to assist with cases where non-compliance had escalated to formal enforcement status.

When the Department of Environmental Quality established Wellhead Protection Areas in the mid 1990s, the permit review and AOR process underwent some changes to accommodate this program. According to OCC staff, the SARA Title III-Community Right-to-Know program has had little impact on the UIC Department activities. In April 2001, Oklahoma adopted a Water Quality Standards Implementation Plan (WQSIP), which defines areas of jurisdictional responsibility for all agencies protecting or allocating water and environmental resources, which includes the OCC. There is also a Memorandum of Agreement between the OCC and the DEQ that delineates areas of responsibility and discusses cooperation toward resolving issues where lines of responsibility are not clear.

The Data Management System for the OCC and the UIC Department continues to be an evolving process. In 1998, the UIC program was converted to the Oracle database. The EPA has commented on OCCs data management capabilities in terms of the reporting violations and the OCC is currently trying to make the database more efficient and user friendly.

## **PART II**

### **PERMITTING/ FILE (COMPLIANCE) REVIEW**

#### **A. OBJECTIVE: UNDERSTAND THE PERMIT FLOW PROCESS**

Applications for permits are filed with the Underground Injection Control Department of the OCC's Oil and Gas Conservation Division. The same application form, Form 1015, is used for both disposal (Class II-D) and enhanced recovery (Class II-EOR). This form is also used for filing applications for Commercial Disposal wells that receive oil field-related fluids. Form 1015 is used where an applicant wishes to amend an existing permit order. Beginning in 1981, permits have been issued for individual wells only. The Department has provided an information packet to the operator with instructions for completing an application as well as the format required for public notice. In 1997, the OCC's Underground Injection Control (UIC) Department developed a more detailed brochure for the operator's reference entitled "1997 Operator's Guide to Filing UIC Applications and Reports". This document is very comprehensive and tells a prospective applicant for a Class II injection well just what is required to comply with UIC regulations. A flow diagram of the UIC application process is included in this report as Appendix --.

Applications (six copies) are routed to the Commission Court Clerk who officially records their receipt and assigns them a pollution docket (PD) number. This number is assigned regardless of whether or not subsequent review activities by UIC technical and administrative staff find application defects. The number also provides the key to tracking the status of the application during the permitting process. The applicant is informed of the PD number assigned to the application.

The numbered applications are then routed to the UIC Department where the Oil and Gas Specialist first screens them for completeness. The screening process entails determining whether the application has the required attachments for well construction, area of review plat, logs (if required), and other documentation necessary for technical review. When an application is determined to be incomplete, the Specialist also checks the surety check of the applicant on the automated records and to insure the submitted application fee amount is correct. Application filing fees are \$35 for each enhanced recovery and noncommercial disposal well and for each amendment to an existing application and \$1,000 for each

commercial disposal well. The OCC provided the Review Team a copy of the letter sent to an applicant denoting incomplete items which have to be submitted prior to approval. The applicant is given six months to respond and supply the insufficient information. Usually the UIC Department will send a letter about pending applications and extending the time for response after the filing date. If no response is received from the operator at the end of the extension date, the OCC will dismiss the application by hearing process and send the applicant the Commission's Order to Dismiss Application. In the case of applications voided through dismissal, the application (1015, 1015a, etc) is kept by the reviewing agency, but the attachments are normally returned to the applicant.

Much of the review process of an application after it is determined complete remains unchanged since the last Peer Review in 1989. The OCC staff completing the questionnaire stated that the completed application is routed to an Oil and Gas Specialist to review the permit application, identify any technical issues and evaluate the information supplied on the attachments. The file is then sent to the UIC Department Manager who prepares a draft order and recommends to the Commissioners that the application be either approved or denied. The UIC computerized database is used to ensure that the technical review and permit issuance or denial recommendations occur within an acceptable time frame. Usually permits (Orders) are issued within four to six weeks from the date of filing. Dates are logged when the application is received, when the operator is notified of any incomplete items, when the application is complete, and when it is recommended for approval or denied. The O&G Specialist responsible for tracking the progress of an application is responsible for forwarding the application to the next reviewer and recording the progress on the database. This allows the UIC Department to track the status and location of any application at a given time for itself or any interested party. Applications for amendments to existing applications undergo an almost identical administrative flow route. There are some variations in the technical review aspects. The OCC staff used examples of reclassifying a non-commercial disposal well to a commercial well or request to reduce the injection rate or the injection pressure where they would require all of the attachments. In all cases, the OCC requires the operator to give notice (i.e., affidavit of mailing and publication). All amendments, whether considered to be major or minor, go through the same process.

A commercial disposal well is defined as a well where the primary purpose is to profit from the disposal of fluids. Applications for commercial disposal wells are processed by the same procedures except for the fee difference and the comment period of 30 days as opposed to 15 days for regular applications. Additional requirements also include surface casing extending below all USDWs, a Cement Bond Log run on the injection string prior to permitting, annual MIT at the requested injection pressure and monitoring wells if a pit is located at the facility. Public hearing is still optional. OAC 165:10-5-5 (d) outlines the requirements for commercial wells.

Permits (Pollution Docket Orders) and attachments are microfilmed and imaged (optical database) for a permanent record. Hard copies are kept by the UIC Department and in the Court Clerk's office. Copies are also sent to the district office; however, the Review Team was informed that district offices are missing some of the older injection dockets.

OCC rules provide for annular disposal of drilling reserve pit fluids on a one-time basis. Approval is limited to the drilling fluids generated at the well site only. The casing through which the disposal is to take place must be set and cemented at least 200 feet below the base of treatable water (USDW). Injection pressure must be limited to prevent vertical fractures that could extend upward to the base of the USDW. A mechanical integrity test may be required prior to the use of the well for annular disposal. The approval process is very similar to that for all other types of injection.

In those rare situations where a disposal well is to be used for disposal of Class I (industrial or municipal) and Class II fluids (oilfield), the OCC would permit this type of arrangement only if the non-hazardous Class I were so light that the injector needed to mix the fluid with salt water to make it flow by gravity. The Operator has to have both an OCC Order for the salt-water disposal and a Class I Order from the State Department of Environmental Quality (DEQ). The latter regulates the facility as their testing and reporting rules are more stringent.

#### **B. OBJECTIVE: UNDERSTAND THE CURRENT FILE (COMPLIANCE) REVIEW PROCESS**

The original purpose of the file review process was to determine that all active and temporarily abandoned injection wells which had received approval prior to the beginning of the Class II primacy program were not injecting in such a manner as to endanger USDWs. The OCC received primacy in 1981 and by 1989; file reviews had been conducted on approximately 10,000 of 16,000 “existing” wells. All formal file reviews for existing wells were completed in the early 1990’s and at the time of this report, well application files are primarily selected for review on the basis of compliance violations. Compliance history has become a major factor in determining the priority schedule for review. Factors such as late filed MITs on new wells (because of grace period, operator has 18 months to complete the well after the permit is issued), transfer of well ownership, information submitted on annual fluid injection reports (Form 1012A) and regularly scheduled MIT on 5 year cycle can trigger a compliance review. Over a period of a year, about 20 percent of the active permits receive a file or compliance review. Inactive injection wells are considered to be a part of the active number until the well is officially plugged and abandoned and the permit Order closed out by the OCC.

Prior to 1994, the same oil and gas specialists who were responsible for the conduct of the UIC application review and approval process conducted all file reviews. The compliance reviews, however, also involve field inspection and observation and district personnel do many compliance reviews. The oil and gas specialist who now conducts most of the file and paper compliance reviews in the Oklahoma City office is the UIC Enforcement Officer. The data from the file (compliance) review is entered into the computer system and subsequently crosschecked with the permit conditions. When deficiencies are discovered during the review, the operator is given a notice of the deficiency that contains a description of the violation and the number of days that the operator has to

bring the well into compliance. OCC staff indicated that 90% of the wells are returned to compliance within the allotted time frame. The OCC District staff may write a ticket or file contempt as necessary. The procedure for addressing compliance is OAC 165:10-7-7. If the violation is technical, the field inspector can “red tag” (seal) the well and if the operator breaks the red tag, the fine is \$2,500 to \$5,000.

The length of time needed to do an adequate file review varies widely. File reviews without any complications may take five minutes whereas one with complications might take up to an hour. When the Oklahoma Peer Review took place in 1989, each file review averaged about three hours. This was because the database was incomplete and cumbersome to manage and the easiest way to identify wells and operators was to research the Petroleum Information data index and the State production tax reports. Most file reviews now can be done in less time and the type of time consuming complications are where missing or conflicting data is discovered during the review and correspondence with the operator becomes necessary to resolve the problem. OCC staff indicated some complications might take several months to resolve.

OAC 165-10-7-7 guides the type of compliance action taken by OCC staff when a deficiency is discovered during file (compliance) review. For technical violations which may have a bearing on the continued mechanical integrity of the well, the well is “red tagged” and cannot be used by the operator until the deficiency is corrected. For example, if the wellhead injection pressure exceeds not only the permitted amount but also exceeds the amount of pressure which would be allowed based on casing program or depth, the well would be red tagged until the operator either reduced the pressure to the permitted amount, or reworked the well to reduce the pressure requirement. For many administrative or paper violations (need to increase permitted brine volume, failure to submit Form 1012A, a surety lapse or pressure increase within normally accepted limits, etc.) the Department of Field Operations may allow the operator to inject while the deficiency is being corrected.

**C: OBJECTIVE: Understand the Technical Review and Related Aspects of the Permit/File (Compliance) Review.**

For newly drilled injection wells, the OCC requires surface casing to be set 50 feet below the base of USDWs with cement circulated to the surface or production casing cemented 100 feet below USDWs and cemented to the surface. Surface casing depth requirements are given for each well site by an Oil and Gas Division geologist using the mapped base of the USDW for the county. The OCC geologist in charge of refining the maps used to delineate the base of USDWs informed the Review Team that maps for each Oklahoma County are gradually being redone to use Sea Level Datum Elevations as a basis for establishing surface pipe setting and cementing requirements to protect USDWs. This project is about 35% towards completion for Oklahoma’s 77 counties. The first effort at revising the determination for the base of USDWs occurred in 1984. Electric logs were used to determine the base of the 10,000 mg/l total dissolved solids (TDS) water. Contour maps were prepared for all of the oil and gas producing counties in the State. The OCC uses the same procedure as in the past in that all maps are updated whenever new logs

show that a revision is needed. The OCC believes the new methodology is more realistic, cost effective, and enhances protection of USDWs because it reduces the number of areas where an excessive length of surface pipe may be required. The revisions have also afforded additional protection in areas where the previous requirements were inadequate to protect USDWs. The older information, which is updated as new information becomes available, is still used in the counties not converted to the new system

All injection wells completed since 1982 must have minimum confining zones which are determined as follows: wells injecting at a rate of 1000 barrels per day or less must have a minimum cumulative confining thickness of 200 feet while those injecting quantities exceeding 1,000 barrels per day must have a minimum cumulative thickness of 500 feet. Electric logs are used to calculate the confining interval. In the 1989 review, UIC staff asserted that geologic confinement criteria are not difficult to meet because of the presence of extensive clays and shale sequences underlying the USDWs. All newly completed injection wells are required to cement the production casing for 250 above the perforated injection interval. Wells converted from oil or gas production to use as an injection well are required to set and cement casing as described above for new wells. If a converted well does not have adequate surface casing, the production casing is to be cemented from 100 feet below the USDW to surface.

Throughout the years since oil was first discovered in Oklahoma, the OCC has been able to develop an extensive appreciation of the lithology in most counties through log coverage. Well control in Oklahoma is extensive and the logs and drilling reports have been used to develop a series of water maps which delineate the stratigraphic location of USDWs in reference to potential injection zones. Geologic features such as subsurface karst surfaces, faults, and other unique geologic conditions, which could affect the desired level of containment of injected fluids, have been delineated. The UIC Department staff generally uses the confining thickness of 200 feet for non-commercial injection wells and 500 feet for commercial wells as the primary geologic determinant. Approval of injection into areas of high formation pressures, either natural or imposed by past injection practices is evaluated on a case-by-case basis. In the 1989 Peer Review Report, the OCC indicated most of the faults in Oklahoma are sealing faults.

Tubing and packer are routinely required for all newly completed and converted wells. Packer type and its setting depth are specified in the permit. The UIC staff indicated there are no exceptions to the packer requirement. The OCC does have the regulatory flexibility to impose alternate requirements in the absence of a packer (i.e., more frequent MITs, annulus and pressure monitoring, limitations on injection volume). The packer depths specified in the permit allow for a plus or minus 20-foot tolerance. Permits also specify the use of tubing but, except for commercial wells where lined tubing is required, no specifications exist for other classes. The UIC Department does not prescribe or impose restrictions on the weight, grade, material, internal coating, or other tubing/packer qualities except for commercial wells as stated above. The rules basically state that oil field grade pipe is to be used. The OCC does not approve packerless wells even though a few are left from vintage completions of the past.

Dual injector/producers are allowed as long as production occurs above the injection zone. The OCC commented that there are only a few of these wells actively injecting.

Maximum permitted surface injection pressure limits are the same for both Enhanced Recovery (EOR) and Saltwater Disposal (SWD) wells. In the past, formation fracture pressures were evaluated to determine the fracture gradient for various depths and producing fields. The fracture gradients used in 1989 ranged from 0.7 to 0.9 psi per foot of depth for depths below 2,500 and 1.1 psi per foot of depth for shallower formations. The general current pressure allowable is 0.5 psi per foot of depth; however, 1.0 psi is allowed if the cemented surface casing extends more than 250 feet below the USDW. Except in special situations, the injection rates are not a consideration because the maximum permitted surface injection pressure limits the rate. Modeling is not used to determine fracture pressure although the OCC can require or allow consideration of a step-rate test. The types of monitoring systems that have been approved include measurement of flow rates and monitoring of the tubing/annuli pressures. The OCC has not experienced any situations where compatibility of the injected fluid/cement or injected fluid/formation fluid has been a problem.

#### **D. OBJECTIVE: To Understand the Area of Review Considerations and Procedures.**

OCC uses a one-quarter mile radius for determining the AOR for enhanced recovery wells and non-commercial disposal wells. For commercial disposal wells, the requirement is a ½ mile radius. The UIC staff engineers calculate Zone of Endangering Influence (ZEI) using a modified Theis equation which is forwarded into the permit record even though the ¼ mile is the standard. The radius of the AOR consideration may be reduced on the basis of ZEI calculation and through the years since primacy in 1981, 50% of the wells permitted have been based on the ZEI calculation and not the fixed radius. The rules were amended in 1996 to reestablish the AOR at ¼ mile. The EPA Region VI has expressed concern over the change from ½ to ¼ mile for non-commercial disposal wells and is still, after four years, reviewing the matter after OCC informed them of the change. All permits in Oklahoma are issued for single wells, rather than area permits. OCC technical staff indicated that the criteria for review are the same. If the injection well is to be under gravity flow (low pressure), this would be taken into consideration for judging other wells' potential for problems in the AOR.

Where the UIC Department finds that the Operator must take corrective action on a well within the Area of Review, two options are generally open. If the Operator desires to use the applicant well for injection, corrective action must be performed before approval can be given. Corrective actions for AOR wells are typically cement squeeze operations on wells with uncemented casings opposite the injection zone, or occasionally, as a condition of the permit, to require monitoring of the surface casing pressures of offset wells. The monitoring approach may become difficult where a different Operator

produces the offset lease. When the Area of Review reveals a problem beyond the geographical control of the Operator, the OCC may impose permit limitation such as injection pressure reduction, volume decrease or continuous pressure monitoring. Occasionally permit conditions will include more frequent MITs or radioactive tracer surveys to satisfy corrective action concerns. The Operator may also work with the Department of Field Operations to get permission to plug the problem well. If all options fail, the application will be denied.

Usually the Operator elects not to take corrective action, in which case the OCC staff ends up dismissing the application. This occurs 90% of the time, however, the OCC does have the authority to force an Operator to produce or plug a well if it appears, even without the influence of injection, to be a threat to USDWs.

#### **E. OBJECTIVE: Understand the Administrative Permit Application Components.**

Prior to permit issuance, the Operator is required to notify the surface owner of the land where the well is to be located and also all offset operators within ½ mile radius of a filing of an injection well application with the Commission. The Operator is also required to publish in the local newspaper of the county where the injection well is to be located and in an Oklahoma City newspaper. Public notice is accomplished by publication for one day and is done at the applicant's expense. Affidavits of publication must be included with the filing of the form 1015. The protest period (public comment) begins fifteen (15) days from the date of last publication for non-commercial injection wells. The comment period for commercial wells is thirty (30) days. The public comment period can run concurrently with the technical review by the UIC Department or after completion of the review. The comment period may also run during the time when the UIC Department staff is working with the operator to assemble a "complete application"; i.e. an application which has all of the necessary components to afford proper review and approval. This includes documentation of financial assurance.

Most applications for injection wells do not receive public hearing unless protested by an outside party or the UIC Department of the OCC objects to the application and the applicant has sought relief through the hearing process. An example of where the UIC Department would enter an objection would be when a problem well exists within the Area of Review around the applicant's proposed well. The OCC actually takes a very liberal position concerning who may protest an application. Any party in the State, regardless of whether it has any particular interest in the well may object and cause the application to go to hearing. When protests are filed with the Commission Secretary, the applicant is notified and a hearing date is scheduled. All parties are notified of the date, time and location of the hearing. The hearings are generally held in the OCC courtroom in Oklahoma City from 9:00 a.m. to 4:30 p.m. or in Tulsa. The OCC has video-conferencing available where hearing participants can go to Vo-Techs. Some hearings are held in Tulsa because of its status as an oil business center. The OCC is currently expanding the hearing participation capacity to include internet linkage. Hearings are

presided over by an Administrative Law Judge (ALJ) from the OCC's Office of Administrative Procedures (OAP). The Administrative Law Judge also determines the criteria for whether protests are valid, however, traditionally all protests are given hearing opportunity. The hearing record closes on the day of the hearing. The Operator has ten days to appeal the decision of the Administrative Law Judge at which time the record can be reopened to accept additional comments or the ALJ may elect to just leave the record open for a period of time. If the case is protested the ALJ will write a report in support of his or her judgment and the protesting party may appeal the decision within 10 days in writing to the Commission. The Commissioners may decide to hear the case or refer it to an Appellate Referee within the OCC who either concurs or denies the ALJ's ruling. Further appeal goes to a Deliberations Panel appointed by the OCC. These cases are usually not heard by the Commission *en banc* unless the case has vast public opinion or interest. Decisions from the OCC are appealable only to the State Supreme Court.

The OCC has not established a definition of "significant interest" in reference to the number of protesters or the seriousness of the protest. All protests are assumed to be "significant" and eligible for hearing opportunity. The UIC Department does set a pretrial conference between the applicant and any protestant to attempt clarification of issues and concerns to potentially resolve the conflict. About a third of the protests are withdrawn as a result of pretrial conferences. The UIC technical staff participates in the hearing and offers an opinion either favoring or opposing the application. Approximately five percent of applications are protested. While a small percentage of the protests are from offset operators, a majority is from tenants, landowners and area citizens. About five percent of the time, public comment causes modification to the final permits conditions. Complaints related to a proposed permit or application which are submitted to the agency after the UIC Department has given approval follow essentially the same process as described above. A letter will be sent to the UIC Department and a hearing will be set and heard by an ALJ at the Commission. After a permit is issued, the complaints will go to a complaint and enforcement official in the UIC Department who will follow up and file a case with the Commission, if necessary.

The OCC requires financial assurance prior to permit issuance. The type of surety system in place is as follows: The Operator has evidence of a Letter of Credit for \$25,000 for a non-commercial disposal and \$50,000 for a commercial disposal well. New operators or operators with a history of compliance problems are required to file a Category B surety or post a bond in the amount of at least \$25,000 not to exceed \$100,000. All bonds are for blanket coverage for all wells operated by that operator within the state and are renewed and filed annually as a part of an Operator Agreement. The OCC does not deal with surface remediation, however, there is a requirement under the Surface Damage Act; Title 52 Section 03-118 that the operator file a \$25,000 bond with the Oklahoma Secretary of State to cover surface damages on a lease.

## **F. OBJECTIVE: Understand the Process for Aquifer Exemptions**

The OCC has only issued one aquifer exemption since being granted primacy by EPA in 1981 and this was on the basis the aquifer was a producing zone. The aquifer exemption was granted through OCC Order after concurrence and approval was received from EPA. The process for obtaining an exemption is contained in OAC165: 5-7-28 of the Rules of Practice. This regulation is detailed and describes the process an operator or other petitioner would have to go through to file the application and provide justification for exemption through the OCC hearing process. OAC 165 5-7-28 (b) (5) (A-C) describes the three criteria for exemption. In addition to the above, justification can be made on the basis that the depth or location of the ground water is such that recovery for drinking water purposes would be technically or economically impractical or its so contaminated that it would be technologically or economically impractical to render the water fit for human consumption.

### **Permitting/File Review: Discussion, Evaluation and Recommendations**

#### **Identified Strengths**

1. The OCC has a well-structured application, review and supervision process that includes oversight for completeness of required application components and thorough technical review. Extensive use of automated data processing, including the computer tracking of application status and file location facilitates the process. This system was installed prior to the 1989 Review and has gradually evolved into a better system
2. Operators who wish to apply for injection well permits are provided with a well-organized information booklet, which assists them in properly completing applications and providing the necessary attachments. This booklet is dated 1997 and replaces the informational packets given out prior to that time.
3. The OCC is continually revising the maps of various counties delineating the base of USDW's. This is a collaborative effort within the agency and involves qualified geologists and engineers outside the UIC Department. The base of USDWs is readily known at most injection well sites. Currently, the maps are being converted to identifying the base of USDW in each county on the basis of sea level datum instead of surface-depth base. Information for approximately a third of the 77 Oklahoma counties has been revised.
4. The OCC focuses on the adequacy of cemented surface casing to protect USDWs. Surface casing is required to be set below the base of the USDW for newly drilled wells and all commercial disposal wells. Squeeze cementing is required to protect USDWs for newly converted wells when the surface casing does not extend to the currently mapped base of the USDW.

5. The OCC has a very liberal (“open door”) policy for protests resulting from public notification. Any concerned citizen or other operator is assured of a hearing on an application upon filing a written objection. Proposed commercial wells are so identified in the published notice. Pre-hearing meetings with an applicant, complainant and UIC department staff eliminate many hearings through negotiation. When hearings are necessary, the OCC offers a well-structured appeals route for the participants to use if aggrieved by an adverse opinion at a lower level.
6. Tubing and packer are required for newly permitted wells and have historically been required for more than two decades. The instances of ground water contamination have been minimized through this longstanding requirement.
7. The file reviews are still performed in conjunction with the filing of amendments, permit transfer requests, and various record filings made by the operator. The formal file review of all injection docket, however, was completed in the early 1990’s and the process has been primarily used to track permittee compliance.

### **Other Comments**

1. The aquifer exemption process under OAC165: 5-7-28 is detailed and would allow for a comprehensive technical evaluation of any application for exemption. OAC 165:10-5-14 also covers “Exempt Aquifers” and duplicates much of the language regarding the exemption criteria. The latter rule states that the OCC order, “shall be subject to the approval of the Environmental Protection Agency whereas the Chapter 5 rule does not. The Review Team recommends that OAC165: 10-5-14 be revoked since most of the rule duplicates the more detailed rule in Chapter 5 and the matter of approval by EPA is a OCC directive unto itself and is only informational to the regulated community. Having a part of the rule in another Chapter of the Administrative Code is somewhat confusing to a reader.
2. The OCC allows operators to submit design applications for injection wells, which means that the UIC Department can provide technical review on a well’s conceptual design. This is similar to a Drilling Plan for a well. The Application Form 1015 is submitted to the UIC Department and reviewed. If deemed acceptable, an Order of the Commission is issued to the Operator authorizing the well for EOR/disposal. The authorization, however, is based on the applicant’s proposed data. The MIT data (Form 1075) and actual well completion data (Form 1002A) is not submitted to the OCC for review and approval until after the Commission Order is issued. The Review Team expressed strong concern that injection could commence before final testing and well testing data can be reviewed. The OCC has no provision, nor does

EPA UIC program philosophy allow for testing a well for injection capability prior to having a permit.

3. The Review Team does not share the same concern as EPA Region VI that the Area of Review radius has been reduced from ½ mile to ¼ mile around a well.
4. The Review Team suggests that OCC consider supporting a revision in the law, which requires UIC orders to be signed by the Commissioners before the Order to Inject is official. If this is not feasible, the Commission Order should contain language informing the well operator that the permit to inject will not be issued until after the OCC has received and reviewed all actual well completion data, mechanical integrity test data, and any other information required by the OCC. Some states that used to do all business by official Commission order have delegated this responsibility to the Division level. The old Conservation Laws of the 1930's, while not a dead issue, have become less of a concern with stripper production; however, the UIC permit is designed to protect USDWs, which is more of a permitting activity rather than an Order to Inject.

### **PART III INSPECTIONS**

#### **A. UNDERSTAND HOW FIELD OPERATIONS ARE CONDUCTED AND MANAGED BY THE AGENCY**

The division employs approximately 52 field inspectors who are State employees and are assigned to the OCC's Field Operations Department. For the most part, the inspectors work out of their homes rather than an office and a district office supervisor coordinates all work. When the field inspector feels he or she needs advice or assistance on solving a particular problem, that guidance generally comes from the supervisor in the district. Additionally, supervisors periodically accompany the field inspectors on both routine inspections and special assignments to critique the quality of work and determine if the necessary work is getting accomplished. To ensure that all inspections, tests required of operators and observations of lease or well conditions meet a common standard of quality and fairness to operators, the supervisor and field inspector discuss findings and observations and develop a plan to pursue in those cases where follow-up is necessary. This would also include approaches to operator non-compliance or preparation of enforcement cases.

There are four district offices in the State. These offices provide inspectors with the use of a telephone and copies of Division files and records. The managers of the district offices report to the Manager of the Field Operations Department in the Oklahoma City office. The inspectors have cell phones and pagers and are able to contact the district office from almost any location in their area. The inspectors commonly contact the district office at least once, if not twice a day to see if there are new orders or special

inspections to be made, however, with the cell phones and pagers, the contact may be initiated from the district supervisor at any time of the day.

Inspectors are generally given the freedom to arrange their own daily work schedules, however, the district office manager and assistant manager have the prerogative to prioritize inspection schedules to accommodate complaints, reports of pollution, and Mechanical Integrity Tests (MIT's). The OCC does have a written inspection strategy in the form of a guidance manual that is available to inspectors and is in the process of finalizing a revised and substantially updated Field Inspector's Manual. This manual will replace the one used for many years called "Standard Operating Procedures and Technical Guidelines". This manual contains outlines of field operations procedures for a wide variety of standard inspections and emergency procedures, definitions of oilfield-related terms, and explanations of certain protocols. This document was provided to the Review Team in draft form and is anticipated for release around the end of August 2001. Routine UIC Department requests are sent to the District Office. Only in special situations does the UIC Department directly contact a field inspector to conduct an inspection of a well.

Inspectors are responsible for performing all types of field inspections, including oil, gas, UIC and environmental facilities. Overall, about 15 % of the average inspectors time is spent on UIC matters. Pollution problems and complaints take priority for inspection scheduling followed by routine and random inspections. In addition, the Division periodically does "sweeps", where a group of inspectors will take part in a focused inspection run-through of a certain area. OCC believes these sweeps are an effective and cost-efficient method to make routine lease and well inspections in a short period of time. This allows the inspectors to devote more attention to the operators with poor compliance records. The compliance history of all operators and the selection of wells coordinated for inspection is done at the district office in coordination with the Department of Field Operations. All inspections are logged in and located in the district office file.

Inspectors play a critical role in enforcement. Field inspectors cite infractions, send first notice of violations and will dismiss the case in accordance with OCC administrative procedures when compliance is met. The inspectors receive training in proper sampling techniques and the proper legal procedures for developing enforcement cases. They will testify in court as necessary to ensure enforcement of state regulations. Meetings are held bi-monthly at the district offices with the various district inspectors and other staff. These meetings provide an opportunity to discuss new rules, policies and procedures with the district staff and also serve as a training opportunity.

Inspectors must have at least four years of actual prior oilfield experience and a high school education to qualify as an inspector. The candidate inspector must also pass a test of a hundred questions given by the Office of Personnel Management. The questions are 40% technical and 60% situational and the test score plus the other qualifications serve to rank the candidates. New inspectors receive at least two weeks training in the district offices, and then are put with their field supervisor for a period of time to ensure training

on OCC procedures and policies. The length of training time depends upon the supervisor's perception of progress and subsequently the field inspector is given an area or county to work. Safety meetings are conducted periodically in the districts. Safety hats, shoes, glasses or goggles, first aid kits, H2S detection meters, and fire extinguishers are issued as standard field inspector equipment. Cellular phone communication is maintained with all inspectors. The Division has sixty-three (63) Global Positioning System (GPS) Units in the field and fifty-two (52) laptop computers in the field.

**B. OBJECTIVE: Understand how routine/ periodic inspection program are performed in the state**

OCC inspectors routinely inspect most UIC wells on at least an annual basis although it may take three years to get around to all wells. The inspectors routinely visit 9,000 to 10,000 UIC sites per year with approximately 3,000 being in conjunction with a scheduled MIT. The field inspectors collectively make about 80,000 site inspections per year on all of the facilities under the jurisdiction of OGCD. Enhanced Recovery wells (EOR) and Saltwater Disposal wells are inspected using the same criteria. UIC wells located in areas of more frequent incidents of non-compliance receive a higher percentage of inspections. The schedule for routine inspections of UIC wells is established through coordination of the field inspector and the district manager. These inspections are done as part of a coordinated, comprehensive inspection of other facilities on the lease. These inspections are in addition to MIT's, which are scheduled separately, however, inspection of other facilities on the lease may receive a routine inspection concurrent with the on-lease witnessing of a MIT. The random, routine inspection program is used to detect rule violations; operational problems which if not corrected may lead to more serious violations, or environmental problems. Operators are not given advanced notice of routine inspections. The OCC has the right of ingress and egress and stated that at least half of all inspections are unannounced, however, the inspector does have the option to call the operator and request his presence on-location if his presence is deemed necessary. The operator does not get a copy of the routine inspection report. The operator does get a copy of the 1085 form when a violation is discovered during inspection or when the inspection was performed on the basis of complaint.

Since the previous review of the Oklahoma UIC Program in 1989, the OCC has used the Inspector's Manual to instruct field inspectors what to look for when investigating spillage of oil, saltwater leaks, and integrity of tank batteries and flow lines. The inspectors also check pressure gauges and the UIC wellheads for leaks. The inspectors do not carry gauges and flow meters at all times but gauges are available in the District offices for Inspectors' use. In addition, the Enforcement Officer has and carries his own gauges whenever he is in the field. At one time the OCC budgeted funds for purchase of gauges but found it was easier to require the operator to put on a gauge to check pressure if any questions arose.

There is no formal checklist used by inspectors. Inspectors perform an average of 15 UIC inspections per month. Winter and periods of inclement weather can adversely affect the number of inspections for any given month. About two hours are required for the average

UIC inspection including pre-trip preparation, travel time and time on location. Photographs and water samples may be taken by inspectors on a routine investigation when violations or environmental problems are discovered. The inspectors have been trained in the proper sampling and sample handling techniques including chain of custody procedures. Whether samples are collected as a part of a complaint investigation or as a problem discovered upon routine investigation, the information obtained includes operator's name, name of lease, legal description, and the name of the person collecting samples. Samples are collected in sterilized containers and transported to private laboratories by chain of custody procedures. All sampling is done under procedures established in the state's QA/QC plan and training on correct procedures is included in the Field Inspector's Manual.

**C. OBJECTIVE: UNDERSTAND THE EMERGENCY AND CITIZEN COMPLAINT RESPONSE PROCEDURE**

When a citizen calls in a complaint, potential rule violation, or environmental problem (oil spill, leak at a well, etc), the field inspector is notified by the Department of Field Operations or the district manager. About 5% of all complaints are associated with UIC permitted wells. The District Manager is responsible for prescribing the appropriate response to the event. The field inspector and his supervisor will do an onsite inspection to determine what level of coordination is required to provide proper response. In addition, the Department of Environmental Quality operates the State Hotline and this is another point of complaint referral for the OCC. A representative of the Department of Environmental Quality visited with the Review Team and described a well-structured cooperative relationship with the OCC staff. The Review Team was also provided a packet of sample reports from the DEQ to OCC referring complaints and pollution incident reports on various topics. The Oklahoma Conservation Commission compiles an annual report of incidents from all agencies and OCC investigations are included.

All complaints and particularly those from citizens reporting potential pollution are given the highest priority and are investigated within 24 hours. After the inspection, Form 1085 is completed documenting the findings and recommendations of the inspection and is copied to the district office and entered into the computer system. If the complaint involves a UIC matter, the 1085 form is sent to the UIC Department. A copy of the report is also sent to the operator. In most cases, the operator is contacted after the initial investigation because the field inspector wants to view the situation as the complaint describes. The OCC staff routinely makes unannounced inspections. The complainant is routinely contacted prior to field investigation of the alleged problem and subsequently notified of the results of the complaint investigation. If a situation calls for additional technical expertise and /or further investigation, the UIC Department or Pollution Abatement Department will be contacted, depending upon the nature of the problem. The Pollution Abatement Department will take over responsibility for the site if remediation of contamination is necessary is complex or requires extreme measures.

Following emergency and /or complaint responses and corrective actions, a follow-up inspection is performed to ensure that all required work has been completed to resolve the

complaint, violation, or UIC integrity problem. A final report is then written. If the emergency situation requires notification of another agency(s) that may have their own regulatory issues to resolve (brine flow into a Public Water Supply, lake or well) the district manager or assistant manager does the notification. Some of the common emergency situations involving UIC permitted wells include false information on MITs, uncertain well ownership, well purges, and breakouts, although the latter category usually involves wells that are abandoned and not plugged.

**D. OBJECTIVE: To Understand the Reporting and Follow-up Procedures Used in the Inspection Program**

The Field Inspectors use two basic forms for reporting inspections. Form 1075 is used for MITs and Form 1085 is used for all other inspections (routine, complaints, emergencies and for violations the operator needs to address). Notes taken by field inspectors are entered into a yearly logbook that is used solely for that purpose. Inspectors are required to keep logbooks for a period of three years before they are destroyed. The logbooks are not microfilmed. Records for routine injection well inspections that are done as a part of comprehensive lease evaluation operations are generally not crosschecked to the permit file in the district office unless the information is included on a Form 1085. In some cases, the UIC Department would review the information. The state does have a statute regarding the destruction of potentially historic files and this would include field notes, however, as previously indicated, the minimum retention period is three years. The statutory requirement refers to both hard copy files and electronic records and the judgments on the type of records to be retained and the length of time is the responsibility of the Manager of the Department of Field Operations and /or the Managers of the District Offices

There is very little lag time between when inspections are made and the reports written. Inspections are written on-site and complaint reports are written within 24 hours. Hard copies of the reports are retained at the District offices and also mailed in to the Department of Field Operations. All computer entry is done at the district office. If any of the reports have continuous monitoring records, these charts or electronic recordings are forwarded to the Central Office to be included with the well file. All violations recorded through inspections are kept at the district level as hard copies and also entered on the computer where they are accessible to Central Office staff where the Compliance Officer tracks the progress on the violation resolution. The OCC Legal Department routinely reviews all inspection procedures to assure the results may be used in formal enforcement actions. The Legal Department also reviews all form revisions. Drafts of UIC Rules changes are sent to EPA for comment.

The manager of the district office is responsible for reviewing inspector reports and usually does this within 24 hours of filing. He also reviews 1036 forms used for more formal complaints and correspondence to operators. The Field Inspector's primary access to UIC permit contents, letters to operators and records of NOV's is the District office. He can either call for the information or come into the office. He can also call or come into the UIC Department office. Information and forms filed on the chain of custody for

injection well obligations is kept at the UIC Department central office. Photos are sent to the Legal Department for use in the hearing process.

### **Evaluation and Recommendations**

1. The Review Team felt that the retention of inspector log books for only a three year period was an insufficiently short time, particularly since no entries were microfilmed. The logbooks are destroyed even before the end of the cycle for MITs has been completed. The Team believes that even though other forms are used to document tests, violations, etc. The historical value of these books for future inspectors is important.
2. The documentation for complaint responses has been considerably upgraded during the past few years and the cooperation with the DEQ on the referral and resolutions of complaints and reported environmental problems appears to be very well designed and is working.
3. Inspectors routinely inspect 9,000 to 10,000 UIC wells in addition to the more than the 3,000 MITs witnessed in conjunction with scheduled MITs. It takes about three years to inspect all the UIC wells on inventory. Although this is about the same inspection rate as reported in the 1989 Review, OCC indicated that for several years they have been at the budgeted level for field inspectors. Those areas that have a higher rate of historical non-compliance receive more inspection. The inspection time for all UIC wells to be completed with a frequency of once every five years is approximately 18 months, on the basis of the current inventory of about 14,500 wells.
4. Neither the inspection strategy nor the inspection checklist has been put into writing; however, a new, very comprehensive manual for field inspectors will be completed and distributed in August 2001.
5. The Review Team had some concern that the two-week training period for new inspectors might be inadequate given the complexities of the OCC district inspection program. Inspectors are given adequate communication equipment to call in to the district office for information and on problems.
6. The Review Team was especially concerned that the OCC inspectors do not use standardized field inspection report forms when conducting routine inspections. Routine inspections are only recorded in an inspector's personal logbook. The lack of such a standardized form may allow for overly subjective inspections. The OCC stated they use Form 1085 (Incident and Complaint Investigation Report) for all types of inspections. However, that is not a routine inspection form. The Review Team recommended that additional forms be developed for the other inspection categories to ensure uniform, consistent reporting by field inspectors.

7. The OCC should furnish field inspectors with their own calibrated pressure gauges. This is needed to verify the well is operating within its permitted or regulatory parameters. Gauges supplied by well operators may not be properly calibrated.

### **Conclusions**

The Oklahoma field inspection program is providing a high degree of protection to USDWs because it focuses on program areas which provide the greatest degree of water protection such as MI testing, well construction, rapid response to environmental problems and citizen complaints, and close monitoring of non-compliance resolution. The new field inspection manual should be of great benefit to all field inspectors providing that the OCC continues periodic training on inspection procedures and updates the manual as needed.

As was recommended in past reviews, providing inspectors with a generalized inspection schedule, particularly since the MIT five-year test accounting is done in the central office may further enhance the inspection programs. The OCC will probably never obtain enough funding to employ the optimum number of field inspectors.

## **PART IV     MECHANICAL INTEGRITY TESTING**

### **A. OBJECTIVE: UNDERSTAND the TYPES of MECHANICAL INTEGRITY TESTS ALLOWED for DIFFERENT UIC WELL COMPLETION PROGRAMS**

The OCC allows a variety of tests for demonstration of mechanical integrity for significant leaks (Part I- MIT). These include the casing-tubing annulus pressure test, positive annulus pressure monitoring, radioactive tracer survey and nitrogen pressure test. OAC 165: 10-5-6 provides the limitations on which tests can be used for certain well completion programs. The criteria used for determining the Pass/Fail of a pressure test is a 10% bleed-off in thirty minutes. Fluid volume loss is not a consideration and no stabilization period is required to dampen the effects of fluid temperature changes prior to starting the test period. The 10% variance has traditionally been the industry accepted practice and has proven to be a good test criterion, even though the technical origin of the standard is not known. The actual demonstration of mechanical integrity occurs if, under the testing pressure, leaks at the wellhead cause a loss of pressure of 10% or less over a thirty-minute test period.

Test pressures are set out in the OCC rules. Initial test pressures for new or newly converted wells must be at the permitted pressure or 1000 psi, whichever is less, but not less than 300 psi. All subsequent tests must be done at a minimum of 200 psi. All existing (pre-primacy) wells have now been tested and continue to be tested at a pressure of not less than 200 psi. New or newly completed commercial disposal wells must be tested at the permitted pressure or 1000 psi, whichever is greater. Once in operation, these wells

are tested to the required pressure authorized by the Order but not less than 300 psi. In 1996, the OCC promulgated OAC 165:10-5-6- (f) to require annual testing for commercial SWD' wells. Higher test pressures are required for commercial wells because the operating pressures are generally higher; shut downs for maintenance less frequent and a perception by the public that less care and attention exists.

The rules do permit an operator to use Annulus Pressure Monitoring (APM) by monitoring and recording the casing-tubing annulus pressure during actual injection. Permission to use APM is given by the Manager of the UIC Department on a case-by-case basis. When APM is allowed, a measurable positive pressure must be maintained on the annulus and continuously recorded. Injection rates, volumes, and annulus pressure must be monitored monthly and the result submitted annually on Form 1012A. Charts must be maintained by the operator but not required to be submitted. Operator must retain the record for three years after the test. The UIC Technician reviews all information on the test and if the report shows positive pressure, then it is forwarded to the coordinator who is a Petroleum Engineer. No stricter standards are imposed to account for special geological conditions such as faults, salt deposits and artesian zones unless dictated through the complaint process or through the OCC hearing procedures. All wells using APM are required to have an initial pressure test unless the requirement is waived by special order of the Commission. The OCC staff indicated no recollection of such wells under special order. Where monitoring records are used and reviewed to establish MI, alleged failures are investigated from review of annual reports. Where the well is not using APM, there should be no pressure on the casing-tubing annulus. When such conditions are discovered, the report is given to the investigating coordinator for further review.

The radioactive tracer survey (RATS) is primarily used on wells where there is not an annulus to test or to verify that a packer or tubing leak does not exist. The RATS is used to determine leaks in the tubing packer, casing or to satisfy Part II of MIT. RATS is also used to determine if there is not enough cemented column behind the pipe to extend above the injection zone. This would be considered a failure of Part II MI. Cementing reports are used to verify cement occurrence 250 feet above the injection zone. In all cases, the cementer or the operator must verify cementing reports.

The OCC allows radioactive tracer surveys, temperature surveys and cement bond logs to be used to demonstrate MI. The OCC staff did not indicate whether operators were required to run logs more frequently in areas of Oklahoma where potential adverse geological situations (e.g. corrosive ground water) have historically caused problems in past oilfield operations. OCC uses RATS to indicate vertical movement behind casing and temperature surveys to indicate anomalies that indicate top of cement and possible casing leaks. Cement bond logs are not required on all wells but are requested on a case-by-case basis. The UIC technical staff, engineers, and geologists have the authority to require the Operator to run a suite of logs. They also are capable of interpreting the logs submitted by the Operator. The most common remedial action required to correct MIT failures is to repair the tubing or reset/replace the packer. Casing problems are corrected by squeezing cement or other acceptable sealant into the holes in the production pipe. If

the Operator of a well requiring corrective action proves to be insolvent, the OCC can use funding from the state well plugging program to abate the potential for pollution to USDWs.

## **B. OBJECTIVE: UNDERSTAND THE IMPLEMENTATION OF THE MIT PROGRAM**

The UIC database is used to flag wells that are due for a MIT on the five- year cycle. The operator is notified at least 30 days in advance of the scheduled test date for a MIT. Tests are scheduled by state field inspectors at their convenience. The UIC Department in Oklahoma City maintains the responsibility for scheduling tests. Where an operator has a large number of MITs to run in a geographical area, the operator will work with the field inspector to set an effective schedule for testing all the wells. The OCC does not maintain a priority schedule for testing all of the wells in the routine five- year cycle due to the sheer number of wells. While there is no priority schedule, commercial disposal wells are tested on an annual basis. The injection Order may determine the frequency at which a well is to be tested when radioactive tracer surveys (RATS) are to be used as evidence of MIT. Packerless wells are tested on a five-year schedule.

The scheduling of MITs by automated methods started in 1986. That data entry system, with minor refinement, is still used to provide a monthly listing of wells that have five-year tests due. Any wells, which are discovered through compliance review or other information made available to the UIC Department, warranting a special out-of cycle MIT are added to the monthly listing.

Test results are reported on a Mechanical Integrity Pressure Test Form, Form 1075. The form is usually completed and signed by the inspector who witnessed the test. In the event that the test is not witnessed, two parties, the operator and the service company, certify the testing. The inspector usually makes the determination as to whether a well has passed or failed a test. When the UIC Department receives Form 1075 from the district office, MIT information is entered into the data system where it becomes part of the permit compliance record. The Form 1075s are filed in the well file in both the district offices and the OCC/UIC office in Oklahoma City and the information is entered into the database for recordkeeping and for notifying the operator of the next five- year test. Failed tests are also entered into the database and a letter is sent to the operator from the OCC/UIC Department with a copy to the district office requesting repair and retest of the well within 30 days. If the UIC review uncovers inconsistencies with the permit conditions or appropriate MIT practice, the operator and the district are notified. Wells are generally shut-in by the field inspector until repairs are completed.

The UIC staff indicated that only in the case where the Operator is running a RATS, would Parts I and II of MI be coordinated and performed concurrently. Most of the wells pass Part II of MIT by demonstrating the top of cement (TOC) is at least 250 feet above the injection zone. The Permit Review team in the OCC/ UIC Department does this evaluation. Other tests capable of determining fluid migration on the back side of pipe

such as sonic/temperature combination or cement bond logs are not required of operators except in special situations.

Operators of wells that are delinquent in meeting scheduled tests are sent follow-up notices. Follow-up notices are issued approximately every 90 days. The current approximate MIT failure rate is 10 percent as compared with an 11 percent failure rate in 1989. Currently about 60 percent of the failures are due to tubing and packer leaks.

The staff assigned the responsibility of Part I of MI update and revise a test available to the review team conducting Part II. Only in cases where the operator is running a RATS would the tests be coordinated to be conducted at the same time. Most wells demonstrate the lack of fluid migration (Part II) by proving the top of cement is 250 feet above the injection zone.

### **C. OBJECTIVE: Understand the Procedures of Witnessing a MI Test**

State field inspectors assigned to the district offices witness the MI demonstrations. The UIC Department makes every attempt to ensure that the quality and criteria of witnessing is standard throughout the state. Inspectors witness almost 100 percent of all tests and retests but only occasionally will the inspector witness casing repairs. This high percentage of witnessing is primarily due to the fact that the inspectors are able to schedule the tests themselves. Each year, eight man-years are required to perform the normal MIT witnessing and UIC inspection programs by the inspectors. The OCC indicated to the Review Team that this manpower commitment could vary from the norm in years when the petroleum industry is in a state of low economic development. These times of industry depression make scheduling of MITs a challenge due to wells being temporarily abandoned, leases being transferred and operators without readily available service companies to do the required tests.

An average of two hours is needed for the test, including travel time. The test time can take longer if the Operator is not set up to conduct the test when the field inspector arrives. Aside from observing that the test is conducted in accordance with applicable criteria and documenting the test by completing and signing Form 1075, the inspector checks for any violation of the Order or OCC rules on the lease. Both the inspector and the operator must sign the Form 1075 if the inspector was not able to witness the test and submission of a pressure chart is required with the date and time of the test. The OCC is not concerned when an Operator conducts an MIT prior to the scheduled date and subsequently makes repairs, however, in these cases, the Operator is required to notify the OCC when an MI failure occurs and subsequently notify the OCC when the packer is pulled in order to provide an opportunity for the inspector to witness the test. No penalty is incurred if this procedure is followed.

#### **D. Follow-up on Failed MI Tests**

When a known MIT failure becomes known to the OCC, the field inspector notifies the Operator by phone call or contacts the pumper to shut-in the well. If the tubing and packer have integrity, the well may be allowed to continue to inject for up to two days after a failed pressure test. In addition, a failed well may be established on a special monitoring schedule on a case-by-case basis where the cause of MI is known and can be properly controlled until repairs are possible and USDWs are not endangered. The Operator is required to institute corrective action to resolve the failure. The OCC does have the authority to require the Operator to repair a well prior to plugging and abandoning it, however this is rarely used except in established Wellhead Protection Areas where ground water use is highly sensitive due to its development for public supply. The general requirement in these cases is additional cement during the plugging operation. Although stated elsewhere in this report, the UIC Department gives the Operator 30 days to make repairs and test the well. The UIC Department does not require Operators to submit documentation of well workovers unless the packer has been unseated. Activities to enhance injection capacity such as well fracing and removal of scale are not required to be reported.

#### **Discussion, Evaluation and Recommendations; MIT Program**

##### **Program Strengths**

1. The State uses the positive pressure test for MI demonstration on all new wells and most newly converted wells unless the option for continuous monitoring of annulus pressure (APM) is selected. External well integrity (PART II MI) is often established through the review of well cementing records, however, OCC does allow use of RATS and temperature surveys and can required cement bond logs to be run.
2. The OCC field inspectors witness nearly all of the MITs run by operators, including retests after repair of failures. The high percentage of tests witnessed is probably because the inspector who does the witnessing also does the scheduling of tests.
3. In most cases, the inspector completes and signs the test report form on site assuring accurate information.
4. When a well fails an MIT, the inspector has not only the authority to shut-in (red tag) the well either immediately or within 48 hours but is normally present to see this is done.
5. Commercial disposal wells are required to MIT annually, which is a change since the previous review.

6. The MIT program is computerized to the extent that all information on tests is sent in to the UIC Department Office and entered on the system. The five-year testing cycle for each well can be retrieved in terms of sending out notice of the next test.

### **Concerns and Recommendations**

1. During the Review, it was not established whether field inspectors require stabilization of the annulus pressure before beginning the actual 30-minute test period. This may be a practice but was unclear to the Review Team. Temperature effects of the annulus fluid can substantially affect the test results greater than the allowed 10% variance. Field Inspectors do require stabilization of the annulus pressure before beginning the actual 30-minute test.
2. EPA has been concerned that the full 20% of all Class II wells in Oklahoma are not tested in any given year although OCC generally comes with 10-15% of the primacy commitment. The Review Team has some concern that the “numbers” game overshadows the dedication that OCC field inspectors demonstrate by witnessing nearly all of the tests. From a program integrity standpoint, the Review Team believes witnessing tests is very important and should continue at its present rate. OCC might correct some of their number deficiency problem by transferring more authority for developing the 5-year testing schedule to the District Office and designate one staff person in each district as UIC coordinator.

## **PART V. COMPLIANCE/ENFORCEMENT**

### **A. OBJECTIVE: Understand Enforcement Procedures in the State**

The OCC has a variety of informal and formal enforcement actions available to address non-compliance situations. The OCC is a quasi-judicial agency, which has sole jurisdiction over the drilling, production and disposal of waste from the oil and gas industry. The UIC Department uses all the powers of the Commission in carrying out its duties. OCC staff make a distinction between informal enforcement actions that are the operator’s response to being served with a notice of violation and more serious violations which could escalate to legal directives and enforcement Orders. The informal venue includes field citations issued by field inspectors and notices of violation issued by the UIC Department to have a particular violation corrected within a specified time frame. Prior to the mid-1990’s, a notice of violation given to operators by field inspectors and other District staff could be either verbal or in writing. At the present time, most of the violations relating to UIC carry a fine of \$500 up to \$ 5,000 (failure to obtain an injection well permit). Fines are now part of the OCC regulations with the amount of a particular fine specified in the rule. Fines for various violations are two tiered: Schedule A encompasses the gamut of fines for environmental violations which have potential for causing pollution if not corrected and Schedule B encompasses the administrative and

paper violations (failure to turn in reports). If a certain violation escalates because it cannot be resolved at the lowest possible level, the ideal situation, the OCC can issue contempt citations.

The Commission may initiate formal enforcement action if the operator fails to comply with an inspector's or the UIC Department's directive or where the operator has repeated or willful violations. The inspector, district manager, or UIC Department may also "red tag" or shut in or seal a well or facility until compliance is achieved. The OCC indicated that approximately five percent of all formal enforcement actions taken relative to oil and gas matters are on UIC violations and are in the form of contempt citations or through the OCC hearing process. Commission orders usually result in directing compliance through formal enforcement order. These orders may require site cleanup, well plugging or the shut-in of the operator's well(s) and variety of other compliance actions. To initiate an enforcement action through the Commission process, either the Department of Field Operations or the UIC Department will file a complaint with the Office of General Counsel (OGC). A representative of the OGC will be assigned to assist the appropriate department by developing and drafting the complaint recommending a hearing or contempt citation.

All hearings are held before an Administrative Law Judge of the Commission. Occasionally the Commission will hear a case on an initial basis. The OCC serves as both a tribunal and an agency of investigation. If the operator desires to appeal the decision of the Administrative Law Judge, it is referred to the OCC Appellate Court. Environmental organizations and concerned citizens have the right to appear as interested parties at hearings on appealed violations and have their views documented as a part of the record. Interested parties are informed through notices of hearings published in local newspapers and in the Oklahoma Journal of Record (an Oklahoma City paper).

## **B. Nature and Disposition of "Paper" Violations versus Technical Violations**

As previously mentioned, the OCC has developed a schedule of fines within the rules; OAC Section 165: 10-7-9(Appendix E&F). These are automatically issued for a specific violation. Contempt fines are assessed on a case-by-case basis depending on the nature of the violation. Falsification of a MIT, for example, would draw a contempt fine. The "red tag" is the most common type of penalty imposed and may be used for any kind of violation. The OCC does specify the penalties in the issued Notices of Violation (NOVs). The Department's Enforcement Officer who issues the NOV in accordance with the General Rules of Practice does this. An average fine is about \$500. The General Law Office of the OCC tracks the payment of fines. The Enforcement Officer is the single point of contact for staff to use in determining what follow-up procedures to implement to assure compliance and correction of a non-compliance event. The report of the status of the action is sent to the UIC Department Manager. The District Office will also get a copy of the final enforcement action. Follow-up activities on a non-compliance complaint has two parts: the payment of the penalty, which is a Central Office activity, and the corrective action that involves the District staff and field inspector. No one person in a district office is assigned as district enforcement officer.

### **C. Time Allowance for Corrective Action**

The Operator is generally given from 15 to 30 days to correct a “paper” violation. The UIC staff indicated the most common “paper” violation was failure to file the annual report on the injection well. In cases where the condition causing the violation could threaten a USDW if left uncorrected, the Operator is given orders to shut-in the well and begin repair immediately. MIT failures would cause this type of action to be taken although in the case of most such failures, the Operator is given up to thirty days to have the OCC inspectors perform a follow-up inspection and file C-1 and C-2 forms. All follow-up inspections are coordinated through the Enforcement Officer, whose position was established in 1994.

In extreme situations, the OCC has authority to order the well to be plugged if immediate contamination is occurring. This is accomplished through an emergency hearing process. If an Operator has numerous violations on wells spread over one or more OCC districts, the OCC can issue a statewide shut-in order of all wells in the state belonging to that Operator. For example, failure to run MITs or falsification of MITs would cause the OCC to shut-in all wells, producers and injectors. The only appeal to a Commission Order is to the State Supreme Court. This gives the Commission very strong enforcement authority. Historically, the State Supreme Court has never overturned a Commission Enforcement action. The amount of time allowed to correct a violation or series of violations is assessed on a case-by-case basis and has no set time allowances.

### **D. Understanding the Flow from Non-Compliance to Formal Enforcement Action**

Field violations become formal enforcement actions when the operator does not come into compliance within the allowed time frame for correction of the violation and no arrangements for extension of time has been given. In the case of UIC violations, the UIC Department Manager would approve having the Enforcement Office commence enforcement action. Bonds are not usually revoked as a part of an initial enforcement action. The OCC prefers not to recall bonds and uses this tool as a last resort. Bond recalls are usually called-in for plugging and abandonment. Penalties associated with enforcement actions range from \$500 for paper violations to a maximum of \$5,000/day per violation. The normal range for fines issued in administrative proceedings is \$500 to \$2,500. The OCC has issued fines exceeding \$250,000, however, a typical fine for a serious violation is in the \$10,000 to \$25,000 range.

The Enforcement Officer, in cooperation with the Field Inspector, makes the determination whether a non-compliance event has been successfully resolved. There may be an interim order issued allowing the Operator to reactivate the well. Reactivation of a well becomes more difficult if the enforcement action has gone to hearing. In this case, resolution may require a court order. The UIC Department staff indicated that the timeliness of enforcement is hampered by a number of factors. They have a lack of resources to provide adequate follow-up and industry downturns such as in 1999, create a

lack of responsible parties and increase the number of orphaned wells. Naturally, MITs are more difficult to schedule and defunct operators usually do not file annual reports in a timely manner, if at all.

#### **E. State/Federal Enforcement Action Interface**

The UIC Department reports all UIC violations to Region VI EPA on quarterly reports in accordance with conditions of the State/EPA primacy agreement, including those violations classified as Significant Non-Compliance (SNC). During the last few years, Region VI has expressed concerns during their annual review of the Class II UIC program that the OCC submitted quarterly reports after the deadline and the information on SNCs was lacking. This subject was not elucidated during the Peer Review session, but in the material sent by the Region to the Review Team in lieu of their presence at the review. The OCC believes the issues relevant to quarterly reports have been satisfactorily resolved with EPA Region VI. The OCC and EPA are currently evaluating the issues regarding SNC Violations. Oklahoma has never requested EPA to take over enforcement on an UIC violation nor has EPA ever overfiled on a case during enforcement proceedings in the state.

#### **F. Contamination/ Alleged Contamination Resulting from Injection Well Practices or Associated Activities During the Past Ten Years.**

The Peer Review asked about any known or alleged USDW contamination incidents reported to the state during the past ten years. The OCC indicated they did not track pollution incidents categorized by source of contamination. The OCC indicated that due to lack of resources, a study has never been made to relate the number of well failures to USDW contamination cases against the hundreds of cases the Pollution Abatement Department is responsible for investigating. The supposition of the OCC staff was that most of the incidents of alleged contamination as discovered from purging wells (wells flowing to the surface) were from abandoned, improperly plugged wells and not from wells under the UIC regulatory program. If UIC was involved, it was a very small percentage. Accurate historical statistics on contamination sites do not exist either with the UIC or Pollution Abatement Departments. OCC indicated that when an alleged USDW contamination case is UIC related, the UIC staff is involved. However it is a very small percentage compared to the number of cases investigated by the Pollution Abatement Department.

#### **Compliance/ Enforcement: Evaluation and Recommendations**

1. The OCC has tremendous authority to use in achieving compliance from the regulated industry. The shut-in authority exercised by field inspectors is the most effective deterrent to non-compliance by operators.
2. Violations and/or problems are usually handled at the inspector level and normally results in effective and timely compliance. Both the district office and the Compliance Officer in the Central Office review field inspection reports. The

Compliance Officer's position was established in 1994 and is a positive addition to the compliance/enforcement interface. Delays in proceeding with enforcement cases referred to in the 1989 report have been corrected.

3. The OCC/ DEQ guidance document has been developed to delineate responsibilities and allow discussion of jurisdictional "gray" areas. Both agencies visited with the Review Team and gave an aura of positive cooperation and good feeling. This document, in part, replaces the Oklahoma Pollution Control Board that was abolished in 1993.
3. The OCC has an array of enforcement tools available through other to achieve compliance.
4. The Review Team encourages the UIC Department to work with Region VI to resolve their concerns about untimely reporting and SNC accounting. While it is not the role of the Review Team to explore the State/EPA relationship, they believe a healthy primacy image reflects positively on how others view the program.
5. The Review Team recommends the UIC Department develop a statistical program to track UIC contamination events because one of the successes of a program is to show either reduction in the number of events over time or the fact the program is effective in preventing them.

## **PART VI. ABANDONMENT AND PLUGGING**

### **A. OBJECTIVES: Understanding the Technical Aspects of Plugging and Abandonment (P&A)**

The type of well construction and the casing and cementing program, generally dictates the selection of plugging technique to be used in plugging an injection well. The OCC staff provided the following detailed description of the plugging scenario:

In all cases, the mud weight should not be less than 9 lbs/gal and the viscosity of the mud should be 36 API or higher. Wells without casing must be filled with mud before plugging operations commence. The OCC requires operators to place plugs through tubing or drill pipe in the pump and plug method. Cast Iron Bridge Plugs (CIBP) may be used if there is cement behind pipe 50 feet below the water- bearing formation and 50 feet above the injection formation. Cement may be placed on top of a bridge plug by use of a bailer. The bridge plug must be set in cement with 10 feet of cement on top of it. A CIBP cannot be used as a top plug. The top plug is set to encompass the interval from 30 feet below surface to three feet below surface. The placing of cement plugs (minimum 100 feet) across the top and bottom of USDWs, oil, gas, H<sub>2</sub>S and injection or disposal zones. These requirements may not apply to formations behind production or

intermediate casing left in the hole unless the OCC believes endangerment of a USDW is possible.

A plugging plan is not required as a part of the original permit application and approval process for the injection well. The plugging plan is filed by the operator on Form 1001, Intent to Plug, before the well is plugged. The OCC's plugging requirements are basically the same for UIC wells as they are for oil and gas producing wells and haven't changed since the 1989 review. Briefly, these rules as described in the 1989 Review, provide for:

- (1) Written notice to the OCC and approval of the operator's plugging procedure plan five days prior to commencement of plugging operations. In Oklahoma, field inspectors give "plugging instructions" which may or may not be a modification of the plugging plan submitted by the Operator. The District Manager may waive the 5-day requirement because the primary reason for the rule is to allow field inspectors time to schedule and witness the setting of key plugs.
- (2) Notice to the owner(s) of offset producing leases;
- (3) Notice to the district office prior to the beginning of actual plugging operations.
- (4) Plugs are placed through tubing or drill pipe (except for cement placed on top of bridge plugs by use of a bailer).
- (5) Placing of cement plugs as described above across the top and bottom of treatable water, oil, gas, H<sub>2</sub>S, and injection and disposal zones;
- (6) Plugging at the surface casing shoe or top of a liner;
- (7) The loading of the hole with 9 pound per gallon mud.
- (8) The filing of a report of the well plugging operation by the operator within 30 days certified by both the operator and the cementer giving details of the plugging operation.

The field staff uses geologic and hydrogeologic standards, tables, and other technically based policy documents to determine the setting of plugs. In addition, Table I, which guides the setting and cementing of surface pipe necessary to protect treatable water, is also used to determine the proper placement of plugs. The field staff also has plugging procedures outlined in the Oil and Gas Field Inspection Manual that is to appear in revised form in August 2001.

The OCC witnesses more than 75% of all plugging operations that include injection wells, producing wells and dry holes (D&A). When workload requires witnessed wells to be prioritized, injection wells, particularly disposal wells receive the highest priority. The details of the plugging operation are developed individually between the operator and the appropriate district staff or field inspector. In general, plugs are to be set a minimum of 50 feet above and below the top and bottom of the zone to be protected. The plugs will be set in open hole or across casing shoes. A top plug from 30 to three feet below surface is required if the cement has otherwise not come up to that depth. Where the well is located in a Wellhead Protection Area for a Public Water Supply, special plugging rules, if any, have been incorporated into the OCC plugging regulations by Order or agreement. Plugs

that do not come to the surface are required to be tagged. This ensures proper placement since some plugs may fall due to the failure of the cement to set properly. The field inspector witnesses the operator's verification of the top of the plug by wire line measurement or tubing string. The tagging of plugs is required at the discretion of the field inspector. The regulation is permissive and does not require the tagging of plugs on all P&As nor in specified hydrogeological situations.

The district staff reviews all plugging reports sent in by the field inspectors and use these review to exercise control over P&As that are not witnessed. The district office sends all plugging reports (Form 1003) to the Department of Field Operations in Oklahoma City. The plugging report is also accompanied by Form 1002, Cementing Report. The plugging report has to be signed by the Field Inspector, District Manager, Operator and cementing company's representative.

**B. OBJECTIVE: Understand the Non-technical Aspects of P&A and How This Activity is Integrated with the Remainder of the Program**

The P&A reports are an important part of the Area of Review considerations during UIC well permitting. Since the last Peer Review in 1989, the Information Management System (IMS) has developed to the point where the status of abandoned wells can be tracked both in the Central Offices and the District Offices. When P&A information is received in the Central Office, it is entered onto the data management/tracking system within 30 days of the receipt of the report. Newly entered P&A data is available to a user within 24 hours of data entry.

OCC rules provide that working interest owners and the operator of a well shall be jointly and severally liable and responsible for the plugging of a well. The rules further state that wells may be kept in idle status (See Part VI .C. for discussion of TA program) no longer than one year without OCC approval. The OCC has a definite procedure in place when an abandoned well is discovered. The first action is to conduct an investigation to identify the responsible party. The OCC Legal Counsel will then go through the proper legal process to force the identified responsible party to plug the well. If the OCC discovers that an operator is not tied to the wellbore or that no other party has modified or worked on the well in any way, then the well is placed on the "orphan" well list and becomes public record. Once on the "orphan" well list, funding is requested for the well to be plugged. A bidding procedure is commenced and the winning bidder plugs the well under the Field Inspector's supervision.

The OCC funds the plugging of abandoned wells with no responsible party from a tax assessed at the wellhead on oil and gas production. At the current time, the tax funding generated is sufficient to plug 200 wells per year. OCC expects the funding level to increase in FY2001 due to the increase in the prices received for the sale of the product. The selection of wells to be plugged is based on the "potential for pollution" whether they were producing wells or injection wells. Abandoned wells on the contamination site projects being reclaimed by the Oklahoma Energy Resource Board (OERB) are the OCC's responsibility to plug.

**C. OBJECTIVE: Understand the Temporary Abandoned (TA) Well Program Used by the State.**

The Oklahoma Class II UIC program does not recognize the temporarily abandoned (TA) concept as an injection well status and has no formalized rules, policies, procedures, or tracking system for temporarily abandoned wells. Injection wells can be classified as active, orphaned or plugged, however, producing wells can be classified as having TA status. An injection well is termed “idle” for one year and maintenance beyond the one-year period (with OCC approval) would normally require protection of formations above the injection zone by means of a bridge plug or tubing and packer set in the cemented interval above that zone or, if injection had been on a vacuum, by means of annual fluid level tests to determine that fluid levels in the well bore were no closer than 50 feet below the base of the USDW. The appropriate district manager is responsible for administratively approving temporary abandonment. In either case, approval must be obtained annually and exceptions can only be gained through hearing. The basic procedure for addressing temporary abandonment has not changed since the 1989 Peer Review. TA’d injection wells are subject to the same MI testing frequency as any active injection well, i.e. five years or one year for commercial wells, unless a continuous monitoring device is installed. All “idle” injection wells are tracked through annual injection reports and retain the well status of active.

The temporary exemption from plugging requirements that became effective on July 1, 1997 as a result of measures passed by the 1997 Oklahoma Legislature was for oil and gas producing wells. The measure did not include injection well. This legislation was to bring relief to operators during low oil prices when normally productive wells were temporarily uneconomical to produce.

**Evaluation and Discussion of Plugging Program**

1. The OCC plugging program is implemented through the use of the same USDW protection criteria for oil, gas and injection well isolation as is used to establish surface pipe cementing and depths and USDW/injection zone confining intervals. The field inspectors have considerable experience in working with operators to plug all wells properly and supervise corrective action where directed by the OCC. The inspectors also have a specialized knowledge of their areas of responsibility and their work is aided by having county base maps of USDWs.
2. The percentage of the disposal wells and EOR pluggings actually witnessed by OCC is quite high. The field inspectors have the authority to require tests and measurements to ensure plugs have been positioned properly and can require the operator to tag the plug.
3. In 1989, the Peer Review Team recommended that an Operator submit a written plugging plan for approval to avoid confusion among parties involved in plugging the well. The Team did not specify how far in advance this plan should be

submitted. This Review Team believes the current system of five days notice to allow for scheduling and discussion of well conditions at the time of plugging is adequate.

4. The requirement of signed certification by both the Operator and cementer on wells not witnessed by the field inspector is acceptable and should provide OCC sufficient legal documentation should the OCC have to order corrective action on the well.
5. One member of the Review Team believes the injection wells, which are termed “idle” by the OCC, should be tracked separately as “temporarily abandoned” injection wells. While these wells are subject to annual review and well test and may have been fitted with a retrievable plug similar to temporarily abandoned oil and gas wells, the use of the well is different. The operators tend to relegate injection wells to the lowest priority when plugging out a lease. OCC views these wells that are not receiving water as active when some may be closer to inactive and, therefore, tracked more closely. EPA has expressed some concerns over the lack of information on TA’d injection wells in their Annual evaluation of the Oklahoma Class II Program, but their concern appears to be more statistical than programmatic.

## **PART VII PUBLIC OUTREACH**

### **A. OBJECTIVE: Understand the Public Outreach Mechanisms Used by the State**

The OCC’s public outreach program is designed to inform the regulated community, interest groups, and the USEPA about proposed changes and initiatives. It is also designed to reach persons who may be affected by any particular UIC permit. The OCC is required to follow the Oklahoma Administrative Procedures Act, which requires public notice and hearing for each application prior to approval. The OCC has recently posted hearing procedures and oil and gas rules on their Website. Generally, the OCC will accept comments on rules or applications up to and including the date of the hearing. Once the hearing record is closed, the OCC will issue an Order for the Operator to Inject. In the case of rules, the Oklahoma Legislature has 30 days to do their review.

The OCC ‘s UIC Department informs the regulated community through instructional handouts and periodic training programs in association with the Oklahoma Independent Producers Association (OIPA). These sessions are used to discuss all regulatory issues including UIC matters. The OCC also has a Technical Advisory Committee composed of representatives from all spectra of the regulated community, which meets at least annually. The OCC also uses its quarterly newsletter to inform the regulated community on reporting deadlines and new or amended requirements. The OCC established a Citizen’s Advisory Committee in the mid-1990’s to advise the Commission on issues and

concerns of the public on oil and gas. Most issues centered on commercial disposal and eventually help shape some changes in the OCC commercial disposal rules. This committee has been relatively inactive in recent years.

The Oil and Gas Division has a mailing list that is used for all rule notices. Operators or individuals can request to be placed on the list. All operators of record receive the quarterly newsletter. All state agencies with jurisdiction over environmental and water resource subjects are automatically on the mailing lists along with the Oklahoma Wildlife Federation and the League of Women Voters. OCC staff indicated that none of these groups or agencies has expressed concerns or commented on UIC well completion practices. During the past five years, the only attention the UIC Department has received from interest groups was the potential location of a salt water disposal well within the perimeter of a Wellhead Protection Area (WHP) for a public water supply well.

**B. OBJECTIVE: Understand the State Hearing Opportunity Process**

As previously stated, the OCC hearing process must follow the procedures outlined in the Oklahoma Administrative Procedures Act. The applicant for a UIC well is required to publish in a newspaper of general circulation within the county where the well is to be located and in Oklahoma City. The owner of the land on which the well is to be located is also given notice. Public comment and the filing of protests are allowed for 15 days after the last date of publication. The USEPA does not routinely attend OCC public hearings unless the hearing issue is drawing great public interest nor do they normally comment at the agency hearings. EPA Region VI is always notified and consulted prior to the OCC initiating a rulemaking and before the agency's formal hearing process. They are forwarded copies of all rule changes related to the UIC program

**C: OBJECTIVE: Identify Coordination with State and Local Water Planning Efforts**

In 1998, the Oklahoma Legislature passed Senate Bill 549, which mandated that each state environmental agency promulgate, by July 2001, a Water Quality Standards Implementation Plan (WQSIP) for its jurisdictional areas of environmental responsibility. This plan specifies how the OCC uses and enforces the Oklahoma Water Quality Standards for surface water and ground water. The WQSIP for the OCC was completed in late March 2001. A copy was furnished to the Review Team. This document is not strictly for coordination of water planning in the State of Oklahoma, however, it does describe the OCC's obligations in upholding the Water Quality Standards and this requires a degree of coordination with other environmental control agencies.

None of the state water resource-planning entities; water management districts and municipal wellhead protection programs appear to have issues with the Class II UIC program in Oklahoma. Any proposed UIC well within a wellhead protection area is required to give public notice and hearing. When concerns are raised, the OCC's UIC Department conducts technical meetings to exchange ideas and concerns.

#### **D. Changes in Public Outreach for UIC since 1990**

Most of the concerns during the last ten years have centered on Class II commercial disposal facilities. The OCC's Oil and Gas Division created a Citizens Advisory Committee in the mid 1990's to solicit and create a forum for discussing public comments and concerns. OCC staff indicated no concerns have been raised regarding UIC regulatory activities.

#### **PUBLIC OUTREACH ---- Evaluation and Discussion**

The UIC application notification and hearing process follows the Oklahoma Administrative Procedures Act of 1993 and also satisfies the timelines established under the Federal UIC regulations. The citizens advisory committee established in the mid 1990's gives the public an opportunity to express comments and concerns over UIC program elements and overall quality of program administration. In addition, operators may request to be added to a mailing list, which informs them of changes in regulations. The quarterly newsletter instituted in the 1986 goes to all operators of record plus interest groups, other agencies and two major environmental groups active in Oklahoma.

# Our Mission

*The Ground Water Protection Council is a national association of state ground water and underground injection control agencies whose mission is to promote the protection and conservation of ground water resources for all beneficial uses, recognizing ground water as a critical component of the ecosystem.*

*The Ground Water Protection Council provides a forum for stakeholder communication and research in order to improve governments' role in the protection and conservation of ground water.*



**Ground Water Protection Council  
13308 N. MacArthur Blvd.  
Oklahoma City, OK 73142**

**Phone: 405-516-4972  
Fax: 405-516-4973  
[www.gwpc.org](http://www.gwpc.org)**