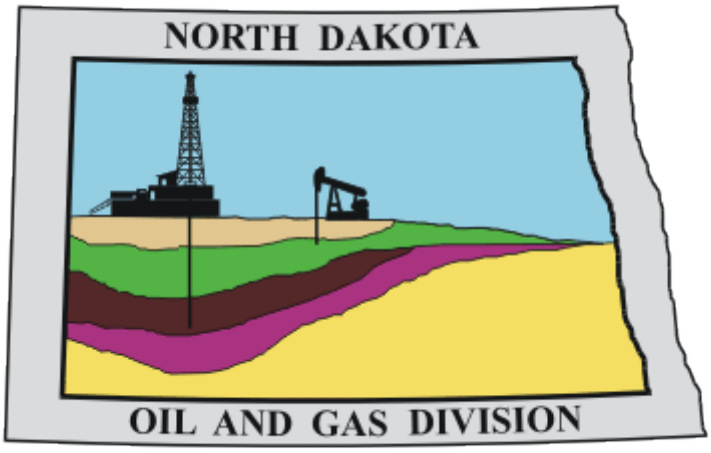
North Dakota Industrial Commission

Department of Mineral Resources

Oil and Gas Division



UIC

Class VI

Underground Injection Control

Program Description

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NORTH DAKOTA

CLASS VI

UNDERGROUND INJECTION CONTROL

PROGRAM (1422) DESCRIPTION

North Dakota Industrial Commission

Department of Mineral Resources

Oil and Gas Division

I. INTRODUCTION

As mandated by the Safe Drinking Water Act of 1974 (as amended), the United States Environmental Protection Agency (EPA) has promulgated regulations establishing minimum requirements, technical criteria, and standards for State Underground Injection Control (UIC) programs to protect underground sources of drinking water (USDW). Under these regulations, the State of North Dakota received program implementation primacy in 1984, and has since operated in an EPA-approved UIC program.

On December 10, 2010 EPA finalized minimum federal requirements under the Safe Drinking Water Act (SDWA) for underground injection of Carbon Dioxide (CO_2) establishing a new class of injection wells, Class VI. The Class VI rule is based on UIC regulatory framework, with modifications to address the unique nature of CO_2 injection. The purpose for the Class VI rule is to ensure that geologic storage of CO_2 is conducted in a manner that protects USDWs.

In order to gain primacy enforcement responsibility for Class VI injection wells, North Dakota will demonstrate to the EPA that its UIC program is at least as stringent as the federal standards. As a result of meeting the federal stringency standard North Dakota Administrative Code (NDAC) Chapter 43-05-01 has been amended and the North Dakota 1422 UIC program has been revised to include Class VI injection wells.

This revised program description incorporates changes as required in federal regulations, but does not change the lead agency program administration status, nor the original intent of the UIC program. Jurisdiction of Class VI injection wells will be administered by the North Dakota Industrial Commission, Department of Mineral Resources, Oil and Gas Division (Commission). This revision of the North Dakota 1422 UIC program is for the sole purpose of adding Class VI injection wells to the North Dakota 1422 UIC program.

II. OVERVIEW OF THE STATE UIC PROGRAM

The UIC program is an important part of the overall State groundwater protection strategy. With increasing groundwater demands and the impacts of energy development on groundwater, the control of subsurface injection is vital to maintaining the quality of the State's groundwater resources and to protect USDWs.

It is anticipated that during the first two years of the North Dakota Class VI UIC program, one permit application will be submitted to the Commission. The success of any proposed geological storage project in North Dakota will be based on the protection of USDWs, meeting all permitting requirements, and complying with all applicable State statutes and administrative rules. Permit applications and interest in underground storage of CO_2 is expected to increase as a result of broadened regulatory authority, increased energy production, potential use of CO_2 as a commodity, and a response to more stringent regulations governing CO_2 emissions to the atmosphere which would make underground injection a viable option to the reduction of anthropogenic related CO_2 emissions.

There are no Class I wells previously permitted for the purpose of geologic storage, no Class V experimental technology wells being used for experimental purposes that will continue injection of CO_2 for the purpose of geologic storage, nor any Class VI wells previously permitted by EPA.

The lead agency of the North Dakota 1422 UIC program is the Department of Health. As the lead agency the Department of Health receives the annual program grant and coordinates the State 1422 UIC program, as designated by the Governor of the State. The Department of Health has authority over all Class I and V injection well activities. The North Dakota Geological Survey has authority over all Class III injection well activities. The Commission administers the 1425 UIC program regulating Class II injection well activities and receives a separate program grant from the EPA to administer the 1425 UIC program. The Commission has statutory authority to regulate Class VI injection well activities under North Dakota Century Code (NDCC) Chapter 38-22 and NDAC Chapter 43-05-01. Each State agency is responsible for administering the State program for the injection wells under its jurisdiction including, but not limited to, reports, permits, monitoring, compliance, and enforcement actions.

The primary focus of the UIC program, promulgated under the authority of the SDWA is to protect USDWs. Under federal definition USDW means an aquifer or any portion of an aquifer that supplies any public water system or contains a sufficient quantity of ground water to supply a public water system and currently supplies drinking water for human consumption or contains fewer than ten thousand milligrams per liter total dissolved solids and is not an exempted aquifer.

As described in State regulations, any underground water being used for drinking or domestic water or any underground water less than ten thousand milligrams per liter of total dissolved solids which has not been exempted, is a source of drinking water and is protected as such. However, after notice and opportunity for public hearing, the Commission may designate, identify, and describe in geographic or geometric terms, or both, which are clear and definite exempted aquifers or parts thereof using the following criteria:

1. It does not currently serve as a source of drinking water; and

2. The total dissolved solids content of the ground water is more than three thousand and less than ten thousand milligrams per liter; and

3. It is not reasonably expected to supply a public water system.

Other than EPA approved aquifer exemption expansions that meet the criteria for exempted aquifers, new aquifer exemptions will not be issued for Class VI injection well activities. Even if an aquifer has not been specifically identified by the Commission, it is an underground source of drinking water if it meets the definition above.

The North Dakota Class VI program requires all owners or operators applying to inject CO_2 for the purpose of geologic storage to obtain a storage facility permit, a permit to drill (deepen, convert, or reenter), and a permit to operate prior to commencement of injection activities. Permit applications will be reviewed by the Commission and issued in accordance with NDCC Chapter 38-22 and NDAC Chapter 43-05-01. As a permitting requirement all Class VI injection wells will demonstrate and maintain mechanical integrity. The storage facility permit application requirements include, but are not limited to, a technical evaluation, an area of review and corrective action plan, a demonstration of financial responsibility, an emergency and remedial response plan, a proposed casing and cementing program, a testing and monitoring plan, a plugging plan, and a post-injection site care and facility closure plan. The Commission will consult with the State Department of Health before issuing a storage facility permit.

Any phase of the geologic storage project may be inspected for compliance by the Commission's authorized agents. Injection activities may not commence until construction of the injection well is complete, a permit to operate has been obtained, and the storage facility is in full compliance.

Compliance monitoring will be conducted by the Commission. This monitoring will at a minimum include, on-site inspections conducted by the Commission's authorized agents and a review of operating and monitoring reports submitted in compliance with reporting requirements pursuant to NDAC Section 43-05-01-18.

If it is determined that the storage operator is in violation of any permit condition, appropriate enforcement action will be pursued by the Commission.

When a well is taken out of service it will be properly plugged and abandoned pursuant to NDAC Section 43-05-01-11.5, approved by the Commission as a monitoring well, or approved by the Commission for temporary abandonment.

North Dakota citizens are encouraged to actively participate in program development and the storage facility permit process through public comment and hearings.

The Commission will give written notification to any States, Tribes, and Territories of any permit applications for geologic storage of CO_2 wherein the area of review crosses State jurisdiction boundaries, resulting in the need for trans-boundary coordination related to an injection operation.

III. AGENCY ORGANIZATION AND STRUCTURE

A. General Responsibilities

The Commission has the statutory authority to regulate Class VI injection well activities under NDCC Chapter 38-22 and NDAC Chapter 43-05-01.

The Commission has the following responsibilities specific to their associated statutory authority:

1. Administer the rules and regulations as they pertain to subsurface injections.
2. Perform technical evaluations of injection well applications and prepare draft permits.
3. Issue, deny, amend, or cancel permits.
4. Witness, at the discretion of the permitting agency, any aspect of construction, testing, operation, and closure of injection well activities.
5. Perform on-site certification of permit requirements.
6. Review operation reports for permit or rule compliance.
7. Provide recommendations of compliance strategies and corrective action when violations occur.
8. Maintain a database of injection well information including quantity and quality of injected material, well construction, local geology, and the pertinent water resources that could be impacted.
9. Conduct public hearings or enforcement proceedings as required.
10. Respond to public inquiries and complaints regarding proposed or operating injection facilities.
11. Ensure that the regulated community and the public at large are informed about underground injection activities.
12. Initiate and pursue appropriate enforcement action when the permit or rule requirements are violated.
13. Maintain permit files including information on the geology and hydrology (e.g., depth, name, and quality of USDWs) in the vicinity of the injection wells along with other data submitted with the application.

B. Specific Responsibilities

North Dakota Industrial Commission, Department of Mineral Resources, Oil and Gas Division

The North Dakota Oil and Gas Division has jurisdiction over the conservation of oil and gas in the State. In addition to these responsibilities and upon EPA approval the Oil and Gas Division will administer all regulatory authority for Class VI injection well activities. The Oil and Gas Division is responsible for the following tasks and statutory obligations:

a. The administration of State statutes and administrative rules regulating the drilling and production of oil and gas in North Dakota.

b. Administration of Class II UIC Program.

c. Administration of Class VI UIC Program.

The objectives of the Oil and Gas Division are to encourage and promote the development, production, and utilization of oil and gas in the State in such a manner as will prevent waste, maximize economic recovery, and fully protect the correlative rights of all owners to the end that the landowners, the royalty owners, the producers, and the general public realize the greatest possible good from these vital natural resources.

The North Dakota Class VI UIC program will be administered by the Carbon Capture and Storage (CCS) Supervisor. The CCS Supervisor will be a geologist or petroleum engineer able to perform all tasks associated with the administration of the program including, but not limited to permit evaluation, technical evaluation, onsite inspection, and compliance monitoring. The CCS Supervisor will be trained in computer modeling and able to verify the accuracy of all required computer generated models.

The implementation of the North Dakota Class VI UIC program is funded through the CO_2 storage facility administrative fund. In 2011 the Sixty-second Legislative Assembly of North Dakota appropriated $532,000 from the State general fund to the Commission for deposit in its CO_2 storage facility administrative fund for the purpose of hiring one full-time equivalent position for up to three years until fee income is sufficient to provide funding for the administration of the provisions of NDCC Chapter 38-22. A fee on each ton of CO_2 injected for storage will be paid to the Commission and deposited in the CO_2 storage facility administrative fund. The fee amount is set by Commission rule and based on the Commission's anticipated expenses that it will incur in regulating the storage of CO_2.

The estimated costs for the first two years of implementing the North Dakota Class VI UIC program will be approximately $200,000. These costs include the CCS Supervisors current salary, the computer reservoir modeling software license, the computer to run the computer modeling simulations, computer reservoir modeling software training, the development of the risk based data management system (RBDMS) for CO_2 storage, and all other indirect costs associated with the administration of the program.

North Dakota Industrial Commission, Department of Mineral Resources, Oil and Gas Division
June 2013

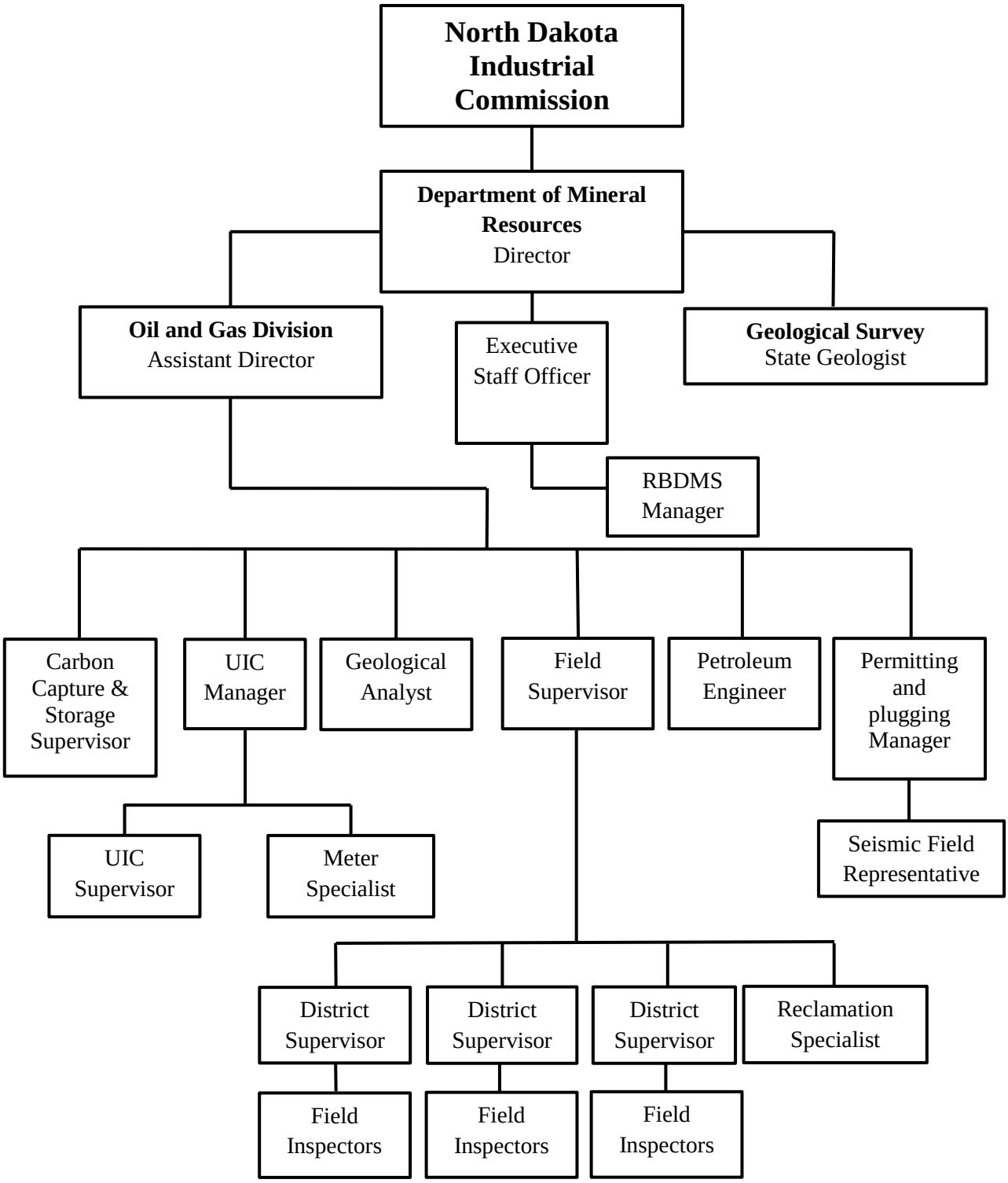

Figure 1. North Dakota Department of Mineral Resources, Oil and Gas Division Organizational Chart

IV. STATE UIC PERMITTING PROCESS

The Commission is responsible for the technical evaluation of CO_2 injection well permit applications and drafting of permit provisions for Class VI wells. Before issuing a storage facility permit, the Commission will consult the North Dakota Department of Health.

A. Class VI Injection Wells

Permit Requirements:

North Dakota Class VI injection wells may be used to inject CO_2 into or withdraw CO_2 from a storage reservoir.

Each applicant will provide information outlined in NDAC Chapter 43-05-01 (Geologic Storage of CO_2) and the permit application.

1. Required Information for Storage Facility Permit

At minimum, the Commission will evaluate the following information before issuing a draft permit:

a. A site map showing the boundaries of the storage reservoir and the location of all proposed wells, proposed cathodic protection boreholes, and surface facilities within the CO_2 storage facility area;

b. A technical evaluation of the proposed storage facility, including the following:

(1) The name, description, and average depth of the storage reservoirs;

(2) A geologic and hydrogeologic evaluation of the facility area, including an evaluation of all existing information on all geologic strata overlying the storage reservoir, the immediate caprock containment characteristics and all subsurface zones to be used for monitoring;

(3) A review of the data of public record, conducted by a geologist or engineer, for all wells within the facility area, which penetrate the storage reservoir or primary or secondary seals overlying the reservoir, and all wells within the facility area and within one mile [1.61 kilometers], or any other distance as deemed necessary by the Commission, of the facility area boundary;

(4) The proposed calculated average and maximum daily injection rates, daily volume, and the total anticipated volume of the CO_2 stream using a method acceptable to and filed with the Commission;

(5) The proposed average and maximum bottom hole injection pressure to be utilized at the reservoir. The maximum allowed injection pressure, measured in pounds per square inch gauge, will be approved by the Commission and specified in the permit;

(6) The proposed pre-operational formation testing program to evaluate the chemical and physical characteristics of the injection zone and confining zone pursuant to NDAC Section 43-05-01-11.2;

(7) The proposed stimulation program, a description of stimulation fluids to be used and a determination that stimulation will not interfere with containment; and

(8) The proposed procedure to outline steps necessary to conduct injection operations.

c. The extent of the pore space that will be occupied by CO_2 as determined by utilizing all appropriate geologic and reservoir engineering information and reservoir analysis, which will include various computational models for reservoir characterization, and the projected response of the CO_2 plume and storage capacity of the storage reservoir. The computational model will be based on detailed geologic data collected to characterize the injection zones, confining zones, and any additional zones;

d. An emergency and remedial response plan pursuant to NDAC Section 43-05-01-13;

e. A detailed worker safety plan that addresses CO_2 safety training and safe working procedures at the storage facility pursuant to NDAC Section 43-05-01-13;

f. A corrosion monitoring and prevention plan for all wells and surface facilities pursuant to NDAC Section 43-05-01-15;

g. A leak detection and monitoring plan for all wells and surface facilities pursuant to NDAC Section 43-05-01-14. The plan will:

(1) Identify the potential for release to the atmosphere;

(2) Identify potential degradation of ground water resources with particular emphasis on USDWs; and

(3) Identify potential migration of CO_2 into any mineral zone in the facility area.

h. A leak detection and monitoring plan utilizing subsurface observation wells to monitor any movement of the CO_2 outside of the storage reservoir. This may include the collection of baseline information of CO_2 background concentrations in ground water, surface soils, and chemical composition of in situ waters within the facility area and the storage reservoir and within one mile [1.61 kilometers] of the facility area outside boundary. Provisions in the plan will be dictated by the site characteristics as documented by materials submitted in support of the permit application but will:

(1) Identify the potential for release to the atmosphere;

(2) Identify potential degradation of ground water resources with particular emphasis on USDWs; and

(3) Identify potential migration of CO_2 into any mineral zone in the facility area.

i. The proposed well casing and cementing program detailing compliance with NDAC Section 43-05-01-09;

j. An area of review and corrective action plan that meets the requirements pursuant to NDAC Section 43-05-01-05.1;

k. The storage operator will comply with the financial responsibility requirements pursuant to NDAC Section 43-05-01-09.1;

l. A testing and monitoring plan pursuant to NDAC Section 43-05-01-11.4;

m. A plugging plan that meets requirements pursuant to NDAC Section 43-05-01-11.5;

n. A post-injection site care and facility closure plan pursuant to NDAC Section 43-05-01-19; and

o. Any other information that the Commission requires.

2. Public Participation and Technical Evaluation

During the technical evaluation of a storage facility permit application, staff may require additional information to assist in determining if a draft permit should be prepared. Upon completion of the evaluation the Commission will tentatively decide whether to prepare a draft permit or to deny the application. Before a draft permit is prepared, the Commission will consult the North Dakota Department of Health. If the Commission decides to prepare a draft permit, a public notice will be issued. The public notice of comment period and hearing will follow procedures as outlined in NDAC Chapter 43-05-01.

During the public comment period, any interested person may submit written comments on the draft permit or the storage facility permit application. All comments will be considered in making the final decision and will be addressed when a storage facility permit is issued.

The Commission will hold a public hearing on the storage facility permit application and draft permit. Notice of the public hearing will be published in a newspaper of general circulation in Bismarck, North Dakota, and in a newspaper of general circulation in the county where the land affected or some part thereof is situated at least 30 days prior to the hearing. The public notice will include information about the length of the comment period, contact person, and the address and phone number of the Commission, so interested parties can request copies of the storage facility permit application and the draft permit. After completion of the hearing and comment period a final decision will be rendered in the form of an Industrial Commission order. The Commission will issue a response to all formal comments received during the hearing process.

3. Required Information for a Permit to Drill

Following receipt of a storage facility permit, the storage operator will obtain a permit to drill, deepen, convert, operate, or, upon demonstration of mechanical integrity, reenter a previously plugged and abandoned well for storage purposes.

Application for permit to drill, deepen, convert, operate, or reenter a well will include at a minimum:

a. A plat certified by a registered surveyor showing the location of the proposed injection well;

b. The drilling, completion, or conversion procedures;

c. A well bore schematic;

d. A geophysical log through the storage reservoir; and

e. The proposed pad layout.

4. Permit to Operate a Class VI Injection Well

Within 30 days after the conclusion of well drilling and completion activities, a permit application will be submitted to operate an injection well and will include at a minimum:

a. A schematic diagram of the surface injection system and its appurtenances;

b. A final well bore diagram;

c. The well's complete dual induction log or equivalent log through the storage reservoir;

d. An affidavit specifying the chemical constituents of the CO_2 stream other than CO_2 and their relative proportions and the source of the CO_2 stream;

e. A cement bond log showing that the long string casing is cemented adequately so the CO_2 is confined to the storage reservoir;

f. The results of the mechanical integrity test;

g. The final area of review;

h. Information on the compatibility of the CO_2 stream with the fluids in the injection zone;

i. The results of the formation testing program;

j. The status of the corrective action on wells in the area of review;

k. All available logging and testing program data on the well; and

l. Any updates to the proposed plans required in the storage facility permit.

5. Mechanical Integrity

A Class VI injection well has mechanical integrity if there is no significant leak in the casing, tubing, or packer; and there is no significant fluid movement into an USDW through channels adjacent to the well bore. To evaluate the absence of significant leaks the storage operator will, following an initial annulus pressure test, continuously monitor injection pressure, rate, injected volumes, pressure on the annulus between tubing and long-string casing, and annulus fluid volume.

At least annually, the storage operator will use an approved tracer survey or a temperature or noise log to determine the absence of significant fluid movement.

To evaluate mechanical integrity, the storage operator will apply methods and standards generally accepted in the industry. When the storage operator reports the results of mechanical integrity tests to the Commission, the storage operator will include a description of the test and the method used. In order to properly evaluate mechanical integrity the Commission will review monitoring and other test data submitted since the previous evaluation.

The Commission may require additional or alternative tests if the results presented by the storage operator are not satisfactory to the Commission to demonstrate mechanical integrity.

6. Plugging and Abandonment

Prior to granting approval for well plugging, the storage operator is required to perform a final external mechanical integrity test. The storage operator will comply with the Commission approved plugging plan, required as part of the storage facility permit. The plugging plan will include the following:

a. Appropriate tests or measures for determining bottomhole reservoir pressure;

b. Appropriate testing methods to ensure external mechanical integrity;

c. The type and number of plugs to be used;

d. The placement of each plug, including the elevation of the top and bottom of each plug;

e. The type, grade, and quantity of material to be used in plugging. The material will be compatible with the CO_2 stream; and

f. The method of placement of the plugs.

7. Post-Injection Site Care and Facility Closure

Upon permanent cessation of CO_2 injection all wells not associated with the post-injection monitoring will be plugged and abandoned, all equipment associated with the storage facility will be removed from the site, and the surface will be reclaimed to the Commission's specifications returning the land to as closely as practicable to original condition.

The storage operator will continue to conduct monitoring as specified by the post-injection site care and facility closure plan. The plan will include the pressure differential between pre-injection and predicted post-injection pressures, the predicted position of the CO_2 plume and associated pressure front at cessation, a description of the post-injection monitoring, a schedule

for submitting post-injection monitoring results, and the duration of the post-injection monitoring timeframe.

The storage operator may apply for project completion once the final assessment is complete, USDWs are no longer endangered, and upon full compliance with all Certificate of Project Completion requirements.

8. Certificate of Project Completion

    a. After CO_2 injections into a reservoir cease and upon application by the storage operator, the Commission will consider issuing a certificate of project completion.

    b. The certificate may only be issued after public notice and hearing. The Commission will establish notice requirements for this hearing.

    c. The certificate may only be issued after the Commission has consulted with the State Department of Health.

    d. The certificate may not be issued until at least ten years after CO_2 injections end.

    e. The certificate may only be issued if the storage operator:

        (1) Is in full compliance with all laws governing the storage facility.

        (2) Shows that it has addressed all pending claims regarding the storage facility's operation.

        (3) Shows that the storage reservoir is reasonably expected to retain the CO_2 stored in it.

        (4) Shows that the CO_2 in the storage reservoir has become stable. Stored CO_2 is stable if it is essentially stationary or, if it is migrating or may migrate, that any migration will be unlikely to cross the storage reservoir boundary.

        (5) Shows that all wells, equipment, and facilities to be used in the postclosure period are in good condition and retain mechanical integrity.

        (6) Shows that it has plugged wells, removed equipment and facilities, and completed reclamation work as required by the Commission.

9. Issuance of Certificate of Project Completion:

    a. Title to the storage facility and to the stored CO_2 transfers, without payment of any compensation, to the State.

    b. Title acquired by the State includes all rights and interests in, and all responsibilities associated with, the stored CO_2.

    c. The storage operator and all persons who generated any injected CO_2 are released from all regulatory requirements associated with the storage facility.

    d. Any bonds posted by the storage operator will be released.

e. Monitoring and managing the storage facility is the State's responsibility to be overseen by the Commission until such time as the federal government assumes responsibility for the long-term monitoring and management of storage facilities.

10. Monitoring and Managing the Storage Facility:

    a. Upon issuance of project completion the Commission is responsible for the long-term monitoring and managing of the storage facility.

    b. The State is responsible for the continued long-term monitoring of the site overseen by the Commission until the federal government assumes responsibility.

11. Facility Closure:

    a. The State is responsible for the plugging and abandonment of all remaining monitoring wells. It is the Commission's obligation to assure that these monitoring wells will be plugged in a manner which will not allow for movement of injection or formation fluids that endanger USDW.

V. STATE COMPLIANCE MONITORING PROGRAM

A. Plan Review

The Commission will verify that the storage facility construction, completion, operation, maintenance, and closure procedures are performed according to approved plans and specifications, and meet all permit or regulatory requirements.

Verification of Class VI injection well activities is accomplished by reviewing appropriate plans and reports, performing on-site inspections, responding to complaints, and, where necessary, referring noncompliance to legal counsel for appropriate enforcement action.

Review of plans and reports may include but are not restricted to:

1. Revisions to construction plans filed after permit issuance.

2. Well completion reports including results of required logging and other testing.

3. Results of injectivity and pump tests, mechanical integrity tests, and any other required tests.

4. Bottomhole pressure reports and updated evaluations of the effects of injection on the injection zone, including fluid volume, injection rate, and injection pressure data.

5. Work over plans and work over reports describing construction or maintenance.

6. Revisions to plugging plan and reports of completion of plugging, and other site closure activities.

7. Any other plans or test results connected with the proper construction, operation, and maintenance of the well and associated surface facilities.

B. Site Inspections

Site inspections to verify or witness construction, operation, and maintenance procedures may be conducted as necessary when certain construction operations begin, or in response to a complaint or other indication that a problem may exist. Construction elements and testing that may be witnessed by the Commission and it authorized agents, include:

1. Well pad and site construction

2. All drilling operations

3. Setting and cementing surface casing.

4. Cementing long string casing.

5. Well logging and coring operations.

6. Pressure testing of tubing and casing.

7. Formation pressure tests, injectivity tests, or pump tests.

8. Installation and maintenance of instrumentation.

9. Work required by any corrective action plan.

10. Well workovers.

11. Placement of monitoring wells or other equipment.

12. Any plugging procedures.

13. Mechanical Integrity testing.

In addition, geologic storage facilities may be inspected at any time by the Commission and its authorized agents.

C. Complaints

Complaints alleging improper construction, completion, operation, or maintenance at a storage facility will be investigated by the Commission. Response to complaints may consist of:

1. Establishing the nature and authenticity of the complaint.

2. Reviewing appropriate records, reports, and files.

3. Establishing contact with the operator to verify the complaint and discuss corrective action.

4. Performing a site inspection to determine if a problem exists.

5. Referring the complaint, after verification through appropriate investigation and documentation to legal counsel.

D. Monitoring Program

The compliance monitoring program will be overseen by the Commission for all Class VI injection well activities. The objective of the monitoring program is to verify attainment of and maintain compliance with provisions of permits, rules, and any other additional permit conditions or stipulations. The objectives are achieved by:

1. Conducting inspections of storage facilities.

2. Reviewing self-reporting, monitoring, record keeping, and certain operating and maintenance activities.

3. Investigating unauthorized injection activities and unauthorized facilities.

4. Participation in appropriate water quality sampling programs.

5. Responding to citizen complaints.

Site inspections will be conducted by the Commission's authorized agents. The inspections will be conducted at the discretion of the Commission for all permitted CO_2 storage facilities in order to:

1. Determine the probability of a violation and indicate problems that may be causing or lead to violations.

2. Assist in identification of existing problems or prevent potential problems from developing.

3. Update the Commission records on the facility and verify operational procedures.

4. Maintain a regulatory presence with the storage operator and all landowners impacted by the geologic storage project.

E. Annual Inspections

1. Observations of injection site, facilities, and monitoring wells.

2. Review of records to determine history of performance and compliance.

3. Evaluation of the operation and maintenance of the storage facility.

4. A review of all Class VI permit conditions.

5. A review of all site specific permit conditions.

F. Compliance Inspections

Compliance follow-up inspections may be conducted at any time to:

1. Determine existence of a violation.

2. Provide basis for enforcement action.

3. Define type of violation.

4. Provide data to assist in determining cause of violation.

Site inspections and examination of storage operator records will be conducted under the authority of NDCC Chapter 38-22 and NDAC Chapter 43-05-01.

VI. NORTH DAKOTA ENFORCEMENT PROCEDURES

Any person violating NDCC Chapter 38-22, NDAC Chapter 43-05-01, any condition of a permit, or any rule or order of the Commission is subject to enforcement action. The Commission is responsible for initiating, pursuing, and resolving formal enforcement actions.

Prior to taking formal enforcement action the Commission may:

1. Notify the alleged violator of deficiencies and such written notice may require corrective action.

2. Draft and issue a notice of violation to the alleged violator.

Formal enforcement proceedings may include:

3. Issuance of a letter detailing recommendations for corrective action and establishing a compliance period in which action will be taken.

4. Issuance of an administrative order by the Commission specifying corrective action and compliance schedule.

5. Signing of a stipulation between the Commission and the alleged violator establishing a compliance schedule for corrective action.

6. Conducting an administrative hearing (formal or informal) pursuant to NDCC Chapter 38-22 and NDAC Chapter 43-05-01.

7. Any enforcement proceedings may result in modification, revocation, or suspension of any permit issued under authority of the Class VI UIC program.

If further enforcement action is required:

8. The State may seek civil penalty up to $12,500 a day under NDCC Section 38-22-18.

Overall enforcement strategy of the Commission is based on the following concerns:

Priority No. 1: Remove any potential pollution problem as soon as possible.

Priority No. 2: Prevent such problems from causing any further damage.

Priority No. 3: Ensure that proper corrective or cleanup actions are taken.

Priority No. 4: Ensure that same type of violation will not occur again.

Priority No. 5: Seek civil penalty for violation.

The Commission will attempt to handle all minor violations through informal means or through use of correspondence between technical staff and the alleged violator. The Commission along with the State Department of Health will have, as its main concern, those violations which may have significant effects on the environment of the State of North Dakota and which may endanger valuable resources, such as USDWs.

VII. Reports

The owner or operator will submit all required reports, submittals, and notifications under NDAC Chapter 43-05-01 to EPA in an electronic format approved by EPA, as required under NDAC Section 43-05-01-18 Subsection 5. Additional State regulations require the owner or operator to submit reports, submittals, and notifications to the Commission. In order to assure both the State, as the primacy authority, and EPA, as the oversight authority, have consistent data throughout program implementation, the Commission agrees to submit to EPA or allow EPA viewing access to all Class VI reports, submittals, and notifications submitted to the State. The Commission will assist the EPA in owner or operator compliance with NDAC Section 43-05-01-18 Subsection 5 by submitting to EPA or allowing EPA viewing access to all required reports, submittals, and notifications under NDAC Chapter 43-05-01 through the Commission's database to EPA in an electronic format approved by EPA.

A. Quarterly Reports

Class VI UIC program quarterly reports will be submitted to the regional administrator, in accordance with the following schedule:

Quarter	Report Due
October. November, December	January 30
January, February, March	April 30
April, May, June	July 30
July, August, September	October 30

B. Annual Report

Class VI UIC program annual reports will be submitted to the regional administrator by December 1. The report is for the period of October 1 through September 30 (federal fiscal year) and will consist of the following:

1. A well inventory consisting of the facility name and ID, location, well type, and well status.

2. A summary of the major program activities during the fiscal year as identified in the work plan.

VIII. FORMS

Quarterly and annual reporting will be performed using EPA Forms. The Commission will utilize its Risk Based Data Management System (RBDMS) database throughout program implementation. RBDMS CO_2 will allow the Commission to track all program reports, streamline permitting and reporting, and maintain all permit files associated with the Class VI program. Application and reporting forms to be used during program implementation follow this page.

CARBON DIOXIDE STORAGE FACILITY PERMIT APPLICATION

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN _____ (06-2013)

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM. PLEASE SUBMIT THE ORIGINAL AND TWO COPIES.
APPROVAL MUST BE OBTAINED BEFORE WORK COMMENCES.

Storage Facility Name			NDIC Case No.
Operator	Telephone Number		
Operator Address	City	State	Zip Code

Facility Location Address	City	State	Zip Code

Facility Mailing Address	City	State	Zip Code

STORAGE FACILITY INFORMATION

	Qtr-Qtr	Section	Township	Range	County
Proposed Facility Location F L F L			N	W	
Proposed Injection Well Location F L F L			N	W	
Propsed Monitoring Well Location F L F L			N	W	

Is this facility located on Indian Land? ☐ Yes ☐ No	Is the facility located on any histiric or archaeological sites? ☐ Yes ☐ No

Geologic Name of Injection Zone	Top Feet	Injection Interval	Feet
Geologic Name of Top Confining Zone	Thickness Feet	Geologic Name of Bottom Confining Zone	Thickness Feet
Bottom Hole Fracture Pressure of the Top Confining Zone	PSI	Gradient	PSI/Ft
Type of Geological Structure			
Geologic Name of Lowest Known Fresh Water Zone		Depth to Base of Fresh Water Zone	Feet

COMMENTS

Existing Environmental Permits

UIC - Underground Injection of Fluids	Permit No.:	N/A ☐
NPDES - Discharge of Surface Water	Permit No.:	N/A ☐
RCRA - Hazardous Waste	Permit No.:	N/A ☐
PSD - Air Emissions from Proposed Sources	Permit No.:	N/A ☐
Other (specify)	Permit No.:	N/A ☐

FOR STATE USE ONLY

Permit Number and Storage Facility File Number	
NDIC Order No.	Approval Date
By	
Title	

SIC Codes: List in descending order of significance the four 4-digit "Standard Industrial Classification Manual" which best describes your facility in terms of the principal products or nservices you produce or provide. Also, specify each classification in words	1st	Name
	2nd	Name
	3rd	Name
	4th	Name

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date

Signature	Printed Name	Title

Above Signature Witnessed By

Witness Signature	Witness Printed Name	Witness Title

Instructions

1. Attach a list identifying all attachments.
2. The operator, facility name, field or unit, proposed injection well location, and any other pertinent information.
3. Attach all required technical evaluation materials pursuant to Section 43-05-01-05 of the North Dakota Administrative Code. Including all maps, cross sections, data, information, and evaluations of the proposed storage facility.
4. Provide all computational modeling data associated with the area of review deliniation as required in Section 43-05-01-05.1 of the North Dakota Administrative Code. Including type of reservior modeling software, type geologic modeling software and all data used to create the geologic model, and all input and output files in a Commission approved format.
5. Attach a plat depicting the area of review and detailing the location, well name, and operator of all wells in the area of review. Include: injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes, and water wells. The plat shall also depict faults, if known or suspected.
6. Attach a description of the needed corrective action on wells penetrating the injection zone in the area of review.
7. Attach a brief description of the proposed pre-operational formation testing program, the proposed stimulation program, and the proposed injection program.
9. Include the following project plans: emergency and remedial response plan, worker safty plan, corrosion monitoring plan, leak detection and monitoring plan, area of review and coorective action plan, testing and monitoring plan, plugging plan, and post-injection site care and facility closure plan.
10. Attach a legal description of land ownership within the area of review. List ownership by tract or submit in plat form.
11. Attach the proposed financial responsibility demonstration as required in Section 43-05-01-09 of the North Dakota Administrative Code.
12. Attach the proposed well casing and cementing program.
13. Attach schematic drawings of the injection system and its appurtenances including proposed well bore and surface facility construction.
14. Attach a printout of a map obtained at http://www.nd.gov/gis/apps/HubExplorer/ with surficial aquifers (under hydrography) active, and proposed location plotted on printout.
15. Read Section 43-05-01-05 of the North Dakota Administrative Code to ensure that this application is complete.
16. The original and two copies of this application and attachments shall be filed with the Industrial Commission of North Dakota, Oil and Gas Division, 600 East Boulevard, Dept. 405, Bismarck, ND 58505-0840.

APPLICATION FOR CARBON DIOXIDE STORAGE - FORM 25

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN _____ (06-2013)

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM. PLEASE SUBMIT THE ORIGINAL AND TWO COPIES.
APPROVAL MUST BE OBTAINED BEFORE WORK COMMENCES.

Storage Facility Name	Storage Facility File No.	Injection Well Type ☐ Converted ☐ Newly Drilled	
Operator	Telephone Number	Commercial Storage ☐ Yes ☐ No	
Address	City	State	Zip Code

INJECTION WELL INFORMATION

At Surface F L F L	Qtr-Qtr	Section	Township N	Range W	County
Bottom Hole Location F L F L	Qtr-Qtr	Section	Township N	Range W	County

Geologic Name of Injection Zone	Top Feet	Injection Interval Feet
Geologic Name of Top Confining Zone	Thickness Feet	Geologic Name of Bottom Confining Zone / Thickness Feet
Bottom Hole Fracture Pressure of the Top Confining Zone PSI		Gradient PSI/Ft
Estimated Average Injection Rate and Pressure **BPD** @ PSI		Estimated Maximum Injection Rate and Pressure **BPD** @ PSI
Geologic Name of Lowest Known Fresh Water Zone		Depth to Base of Fresh Water Zone Feet
Total Depth of Well (MD & TVD) Feet	Well Logs	

CASING, TUBING, AND PACKER DATA (Check ☐ If Existing)

NAME OF STRING	SIZE	WEIGHT (Lbs/Ft)	SETTING DEPTH	SACKS OF CEMENT	TOP OF CEMENT	TOP DETERMINED BY
Surface ☐						
Intermediate ☐						
Long String ☐						

				TOP	BOTTOM	SACKS OF CEMENT
Liner ☐						

				TYPE
Proposed Tubing				

Proposed Packer Setting Depth Feet	Model	☐ Compression ☐ Permanent ☐ Tension

FOR STATE USE ONLY

Permit Number and Well File Number	
UIC Number	Approval Date
By	
Title	

COMMENTS

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.		Date
Signature	Printed Name	Title

Above Signature Witnessed By

Witness Signature	Witness Printed Name	Witness Title

Instructions

1. Attach a list identifying all attachments.
2. The operator, well name and number, field or unit, well location, and any other pertinent data shall coincide with the official records on file with the Commission. If it does not, an explanation shall be given.
3. If a Carbon Dioxide injection well is to be drilled, an Application for Permit to Drill - Form 1 (SFN 4615) shall also be completed and accompanied by a plat prepared by a registered surveyor and a drilling fee.
4. Attach a lithologic description of the proposed injection zone and the top and bottom confining zones.
5. Attach a plat depicting the area of review and detailing the location, well name, and operator of all wells in the area of review. Include: injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes, and water wells. The plat shall also depict faults, if known or suspected.
6. Attach a description of the needed corrective action on wells penetrating the injection zone in the area of review.
7. Attach a brief description of the proposed injection program.
8. Attach a quantitative analysis from a state-certified laboratory of fresh water from the two nearest fresh water wells. Include legal descriptions.
9. Attach a quantitative analysis from a state-certified laboratory of a representative sample of carbon dioxide to be injected.
10. Attach a list identifying all source wells, including location.
11. Attach a legal description of land ownership within the area of review. List ownership by tract or submit in plat form.
12. Attach the proposed pad layout including cut and fill diagrams
13. Attach all available logging and test data on the well which has not been previously submitted.
14. Attach schematic drawings of the injection system and its appurtenances including current well bore construction and proposed well bore and surface facility construction.
15. Attach a Sundry Notice - Form 4 (SFN 5749) detailing the proposed procedure.
16. Attach a diagram representing the traffic flow and the maximum number of trucks staged on site.
17. Attach a printout of a map obtained at http://www.nd.gov/gis/apps/HubExplorer/ with surficial aquifers (under hydrography) active, and proposed location plotted on printout.
18. Read Section 43-05-01-09 of the North Dakota Administrative Code to ensure that this application is complete.
19. The original and two copies of this application and attachments shall be filed with the Industrial Commission of North Dakota, Oil and Gas Division, 600 East Boulevard, Dept. 405, Bismarck, ND 58505-0840.

APPLICATION FOR PERMIT TO DRILL - FORM 1

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 4615 (08-2008)

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

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Type of Work	Type of Well ÌЗÂ£B¦ËR³	Approximate Date Dirt work Will Start	Confidential Status
Operator			Telephone Number
Address	City	State	Zip Code
Name of Surface Owner or Tenant			
Address	City	State	Zip Code

☐ Notice has been provided to the owner of any permanently occupied dwelling within 1,320 feet.

☐ This well is not located within five hundred feet of an occupied dwelling.

WELL INFORMATION

Well Name					Well Number
At Surface F L F L	Qtr-Qtr	Section	Township N	Range W	County
If Directional, Top of Pay F L F L	Qtr-Qtr	Section	Township N	Range W	County
Proposed Bottom Hole Location F L F L	Qtr-Qtr	Section	Township N	Range W	County

Latitude of Well Head ° ' "	Longitude of Well Head ° ' "	NAD Reference	Description of (Subject to NDIC Approval)

Ground Elevation Feet Above S.L.	Acres in Spacing/Drilling Unit	Spacing/Drilling Unit Setback Requirement Feet	Industrial Commission Order

Objective Horizons				Pierre Shale Top

Proposed Surface Casing	Size - "	Weight Lb./Ft.	Depth Feet	Cement Volume Sacks	NOTE: Surface hole must be drilled with fresh water and surface casing must be cemented back to surface.

Proposed Longstring Casing	Size - "	Weight(s) Lb./Ft.	Longstring Total Depth Feet MD	Feet TVD	Cement Volume Sacks	Cement Top Feet	Top Dakota Sand Feet

Base of Last Salt (If Applicable) Feet	Estimated Total Depth (feet) Feet MD	Feet TVD	Drilling Mud Type (Vertical Hole - Below Surface Casing)

Proposed Logs

Comments

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date

Signature	Printed Name	Title

Email Address(es)

FOR STATE USE ONLY

Permit and File Number	API Number 33-
Field	
Pool	Permit Type

FOR STATE USE ONLY

Date Approved
By
Title

REQUIRED ATTACHMENTS - VERTICAL: Certified surveyor's plat, estimated geologic tops, proposed mud/cementing plans, $100 fee.
IF DIRECTIONAL - ALSO SUBMIT: Horizontal section plat and directional plot/plan.

APPLICATION FOR PERMIT TO DRILL – FORM 1
SFN 4615

1. Please refer to Section 43-02-03-16 of the North Dakota Administrative Code (NDAC) regarding an application for permit to drill.

2. Well-site preparation other than surveying and staking is forbidden prior to approval of an application for permit to drill.

3. Verbal approval may be given for site preparation by the Director in extenuating circumstances although no drilling activity shall commence until the application is approved.

4. The application for permit to drill shall be accompanied by a bond pursuant to Section 43-02-03-15 NDAC or the applicant must have previously filed such bond with the Commission, otherwise the application is incomplete.

5. Any incomplete application for permit to drill received by the Commission has no standing and shall not be deemed filed until it is completed.

6. The application for a permit to drill a well shall be accompanied by an accurate plat certified by a registered surveyor showing the location of the proposed well with reference to the nearest lines of a governmental section.

7. The application for permit to drill a directional or horizontal well shall be accompanied by an accurate plat certified by a registered surveyor showing the internal dimensions of the spacing or drilling unit.

8. The application for permit to drill shall be accompanied by a drilling prognosis which shall include the following: the proposed total depth (including measured depth if appropriate) to which the well will be drilled, the estimated depth to the top of important geological markers, the estimated depth to the top of objective horizons, the proposed mud program, the proposed casing program including size and weight, the proposed depth at which each casing string is to be set, the proposed amount of cement to be used, and the estimated top of cement.

9. The application for permit to drill shall be accompanied by a permit fee of one hundred dollars.

10. The approved application for permit to drill shall terminate and be of no further force and effect unless a well is drilling, or has been drilled, below surface casing on the first anniversary of the date of issuance or renewal.

11. The original and one copy of this report shall be filed with the Industrial Commission of North Dakota, Oil and Gas Division, 600 East Boulevard, Dept. 405, Bismarck, ND 58505-0840.

WELL INTEGRITY REPORT - FORM 19

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5767 (10-2001)

Well File No.
UIC No.

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL.

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Date of Test	Name of Contractor Performing Pressure Test		
Operator		Telephone Number	
Address	City	State	Zip Code
Well Name and Number	Field		

Location of Well	Qtr-Qtr	Section	Township N	Range W	County

WELL DATA

Formation		Perforations Feet	
Tool Type ☐ Packer ☐ CICR ☐ CIBP	Depth Feet	Packer Model	
Tubing Size Inches	Tubing Type		
Well Type ☐ Disposal Well ☐ Production Well ☐ Enhanced Recovery Well ☐ Other	Reason for Test ☐ UIC MIT ☐ TAO ☐ TA ☐ Workover	Type of Test ☐ MIT ☐ Annual MIT ☐ Initial MIT ☐ 5 Year MIT	

BEFORE TEST

Tubing Pressure PSIG ☐ FTP or ☐ SITP	Annulus or Casing Pressure PSIG

START OF TEST

Starting Tubing Pressure PSIG ☐ FTP or ☐ SITP	Starting Annulus or Casing Pressure PSIG

END OF TEST

Ending Tubing Pressure PSIG ☐ FTP or ☐ SITP	Ending Annulus or Casing Pressure PSIG

TEST DATA

Annular or Casing Fluid	Fluid Used to Test	Amount of Fluid Needed to Fill Annulus or Casing Bbls
Length of Test Minutes	Was Annulus or Casing Bled Off to Zero After Test? ☐ Yes ☐ No - Pressure Left	PSIG

COMMENTS

☐ Approved MIT ☐ Failed MIT - Explain Below ☐ Conditionally Approved MIT - Explain Below ☐ Approved TA Status ☐ Report of Work Done Required

This report is true and complete to the best of my knowledge.

Company Representative Witnessing Test	Title
Commission Field Inspector Witnessing Test	

WELL INTEGRITY REPORT - FORM 19
SFN 5767

1. A Well Integrity Report - Form 19 (SFN 5767) shall be filed with the Commission subsequent to any workover conducted on a UIC well, any periodic pressure test conducted on a UIC well, or any pressure test conducted for temporary abandonment purposes. This report will be filed by the Commission field inspector if they witness the mechanical integrity test.

2. The well file number, UIC number, operator, well name and number, field, well location, and any other pertinent information shall coincide with the official records on file with the Commission. If it does not, an explanation shall be given.

3. The "Before Test" section of the report shall report the condition(s) of the well prior to connecting to the well for the mechanical integrity test.

4. The "Start of Test" section of the report shall report the condition(s) of the well after pressuring up the well to start the mechanical integrity test.

5. The "End of Test" section of the report shall report the condition(s) of the well at the end of the test interval prior to relieving the pressure on the well.

6. The original of this report shall be filed with the Industrial Commission of North Dakota, Oil and Gas Division, 600 East Boulevard, Dept. 405, Bismarck, ND 58505-0840.

SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2006)

Well File No.

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

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☐ Notice of Intent	Approximate Start Date	☐ Drilling Prognosis	☐ Spill Report
☐ Report of Work Done	Date Work Completed	☐ Redrilling or Repair	☐ Shooting
☐ Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	☐ Casing or Liner	☐ Acidizing
		☐ Plug Well	☐ Fracture Treatment
		☐ Supplemental History	☐ Change Production Method
		☐ Temporarily Abandon	☐ Reclamation
		☐ Other	

Well Name and Number

Footages	Qtr-Qtr	Section	Township	Range
F L F L			N	W

Field	Pool	County

24-HOUR PRODUCTION RATE

Before		After	
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)

Address	City	State	Zip Code

DETAILS OF WORK

Company		Telephone Number
Address		
City	State	Zip Code
Signature	Printed Name	
Title	Date	
Email Address		

FOR STATE USE ONLY

☐ Received	☐ Approved
Date	
By	
Title	

SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4
SFN 5749

1. Approval shall be obtained prior to perforating or recompleting a well in a reservoir other than the reservoir in which the well is currently completed, prior to plug back of a well, prior to temporary abandonment of a well, prior to abandonment of a well, prior to reclamation of a well site, prior to reclamation of a reserve pit, and prior to beginning a workover project, which may qualify for a tax exemption pursuant to NDCC Section 57-51.1-03. Please refer to Section 43-02-03-16 of the North Dakota Administrative Code (NDAC) regarding recompleting a well in a reservoir other than the reservoir in which the well is currently completed or plugging back of a well, to Section 43-02-03-55 NDAC regarding temporary abandonment of a well, to Section 43-02-03-33 or Section 43-02-05-08 NDAC regarding abandonment of wells, to Section 43-02-03-19 NDAC regarding reclamation, and to Section 43-02-09-03 NDAC regarding workover projects.

2. Upon the completion of any remedial work, or attempted remedial work such as plugging back, drilling deeper, acidizing, shooting, formation fracturing, squeezing operations, setting liner, fishing operations, repair work, perforating, reperforating, or other similar operations not specifically covered herein, a report on the operation shall be filed on a Sundry Notice - Form 4 (SFN 5749) with the Director. The report shall present a detailed account of all work done and the date of such work; the daily production of oil, gas, and water both prior to and after the operation; the shots per foot, size, and depth of perforations; the quantity of sand, crude, chemical, or other materials employed in the operation; and any other pertinent information or operations which affect the original status of the well and are not specifically covered herein. Please refer to Section 43-02-03-31 NDAC.

3. Upon the completion of a workover project, which may qualify for a tax exemption pursuant to NDCC Section 57-51.1-03, a report on the operation shall be filed on a Sundry Notice - Form 4 (SFN 5749) detailing the work done. Include the dates during which the workover rig was in service actually performing work on the workover project and the date the workover was completed, a detailed list identifying all labor, services, and materials used and equipment replaced during the workover project, the cost of each item, and whether the replacement equipment was new or used. The value of all equipment removed from service must be listed. The average daily oil production from the well during the first two months after completion of the project must be included if the costs of the project did not exceed sixty-five thousand dollars. All gauge tickets of oil produced in incomplete months during the first two months after completion of the workover and the volume of oil stored on the well premises immediately prior to commencement of the workover project must also be included. Please refer to Section 43-02-09-04 NDAC.

4. Upon the initial installation of pumping equipment, or change in type or depth of pumping equipment designed to increase productivity in a well, the operator shall file a Sundry Notice - Form 4 (SFN 5749) of such installation. The notice shall include all pertinent information on the pump and the operation thereof including the date of such installation, and the daily production of the well prior to and after the pump has been installed. Please refer to Section 43-02-03-31 NDAC.

5. The well file number, well name and number, well location, field, pool, and county shall coincide with the official records on file with the Commission.

6. The original and one copy of this report shall be filed with the Industrial Commission of North Dakota, Oil and Gas Division, 600 East Boulevard, Dept. 405, Bismarck, ND 58505-0840.

CARBON DIOXIDE STORAGE INJECTION WELL PLUGGING REPORT - FORM 25A

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN _____ (06-2013)

Well File No.

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Operator		Telephone Number	Well Name and Number
Address			Field
City	State	Zip Code	Deepest Pool Penetrated

LOCATION

At Surface	Qtr-Qtr	Section	Township	Range	County
F L F L			N	W	
Bottom Hole Location	**Qtr-Qtr**	**Section**	**Township**	**Range**	**County**
F L F L			N	W	

Spud Date	Date TD Reached	KB Elevation	TD (Feet)	No. of DSTs	Directional Survey Run?
			MD TVD	(See Back)	☐ No ☐ Yes

Type of Electric and Other Logs Run (See Instructions)	Was Well Cored? ☐ No ☐ Yes List Intervals:

Weight of Fluid Between Plugs (Lbs/Gal)	Name of Field Inspector Present During Plugging

Date Well Plugged	Drilling Contractor and Rig Number	Plugging Contractor(s)

CASING RECORD (Report all strings set in well)

Casing Size (Inches)	Measured Depth Set (Feet)	Amount Pulled	Hole Size (Inches)	Weight (Lbs/Ft)	Sacks Cement	Top of Cement

ATTEMPTED COMPLETION DATA (If not previously reported)

Perforations	Holes Per Foot	Swab/Prod. Potential (Oil/Water)	Acid, Frac, Sqz, Etc.	Amount and Kind of Material Used

PLUGGING RECORD

Type of Plug	Interval/Depth	Formation Isolated	Sacks of Cement/Class

DRILL STEM TEST DATA (IF NOT PREVIOUSLY REPORTED), ADDITIONAL INFORMATION, AND/OR LIST OF ATTACHMENTS

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date

Signature	Printed Name	Title

Above Signature Witnessed By

Witness Signature	Witness Printed Name	Witness Title

CARBON DIOXIDE STORAGE INJECTION WELL PLUGGING REPORT - FORM 25A
SFN _____

1. This report shall be filed by the operator with the Commission within sixty (60) days after the plugging of any well. Please refer to Section 43-05-01-11.5 of the North Dakota Administrative Code.

2. The well file number, operator, well name and number, field, pool, well location(s), and any other pertinent data shall coincide with the official records on file with the Commission. If it does not, an explanation shall be given.

3. If a parasite string was used in the drilling of a well, the size, depth set, cement volume used to plug, and the date plugged shall be included. This information may be included in the "Additional Information" portion of the report or included as an attachment.

4. On horizontal or directional wells, the following information shall be included if applicable: pilot hole total depth, kick-off point, original lateral total depth, and all sidetracked interval starting and ending footages. This information may be included in the "Additional Information" portion of the report or included as an attachment.

5. The operator shall file with the Commission two copies of all logs run. Logs shall be submitted as one paper copy and one digital LAS (log ASCII) formatted copy, or a format approved by the Director. In addition, operators shall file two copies of the following: drill stem test reports and charts, core analyses, formation water analyses and noninterpretive lithologic logs or sample descriptions if compiled.

6. Two copies of any directional surveys run shall be filed directly with the Commission by the survey contractor.

7. The original and one copy of this report shall be filed with the Industrial Commission of North Dakota, Oil and Gas Division, 600 East Boulevard, Dept. 405, Bismarck, ND 58505-0840.

GEOLOGIC STORAGE OF CO_2 INSPECTION REPORT

Industrial Commission of North Dakota
Oil and Gas Division – Class VI Underground Injection Well

I. General Information

Facility Name:
Facility Location Address: City: State: ND Zip:
Facility Mailing Address: City: State: ND Zip:
Telephone Well Name & No.: State Permit No.:
Geographic Location: Quarter: Section: Township: Range: County:
Latitude and Longitude (degrees, minutes and seconds):
Well Type: Inspection Date: Time:
Inspection Type: ☐ Routine ☐ MIT ☐ Complaint ☐ Compliance ☐ Permit ☐ Other:
Name(s) of person(s) UIC inspector met with during inspection:
Name: Title: Phone No.:

II. CO_2 Injection Well Information

Shut In Pressure: (Psig) Annulus Pressure: (Psig) Injection Rate:
Average Daily injection Volume: Injection CO_2 Temperature: (°F)
1. Is there documentation of gauge calibration? ☐ Yes ☐ No Date of calibration:
2. Is injection rate and volume: ☐ Measured or ☐ Estimated?
3. Does the type of injection fluid fluctuate? ☐ Yes ☐ No
4. Type and specific gravity of the annulus fluid: / SG =
5. Specific gravity of the injection fluid:
6. Location of perforations and/or open hole:
7. Type and model of packer: tension/compression/neutral/other (please specify below): Packer type: Model:
8. What is the setting depth of the packer: feet
9. How is injection pressure recorded? ☐ Manual ☐ Automatic ☐ Computer

10. How is annulus pressure recorded?	☐ Manual ☐ Automatic ☐ Computer
11. Is fluid temperature recorded?	☐ Yes ☐ No
12. Is annulus fluid volume recorded?	☐ Yes ☐ No
Well information comment section:	

III. Annulus Pressure Maintenance System

1. Is annulus pressure continuously maintained in accordance with permit?	☐ Yes ☐ No
2. Is annulus pressure required to be greater than injection pressure?	☐ Yes ☐ No**
3. Is annulus pressure continuously greater than injection pressure?	☐ Yes ☐ No
4. How is annulus pressurized?	☐ Positive displacement pump ☐ Bottled Air ☐ Other:
5. Is annulus fluid volume continuously monitored/recorded by operator?	☐ Yes ☐ No
6. Has operator received training on well operation?	☐ Yes ☐ No
Maintenance system comment section:	

IV. Alarm System

1. Is injection well alarm system operable?	☐ Yes ☐ No
2. What type of alarm system is utilized?	☐ Manual system ☐ Automatic system
3. Has alarm system been tested by a UIC inspector?	☐ Yes ☐ No
4. On what frequency is alarm system tested?	
5. Is alarm triggered by:	
High pressure?	☐ Yes ☐
No Low pressure differential?	☐ Yes ☐ No
Low pressure?	☐ Yes ☐ No
Other?	☐ Yes ☐ No
6. Is there a time delay before alarm sounds to account for start-ups?	☐ Yes ☐ No

7. Is operator on site 24 hours per day to respond to failure?	☐ Yes ☐ No
Alarm system comment section:	

V. Testing

1. Was a mechanical integrity test conducted at this inspection?	☐ Yes ☐ No
2. Was a start-up test conducted at this inspection?	☐ Yes ☐ No
Testing comment section:	

VI. Overall Inspection Comments

Print inspector's name:	Signature of Inspector:

Attachment: Copy of test report: ☐ Yes ☐ No