

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



**A Report of the**



**2003**

# **PEER REVIEW REPORT MONTANA UIC CLASS II PROGRAM**

*2003*



**GROUND WATER PROTECTION COUNCIL**

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## 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 a geologic unit, which is capable of maintaining a Public Water System or contains sufficient water to supply a Public Water System, and contains a concentration of less than 10,000 mg/l total dissolved solids (TDS) and which is not 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 Underground Injection Control (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 restrictive definitions of water used by the state. The Review Team's conclusions are in every case based on the protection of USDWs. Acronyms used in this report are included at the end on page \_\_\_\_.

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 oil recovery (EOR) and wells for the disposal of approved wastes generated during the drilling for oil and gas and waters produced in conjunction with the production of oil and gas (disposal wells). If improperly constructed, operated, maintained, or abandoned, such wells may allow contaminants to enter USDWs potentially depriving the public of current or future water supplies.

This program evaluation was conducted under the auspices of the Ground Water Protection Council (GWPC)<sup>1</sup>. The program examined in this report is the Montana Class II UIC primacy program administered by the Montana Board of Oil and Gas Conservation. (MBOGC). Primary enforcement authority was delegated to Montana in 1996 by the US Environmental Protection Agency (EPA) under provisions of Section 1425 of the Safe Drinking Water Act (SDWA) and EPA regulations. (See following UIC Development Section of this report). This is the first time the Montana Class II UIC program has been evaluated as a part of a peer review series.

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<sup>1</sup> **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 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 (applicable to Montana).
- (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 provide non-binding recommendations for program improvements.

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

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 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).
- H) The Peer Review Questionnaire Workbook was furnished to the MBOGC and the agency staff responsible for managing the UIC Class II program

completed the questionnaire. The State submitted whatever additional material they thought would be helpful to the reviewers in understanding the program

The Review Team was assembled and given copies of the completed Workbook prior to traveling to Montana. 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 Montana Review are identified at the beginning of this report and resumes' for each are included in the report appendix. A representative from EPA Region 8 participated in the Peer Review as an observer

The Review Team traveled to Billings, Montana and using the completed Workbook as a guide, questioned the UIC personnel and other persons designated by the MBOGC 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. The Peer Review was conducted over a 3-day timeframe including the briefing period on the Sunday preceding the beginning of the actual review. An exit interview was conducted at the end of the review to give the MBOGC staff a summary of the reviewers' findings and conclusions. These findings included identification of strong program elements as well as perceived shortcomings.

The Review Team reviewed the written 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 daily prepared a list of strengths, areas of concern and subjects which required additional discussion to understand the situation. Some of these questions were discussed with MBOGC staff at appropriate times during the following days. 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 were incorporated into the report.

The Review Team report and evaluations are generally arranged in the same order as the Workbook. Each 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 section 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 viewed a crosscutting issue and a State response may be the same **for** more than one Section. These issues are included in the report at the most appropriate place for the discussion.

# **MONTANA CLASS II PEER REVIEW**

## **EXECUTIVE SUMMARY**

The peer review of the Class II UIC program administered by the Montana Board of Oil and Gas Conservation (MBOGC) was conducted from August 11-13, 2003, at the MBOGC office in Billings, Montana. The review team consisted of one state UIC program director from North Dakota – a state, which shares contiguous oil producing areas with Montana and has some of the same production problems and a UIC Program Supervisor from Utah – a Western state with Class II program primacy, one former state oil and gas division director from a state with 14,000 injection wells and the GWPC Associate Director. The EPA had one representative: the UIC Class II Project Officer for Region VIII, who prior to 1996 had responsibility for overseeing the contractors carrying out DI responsibilities for EPA in Montana.

The review was conducted using a comprehensive questionnaire completed by the state UIC Director and on the basis of the response, the Team asked in-depth questions of the Board Administrator, the UIC Director, Geologist and Chief Field Inspector. Other personnel were made available for responding to specific areas of agency operations, which have some effect on UIC activities. The MBOGC 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 physical lay of Montana and the state organizational matrix. The questionnaire originally completed by the MBOGC staff is included in the appendix of this report along with other materials on organizational structure of the Board, UIC program and other associated activities. Principal forms used for UIC inspections, mechanical integrity tests (MITs), complaint investigations and required operator reporting forms are also included for reference.

A list of acronyms is included at the end of this document on page \_\_\_\_.

## **PERMITTING/FILE REVIEW**

The MBOGC office in Billings issues all UIC Class II permits. The UIC application review process is well conceived and designed to provide a good technical and administrative judgment of any proposed Class II well. The technical criteria applied to the review process should be consistent since one person, the UIC Director, is the only person to come in contact with the application or the operator (applicant) from the time the application is filed to the time it is recommended for Board approval. The UIC Director views the application as complete after the technical and administrative review reveals the proposal is acceptable and should go to the Board for approval and subsequent issuance of a permit (Order). File reviews are performed annually but are more in the form of compliance reviews since they are done in connection with a water volume-pressure submittal from the Operator or when a MIT report is submitted. MBOGC makes

no distinction between commercial wells and non-commercial wells. The UIC Director uses RBDMS to track application progress through the system. Area of Review (AOR) is done on a ¼ mile radius basis.

The Review Team was somewhat concerned that the UIC Director did not have a suite of base maps showing the occurrence and depth of USDWs throughout the state. Operators depend up the Montana Bureau of Mines for information on appropriate surface pipe and cementing depths. The MBOGC geologist did indicate they are working on getting more in-house data for staff to use. The Review Team also recognizes that the geology of Montana is very complex and an accurate map of the “depths to USDWs may, even with reasonable interpolation, may be difficult to develop. A collaborative effort among the state’s geologic and hydrogeologic data gathering agencies and the regulated community would be useful and was recommended. The Review Team was also concerned about maintaining the quality of review if the UIC Director were absent for an extended period of time as there seemed to be no successor.

Since the Montana Class II program came over from EPA in 1996, the permitting program administered by MBOGC has more characteristics of a DI program than for states that received primacy in the 1982-4 period. The Review Team concluded that the permitting process implemented by MBOGC provided for the protection of USDWs.

## **INSPECTIONS**

The MBOGC has field inspectors who are state employees and are supervised by a Chief Field Inspector stationed in the agency headquarters in Billings. Two inspectors works out of a field office in Shelby and three other inspectors work out of their homes but are located in areas of oil or gas production. Inspectors perform surveillance of all activities under MBOGC jurisdiction. The UIC program activities take up about 20% of their time. The inspectors are trained people with oil field experience. Inspectors routinely witness about 85% of the MITs and make annual inspections of all saltwater disposal wells. Inspectors also respond to complaints within 24-48 hours of their filing with MBOGC. Inspectors work with both the complainant and the operator until the subject of the complaint has been resolved. Less than 5% of all complaints are attributed to UIC activities. The authority of the inspector to shut down a well or lease in a violation situation is a positive as long as the training of inspectors stays at a high level.

The Review team believed the coordination between the Chief Field Inspector and the field inspectors to be very adequate, including the dedication to train newly hired inspectors. The Team had some concern over the fact that the Field Inspectors do not receive the same level of training in environmental activities normally associated with inspections of oil field facilities, such as sample collection and chain of custody as they do for normal oil field operations and safety related matters. The Review Team had some concern over the frequency of inspections for EOR wells, which is every five years.

The Review team found this portion of the program was providing a high level of protection to USDWs due to the good field presence.

## **MECHANICAL INTEGRITY TESTING PROGRAM**

Montana primarily uses the standard inner-annulus pressure test (MITIA) as the demonstration of Part I integrity. Cement bond logs and cement records are deemed sufficient to establish Part II integrity. Other evaluation logs are acceptable but only on a case-by-case basis. A well passes an MIT if the pressure loss does not exceed 5% in a 15 minute period. The primacy agreement requires testing of about 200 wells, or approximately 20%, per year for MI. The UIC Director for MBOGC sets the annual MIT schedule and the field inspectors work with the operators to schedule individual wells for testing. All active wells are tested on the standard five- year rotation that is a condition of program primacy. Temporarily abandoned wells are tested on a two-year rotation. Wells that are unable to pass an MIT are ordered shut-in until corrective action can be taken. Most MIT failures are caused by holes in the casing or a leaking packer or tubing. Field staff witness about 85% of the tests and 50 % of the repairs resulting from failures. An operator is given up to 180 days to complete repairs of a well with a failed MIT. Shorter times are granted for more serious breaches in integrity. Annual failure rate for MITs is about 5%. The RBDMS is being used as a management tool to identify areas of Montana where tests should be conducted more frequently than five years.

The Review Team considers MBOGC's MIT program to be efficient and well conceived. The high rate of witnessed tests is important and ensures tests and retests are being conducted properly. The Review Team has concerns over the fact that an operator could plug and abandon a leaking injection well with a Part II MIT failure and not repair the condition prior to plugging. The Team also encourages MBOGC to make RBDMS fully accessible to the field inspectors.

The Review Team concluded that this portion of the UIC program was being conducted in a manner to provide good protection to USDWs.

## **COMPLIANCE/ENFORCEMENT**

The Board has as variety of enforcement tools available to encourage operator compliance including assessments of administrative fines, pipeline severance, and the imposition of civil penalties. Fines can range from \$75 to as much as \$10,000 per day per violation. Montana has plugging bonds, which can only be used for plugging the well for which the bond was issued. Bonds cannot be used to address operator non-compliance issues or the overall performance of the operator. The UIC Director is the MBOGC staff person responsible for developing enforcement cases along with the help of a contract attorney who is used by the Board on an as-needed basis. MBOGC tries to get as many non-compliance issues as possible resolved at the field inspector level and this has generally proven to be effective. For the year previous to this review, 2002, only three UIC related cases reached the Board enforcement level. The UIC Director maintains a good complaint and operator compliance tracking system that has been effective in monitoring agency follow-up on non-compliance occurrences. Some enforcement orders,

such as requiring a well to be shut-in after MIT failure, are delegated to the UIC Director or to the Administrator, and the Board approves some, such as monetary fines.

Some members of the Review Team believe MBOGC compliance program should be partially self-funding in the sense that fines and penalties should go back into the agency's budget allocation to pay for the cost of investigation and case development. Fines and penalty assessments currently go to the State General Fund. The Review Team encourages MBOGC to develop some written guidelines or policies for the field inspectors to use in correcting serious versus "paper" violations.

The Review Team concluded that with the apparent effectiveness of the informal compliance program and the willingness on the part of the Board to take action in the form of issuing Enforcement Orders in those few cases where they are necessary to resolve the problem and bring about corrective action, this portion of the UIC program was being conducted in a manner to provide good protection to USDWs.

## **PLUGGING AND ABANDONMENT**

The plugging and abandonment requirements contained in the MBOGC rules are somewhat general and direct that injection zones must be isolated to prevent movement of fluids into USDWs. The MBOGC has written procedures for operators to use in plugging both open and cased holes. The MBOGC does have generalized stratigraphic correlation charts that show the oil and gas producing horizons, but depend upon the MBOGC inspector for the area to be knowledgeable on the occurrence, depth and range of oil or gas producing zones but also the lowest depth for encountering USDWs. MBOGC does use RBDMS to track plug and abandonment notices and also uses this information to tie in P&A well location with AOR. Montana requires operators to have Plugging and Restoration Bonds or other types of financial assurance. Bonds are related to a well or in the case of the \$50,000 blanket bond, a group of wells and are not in jeopardy due to poor operator performance. Bonds cannot be transferred from one operator to another and new operators have to obtain a new bond. MBOGC does administer a program for tracking temporarily abandoned wells. Any EOR project that has been discontinued for more than 30 days must be reported. Any well that is shut-in for more than 6 months must be reported and have its status changed to TA. Wells can be put on Temporarily Abandoned (TA) status for two years. An extension beyond that time is only granted by the Board with proof of non-endangerment to USDWs.

The Review Team was concerned over the fact that an injection well which failed its MIT could, by regulation, be removed from service and be allowed up to 180 days to repair or plug the well. The Operator then may apply to the UIC Director and the Board for two additional years before actually plugging a well, however, the MBOGC rarely approves such extensions. This concern does not include those areas where the UIC Director sees no threat to USDWs.

The above comment notwithstanding, the Review Team concluded that this part of the MBOGC program is providing adequate protection to USDWs. MBOGC has an excellent prioritization system for rating abandon and orphan wells to determine plugging order with state funds.

## **PUBLIC OUTREACH**

The MBOGC informs the public and the regulated community about UIC issues and the promulgation of regulatory changes and newly proposed regulations through notices in the Billings newspaper and the Montana Administrative Register. The Board also maintains a mailing list, which contains the members of the regulated community and a large number of citizen groups and many environmental organizations. UIC issues have attracted the attention of only one environmental group, and the opportunity to be advised was given by the Board. The Board also holds seven hearings a year on applications, enforcement issues and other regulatory matters. The Review Team expressed concern that while there are not a lot of UIC applications filed per year (average of 20), the gap of almost two months between hearings may cause members of the regulated community unnecessary delay and expense while waiting for the Board to hold a hearing on a technically sound injection application. The MBOGC staff appears to have only minimal contact with state water protection and planning agencies.

The Review Team concluded that the Board's public outreach program is generally appropriate and keep all parties advised of the activities in the UIC program. The public has ample opportunity to comment on regulatory proposals and appear in protest or support of applications before the Board.

## **Overall Assessment of Program**

**The Review Team performed an in-depth review of the Montana UIC Class II program over a three and a half day period. Information provided by the MBOGC prior to the Peer Review was of great assistance, however, much of the understanding of the program was achieved during the actual review. The MBOGC has a small but knowledgeable staff and the UIC Director, Geologist and Administrator wear many regulatory hats. The Review Team was impressed with the quality of staff and the manner in which the program was being implemented. The EPA representative was also very helpful in providing historical perspective for when they administered the Montana program under Direct Implementation (prior to November 1996).**

**Recommendations have been provided to the MBOGC and the suggestions and Review Team concerns represent opportunities to further strengthen the Montana Class II UIC Program. In all subject areas investigated as a part of this Peer Review, The MBOGC managed program has been found to provide the necessary**

**elements, both in action and on paper to protect USDWs and other environmental resources.**

**PEER REVIEW OF THE MONTANA CLASS II UIC PROGRAM**  
**MONTANA BOARD OF OIL AND GAS CONSERVATION**

**TEAM REPORT**

**REVIEW TEAM MEMBERS**

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

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

Overall responsibility for the Montana Class II UIC program has been mandated to the Montana Board of Oil and Gas Conservation (MBOGC). The Board is a quasi-judicial body composed of seven members that are attached for administrative purposes only to the Department of Natural Resource and Conservation (DNRC). The Board, by law, must have three members from the oil and gas industry who have had at least 3 year's experience in the production of oil and gas, two members who are landowners residing in oil or gas producing counties of the state but not actively associated with the oil and gas industry, but one of the two landowners shall be one who owns the mineral rights with the surface and the other shall be one who does not own the mineral rights. One member must be an attorney. All members are appointed by the governor to four-year terms. (MCA Section 2-15-3303)

The Powers and Duties of the Board are found in 82-11-111. The Board appoints an Administrator to carry out the Board responsibilities and also hired the Geologist and UIC Director. The Board's regulatory purposes are to take action to prevent waste of oil and gas resources, to conserve oil and gas by encouraging maximum and efficient resource recovery and to protect landowner correlative rights. In 1996, Montana sought and received primacy from EPA for the UIC program and now is one of Montana's agencies responsible for ground water protection regulation. The Board also has the authority to promulgate regulations for oil, gas and injection wells. The Board defines what regulatory actions it should take itself and which should be deferred to the Administrator and staff.

### **B. Historical Perspective on Montana Oil and Gas Production and Injection**

The first commercial oil well was drilled in Carbon County in 1915. In 2002, Montana produced 16 million barrels of oil and condensate, which represented a 4% decrease from 2001. The peak production year for Montana was in 1967 when 48 million barrels were produced. In 2002, 166 million barrels of water were injected for enhanced recovery and approximately 60 barrels of produced fluids were disposed of by injection. Montana production is currently from 3,500 oil wells and 4,500 gas wells. The 2002 gas production was 87 MMCF. At the time of the review in August 2003, the MBOGC regulated 146 Class II-D wells and 729 Class II-R wells. Oil and/or gas are currently produced in 32 of 56 Montana counties. In the Williston Basin (NE Montana), oil is produced from various formations from Cambro-Ordovician through Mississippian. Most of the gas produced through Montana is from Cretaceous deposits, including Coal Bed methane.

### **C. Staffing and Funding**

Montana funds the Class II UIC program through two major sources: the EPA annual UIC grant of \$105,000, which has been awarded to the state since 1996, and the annual injection well operating fee of \$200 per injection well per year, paid for by the injection well operators. The operating fee provides MBOGC with about \$173,000, for a total of \$278,000 per year. EPA requires Montana to fund at least 25% of the UIC program; at the current funding level, the state is paying about 62% of the program costs.

The Board's staff consists of an Administrator, one UIC Director, one Geologist, a Chief Inspector, five field inspectors, and eight clerical and support staff. An Environmental Coordinator position was vacant at the time of the Review. The UIC Director is the only full-time UIC staff. The Chief Field Inspector and five field inspectors charge about 20% of their time to UIC, and the other staff positions charge varying amounts of time (from 5% to 20%) to UIC. A total of about 3.3 full-time equivalents are being charged to the UIC program.

### **D. Inventory Maintenance and Data Management**

The MBOGC has used RBDMS as its data management system since receiving primacy in late 1996. All UIC permits are entered into the database after the Board gives approval. MBOGC believes RBDMS is extremely efficient and effective for their UIC program and is continually trying to enhance the applications as time and money allows. There are still quite a few regulatory functions that are carried out with dependency upon paper or manual filing systems. The data management system is internal to MBOGC and cannot be accessed by other agencies or the public. Many files and much information can be accessed over the Internet by the public and by the MBOGC field inspectors. The UIC Director shared several UIC permit tracking data presentations that have assisted in facilitating the approval of UIC applications, monitoring the progress of follow-up on compliance and enforcement activities, and scheduling when MITs should be run within the 5-year cycle. GIS information has also been integrated into RBDMS.

### **E. Interagency Coordination**

The interagency coordination in Montana is somewhat limited due to the inclusiveness of Board powers over all aspects of the oil and gas regulatory business. MBOGC does have an MOU with EPA on the conduct of the Primacy Class II UIC Program. MBOGC also has a MOU with Bureau of Land Management (BLM) on oil and gas well spacing and well location jurisdiction. The major environmental protection agency in the state, the Department of Environmental Quality (DEQ) is responsible for regulating surface discharge, including issuing Discharge permits for Coal Bed Methane operations and cleanup of groundwater. MBOGC has not developed an MOU with DEQ and apparently sees no necessity to do so at this time. The MBOGC has no MOU with any agencies with

jurisdiction over the Tribal Lands. The impression gained by some members of the Review Team was that MBOGC basically did not interact with other state agencies and the Tribes except on rare occasions. Developing MOAs or MOUs with groups is not a panacea for problem solving but it is a start at communicating. The “we do our thing and they do their thing” era is becoming harder to rationalize.

#### **F. Summary of UIC Program Changes Since Receiving Primacy**

The MBOGC was delegated primacy from EPA on November 19, 1996. Rules for the Underground Injection Control Program implementation were adopted by the MBOGC and became effective on May 10, 1996. The U.S. Environmental Protection Agency previously administered a Direct Implementation (DI) program for all classes of injection wells in Montana out of their Region VIII Office in Denver and still implement the DI program for Classes I, III, IV and V. The only changes to the regulatory program since 1996 have been a few minor amendments promulgated in 1999.

#### **Identified Strengths**

1. RBDMS was adopted as a data management system about the time MBOGC received Class II primacy and has been used as a tracking system for a lot of activities, including enforcement and abandoned well inventory.
2. The Budgeted income for MBOGC appears to be solid for the current level of staff, which is small in number but well qualified to do their assigned areas of responsibility. The Coal Bed Methane development could eventually require more staff.

#### **Comments and Recommendations**

1. MBOGC has devoted considerable time to data management in the form of RBDMS. The Review Team encourages MBOGC to strive toward fully integrating the field inspectors into the system.
2. The MBOGC should consider whether developing a MOU with the DEQ is necessary so that a cooperative relationship is established between the two agencies before CBM production increases and the number of permitted surface discharges increase. The fact that the county sanitarians, while not employees of DEQ, assist them in emergency situations. This makes an MOU with DEQ a good tool for resolving future problems when administrations change.

## **PART II: PERMITTING FILE (COMPLIANCE) REVIEW**

### **A. Permitting Flow and Processing Procedures**

The Montana UIC application review process is administered by the UIC Director who serves as the sole staff person responsible for all technical and administrative activities related to the determination of UIC application completeness, proposal conformance to technical merit, and adherence to administrative requirements. This single person operation for UIC program coordination and implementation has existed since the delegation of primacy to the State of Montana in November 1996. Applications are received by the UIC Director and subsequently screened for completeness. The UIC Director does all functions for MBOGC that, in other UIC state programs, are routed through two or more people for concurrence. He does both the technical and administrative reviews. The UIC Director did indicate that an unusual situation might cause him to obtain concurrence from the Administrator, Geologist or Chief Inspector.

All injection well applications save those amendments calling for additional wells on an existing area permit, and a few other minor amendments, must receive Board approval. Once an application has been deemed to be substantially complete, it is placed on the Board docket for hearing. If the UIC Director's review of the application shows that deficiencies are present, he will notify the applicant in writing of the deficiencies. A delay by the operator in submitting requested documentation in a timely manner usually causes the UIC Director to inform the applicant that they should continue (i.e., postpone) their application until the next Board hearing. If an applicant insists on going before the Board with an application which is not approvable because of inadequate documentation (a situation which has never occurred), the UIC Director would likely recommend that the Board deny the application.

All applications are tracked informally by the UIC Director and entered into the RBDMS when the Board order (permit) is issued. The operator receives notice of approval at the Hearing. The same process is used for amendments to existing permits whereby major amendments such as a change of the injection zone have to have Board approval. The latter requires the filing of a new application and the giving of notice. MBOGC makes no distinction between commercial and non-commercial UIC applications. All official copies of permit applications are kept in hard files and the well is entered in RBDMS after the application is approved and the permit is issued.

### **B. Current File and Compliance Review Process**

The UIC Director reviews all UIC well files annually. Reviews are done in connection with submission of annual water volume reports, when an MIT has failed or when a report of a wellhead pressure exceedance is received. These reviews are a combination file and compliance review. The UIC Director also does file reviews that are prompted by the field inspectors when well pressures are excessive. MBOGC indicated that 30

minutes might be a realistic time frame in which to complete a file review. When deficiencies are discovered during a file review, the UIC Director calls the Operator to set up a compliance schedule. The Review Team views the process used by MBOGC as somewhat different than other states because the primacy was received from EPA in 1996. By 2003, MBOGC would be entering its second 5-year period of reviews.

### **C. Technical Review Process: Related Aspects of Compliance Review**

Casing and cementing requirements are essentially the same for all wells in Montana and are governed by Regulation 36.22.1001; Rotary Drilling Procedures. The regulation is quite general in that it states “ Sufficient surface casing must be run to reach a depth below all fresh water located at levels reasonably accessible for agricultural and domestic use”. Due to the nature of the geology and variation in the depths and occurrences of ground water, cemented surface casing ranges from 50 feet into the Bearpaw shale in the Williston Basin in Eastern Montana to 1000 feet toward the Black Hills Uplift in SE Montana to a minimum of 150 feet in N. Central Montana. In all cases cemented surface strings have to stand under pressure until the cement has reached a compressive strength of 300 psi; providing no tests are conducted until the cement has been in place for at least 8 hours. Wells converted to use as injection wells must meet the same technical standards as newly constructed wells except that in some cases the production string would not be cemented through the USDW.

MBOGC requires the production casing in all Class II wells to be cemented to at least a 100-foot interval above the injection zone. Cement bond logs are required for any newly permitted wells and for wells newly converted to injection wells. The UIC Director indicated that they do not normally calculate volumes of cement because the values are sometimes misleading. The UIC Director performs an Area of Review (AOR) on all injection well applications. Tubing and packer are required on all new injection wells with no exception as Rule 36. 22. 1419 bans the use of tubingless completions. The packer must be set within 100 feet of the top of the open hole or top of the uppermost perforation. MBOGC does not specify the type of packer and tubing to be used except it does favor the use of lined tubing. Neither are there restrictions on the weight, grade, material, internal coating or any other qualities associated with tubing /packer assemblages. Dual completions have been permitted but are discouraged. Under Rule 36. 22. 1425 the UIC Director can authorize a waiver of the requirements for construction; area of review and mechanical integrity testing and monitoring requirements if no USDW exist. In this case, he has to prepare a fact sheet explaining the reasons for the waiver.

The Review Team had considerable discussion with MBOGC staff on how the top, base and areal distribution of USDWs are determined. The staff geologists indicated they had considerable data in-house but the operators contacted Dr. Bergantino at the Montana Bureau of Mines and Geology for any information needed on the UIC application. The Board also uses this person as a resource. The staff is working toward getting better data. The MBOGC geologist is working on a stratigraphic nomenclature project to develop consistency for subsurface formation names. MBOGC staff indicated that logs are used

extensively to determine the lithologic quality of the confining zone or to identify unique geologic features such as faults or incised channels, which may decrease the effectiveness of the confining zone as an aquitard to upper movement of fluid from an injection zone. The UIC Director indicated each problem area is looked at on a case-by-case basis.

MBOGC regulations do not require any operators to have gauges on wells nor do they specify the type of gauges or other monitoring equipment to be used. Staff observed that most large operators have gauges on wells. MBOGC inspectors have their own certified gauges, which they use to gauge pressure either at the well or at the plant. MBOGC does not have a maximum for how much fluid can be injected into a well, except for disposal wells completed in an exempted aquifer, but they do limit the wellhead injection pressure to the fracture gradient minus the fluid gradient times depth. MBOGC does not require the operator to conduct tests to determine if the disposal fluid and the injection formation fluid are compatible. The UIC Director indicated that MBOGC has approved permits for injection wells needing some type of corrective action. Usually the Board approves the permit after corrective action has been taken, however, they have issued permits with stipulations that corrective action be taken within a time frame.

#### **D. Area of Review (AOR) Consideration and Procedures**

The Board's UIC Director does a thorough review of wells within the fixed one-quarter mile of each proposed injection well location to assure that wells in the Area of Review or Influence **have** been properly completed or plugged so that injected fluids are contained within the permitted zone of injection. The fixed radius applies to all Class II wells including commercial SWDs. In the case of area permits, the AOR extends ¼ mile beyond the project area. The MBOGC takes no formal action in those cases where the Operator elects to withdraw an application rather than take corrective action measures as a condition of permit approval. Where the Area of Review reveals problem such as unplugged wells or other USDW threatening situation is on acreage outside the applicant's control, the MBOGC may deny the permit, however they would possibly be more likely to issue the permit with certain stipulations. Montana's view is that the applicant (operator) has the responsibility to work with an adjoining operator to correct a problem so that the UIC permit can be issued.

#### **E. Components of Administrative Permit Application Processing**

Unlike many states where an application is assigned a docket number either when it is first sent into the agency or just after the application is determined to be complete, MBOGC assigns the docket (permit) number after the application is deemed technically and administratively complete. At that time, the operator is required to publish notice in the Billings newspaper, the Montana register and a minimum of 30 days prior to the Board hearing.) If a UIC application is determined to be substantially complete, it is assigned a docket number on the day of the filing deadline. The operator must also publish notice in the Helena newspaper, and in another newspaper of general circulation in the county in which the well is located, at least 30 days prior to the hearing. The Board will also publish notice of the application on its mailing list. Public hearing

opportunity is limited to the seven scheduled Board hearings per year. MBOGC is a quasi-judicial body and hearings are formal. Any applicant (operator) aggrieved by a Board decision can appeal to the district court for a new hearing if the appeal is filed within fifteen days of the Board decision. The Board has a contract attorney from Helena who assists the Board on all legal issues and matters of law. The Operator cannot appeal a decision back to the Board unless the appeal is based on new evidence (*de novo*).

It is the practice of MBOGC to set all UIC applications for hearing. Montana has no definition of “significant interest” and if comment is lacking the application is automatically approved. MBOGC staff indicated that rarely did public comments modify the final conditions of the permit. Any complaints filed that are related to the proposed permit are kept in the well file.

Once the permit is issued, the operator must secure the required security instruments (surety bonds, Certificates of Deposit, Letters of Credit) prior to injecting. Coverage is set by rule and is partially dependent upon the depth of the well. Bonding and financial assurances cover the plugging and abandonment of the well and site restoration. An operator can obtain a blanket bond for \$50,000 with Board approval. The Board makes these determinations on a case-by-case basis.

#### **F. Process for Aquifer Exemption**

MBOGC has received 25 requests for exemptions since receiving primacy. Regulation 36. 22. 1418 says that any aquifers exempt by EPA prior to primacy and the effective date of the current regulations are exempted without review. One of the qualifications for exempt status is if the water in the aquifer is between 3,000 and 10,000 TDS and is not reasonably expected to supply a public water system. The regulation also has other requirements such as “too deep to be used” or “too contaminated”. The Board has granted all requests for exemption except for one where the operator wanted an area-wide exemption for a non-injection formation. In Montana, all exempted aquifers are non-exempt outside the ¼ mile of review.

#### **Identified Strength**

1. The permit flow from filing of the application by the operator to the time of Board approval is well organized because it depends upon one person. Some Review Team discussion hints that this may be also a weakness in that there appears no person, except in extreme emergency, who takes over in case the UIC Director has to take extended leave.

#### **Comments and Recommendations**

1. The Review Team recommends that the Board consider having hearings more frequently than seven times a year. The current procedure would allow an UIC application to not receive final approval for almost two months after the UIC Director determined the application acceptable. The Board could elect to

allow UIC permits to be signed out and approved under the UIC Director or the Administrators signature and then act as an appeal body. In many states, permits are approved administratively once an EOR project is approved by the commission or Board if a disposal well is not contested.

2. The Review Team also recognizes that the geology of Montana is very complex and an accurate map of the “depths to USDWs may, even with reasonable interpolation, may be difficult to develop. Because the presence of mountainous uplifts in the producing part of the state bring aquifers closer to the surface and enables them to be recharged with fresh water, a collaborative effort among the state’s geologic and hydrogeologic data gathering agencies and the regulated community would be useful and is recommended.

## **PART III: INSPECTIONS**

### **A. Description of the Conduct and Management of Field Operations by the Agency**

All field inspections are performed by state employees under the supervision of a Chief Field Inspector who is stationed in the head MBOGC office at Billings. Two inspectors work out of a field office located in Shelby, which has considerable field data and copies of applications and logs. Three other inspectors work out of their homes in Roundup, Glendive and Plentywood. The inspector’s locations generally reflect the distribution of present Montana oil and gas production and consequently the expected workload for all oil and gas regulatory activities including those related to UIC.

Inspectors perform surveillance of all activities under MBOGC’s jurisdiction; however, the Chief Field Inspector indicated to the Review Team that Plugging and Abandonment (P&A), UIC well integrity testing, and surface casing setting and cementing are high on the list of inspection priorities. Inspectors witness MITs and evaluate the charts. Routine inspections of wells and orphan well tracking efforts receive a lower priority level due to workload. Complaints are investigated on a sliding priority scale depending upon the seriousness of the problem. Few complaints have been directly related to UIC activities. Prior to November 1996, EPA or their contractors conducted most official inspections and witnessing of UIC well tests. Tests and inspections conducted by MBOGC staff prior to that time were generally of either a routine nature or in response to complaints regarding conservation issues.

The Chief Field Inspector occasionally accompanies field inspectors on field assignments to look at special problems or to determine if a certain situation warrants board action, but not in accordance with any particular schedule. The Chief Field Inspector reviews inspector performance every two years. Inspectors generally are trained on the job by accompanying another inspector for a period of a week or two. More experienced inspectors are available for consultation and training on special problems. UIC training is accomplished in a similar manner, and in addition, all inspectors have attended EPA’s

UIC inspector training course. The Chief Field Inspector must have a combination of education and experience equivalent to a BS in physical science or engineering plus six years of experience with the oil and gas industry with at least three years in a supervisory capacity. Inspectors must have at least two years of post-secondary education or formal training in petroleum engineering plus two years of related experience or a high school diploma plus four years of experience in the oil and gas industry. All field positions, including the supervisor must complete training in hydrogen sulfide safety and receive UIC certification within three months of hire.

Inspectors are issued cell phones, digital cameras, hard hats hydrometers, and monitoring and sampling equipment. They have been trained in the rudiments of the use of Global Positioning System (GPS) equipment. They are issued field chloride strips to conduct ballpark concentration readings but are then instructed to send collected samples that are related to investigations to Energy Labs who are certified by the Department of Environmental Quality (DEQ). Montana agencies use EPA Chain of Custody procedures when collecting and transporting enforcement related samples. Inspectors receive no training on the state's QA/QC plan. Inspectors have an important role in developing MBOGC enforcement cases and frequently serve as witnesses in court or before the Board.

## **B. Description of Routine/Periodic Inspection Program**

As in a large percentage of states, routine inspection of UIC Class II wells are conducted in conjunction with general inspections and regulatory activities associated with producing wells and lease facilities. Lists of wells to be inspected are generated by the UIC Director, as is the scheduled inspection frequency for each facility. Schedules may or may not have comments regarding previous tests. MBOGC routinely inspects the 12000 producing wells (includes 3,500 temporarily abandoned wells and approximately 1,000 on Federal Lands) over a three-year period. Class II EOR wells are inspected and tested at the time of the required 5-year MIT, however, the MBOGC Chief Field Inspector indicated they are often visually inspected along with many of the producing wells during the three-year schedule. All Class II Salt Water Disposal (SWD) wells are routinely inspected annually. MBOGC staff believes that operators tend to pay more attention to EOR wells because they are an integral part of the production regime and, consequently have incentives to make repairs more rapidly than for SWDs. UIC facility inspections may be routine or triggered by a change of operator. All wells are inspected before a bond is released. MBOGC field staff usually conducts around 25 routine UIC well inspections a month that are not related to the scheduled MIT. This number declines somewhat in the winter.

Inspectors are rarely involved in any UIC permitting activities with the only exceptions being where an applicant (operator) had outstanding regulatory compliance problems to resolve and field inspection was necessary to verify compliance. The inspectors use routine inspections to look for violations and to determine all lease facilities are operating within regulation. A form is filled out for each UIC well inspection; however, MBOGC

has not developed any checklists to ensure standardization of inspections. Most inspections can be conducted in less than one-half hour's time, however, the travel time from home station in Montana can add several hours. Pre-inspection preparation generally is not needed unless the well or lease facility is under a compliance mode. Inspectors have the authority to make unannounced routine inspections and generally do not advise the operator prior to the inspection. Operators are provided inspection reports only upon request. Photos taken in connection with field investigations are kept in files, however MBOGC has no written procedures designed to preserve the legal integrity of photographs for potential enforcement actions or Board hearings. The inspectors have statutory ingress and egress from all leases and without restriction.

### **C. Emergency and Citizen Complaint Response Procedures and Processes**

MBOGC staff receives notification of emergency situations regarding oil and gas operations from a variety of sources including operator or citizen complaints to the field inspector in the area or to the Billings office. Less than five percent are related to UIC wells. Routine citizen complaints are responded to within 24-48 hours; however, reports involving spills or fires receive a much quicker response. All citizen complaints are investigated, however, MBOGC staff indicated three "significant" complaints had been received since receiving UIC program primacy. In 1997, MBOGC received a complaint that an operator was injecting saltwater into three wells which were not permitted injection wells. In 1998, a complaint was received that an injection well had possibly been illegally re-perforated into a new, unpermitted disposal zone. In 2000, MBOGC received a complaint that an operator was hauling possible hazardous waste into a Class II well. All of these complaints were investigated and two of them resulted in enforcement action. There have not been enough complaints to know what a typical response would be. Emergency situation involving UIC wells have primarily been related to surface leaks at the wellhead. The complainant is usually contacted prior to field inspection and always notified subsequently of the results and proposed action to be taken to rectify the matter. The operator, whose lease is the subject of the complaint, is usually notified of the matter by phone and is subsequently updated in the same manner. The MBOGC will send a letter and complaint inspection form to the operator upon request. The complainant may or may not receive the findings in writing, depending upon the situation.

Notification of either DEQ or BLM always takes place and which agency is notified depends upon the location of the spill or discharge. DEQ is the spill control agency and the proper authority to notify EPA. The MBOGC staff usually determines the responsible lease ownership of the problem and may or may not coordinate the initial inspection with BLM or DEQ. If the latter is involved, the local or county sanitarians, which are their inspection arm, will coordinate with the MBOGC field inspector. Occasionally, the matter will be transferred officially to the DEQ even if MBOGC is the permitting authority. The MBOGC has no written policy or procedure for communicating with the

media or emergency situations or complaints; however, the standing practice is to refer all such contacts to the Administrator.

#### **D. Reporting and Follow-up Procedures Used in the Inspection Program**

The same inspection form is used for all routine surveillance activities as well as for complaints, emergency inspections and well tests, including any follow-up inspection. All field notes of investigations, routine or otherwise, are forwarded to the Chief Field Inspector for filing in the Billings office. UIC well inspections that are part of a comprehensive evaluation of lease operations are cross-referenced to the permit file in the Billings office. There is usually a lag time of one to two weeks between inspections and the filing of the hard copy report with the Billings office. Once in the Billings office the UIC Director reviews the report within one to two days of receipt. Montana does not have the capability of electronic transfer of field reports. In the Billings office, inspections and violations resulting from inspections, are tracked by computer through RBDMS to ensure compliance with deadlines or follow-up frequency. Inspectors have limited, often delayed access to UIC information residing in the Billings office and RBDMS is not available to them. The inspector usually calls Billings and has the one of the staff do a file search for such things as permit status, past letters to operators, or notices of violation. Some inspectors now have laptop computers.

At the present time, relevant data bases and systems developed by other agencies having authority for water resource allocation, water protection regulation or emergency response is not available to inspectors to get background information on other permitted activities that might be affected by their actions. There are no restrictions on MBOGC inspectors sharing data with field personnel from other water resource agencies who may have cooperative functions in an investigation or need to know to direct their own permitting activities. MBOGC's inspection procedures were approved by the EPA prior to primacy being awarded in 1996, including its statutory authority to make inspections and carry out enforcement actions. The agency's contract attorney in Helena is not usually involved in the preparation of forms, form revisions or inspection procedures. If the UIC Director drafts a new form, it would be sent to EPA for review.

#### **Identified Strengths**

- 1.** The inspection activities appear to be well coordinated between the Chief Field Inspector and the Shelby office and other locations having a single inspector and the field presence of the inspectors is quite adequate. As new inspectors are hired, they are given both on the job training by the Chief Field Inspector or one of the other field inspectors and additionally MBOGC took advantage of EPA's UIC inspector training and a course in Hydrogen Sulfide Safety.
- 2.** The educational and experience qualifications for the Chief Field Inspector are very good in that the person has to have a professional degree in engineering or a physical science field, oilfield experience and management experience.

This allows the Chief Field Inspector to effectively communicate with both Billings's professional staff and the field inspectors.

3. Although this item could be covered under enforcement, the fact that an inspector has the authority to shut down a well upon discovery of an emergency or a serious violation without waiting for approval from others is a good tool

### **Comments and Recommendations**

1. The Review Team is concerned that the MBOGC inspectors have not received instructions in QA/QC although they receive some elements of training in proper methods of sample collection and Chain of Custody of sample transport.
2. The inspection form is intended to serve for routine inspections, citizen complaint response, emergency response, well tests and follow-up activities, which may be a very good efficiency tool that saves inspectors having to learn the quirks of different form presentations. The Review Team members expressed some concerns that MBOGC has no formal checklists, guidance documents or policy statements to assist inspectors, particularly more recently employed ones, of the necessary scope of coverage of each activity.
3. The MBOGC is to be commended for using RBDMS for tracking various field inspection needs and enforcement activities. The inspectors, however, have to call into the Billings office for permitting, violations and enforcement information on specific operators leases and the Billings staff, after searching the files, gets back with the information. The Team hopes the MBOGC will continue to expand RBDMS and associated computer networking to include field inspector locations. Not all information is on the Internet, which some of the inspectors have access to.

## **PART IV: MECHANICAL INTEGRITY TESTING**

### **A. Types of Mechanical Integrity Tests Allowed for Different UIC Well Completion Programs**

Montana uses primarily the standard inner-annulus pressure test (MITIA) as the demonstration of Part I integrity. Alternative tests such as annulus pressure monitoring (APM), radioactive tracer surveys (RATS) and temperature surveys are occasionally accepted on a case-by-case basis by the UIC Director, however, application of these tests to verify MI is generally discouraged. During a test, pressure readings are taken when the annulus is initially pressured and shows a stabilizing trend and again at the end of 15 minutes. The well passes if the pressure loss does not exceed 5% in the 15 - minute period. The wells are tested at 100 psi over the actual injection pressure at the time of the

test if the well is injecting, with a maximum required test pressure of 800 psi. All wells must be tested at a minimum of 300 psi even if they are not using artificial pressure at the wellhead to inject. Volume of fluid loss is not a factor used by MBOGC to determine MIT failure. If the pressure readings were inconclusive, the inspector has the authority to extend the test period to see if it is going to pass or fail and will notify the UIC Director or Chief Field Inspector immediately afterward.

As indicated above, MBOGC discourages alternative tests for mechanical integrity, However, approval of the test and review of the results rests with the UIC Director. The operator would communicate directly with the UIC Director on any details relating to either Part I or Part II MI because the UIC Director in the Billings office determines this part. Cement records and cement bonds logs are acceptable documents to establish Part II MI. MBOGC uses a criteria of “several hundred feet of cement above the top of the injection zone” to have acceptable Part II MI. MBOGC staff explained this general term as follows: It can vary for the following reasons: If the top of cement (TOC) was determined by a CBL, and it shows good cement throughout the entire cemented zone, they are more comfortable with accepting, say, 100 ft. of good cement above the top of the injection formation. If the TOC is done by calculation, and the well logs show that there are no “thief “ zones, which may take cement, then they would be comfortable with 500 ft of cement above the top of the injection formation. If there are thief zones, then even 500 ft of calculated cement would probably not be good enough, and MBOGC would probably require a bond log to be run.”

Most MIT failures are caused by holes in the casing or leaking tubing or packer. Operators are required to address any failures, however if the operator does not perform the necessary action to repair or plug the well, the MBOGC will seize the operator’s bond, which subsequently goes to the state Damage Mitigation Account, which is held by the MBOGC. MBOGC then places the well on a state-plugging list and plugs the well when money becomes available from the Reclamation Development Grant Program (RDGP). MBOGC applies for a grant from RDGP to supplement plugging and restoration costs.

## **B. Manner of MIT Program Implementation**

The MBOGC has all Class II wells on either a five-year or two-year testing frequency although it has the authority to require the operator to test more frequently if situations arise where this is desirable to protect water resources. Letters are sent to the operators in December of the year just prior to the year of annual testing notifying them of the need to conduct an MIT. The UIC Director sends these letters, however, the inspectors will also remind operators of wells needing to be tested during the period. The actual testing times are established at the convenience of the operator in coordination with the inspector. MBOGC inspectors work with the operators to have a large number of wells located in the same geographical area tested in accordance with a schedule that is efficient in terms of personnel resources and equipment availability. As a general rule, MBOGC does not

have a priority schedule for MITs except for the five-year or two-year period. Part II MI (fluid migration) is established at the time of well permitting and is not reviewed every time a Part I MIT is conducted. Staff indicated that on rare occasion, an operator has been required to conduct a temperature survey or RATS if questions arise about the quality of the original assessment of Part II performed at the time of permitting. MIT records are housed as paper files in the Billings office and on RBDMs, even the old EPA MITs. Each of the five inspectors spends 20% of their time (1FTE) on UIC related activities.

### **C. Agency Procedure for Witnessing a MI Test**

Based on MBOGC records, about 85% of all MITs are witnessed by the five inspectors, however, inspectors in the Shelby office witness close to 100% of the tests. The witnessing is lower in the Glendive area. Pressure change is the primary condition that inspectors look for during MI demonstrations. Inspectors note the amount of fluid needed to fill the annulus, although fluid volume, in itself, is not a determinant of failure. MBOGC inspectors use their own gauges to connect to the annulus to observe pressure readings. The agency uses this procedure because they feel a trust of one operators gauges over another may create unnecessary sensitivities, hence no operator's gauges are used. As is true in many other states reviewed through the years, the time needed to conduct a MIT is about an hour, if travel time is not factored into the effort.

All MITs are documented on a MIT reporting form, a copy of which was furnished to the Review Team. The operator is also required to turn in pressure/time charts and a *Sundry Notice: Subsequent MIT* on any unwitnessed tests. MBOGC staff indicated any MITs run by the operator prior to the scheduled test time must be reported to the UIC Director. In the event this test failed, such results must be reported to the UIC Director and the operator cannot get permission to do remedial work on the well until approval is given by MBOGC through the UIC Director. The MBOGC does require documentation of the work even if the Operator took the corrective action voluntarily. It was the understanding of the Review Team that EPA, when they administered the DI program in Montana, had concerns about the "prior testing" by operators and viewed reported failures as violations rather than simply repair of failed MI conditions. MBOGC has maintained the same view of prior testing, as did EPA.

### **D. Procedures Used for Follow-up on Failed MI Tests**

When a well fails its MIT, the operator is notified by the field inspector to discontinue injection and shut in the well until repairs have been made. MBOGC staff indicated that the "shut-in until repairs are made" policy applies to all UIC wells with failed MITs and no exceptions are made. The operator is required to institute corrective measures on each well with a failed MIT if it is to be returned to active service. MBOGC does not generally require the operator of a failed MIT to repair a well prior to plugging and abandonment unless an obvious threat to USDWs would exist from leaving the condition.

An operator is given up to 180 days to complete repairs of a well with a failed MIT. The operator may be given a shorter period of time if USDWs are threatened even if the well is shut in, however, this level of enforcement response has rarely been needed. The UIC Director is responsible for setting whatever time schedule is appropriate. Field inspectors witness about 50% of repairs resulting from MIT failures. They also witness efforts to pull tubing and squeeze jobs. The MBOGC does not view witnessing MIT repair efforts as a high priority because the well still has to pass another MIT to return it to use. The MBOGC also requires documentation for well fracture, removal of scale or other action taken to increase the intake (injection) capacity of the well. MBOGC staff indicated the annual MIT failure rate was about 5% per year and that included those instances where the operator conducted the test prior to the scheduled time. The 5% failure rate has remained essentially constant since Montana received the program from EPA in 1996.

The RBDMS is being used as a MIT program management tool to identify areas of Montana where tests should be conducted more frequently than five years and to identify those Operators/operations where performance levels are periodic lower than desirable.

### **Identified Strengths**

1. The MOGCC witnesses about 85% of all MITs with almost 100% in some areas of the state. This exceeds the 25% minimum required by the primacy agreement with EPA.
2. All MIT tests, documents and pressure charts are received and reviewed by the UIC Director. This allows for a good professional review and program consistency.
3. Wells experiencing MIT failure are immediately shut in and injection cannot resume until the cause of the failure is identified and repaired.
4. MBOGC has used RBDMS to assist in scheduling MITs and to track failures since shortly after the inception of the primacy program in early 1997.

### **Comments and Recommendations**

1. The Review Team commends the MBOGC for its use of RBDMS to help coordinate the efficient testing of wells for MI in a timely manner and for follow-up on failures. The team encourages MBOGC to continue expansion of the system to the point where it is directly more accessible to the Shelby office and field inspectors working out of their homes.
2. The total scheduling of MIT by the UIC Director, in addition to all his other responsibilities, appears to be working efficiently for a program that has only

approximately 200 wells in each year's testing cycle. In the event the number of wells increases substantially in future years, MBOGC may want to consider deferring authority to the inspectors located in the areas where the wells are located providing program consistency is maintained and communication between the UIC Director and the Chief Inspector remains at a high level.

3. The Review Team had some concerns that the 180-day period to repair a MIT failure was too long, particularly since there appears to be no written policy establishing guidelines as to when a shorter time may be more appropriate. The Team recommends written protocol or guidelines be formulated to allow for better understanding of "serious versus non-serious" failures, particularly for new field inspectors if the decisions to delay repair are made by someone other than the UIC Director.
4. The Review Team recommends MBOGC establish some policies as to when the operator may be required to effect repairs on an injection well prior to plugging and abandonment. This is of concern in areas where artesian aquifers may carry corrosive or mineralized waters upward into USDWs or deplete fresh water aquifers through downward drainage. The Review Team realizes these cases may be infrequent, however, an established policy may be helpful in getting both operator cooperation and citizen understanding of MBOGC's ground water protection efforts.

## **PART V: COMPLIANCE/ENFORCEMENT**

### **A. Description of Enforcement Tools Available to Agency**

The Board has a variety of enforcement tools available to encourage operator compliance and to ensure return to compliance where voluntary compliance is not obtained at the field inspector level. The inspectors have the authority to shut in a well or lease with concurrence of the Chief Inspector. The Board has the authority to impose administrative fines, or order pipeline severance. The Chief Field Inspector and UIC Director recommend fines to the Board after concurrence with the Administrator. The UIC Director is responsible for evaluating field reports for violations and also recommends fines or other enforcement actions. The Board can also impose civil penalties under 82-11-149 of between \$75 and \$10,000 per day. The Board does not generally approve of subsequent permit approvals if an operator has unresolved enforcement matters. The Board takes actions through Board Orders. For UIC wells, the most common infraction resulting in fines has been wellhead injection pressures exceeding permitted amounts. The Board had only three enforcement cases, which were brought before the Board in 2002. Fines collected from operators for violations go to the State general Fund rather than back to agency as is done in several oil producing states. The MBOGC tracks and

collects all fines. If MBOGC is unable to collect a fine, then a DNRC takes over and if that proves unsuccessful, the situation is turned over to a collection agency

The UIC Director develops formal enforcement cases with assistance from the contract attorney, if needed. After the UIC Director finishes drafting the documents for hearing they are first reviewed by the Administrator. If the operator is aggrieved over the Board's fine, he can appeal the decision to District Court. Appeals to the Board may be made at the business meeting the day before a regularly scheduled Board hearing. The inspectors and the UIC Director usually get involved in hearings on enforcement matters. MBOGC's Administrator indicated that any concerned persons at a hearing have opportunity to express their view on the issue under hearing.

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

MBOGC staff indicated that "Paper" violations and uncorrected violations of a less serious nature are treated the same as described under Section A except that they may not elevate as quickly to the Board for consideration. Fines are not imposed for every violation and each case is considered on its own merit. The UIC Director or the inspectors have the authority to issue Notices of Violation (NOVs) but "field or traffic ticket" fines are not given the violator. Follow-up procedures are coordinated by the UIC Director who uses RBDMS to track the violation. A letter is sent to the violator inviting him or her to the business meeting to present their case to the Board and if the matter is not resolved, it goes on the hearing docket. The UIC Director advises the Board periodically of the status of all violations.

#### **C. Time Allowance for Corrective Action/Return to Compliance**

MBOGC staff indicated they have no set timelines for when the operator must complete positive corrective action and return to compliance except for the 180-day period for loss of MI. The UIC Director indicated a period of grace could range from one week to two months. The staff tries to be consistent in the time it gives each operator to correct a particular type of problem. He did indicate a lesser amount of time is given for an immediate situation, which could potentially affect a USDW. In some cases, the MBOGC staff would confer with the attorney as to the appropriate course of action. MBOGC indicated they had investigated no contamination cases involving UIC wells since receiving primacy from EPA in 1996.

#### **D. Procedures for Escalation from Non-Compliance Discovery to Formal Enforcement Actions**

The MBOGC inspectors endeavor to achieve correction of violations and satisfactorily resolve non-compliance issues with the operator without having the matter escalate to the Billings office other than a report of the problem resolution. In this respect, UIC program violations are treated like those in any other statutory authority or regulations under Title 82. If the inspector cannot achieve a return to compliance or the violation has a potential

for threatening USDWs, the matter is referred to the UIC Director who will contact the operator by letter threatening Board action if the problem is not resolved. Bonds cannot be called in except in those cases where the operator has run off and left the well abandoned but not plugged. If an operator continues to conduct operations in violation of Board rules the Board may order the well or wells to be plugged. The Board has taken action against Operators in the form of fines for UIC violations. The staff cited two cases, one of an over-pressured injection well wherein a \$250 fine was assessed and a \$100 per well assessment for non-payment of the annual fee.

The UIC Director determines from inspectors reports when a well or lease situation has returned to compliance and reactivation of the well can take place. The UIC Director will either write or call the operator advising him that MBOGC is satisfied the problem has been resolved. MBOGC staff indicated that collaboration with other state and Federal agencies on enforcement actions was rarely necessary as MDEQ and the BLM usually pursued violations of their rules and regulations unilaterally. They sometimes advised the MBOGC of actions being taken but not always.

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

EPA has become involved on some of the more serious compliance cases but only on a case-by case basis. MBOGC staff always reports UIC Significant Non –Compliance (SNC) on the 7520 Form and frequently report SNCs before the 7520 Form is due for submission to EPA. Part of this cohesive relationship with EPA that does not exist in many other states is due to EPA’s history as DI administrator of the program (until 1996). There has been one instance when MBOGC asked EPA to take over enforcement of a UIC violation. In the same case, EPA over filed during proceedings by the state and the case ended up eventually in U.S. District Court.

#### **Identified Strengths**

1. The Board has a reasonable array of enforcement tools available including the ability to assess fines for non-compliance events, seal wells, lock down lease access points and the authority to call for pipeline severance. The latter is probably the most effective tool because it shuts down the ability to produce.
2. The violation report review and compliance tracking system used by the UIC Director to ensure proper follow- up on violations appears to be an effective process to achieve timely resolution of non-compliance events.

#### **Comments and Recommendations**

1. The Review Team had some concern over the lack of written direction provided to field inspectors on the amount of time given an Operator to correct a problem or submit a report to correct a paper violation. The one week-two month guideline for submittal of material to correct a “paper violation” appears to be quite liberal.

2. The Review Team was somewhat unclear as to how the UIC Director notified the operator that compliance had been met and a violation had been corrected. The Review Team believes all such contact with the operator should be in writing beginning with the original directives. The MBOGC has stated that most directives (over 90%) are not a Board Order because they address violations of MI

## **PART VI: PLUGGING AND ABANDONMENT**

### **A. Description of the Technical Aspects of P&A: Documentation**

The MBOGC plugging and abandonment rules are covered under Sub-Chapter 13, Abandonment, Plugging and Restoration and UIC Regulation 36. 22. 1414; Notice of Commencement of Discontinuance of Abandoned Well. The Review Team was provided procedures for both cased and open-hole plugging. The wording of the regulations is quite general and directs that injection zones be isolated in such a manner as to prevent movement of fluids into USDWs. The written protocol provided by the Chief Inspector is more specific. The state does have a “Generalized Stratigraphic Correlation Chart” that show the producing horizons in each of the major areas of the state. The Chief Inspector also states that each inspector is familiar with the depths of freshwater zones in his respective area. Each inspector is reported to be knowledgeable about which geologic formations and porosity zones must be plugged across and isolated.

The MBOGC inspectors deal with two types of plugging situations: Open Hole and Cased Hole. Class II UIC wells fall into the latter category. Unless certain down hole problems are discovered through an MIT failure or reported by the operator, injection wells are plugged in accordance with the same program as any other oil field related well. Cased Holes are plugged with a minimum 100- foot plug across the perforations with spacer fluid of fresh water, heavy salt water or mud saltwater or fresh water depend upon the area of the state). Cased Holes with an external casing packer and no cement behind the casing requires that the open hole be filled with cement or a minimum 100-foot cement plug across the open hole across the EPC and 50 feet into the production casing. Generally, the location of the plug is verified by tallying joints of tubing or drill pipe when setting plugs or if in a cased hole a wireline CIBP or CICR is set and verified by wireline measurements, gamma ray overlay with open hole logs and /or CCL. The inspector has the flexibility to deviate from standard methods if down hole conditions dictate.

The inspectors witness 90-95% of all pluggings. Injection well plugging is the highest priority and abandoned or orphan wells are second. Producing wells are third priority. Plugs are tagged if the field inspector feels the plug fell to the bottom or if the well was contaminated or for other reasons, such as if the displacement of the plug does not calculate correctly with actual displacement.

## **B. Non-Technical Aspects of P&A: Relation to Rest of O&G Program**

All plug and abandonment notices are entered into the RBDMS database for easy access by the UIC Director. When he does an Area of Review on new injection well applications and amendments to existing permits, he knows the location of all the wells drilled, producing or plugged. He would have to go to the well file for any additional information. All plugged and abandoned injectors are tracked in the Billings Office. The operator files an "Intent to Abandon" with MBOGC and if the Chief Inspector approves the plugging plan, the injection well is plugged and a "Subsequent Report of Abandonment" (SRA) is filed with the Billings office within fifteen (15) days. The Chief Inspector has the authority to contact the operator to have him modify a plugging proposal if elements of the plan, including site restoration and cleanup scheme are not acceptable. Once the Field Inspector is satisfied that the location has been restored as close to pre-site conditions as feasible, he forwards notification to the Chief Field Inspector. The Chief Field Inspector signs the SRA. One copy of the SRA is returned to (and) the operator. The well is then removed from the operator's bond. If the well represented one well of several under a \$50,000 blanket bond, the well is removed from the active list on the RBDMS tracking system and the bond stays in place. The information from the SRA is then entered into the database.

The Plugging and Restoration Bonds (Rule 36. 22. 1308) requires the Operator to post a bond or other instrument of financial assurance in value from \$1,500 to \$10,000 for single wells or \$50,000 for a blanket bond. The actual bond amount for individual wells is scaled on the basis of well depth. Each bond goes toward the assurance of plugging the well and is not applied to the operator's inability to comply with other regulations. A new operator of an existing well is responsible for getting a new bond, which may be at the same value as the previous bond or set at a higher value by the Board.

## **C. Disposition of Temporarily Abandoned Wells**

The MBOGC administers a program for tracking temporary abandoned (TA) wells under Regulation 36.22.1414 Notice of Commencement or Discontinuance of an Abandoned well. Wells can receive TA status for two years and if they pass a MIT, they can be given an additional two years. Under Section (4), an injection well with a failed MIT can also receive TA status for up to two years with an application to the UIC Director. In this case, the well must have the injection zone isolated with a plug, and pass an MIT. Since the MIT must still be performed successfully, this procedure is usually only workable for a well, which failed MI because of tubing or packer problems. A well, which lost MI due to a casing leak, could not be put on TA status since they would not be able to pass a subsequent MI test. Montana currently has 3,500 non-producing wells of which 200 are injection wells.

### **Identified Strengths**

1. The Review Team considered Regulation 36. 22. 1308 on Plugging and Restoration Bonds to be very well conceived and should allow MBOGC some finances to plug an abandoned well if the operator runs off.
2. The Well Rating System used in prioritizing abandoned wells for plugging is very good and treats all wells as problems. It does not have a special category for injection wells. It uses the holistic concept that all wells can become problems.

### **Comments and Recommendations**

1. Some members of the Review Team have the same concern here that they did under Section II: Permitting, wherein there is a lack of documented geologic and hydrogeologic data available for the inspectors to know with some degree of certainty where the base of 3,000 mg/l TDS and 10,000 mg/l TDS exists within a given area. The Team recommends that each inspector be given ground water depth maps for the area in which they work. If maps are unavailable due to the complex geology, other means should be explored to provide adequate information to make the decisions they need to make.

## **PART VII: PUBLIC OUTREACH**

### **A. Description of Public Outreach Program for UIC Activities**

The MBOGC informs the public and the regulated community about UIC issues and the promulgation of new regulations through notices in the Billings newspaper, the Montana Administrative Register, a mailing list and through the Montana Oil and Gas Association newsletter. The mailing lists are updated annually and new regulatory changes can be accessed on the Internet. MBOGC does seven mailings a year, which corresponds to the number of times the Board meets. The mailing lists contain a number of environmental and public interest groups, including but not limited to the Sierra Club, Montana Land Reliance, Northern Plains Resource Council, Earth Justice and the Natural Resources Defense Council (NRDC). Most of these groups are focused on issues related to the production of Coal Bed Methane (CBM) and not UIC. Only the Montana Land Reliance has demonstrated an interest in UIC and that was on a specific Class II SWD. No UIC issues have attracted the attention of interest groups during the past five years.

## **B. State of Montana Hearing Opportunity Process**

Formal hearings are conducted seven times a year by the MBOGC and all UIC applications, as well as other matters requiring a Board order, are placed on the docket for hearing. Formal hearings are conducted according to procedures in Title 82, Chapter 11, Part 141, which are in accord with the Montana Administrative Procedures Act. EPA has not attended the hearings on UIC issues since the Montana primacy in 1996, nor have they commented to the Board in writing on proposed regulations or UIC policy. EPA is notified of proposed changes in regulations after the first draft is prepared. EPA is provided copies of regulations in final form so they can be codified in accordance with CFR 147. Regulatory changes are sent out to all those on the mailing list.

## **C. Identification of Coordination with State and Local Water Planning Efforts**

MBOGC staff indicated that only minimal coordination was needed with other state programs. There is coordination with DEQ and local sanitarians on emergency situations and specific problems related to spills and surface discharges, but none related to UIC activities. There is no coordination with any water planning agencies or groundwater protection programs, source water protection efforts or municipal wellhead protection programs. Part of this apparent lack of communication is the distance between Helena and Billings, however, there appears to have not been the necessity for agencies in Montana to discuss water related problems that occurs in some states.

### **Identified Strength**

The diverse mailing list addressees include most persons and environmental groups who may have concerns or comments on UIC applications and regulatory changes. This mailing list plus the MBOGC web site provides very good access for the regulated operators and the public to keep informed of UIC matters before the Board.

### **Comment and Recommendation**

The Review Team believed that the Board hearing process could be streamlined and made to be more user- friendly to the regulated community if held more frequently. With only seven hearings per year, UIC applications have the potential for waiting up to almost two months for Board approval. Many boards and commissions have changed their procedures to allow UIC permits to be issued at the Administrator or UIC Director level thus leaving them the first line of appeal from adverse staff action.

## **PART VIII: REVIEW OF WATER REUSE POLICIES FOR OIL AND GAS ACTIVITIES**

The MBOGC staff was asked several questions related to the reuse of produced water in connection with oil and gas activities. In some states, of which Montana is one, reuse of produced water from Coal Bed Methane (CBM) production is a potential benefit where it can be returned to the environment provided the water meets certain beneficial use and water quality criteria. The MBOGC views water produced along with Coal Bed Methane as no different than any other water produced in connection with oil and other natural gas. Under Montana's definition it is all produced fluid. Reuse of any produced fluid outside of injection into Class II wells is outside the mandated authority of the MBOGC.

How MBOGC chooses to administer the development of CBM is outside the scope of this review. In Montana, the Division of Water Resources has primary jurisdiction over water appropriation; however, MBOGC has complete authorization over the drilling of CBM wells. The regulation, operation and closure of CBM wells rest with MBOGC, including the used of any Class II well for disposal or enhanced recovery. The Department of Environmental Quality is responsible for setting and enforcing quality standards for any CBM water returned to the environment through surface discharge.

## **PART IX: REVIEW OF MONTANA COAL BED METHANE PROGRAM**

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

Montana Coal Bed Methane (CBM) exploration and production activities are still in the fairly early stage of development. Even though there is no injection of CBM produced water in Montana, the issue of whether or not that water is chemically safe for return to the environment through reuse or aesthetically acceptable to the public has not been completely resolved. The alternate solution is injection. The MBOGC treats CBM as if it was natural gas and applies Statutory Authority under Title 82, Chapter 10 and part of Chapter 11 to its regulation. The oil and gas rules, which have been discussed with the Review Team in connection with the MBOGC UIC primacy program, also apply to this section. No special staff is allocated to CBM activities by MBOGC and any additional funding would come from revenue drawn from CBM production.

In addition, the MBOGC issued a Record of Decision on March 26, 2003, which related specifically to the need for a Final Environmental Impact Statement (FEIS) to analyze options for statewide exploration, development and production of CBM. Chapter 11 is the Coal Bed Methane Production Offset Act, which deals with projects contiguous with lands not under MBOGC jurisdiction (BLM and Wyoming). Order 99-99 was established by the MBOGC to recognize DNRC's Controlled Ground Water Area for the Powder River Basin and to establish minimum requirements for information to be considered at a public hearing. If Class II injection were applied for, the MBOGC would

be responsible for holding a hearing. Water is currently used for livestock, dust suppression and, in the near future, irrigation.

## **B. Program and Interagency Coordination**

MBOGC is in charge of CBM exploration, development, production and subsurface disposal of any water produced. The Department of Environmental Quality (DEQ) is the Montana authority for issuing air quality and surface discharge permits. Much of the water produced by CBM appears to be eligible for return to the environment and, therefore could be reused and its discharge to the surface drainage would require a DEQ permit. The BLM is the responsible regulatory authority for Federal Lands and the Bureau of Indian Affairs (BIA) and EPA share authority for Indian Lands. The Environmental Assessment process for CBM requires cooperation and overall statutory authority allows the establishment of advisory boards and to hold forums to bring stakeholders together for discussion of issues and problems. The State Bureau of Mines (Montana's equivalent of a State Geological Survey) has no role in CBM other than an informal advisory one.

## **C. Technical Regulations**

The MBOGC requires the operator to submit a Plan of Development for a project, which is usually for multiple CBM wells, however, individual drilling permits are also approved. The plan would show the expected orderly exploration and development of the project including the general scheme for plugging and abandonment and site restoration. There is a permit fee for each well and the operator has to put up a Plugging and Restoration Bond before work can commence. The application must follow the protocol established in the Record of Decision, including review and approval by MBOGC staff and a similar review and approval by other state and federal agencies having a permitting role or some other phase of CBM regulation. The Review includes reviewing information submitted by the operator on geologic, geomorphic, cultural and socio-economic features for the project area and its vicinity. The operator (applicant) must also complete and submit an Environmental Assessment (EA) for the Project. The Review Team was provided an EA for the Tongue River Badger Hills Project as an example. All projects ultimately have to receive Board approval before drilling can begin, however the MBOGC Administrator signs off on the actual permit. The MBOGC staff indicated their role is to ensure compliance with rules and regulations for protection of correlative rights and the environment and they do not do a "feasibility determination" of the project as to its predicted success. MBOGC is notified when the wells are constructed so that an inspector may witness such activities as surface casing setting and hydraulic fracturing.

Once CBM wells are completed, routine inspections and witnessing of certain activities and for observing progress on restoration once the well is plugged and abandoned vary little than for traditional gas and oil wells. All inspections are recorded on the appropriate forms and recorded in the database.

#### **D. Data Management Programs**

MBOGC has no database to record progress through project and permit approval but are working toward one. The RBDMS is used to track production and well locations, record inspections and to set schedules for follow-up on re-inspection of non-compliance events. Permits for pits are also tracked on this system.

#### **Comments and Recommendations**

The Review Team believes the MBOGC and other agencies are coping well with the rapidly developing CBM exploration and production program. Unlike some states where CBM water is not of usable quality for any domestic or agricultural purpose, Montana has an opportunity to return some water resource to the surface and ground water regime provided it receives proper treatment. The Team encourages MBOGC to complete its data management system for CBM activities and to look for ways to improve its Public Outreach program to cover CBM needs.

## Acronyms (in order of use)

Page		
2	USDW	Underground Source of Drinking Water
2	mg/l	milligrams per liter
2	TDS	Total Dissolved Solids
2	EOR	Enhanced Oil Recovery
2	UIC	Underground Injection Control
2	GWPC	Ground Water Protection Council
2	MBOGC	Montana Board of Oil and Gas Conservation
2	EPA	Environmental Protection Agency
2	SDWA	Safe Drinking Water Act
5	MIT	Mechanical Integrity Test
6	AOR	Area of Review
7	MITIA	Mechanical Integrity Test of Inner Annulus
7	MI	Mechanical Integrity
7	RBDMS	Risk Based Data Management System
8	P&A	Plugged and Abandonment
8	TA	Temporarily Abandoned
10	MOA	Memorandum of Agreement
12	DNRC	Department of Natural Resources and Conservation
12	II-R	Class II UIC Enhanced Recovery
12	II-D	Class II UIC Disposal
13	GIS	Geographic Information System
13	BLM	Bureau of Land Management
13	DEQ	Department of Environmental Quality
13	MOU	Memorandum of Understanding
13	CBM	Coal Bed Methane
14	DI	Direct Implementation
12	FY	Fiscal Year
20	GPS	Global Positioning System
20	QA/QC	Quality Assurance/Quality Control
20	QAPP	Quality Assurance Project Plan
23	APM	Annulus Pressure Monitoring
23	RATS	Radioactive Tracer Surveys
24	RDGP	Reclamation Development Grant Program
25	FTE	Full Time Employee
28	NOVs	Notices of Violation
31	SRA	Subsequent Report of Abandonment
32	NRDC	Natural Resource Defense Council
38	CFR	Code of Federal Regulations

Other acronyms retain the meaning commonly known in industry.

## APPENDIX A

### UNDERGROUND INJECTION CONTROL PROGRAM DEVELOPMENT

The Underground Injection Control programs have been developed and implemented as a result of the federal SDWA of 1974. Under Part C of the SDWA (Public Law 93-523), as amended by Public Law 96-502; 42 US Code 300f et seq.) Congress directed the EPA to develop regulations for a nationwide UIC program that would control the permitting and operation of injection wells to protect the USDWs. 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 used 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 Montana, the EPA administers the UIC program for Class I, III, IV and V (although there are no Class I, III, or IV wells in Montana), 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 interpretations of the various concepts 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 into a USDW, were banned nationwide on May 13, 1980 (40 CFR Part 122.36) and all other Class IV wells were banned on and after May 11, 1984 (40 CFR 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 operations which endanger USDWs. The state review process, such as the one conducted in Montana, is one of the assurances available to EPA that state Class II primacy programs are being administered in accordance with the best principles of protection to USDWs.

# 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.*



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