BEFORE THE INDUSTRIAL COMMISSION

OF THE STATE OF NORTH DAKOTA

CASE NO. 28940
ORDER NO. 31535

IN THE MATTER OF A HEARING CALLED ON A MOTION OF THE COMMISSION TO CONSIDER AMENDMENTS TO THE "GENERAL RULES AND REGULATIONS FOR THE CONSERVATION OF CRUDE OIL AND NATURAL GAS" CODIFIED AS TITLE 43 NORTH DAKOTA ADMINISTRATIVE CODE.

ORDER OF THE COMMISSION

THE COMMISSION FINDS:

(1) This cause came on for hearing at 8:00 a.m. and 1:00 p.m. on the 11th day of October, 2021 and at 8:00 a.m. and 1:30 p.m. on the 12th day of October, 2021.

(2) The record of this case was open for ten (10) days after the hearing to receive written comments on the proposed additions and amendments to the rules. The record closed October 22, 2021.

(3) The Commission is authorized to adopt, and from time to time amend or repeal, reasonable rules in conformity with the provisions of any statute administered or enforced by the agency.

(4) It is necessary to adopt new rules and amend existing rules codified in North Dakota Administrative Code (NDAC) Chapters 43-02-03 (Oil and Gas), 43-02-14 (Geological Storage of Oil or Gas), and 43-05-01 (Geologic Storage of Carbon Dioxide) to implement, administer, and enforce the provisions of North Dakota Century Code (NDCC) Chapter 38-08.

(5) Pursuant to NDCC Sections 28-32-14 and 28-32-15, the new and amended rules shown in the appendix to this order will become effective April 1, 2022, but only upon the Attorney General determining their legality and after approval of the Administrative Rules Committee.

(6) The amendment of existing rules is in the public interest.

IT IS THEREFORE ORDERED:

(1) New and amended sections to NDAC Chapters 43-02-03, 43-02-14, and 43-05-01 as shown in the appendix to this order, are hereby approved and adopted.

(2) Pursuant to NDCC Sections 28-32-14 and 28-32-15, the new and amended rules in the appendix to this order will become effective April 1, 2022, but only upon the Attorney General determining their legality and after approval of the Administrative Rules Committee.

(3) Existing regulations not specifically amended by this order shall remain in full force and effect.

(4) This order shall be effective pursuant to the applicable statutes and laws of this state and shall remain in full force and effect until further order of the Commission.

Dated this 29th day of November, 2021.

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA

/s/ Doug Burgum, Governor

/s/ Wayne Stenehjem, Attorney General

/s/ Doug Goehring, Agriculture Commissioner

APPENDIX TO COMMISSION ORDER NO. 31535

NORTH DAKOTA INDUSTRIAL COMMISSION

RULES AND REGULATIONS — NORTH DAKOTA ADMINISTRATIVE CODE

2022 RULE CHANGES

RULES AND REGULATIONS
NORTH DAKOTA ADMINISTRATIVE CODE
CHAPTER 43-02-03 (OIL AND GAS)
CHAPTER 43-02-14 (GEOLOGICAL STORAGE OF OIL OR GAS)
CHAPTER 43-05-01 (GEOLOGIC STORAGE OF CARBON DIOXIDE)

RULES AND REGULATIONS
CHAPTER 43-02-03

43-02-03-07. UNITED STATES GOVERNMENT LEASES. The commission recognizes that all persons drilling and producing on United States government land shall comply with the United States government regulations. Such persons shall also comply with all applicable state rules and regulations. Copies of the sundry notices, reports on wells, and well data required by this chapter of the wells on United States government land shall be furnished to the commission at no expense to the commission. ~~Federal forms may be used when filing such notices and reports except for reporting the plugging and abandonment of a well. In such instance, the plugging record (form 7) must be filed with the commission.~~

History: Amended effective April 30, 1981; January 1, 1983; May 1, 1994; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-09. FORMS ~~UPON REQUEST~~. Forms ~~for written notices, requests, and reports~~ required by the commission will be furnished upon request. ~~These forms shall be of such nature as prescribed by the commission to cover proposed work and to report the results of completed work.~~ <u>The commission will provide electronic submission for most requests and reports.</u>

History: Amended effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-14.2. OIL AND GAS METERING SYSTEMS.

1. Application of section. This section is applicable to all allocation and custody transfer metering stations measuring production from oil and gas wells within the state of North Dakota, including private, state, and federal wells. If these rules differ from federal requirements on measurement of production from federal oil and gas wells, the federal rules take precedence.

2. Definitions. As used in this section:

   a. "Allocation meter" means a meter used by the producer to determine the volume from an individual well before it is commingled with production from one or more other wells prior to the custody transfer point.

   b. "Calibration test" means the process or procedure of adjusting an instrument, such as a gas meter, so its indication or registration is in satisfactorily close agreement with a reference standard.

   c. "Custody transfer meter" means a meter used to transfer oil or gas from the producer to transporter or purchaser.

   d. "Gas gathering meter" means a meter used in the custody transfer of gas into a gathering system.

   e. "Meter factor" means a number obtained by dividing the net volume of fluid (liquid or gaseous) passed through the meter during proving by the net volume registered by the meter.

   f. "Metering proving" means the procedure required to determine the relationship between the true volume of a fluid (liquid or gaseous) measured by a meter and the volume indicated by the meter.

3. Inventory filing requirements. The owner of metering equipment shall file with the commission an inventory of all meters used for custody transfer and allocation of production from oil or gas wells, or both. Inventories must be updated on an annual basis, and filed with the commission on or before the first day of each year, or they may be updated as frequently as monthly, at the discretion of the operator. Inventories must include the following:

   a. Well name and legal description of location or meter location if different.

   b. North Dakota industrial commission well file number.

   c. Meter information:

(1) Gas meters:

(a) Make and model.

(b) Differential, static, and temperature range.

(c) Orifice tube size (diameter).

(d) Meter station number.

(e) Serial number.

(2) Oil meters:

(a) Make and model.

(b) Size.

(c) Meter station number.

(d) Serial number.

4. Installation and removal of meters. The commission must be notified of all custody transfer meters placed in service. The owner of the custody transfer equipment shall notify the commission of the date a meter is placed in service, the make and model of the meter, and the meter or station number. The commission must also be notified of all metering installations removed from service. The notice must include the date the meter is removed from service, the serial number, and the meter or station number. The required notices must be filed with the commission within thirty days of the installation or removal of a meter.

All allocation meters must be approved prior to installation and use. The application for approval must be on a sundry notice (form 4 or form provided by the commission) and shall include the make and model number of the meter, the meter or station number, the serial number, the well name, its location, and the date the meter will be placed in service.

Meter installations for measuring production from oil or gas wells, or both, must be constructed to American petroleum institute or American gas association standards or to meter manufacturer's recommended installation. Meter installations constructed in accordance with American petroleum institute or American gas association standards in effect at the time of installation shall not automatically be required to retrofit if standards are revised. The commission will review any revised standards, and when deemed necessary will amend the requirements accordingly.

5. Registration of persons proving or testing meters. All persons engaged in meter proving or testing of oil and gas meters must be registered with the commission. Those persons involved in oil meter testing, by flowing fluid through the meter into a test tank and then gauging the tank, are exempted from the registration process. However, such persons must notify the commission prior to commencement of the test to allow a representative of the commission to witness the testing process. A report of the results of such test shall be filed with the commission within thirty days after the test is completed. Registration must include the following:

    a. Name and address of company.

    b. Name and address of measurement personnel.

    c. Qualifications, listing experience, or specific training.

    Any meter tests performed by a person not registered with the commission will not be accepted as a valid test.

6. Calibration requirements. Oil and gas metering equipment must be proved or tested to American petroleum institute or American gas association standards or to the meter manufacturer's recommended procedure to establish a meter factor or to ensure measurement accuracy. The owner of a custody transfer meter or allocation meter shall notify the commission at least ten days prior to the testing of any meter.

    a. Oil allocation meter factors shall be maintained within two percent of original meter factor. If the factor change between provings or tests is greater than two percent, meter use must be discontinued until successfully reproven after being repaired or replaced.

    b. Oil custody transfer meter factors must be maintained within one-quarter of one percent of the previous meter factor. If the factor change between provings or tests is greater than one-quarter of one percent, meter use must be discontinued until successfully reproven after being repaired or replaced.

    c. Copies of all oil allocation meter test procedures are to be filed with and reviewed by the commission to ensure measurement accuracy.

    d. All gas meters must be tested with a minimum of a three point test for static and differential pressure elements and a two point test for temperature elements. The test reports must include an as-found and as-left test and a detailed report of changes.

    e. Test reports must include the following:

        (1) Producer name.

(2) Well or CTB name.

(3) Well file number or CTB number.

(4) Pipeline company or company name of test contractor.

(5) Test personnel's name.

(6) Station or meter number.

f. Unless required more often by the director, minimum frequency of meter proving or calibration tests are as follows:

(1) Oil meters used for custody transfer shall be proved monthly for all measured volumes which exceed two thousand barrels per month. For volumes two thousand barrels or less per month, meters shall be proved at each two thousand barrel interval or more frequently at the discretion of the operator.

(2) Quarterly for oil meters used for allocation of production in a diverse ownership central production facility. Semiannually for oil meters used for allocation of production in a common ownership central production facility.

(3) Semiannually for gas meters used for allocation of production in a diverse ownership central production facility. Annually for gas meters used for allocation of production in a common ownership central production facility.

(4) Semiannually for gas meters in gas gathering systems.

(5) For meters measuring more than one hundred thousand cubic feet [2831.68 cubic meters] per day on a monthly basis, orifice plates shall be inspected semiannually, and meter tubes shall be inspected at least every five years to ensure continued conformance with the American gas association meter tube specifications.

(6) For meters measuring one hundred thousand cubic feet [2831.68 cubic meters] per day or less on a monthly basis, orifice plates shall be inspected annually.

g. All meter test reports, including failed meter test reports, must be filed within thirty days of completion of proving or calibration tests unless otherwise approved. Test reports are to be filed on, but not limited to, all meters used for allocation measurement of oil or gas and all meters used in crude oil custody transfer.

h. Accuracy of all equipment used to test oil or gas meters must be traceable to the standards of the national institute of standards and technology. The equipment must be certified as accurate either by the manufacturer or an independent testing facility. The certificates of accuracy must be made available upon request. Certification of the equipment must be updated as follows:

(1) Annually for all equipment used to test the pressure and differential pressure elements.

(2) Annually for all equipment used to determine temperature.

(3) Biennially for all conventional pipe provers.

(4) Annually for all master meters.

(5) Five years for equipment used in orifice tube inspection.

7. Variances. Variances from all or part of this section may be granted by the commission provided the variance does not affect measurement accuracy. All requests for variances must be on a sundry notice (form 4).

   A register of variances requested and approved must be maintained by the commission.

History: Effective May 1, 1994; amended effective July 1, 1996; September 1, 2000; July 1, 2002; April 1, 2018; April 1, 2020; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-15. BOND AND TRANSFER OF WELLS.

1. Bond requirements. Prior to commencing construction of a site or appurtenance or road access thereto, any person who proposes to drill a well for oil, gas, injection, or source well for use in enhanced recovery operations, shall submit to the commission, and obtain its approval, a surety bond or cash bond. An alternative form of security may be approved by the commission after notice and hearing, as provided by law. The operator of such well shall be the principal on the bond covering the well. Each surety bond shall be executed by a responsible surety company authorized to transact business in North Dakota.

2. Bond amounts and limitations. The bond shall be in the amount of fifty thousand dollars when applicable to one well only. Wells drilled to a total depth of less than two thousand feet [609.6 meters] may be bonded in a lesser amount if approved by the director. When the principal on the bond is drilling or operating a number of wells within the state or proposes to do so, the principal may submit a bond conditioned as provided by law. Wells utilized for commercial injection operations must be bonded in

the amount of one hundred thousand dollars. A blanket bond covering more than one well shall be in the amount of one hundred thousand dollars, provided the bond shall be limited to no more than six of the following in aggregate:

a. A well that is a dry hole and is not properly plugged;

b. A well that is plugged and the site is not properly reclaimed;

c. A well that is abandoned pursuant to subsection 1 of North Dakota Century Code section 38-08-04 or section 43-02-03-55 and is not properly plugged and the site is not properly reclaimed; and

d. A well that is temporarily abandoned under section 43-02-03-55 for more than seven years.

If this aggregate of wells is reached, all well permits, for which drilling has not commenced, held by the principal of such bond are suspended. No rights may be exercised under the permits until the aggregate of wells drops below the required limit, or the operator files the appropriate bond to cover the permits, at which time the rights given by the drilling permits are reinstated. A well with an approved temporary abandoned status for no more than seven years shall have the same status as an oil, gas, or injection well. The commission may, after notice and hearing, require higher bond amounts than those referred to in this section. Such additional amounts for bonds must be related to the economic value of the well or wells and the expected cost of plugging and well site reclamation, as determined by the commission. The commission may refuse to accept a bond or to add wells to a blanket bond if the operator or surety company has failed in the past to comply with statutes, rules, or orders relating to the operation of wells; if a civil or administrative action brought by the commission is pending against the operator or surety company; or for other good cause.

3. Unit bond requirements. Prior to commencing unit operations, the operator of any area under unitized management shall submit to the commission, and obtain its approval, a surety bond or cash bond. An alternative form of security may be approved by the commission after notice and hearing, as provided by law. The operator of the unit shall be the principal on the bond covering the unit. The amount of the bond shall be specified by the commission in the order approving the plan of unitization. Each surety bond shall be executed by a responsible surety company authorized to transact business in North Dakota.

   Prior to transfer of a unit to a new operator, the commission, after notice and hearing, may revise the bond amount for a unit, or in the case when the unit was not previously bonded, the commission may require a bond and set a bond amount for the unit.

4. Bond terms. Bonds shall be conditioned upon full compliance with North Dakota Century Code chapter 38-08, and all administrative rules and orders of the commission. It shall be a plugging bond, as well as a drilling bond, and is to endure up to and

including approved plugging of all oil, gas, and injection wells as well as dry holes. Approved plugging shall also include practical reclamation of the well site and appurtenances thereto. If the principal does not satisfy the bond's conditions, then the surety shall satisfy the conditions or forfeit to the commission the face value of the bond.

5. Transfer of wells under bond. Transfer of property does not release the bond. In case of transfer of property or other interest in the well and the principal desires to be released from the bond covering the well, such as producers, not ready for plugging, the principal must proceed as follows:

   a. The principal must notify the director, in writing, of all proposed transfers of wells at least thirty days before the closing date of the transfer. The director may, for good cause, waive this requirement.

      (1) The principal shall submit a schematic drawing identifying all lines owned by the principal which leave the constructed pad or facility and shall provide any details the director deems necessary.

      (2) The principal shall submit to the commission a form 15 reciting that a certain well, or wells, describing each well by quarter-quarter, section, township, and range, is to be transferred to a certain transferee, naming such transferee, for the purpose of ownership or operation. The date of assignment or transfer must be stated and the form signed by a party duly authorized to sign on behalf of the principal.

      (3) On said transfer form the transferee shall recite the following: "The transferee has read the foregoing statement and does accept such transfer and does accept the responsibility of such well under the transferee's one-well bond or, as the case may be, does accept the responsibility of such wells under the transferee's blanket bond, said bond being tendered to or on file with the commission." Such acceptance must likewise be signed by a party authorized to sign on behalf of the transferee and the transferee's surety.

   b. When the commission has passed upon the transfer and acceptance and accepted it under the transferee's bond, the transferor shall be released from the responsibility of plugging the well and site reclamation. If such wells include all the wells within the responsibility of the transferor's bond, such bond will be released by the commission upon written request. Such request must be signed by an officer of the transferor or a person authorized to sign for the transferor. The director may refuse to transfer any well from a bond if any well on the bond is in violation of a statute, rule, or order. No abandoned well may be transferred from a bond unless the transferee has obtained a single well bond in an amount equal to the cost of plugging the well and reclaiming the well site.

c. The transferee (new operator) of any oil, gas, or injection well, shall be responsible for the plugging and site reclamation of any such well. For that purpose the transferee shall submit a new bond or, in the case of a surety bond, produce the written consent of the surety of the original or prior bond that the latter's responsibility shall continue and attach to such well. The original or prior bond shall not be released as to the plugging and reclamation responsibility of any such transferor until the transferee shall submit to the commission an acceptable bond to cover such well. All liability on bonds shall continue until the plugging and site reclamation of such wells is completed and approved.

6. Treating plant bond. Prior to commencing site or road access construction, any person proposing to operate a treating plant must submit to the commission and obtain its approval of a surety bond or cash bond. An alternative form of security may be approved by the commission after notice and hearing, as provided by law. The person responsible for the operation of the plant shall be the principal on the bond. Each surety bond shall be executed by a responsible surety company authorized to transact business in North Dakota. The amount of the bond must be as prescribed in section 43-02-03-51.3. It is to remain in force until the operations cease, all equipment is removed from the site, and the site and appurtenances thereto are reclaimed, or liability of the bond is transferred to another bond that provides the same degree of security. If the principal does not satisfy the bond's conditions, then the surety shall satisfy the conditions or forfeit to the commission the face value of the bond. The director may refuse to transfer any treating plant from a bond if the treating plant is in violation of a statute, rule, or order.

7. Saltwater handling facility bond. Prior to commencing site or road access construction, any person proposing to operate a saltwater handling facility that is not already bonded as an appurtenance shall submit to the commission and obtain its approval of a surety bond or cash bond. An alternative form of security may be approved by the commission after notice and hearing, as provided by law. The person responsible for the operation of the saltwater handling facility must be the principal on the bond. Each surety bond must be executed by a responsible surety company authorized to transact business in North Dakota. The amount of the bond must be as prescribed in section 43-02-03-53.3. It is to remain in force until the operations cease, all equipment is removed from the site, and the site and appurtenances thereto are reclaimed, or liability of the bond is transferred to another bond that provides the same degree of security. If the principal does not satisfy the bond's conditions, the surety shall satisfy the conditions or forfeit to the commission the face value of the bond. Transfer of property does not release the bond. The director may refuse to transfer any saltwater handling facility from a bond if the saltwater handling facility is in violation of a statute, rule, or order.

8. Crude oil and produced water underground gathering pipeline bond. The bonding requirements for crude oil and produced water underground gathering pipelines are not to be construed to be required on flow lines, injection pipelines, pipelines operated by

an enhanced recovery unit for enhanced recovery unit operations, or on piping utilized to connect wells, tanks, treaters, flares, or other equipment on the production facility.

a. Any owner of an underground gathering pipeline transferring crude oil or produced water, after April 19, 2015, shall submit to the commission and obtain its approval of a surety bond or cash bond prior to July 1, 2017. Any owner of a proposed underground gathering pipeline to transfer crude oil or produced water shall submit to the commission and obtain its approval of a surety bond or cash bond prior to placing into service. An alternative form of security may be approved by the commission after notice and hearing, as provided by law. The person responsible for the operation of the crude oil or produced water underground gathering pipeline must be the principal on the bond. Each surety bond must be executed by a responsible surety company authorized to transact business in North Dakota. The bond must be in the amount of fifty thousand dollars when applicable to one crude oil or produced water underground gathering pipeline system only. Such underground gathering pipelines that are less than one mile [1609.34 meters] in length may be bonded in a lesser amount if approved by the director. When the principal on the bond is operating multiple gathering pipeline systems within the state or proposes to do so, the principal may submit a blanket bond conditioned as provided by law. A blanket bond covering one or more underground gathering pipeline systems must be in the amount of one hundred thousand dollars. The owner shall file with the director, as prescribed by the director, a geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the location of all associated above ground equipment and the pipeline centerline from the point of origin to the termination point of all underground gathering pipelines on the bond. Each layer must include at least the following information:

   (1) The name of the pipeline gathering system and other separately named portions thereof;

   (2) The type of fluid transported;

   (3) The pipeline composition;

   (4) Burial depth; and

   (5) Approximate in-service date.

b. The blanket bond covering more than one underground gathering pipeline system is limited to no more than six of the following instances of noncompliance in aggregate:

(1) Any portion of an underground gathering pipeline system that has been removed from service for more than one year and is not properly abandoned pursuant to section 43-02-03-29.1; and

(2) An underground gathering pipeline right-of-way, including associated above ground equipment, which has not been properly reclaimed pursuant to section 43-02-03-29.1.

If this aggregate of underground gathering pipeline systems is reached, the commission may refuse to accept additional pipeline systems on the bond until the aggregate is brought back into compliance. The commission, after notice and hearing, may require higher bond amounts than those referred to in this section. Such additional amounts for bonds must be related to the economic value of the underground gathering pipeline system and the expected cost of pipeline abandonment and right-of-way reclamation, as determined by the commission. The commission may refuse to accept a bond or to add underground gathering pipeline systems to a blanket bond if the owner or surety company has failed in the past to comply with statutes, rules, or orders relating to the operation of underground gathering pipelines; if a civil or administrative action brought by the commission is pending against the owner or surety company; if an underground gathering pipeline system has exhibited multiple failures; or for other good cause.

c. The underground gathering pipeline bond is to remain in force until the pipeline has been abandoned, as provided in section 43-02-03-29.1, and the right-of-way, including all associated above ground equipment, has been reclaimed as provided in section 43-02-03-29.1, or liability of the bond is transferred to another bond that provides the same degree of security. If the principal does not satisfy the bond's conditions, the surety shall satisfy the conditions or forfeit to the commission the face value of the bond.

d. Transfer of underground gathering pipelines under bond. Transfer of property does not release the bond. In case of transfer of property or other interest in the underground gathering pipeline and the principal desires to be released from the bond covering the underground gathering pipeline, the principal must proceed as follows:

(1) The principal shall notify the director, in writing, of all proposed transfers of underground gathering pipelines at least thirty days before the closing date of the transfer. The director, for good cause, may waive this requirement.

Notice of underground gathering pipeline transfer. The principal shall submit, as provided by the director, a geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the location of all associated above ground equipment and the pipeline centerline from the point of origin to the termination point of all underground gathering pipelines to be transferred to a certain transferee, naming such transferee, for the purpose of ownership or operation. The date of assignment or transfer must be stated and the form 15pl signed by a party duly authorized to sign on behalf of the principal.

The notice of underground gathering pipeline transfer must recite the following: "The transferee has read the foregoing statement and does accept such transfer and does accept the responsibility of such underground gathering pipelines under the transferee's pipeline bond or, as the case may be, does accept the responsibility of such underground gathering pipelines under the transferee's pipeline systems blanket bond, said bond being tendered to or on file with the commission." Such acceptance must likewise be signed by a party authorized to sign on behalf of the transferee and the transferee's surety.

(2) When the commission has passed upon the transfer and acceptance and accepted it under the transferee's bond, the transferor must be released from the responsibility of abandoning the underground gathering pipelines and right-of-way reclamation. If such underground gathering pipelines include all underground gathering pipeline systems within the responsibility of the transferor's bond, such bond will be released by the commission upon written request. Such request must be signed by an officer of the transferor or a person authorized to sign for the transferor. The director may refuse to transfer any underground gathering pipeline from a bond if the underground gathering pipeline is in violation of a statute, rule, or order.

(3) The transferee (new owner) of any underground gathering pipeline is responsible for the abandonment and right-of-way reclamation of any such underground gathering pipeline. For that purpose the transferee shall submit a new bond or, in the case of a surety bond, produce the written consent of the surety of the original or prior bond that the latter's responsibility shall continue and attach to such underground gathering pipeline. The original or prior bond may not be released as to the abandonment and right-of-way reclamation responsibility of any such transferor until the transferee submits to the commission an acceptable bond to cover such underground gathering pipeline. All liability on bonds continues until the abandonment and right-of-way reclamation of such underground gathering pipeline is completed and approved by the director.

9. Geological storage facility bond requirements. Prior to commencing injection operations, the operator of any storage facility shall submit to the commission, and obtain its approval, a surety bond or cash bond in the amount specified by the commission in the order approving the storage facility. An alternative form of security may be approved by the commission after notice and hearing, as provided by law. The operator of the storage facility shall be the principal on the bond covering the storage

facility. Each surety bond shall be executed by a responsible surety company authorized to transact business in North Dakota.

~~9~~10. Bond termination. The commission shall, in writing, advise the principal and any sureties on any bond as to whether the plugging and reclamation is approved. If approved, liability under such bond may be formally terminated upon receipt of a written request by the principal. The request must be signed by an officer of the principal or a person authorized to sign for the principal.

~~10~~11. Director's authority. The director is vested with the power to act for the commission as to all matters within this section, except requests for alternative forms of security, which may only be approved by the commission.

History: Amended effective April 30, 1981; March 1, 1982; January 1, 1983; May 1, 1990; May 1, 1992; May 1, 1994; December 1, 1996; September 1, 2000; July 1, 2002; May 1, 2004; January 1, 2006; April 1, 2012; April 1, 2014; January 1, 2017; April 1, 2018; April 1, 2020; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-16.1. DESIGNATION AND RESPONSIBILITIES OF OPERATOR. The principal on the bond covering a well, ~~or a~~ treating plant, or facility is the operator. The operator is responsible for compliance with all applicable laws. A dispute over designation of the operator may be addressed by the commission. In doing so, the factors the commission may consider include those set forth in subsection 1 of section 43-02-03-16.2.

History: Effective December 1, 1996; amended effective April 1, 2014; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-21. CASING, TUBING, AND CEMENTING REQUIREMENTS. All wells drilled for oil, natural gas or injection shall be completed with strings of casing which shall be properly cemented at sufficient depths to adequately protect and isolate all formations containing water, oil or gas or any combination of these; protect the pipe through salt sections encountered; and isolate the uppermost sand of the Dakota group.

Drilling of the surface hole shall be with freshwater-based drilling mud or other method approved by the director which will protect all freshwater-bearing strata. This includes water used during the cementing of surface casing for displacement. The surface casing shall consist of new or reconditioned pipe that has been previously tested to one thousand pounds per square inch [6900 kilopascals]. The surface casing shall be set and cemented at a point not less than fifty feet [15.24 meters] below the base of the Fox Hills formation. Sufficient cement shall be used on surface casing to fill the annular space behind the casing to the bottom of the cellar, if any, or to the surface of the ground. If the annulus space is not adequately filled with cement, the director shall be notified immediately. The operator shall diligently perform remedial work after obtaining approval from the director. All strings of surface casing shall stand cemented under pressure for at least twelve hours before drilling the plug ~~or initiating tests~~. The term "under pressure" as used herein shall be complied with if one float valve is used or if pressure is otherwise held. Cementing shall be by the pump and plug method or other methods approved by the director. The director is authorized to require an accurate gauge be maintained on the surface casing of any well, not properly plugged and abandoned, to detect any buildup of pressure caused by the migration of fluids.

Surface casing strings must be allowed to stand under pressure until the tail cement has reached a compressive strength of at least five hundred pounds per square inch [3450 kilopascals]. All filler cements utilized must reach a compressive strength of at least two hundred fifty pounds per square inch [1725 kilopascals] within twenty-four hours and at least three hundred fifty pounds per square inch [2415 kilopascals] within seventy-two hours. All compressive strengths on surface casing cement shall be calculated at a temperature of eighty degrees Fahrenheit [26.67 degrees Celsius].

Production or intermediate casing strings shall consist of new or reconditioned pipe that has been previously tested to two thousand pounds per square inch [13800 kilopascals]. Such strings must be allowed to stand under pressure until the tail cement has reached a compressive strength of at least five hundred pounds per square inch [3450 kilopascals]. All filler cements utilized must reach a compressive strength of at least two hundred fifty pounds per square inch [1725 kilopascals] within twenty-four hours and at least five hundred pounds per square inch [3450 kilopascals] within seventy-two hours, although in any horizontal well performing a single stage cement job from a measured depth of greater than thirteen thousand feet [3962.4 meters], the filler cement utilized must reach a compressive strength of at least two hundred fifty pounds per square inch [1725 kilopascals] within forty-eight hours and at least five hundred pounds per square inch [3450 kilopascals] within ninety-six hours. All compressive strengths on production or intermediate casing cement shall be calculated at a temperature found in the Mowry formation using a gradient of 1.2 degrees Fahrenheit per one hundred feet [30.48 meters] of depth plus eighty degrees Fahrenheit [26.67 degrees Celsius]. At a formation temperature at or in excess of two hundred thirty degrees Fahrenheit [110 degrees Celsius], cement blends must include additives to address compressive strength regression.

Each casing string shall be tested by application of pump pressure of at least one thousand five hundred pounds per square inch [10350 kilopascals] immediately after cementing, while the cement is in a liquid state, or the casing string must be pressure tested after all cement has reached five hundred pounds per square inch [3450 kilopascals] compressive strength. If, at the end of thirty minutes, this pressure has dropped more than ten percent, the casing shall be repaired after receiving approval from the director. Thereafter, the casing shall again be tested in the same manner. Further work shall not proceed until a satisfactory test has been obtained. The casing in a horizontal well may be tested by use of a mechanical tool set near the casing shoe after the horizontal section has been drilled.

All flowing wells must be equipped with tubing. A tubing packer must also be utilized unless a waiver is obtained after demonstrating the casing will not be subjected to excessive pressure or corrosion. The packer must be set as near the producing interval as practicable, but in all cases must be above the perforations.

History: Amended effective April 30, 1981; January 1, 1983; May 1, 1992; July 1, 1996; January 1, 1997; September 1, 2000; July 1, 2002; May 1, 2004; January 1, 2006; April 1, 2010; April 1, 2012; April 1, 2020; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-27.1 HYDRAULIC FRACTURE STIMULATION.

1. Prior to performing any hydraulic fracture stimulation, including refracs, through a frac string run inside the intermediate casing string:

   a. The frac string must be either stung into a liner with the hanger/packer located in cemented casing or run with a packer set at a minimum depth of one hundred feet [30.48 meters] below the top of cement or a minimum depth of one hundred feet [30.48 meters] below the top of the Inyan Kara formation, whichever is deeper.

   b. The intermediate casing-frac string annulus must be pressurized and monitored during frac operations. Prior to performing any refrac, a casing evaluation tool must be run to verify adequate wall thickness of the intermediate casing.

   c. An adequately sized, function tested pressure relief valve must be utilized on the treating lines from the pumps to the wellhead, with suitable check valves to limit the volume of flowback fluid should the relief valve open. The relief valve must be set to limit line pressure to no more than eighty-five percent of the internal yield pressure of the frac string.

   d. An adequately sized, function tested pressure relief valve and an adequately sized diversion line must be utilized to divert flow from the intermediate casing to a pit or containment vessel in case of frac string failure. The relief valve must be set to limit annular pressure to no more than eighty-five percent of the lowest internal yield pressure of the intermediate casing string or no greater than the pressure test on the intermediate casing, less one hundred pounds per square inch gauge, whichever is less.

   e. The surface casing must be fully open and connected to a diversion line rigged to a pit or containment vessel.

f. An adequately sized, function tested remote operated frac valve must be utilized at a location on the christmas tree that provides isolation of the well bore from the treating line and must be remotely operated from the edge of the location or other safe distance.

g. Notify the director within twenty-four hours after the commencement of hydraulic fracture stimulation operations, in an electronic format approved by the director, identifying the subject well and verifying a frac string was run in the well.

~~g~~h. Within sixty days after the hydraulic fracture stimulation is performed, the owner, operator, or service company shall post on the fracfocus chemical disclosure registry all elements made viewable by the fracfocus website.

2. Prior to performing any hydraulic fracture stimulation, including refracs, through an intermediate casing string:

a. The maximum treating pressure shall be no greater than eighty-five percent of the American petroleum institute rating of the affected intermediate casing string.

b. Casing evaluation tools to verify adequate wall thickness of ~~the~~ any affected intermediate casing string shall be run from the wellhead to a depth as close as practicable to one hundred feet [30.48 meters] above the completion formation and a visual inspection with photographs shall be made of the top joint of the intermediate casing and the wellhead flange. The visual inspection and photograph requirement can be waived by the director for good cause.

If the casing evaluation tool or visual inspection indicates wall thickness is below the American petroleum institute minimum or a lighter weight of intermediate casing than the well design called for, calculations must be made to determine the reduced pressure rating. If the reduced pressure rating is less than the anticipated treating pressure, a frac string shall be run inside the intermediate casing.

c. Cement evaluation tools to verify adequate cementing of ~~the~~ each intermediate casing string shall be run from the wellhead to a depth as close as practicable to one hundred feet [30.48 meters] above the completion formation.

(1) If the cement evaluation tool indicates defective casing or cementing, a frac string shall be run inside the intermediate casing.

(2) If the cement evaluation tool indicates the intermediate casing string cemented in the well fails to satisfy section 43-02-03-21, a frac string shall be run inside the intermediate casing.

d. ~~The~~ Each affected intermediate casing string and the wellhead must be pressure tested ~~to a minimum depth of one hundred feet [30.48 meters] below the top of the Tyler formation~~ for at least thirty minutes with less than five percent loss to a pressure equal to or in excess of the maximum frac design pressure.

e. If the pressure rating of the wellhead does not exceed the maximum frac design pressure, a wellhead and blowout preventer protection system must be utilized during the frac.

f. An adequately sized, function tested pressure relief valve must be utilized on the treating lines from the pumps to the wellhead, with suitable check valves to limit the volume of flowback fluid should the relief valve open. The relief valve must be set to limit line pressure to no greater than the test pressure of the intermediate casing, less one hundred pounds per square inch [689.48 kilopascals].

g. The surface casing valve must be fully open and connected to a diversion line rigged to a pit or containment vessel.

h. An adequately sized, function tested remote operated frac valve must be utilized between the treating line and the wellhead.

i. Notify the director within twenty-four hours after the commencement of hydraulic fracture stimulation operations, in an electronic format approved by the director, identifying the subject well and verifying all logs and pressure tests have been performed as required.

~~i~~j. Within sixty days after the hydraulic fracture stimulation is performed, the owner, operator, or service company shall post on the fracfocus chemical disclosure registry all elements made viewable by the fracfocus website.

3. If during the stimulation, the pressure in the intermediate casing-surface casing annulus exceeds three hundred fifty pounds per square inch [2413 kilopascals] gauge, the owner or operator shall verbally notify the director as soon as practicable but no later than twenty-four hours following the incident.

History: Effective April 1, 2012; amended effective April 1, 2014; April 1, 2020; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-29. WELL AND LEASE EQUIPMENT, AND GAS GATHERING PIPELINES. Wellhead and lease equipment with a working pressure at least equivalent to the calculated or known pressure to which the equipment may be subjected shall be installed and maintained. Equipment on producing wells shall be installed to facilitate gas-oil ratio tests, and static bottom hole or other pressure tests. Valves shall be installed and maintained in good working order to permit pressure readings to be obtained on both casing and tubing.

All newly constructed underground gas gathering pipelines must be devoid of leaks and constructed of materials resistant to external corrosion and to the effects of transported fluids. All such pipelines installed in a trench must be installed in a manner that minimizes interference with agriculture, road and utility construction, the introduction of secondary stresses, the possibility of damage to the pipe, and tracer wire shall be buried with any nonconductive pipe installed. When a trench for an underground gas gathering pipeline is backfilled, it must be backfilled in a manner that provides firm support under the pipe and prevents damage to the pipe and pipe coating from equipment or from the backfill material.

1. The operator of any underground gas gathering pipeline placed into service on August 1, 2011, to June 30, 2013, shall file with the director, by January 1, 2015, a geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the location of the pipeline centerline. The operator of any underground gas gathering pipeline placed into service after June 30, 2013, shall file with the director, within one hundred eighty days of placing into service, a geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the location of <u>all compressor sites, buried drip tanks, and</u> the pipeline centerline. An affidavit of completion shall accompany each layer containing the following information:

    a. A statement that the pipeline was constructed and installed in compliance with section 43-02-03-29.

    b. The outside diameter, minimum wall thickness, composition, internal yield pressure, and maximum temperature rating of the pipeline, or any other specifications deemed necessary by the director.

    c. The anticipated operating pressure of the pipeline.

    d. The type of fluid that will be transported in the pipeline and direction of flow.

    e. Pressure to which the pipeline was tested prior to placing into service.

    f. The minimum pipeline depth of burial.

    g. In-service date.

    h. Leak detection and monitoring methods that will be utilized after in-service date.

    i. Pipeline name.

j. Accuracy of the geographical information system layer.

2. When an underground gas gathering pipeline or any part of such pipeline is abandoned, the operator shall leave such pipeline in a safe condition by conducting the following:

   a. Disconnect and physically isolate the pipeline from any operating facility or other pipeline.

   b. Cut off the pipeline or the part of the pipeline to be abandoned below surface at pipeline level.

   c. Purge the pipeline with fresh water, air, or inert gas in a manner that effectively removes all fluid.

   d. Remove cathodic protection from the pipeline.

   e. Permanently plug or cap all open ends by mechanical means or welded means.

3. Within one hundred eighty days of completing the abandonment of an underground gas gathering pipeline the operator of the pipeline shall file with the director a geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the location of the pipeline centerline and an affidavit of completion containing the following information:

   a. A statement that the pipeline was abandoned in compliance with section 43-02-03-29.

   b. The type of fluid used to purge the pipeline.

The requirement to submit a geographical information system layer is not to be construed to be required on buried piping utilized to connect flares, tanks, treaters, or other equipment located entirely within the boundary of a well site or production facility.

History: Amended effective January 1, 1983; January 1, 2006; April 1, 2014; January 1, 2017; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-29.1. CRUDE OIL AND PRODUCED WATER UNDERGROUND GATHERING PIPELINES.

1. Application of section. This section is applicable to all underground gathering pipelines designed for or capable of transporting crude oil~~, natural gas, carbon dioxide,~~ or produced water from an oil and gas production facility for the purpose of disposal, storage, or for sale purposes ~~or designed for or capable of transporting carbon dioxide from a carbon capture facility for the purpose of storage or enhanced oil recovery.~~ If these rules differ from the pipeline manufacturer's prescribed installation and operation practices, the pipeline manufacturer's prescribed installation and operation practices take precedence.

   The requirements in this section are not applicable to flow lines, injection pipelines, pipelines operated by an enhanced recovery unit for enhanced recovery unit operations, or on piping utilized to connect wells, tanks, treaters, flares, or other equipment located entirely within the boundary of a well site or production facility.

   <u>If these rules differ from or are preempted by federal requirements on federally regulated pipelines, the federal rules take precedence. The pipeline owner shall provide sufficient documentation to the director confirming the pipeline is federally regulated.</u>

2. Definitions. The terms used throughout this section apply to this section only.

   a. "Crude oil or produced water underground gathering pipeline" means an underground gathering pipeline designed or intended to transfer crude oil or produced water from a production facility for disposal, storage, or sale purposes.

   b. "New construction" means a new gathering pipeline installation project or an alteration or re-route of an existing gathering pipeline where the location, composition, size, design temperature, or design pressure changes.

   c. "Pipeline repair" is the work necessary to restore a pipeline system to a condition suitable for safe operations that does not change the design temperature or pressure.

   d. "Gathering system" is a group of connected pipelines ~~which are connected~~ which have been designated as a gathering system by the operator. A gathering system must have a unique name and must be interconnected.

   e. "In-service date" is the first date fluid was transported down the underground gathering pipeline for disposal, storage, or sale purposes after construction.

3. Notifications.

a. The underground gathering pipeline owner shall notify the commission, as provided by the director, at least seven days prior to commencing new construction of any underground gathering pipeline.

(1) The notice of intent to construct a crude oil or produced water underground gathering pipeline must include the following:

(a) The proposed date construction is scheduled to begin.

(b) A statement that the director will be verbally notified approximately forty-eight hours prior to commencing the construction.

(c) A geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the proposed route of the pipeline from the point of origin to the termination point.

(d) The proposed underground gathering pipeline design drawings, including all associated above ground equipment.

[1] The proposed pipeline composition, specifications (i.e. size, weight, grade, wall thickness, coating, and standard dimension ratio).

[2] The type of fluid to be transported.

[3] The method of testing pipeline integrity (e.g. hydrostatic or pneumatic test) prior to placing the pipeline into service.

[4] Proposed burial depth of the pipeline.

[5] The location and type of all road crossings (i.e. bored and cased or bored only).

[6] The location of all environmentally sensitive areas, such as wetlands, streams, or other surface waterbodies that the pipeline may traverse, if applicable.

b. The underground gathering pipeline owner shall file a sundry notice (form 4 or form provided by the commission) with the director notifying the commission of any underground gathering pipeline system or portion thereof that has been removed from service for more than one year.

c. If damage occurs to any underground gathering pipeline, flow line, or other underground equipment used to transport crude oil, natural gas, carbon dioxide, or water produced in association with oil and gas, during construction, operation, maintenance, repair, or abandonment of an underground gathering pipeline, the responsible party shall verbally notify the director immediately.

d. The pipeline owner shall file a sundry notice (form 4 or form provided by the commission) within thirty days of the in-service date reporting the date of first service.

4. Design and construction.

The following applies to newly constructed crude oil and produced water underground gathering pipelines, including tie-ins to existing systems:

a. Underground gathering pipelines must be devoid of leaks and constructed of materials resistant to external corrosion and to the effects of transported fluids.

b. Underground gathering pipelines must be designed in a manner that allows for line maintenance, periodic line cleaning, and integrity testing.

c. Installation crews must be trained in all installation practices for which they are tasked to perform.

d. Underground gathering pipelines must be installed in a manner that minimizes interference with agriculture, road and utility construction, the introduction of secondary stresses, and the possibility of damage to the pipe. Tracer wire must be buried with any nonconductive pipe installed.

e. Unless the manufacturer's installation procedures and practices provide guidance, pipeline trenches must be constructed to allow for the pipeline to rest on undisturbed native soil and provide continuous support along the length of the pipe. Trench bottoms must be free of rocks greater than two inches in diameter, debris, trash, and other foreign material not required for pipeline installation. If a trench bottom is over excavated, the trench bottom must be backfilled with appropriate material and compacted prior to installation of the pipe to provide continuous support along the length of the pipe.

   The width of the trench must provide adequate clearance on each side of the pipe. Trench walls must be excavated to ensure minimal sluffing of sidewall material into the trench. Subsoil from the excavated trench must be stockpiled separately from previously stripped topsoil.

f. Underground gathering pipelines that cross a township, county, or state graded road must be bored unless the responsible governing agency specifically permits the owner to open cut the road.

g. No pipe or other component may be installed unless it has been visually inspected at the site of installation to ensure that it is not damaged in a manner that could impair its strength or reduce its serviceability.

h. The pipe must be handled in a manner that minimizes stress and avoids physical damage to the pipe during stringing, joining, or lowering in. During the lowering in process the pipe string must be properly supported so as not to induce excess stresses on the pipe or the pipe joints or cause weakening or damage to the outer surface of the pipe.

i. When a trench for an underground gathering pipeline is backfilled, it must be backfilled in a manner that provides firm support under the pipe and prevents damage to the pipe and pipe coating from equipment or from the backfill material. Sufficient backfill material must be placed in the haunches of the pipe to provide long-term support for the pipe. Backfill material that will be within two feet of the pipe must be free of rocks greater than two inches in diameter and foreign debris. Backfilling material must be compacted as appropriate during placement in a manner that provides support for the pipe and reduces the potential for damage to the pipe and pipe joints.

j. Cover depths must be a minimum of four feet [1.22 meters] from the top of the pipe to the finished grade. The cover depth for an undeveloped governmental section line must be a minimum of six feet [1.83 meters] from the top of the pipe to the finished grade.

k. Underground gathering pipelines that traverse environmentally sensitive areas, such as wetlands, streams, or other surface waterbodies, must be installed in a manner that minimizes impacts to these areas. Any horizontal directional drilling plan prepared by the owner or required by the director, must be filed with the commission, prior to the commencement of horizontal directional drilling.

l. Clamping or squeezing as a method of connecting any produced water underground gathering pipeline must be approved by the director. Prior to clamping or squeezing the pipeline, the owner shall file a sundry notice (form 4 or form provided by the commission) with the director and obtain approval of the clamping or squeezing plan. The notice must include documentation that the pipeline can be safely clamped or squeezed as prescribed by the manufacturer's specifications. Any damaged portion of a produced water underground gathering pipeline that has been clamped or squeezed must be replaced before it is placed into service.

5. Pipeline reclamation.

   a. When utilizing excavation for pipeline installation, repair, or abandonment, topsoil must be stripped, segregated from the subsoils, and stockpiled for use in reclamation. "Topsoil" means the suitable plant growth material on the surface; however, in no event shall this be deemed to be more than the top twelve inches [30.48 centimeters] of soil or deeper than the depth of cultivation, whichever is greater.

   b. The pipeline right-of-way must be reclaimed as closely as practicable to original condition. All stakes, temporary construction markers, cables, ropes, skids, and any other debris or material not native to the area must be removed from the right-of-way and lawfully disposed of.

   c. During right-of-way reclamation all subsoils and topsoils must be returned in proper order to as close to the original depths as practicable.

   d. The reclaimed right-of-way soils must be stabilized to prevent excessive settling, sluffing, cave-ins, or erosion.

   e. The crude oil and produced water underground gathering pipeline owner is responsible for their right-of-way reclamation and maintenance until such pipeline is released by the commission from the pipeline bond pursuant to section 43-02-03-15.

6. Inspection.

   All newly constructed crude oil and produced water underground gathering pipelines must be inspected by third-party independent inspectors to ensure the pipeline is installed as prescribed by the manufacturer’s specifications and in accordance with the requirements of this section. A list of all third-party independent inspectors and a description of each independent inspector’s qualifications, certifications, experience, and specific training must be provided to the commission upon request. A person may not be used to perform inspections unless that person has been trained and is qualified in the phase of construction to be inspected. The third-party independent inspector may not be an employee of the gathering pipeline owner/operator or the contractor hired to construct and install the pipeline.

7. Associated pipeline facility.

   No associated above ground equipment may be installed less than five hundred feet [152.40 meters] from an occupied dwelling unless agreed to in writing by the owner of the dwelling or authorized by order of the commission.

   All associated above ground equipment used to store crude oil or produced water must be devoid of leaks and constructed of materials resistant to the effects of crude oil, produced water, brines, or chemicals that may be contained therein. The above materials requirement may be waived by the director for tanks presently in service and in good condition. Unused tanks and associated above ground equipment must be removed from the site or placed into service, within a reasonable time period, not to exceed one year.

Dikes must be erected around all produced water or crude oil tanks at any new facility prior to placing the associated underground gathering pipeline into service. Dikes must be erected and maintained around all crude oil or produced water tanks or above ground equipment, when deemed necessary by the director. Dikes as well as the base material under the dikes and within the diked area must be constructed of sufficiently impermeable material to provide emergency containment. Dikes must be of sufficient dimension to contain the total capacity of the largest tank plus one day’s fluid throughput. The required capacity of the dike may be lowered by the director if the necessity therefor can be demonstrated to the director's satisfaction. Discharged crude oil or produced water must be properly removed and may not be allowed to remain standing within or outside of any diked areas.

The underground gathering pipeline owner shall take steps to minimize the amount of solids stored at the pipeline facility, although the remediation of such material may be allowed onsite, if approved by the director.

8. Underground gathering pipeline as built.

The owner of any underground gathering pipeline placed into service after July 31, 2011, shall file with the director, as prescribed by the director, within one hundred eighty days of placing into service, a geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the location of all associated above ground equipment and the pipeline centerline from the point of origin to the termination point. An affidavit of completion must accompany each layer containing the following information:

a. A third-party inspector certificate that the pipeline was constructed and installed in compliance with section 43-02-03-29.1.

b. The outside diameter, minimum wall thickness, composition, and maximum temperature rating of the pipeline, or any other specifications deemed necessary by the director.

c. The maximum allowable operating pressure of the pipeline.

d. The specified minimum yield strength and internal yield pressure of the pipeline if applicable to the composition of pipe.

e. The type of fluid that will be transported in the pipeline.

f. Pressure and duration to which the pipeline was tested prior to placing into service.

g. The minimum pipeline depth of burial from the top of the pipe to the finished grade.

h. In-service date.

i. Leak protection and monitoring methods that will be utilized after in-service date.

j. Any leak detection methods that have been prepared by the owner.

k. The name of the pipeline gathering system and any other separately named portions thereof.

l. Accuracy of the geographical information system layer.

9. Operating requirements.

The maximum operating pressure for all crude oil and produced water underground gathering pipelines may not exceed the manufacturer's specifications of the pipe or the manufacturer's specifications of any other component of the pipeline, whichever is less. <u>The maximum operating pressure of any portion of an underground gathering system may not exceed the test pressure from the most recent integrity test demonstration following modification or repair for which it was tested.</u>

The crude oil or produced water underground gathering pipeline must be equipped with adequate controls and protective equipment to prevent the pipeline from operating above the maximum operating pressure.

10. Leak protection, detection, and monitoring.

All crude oil and produced water underground gathering pipeline owners shall file with the commission any leak protection and monitoring plan prepared by the owner or required by the director, pursuant to North Dakota Century Code section 38-08-27.

If any leak detection plan has been prepared by the owner, it must be submitted to the director.

All crude oil or produced water underground gathering pipeline owners shall develop and maintain a data sharing plan. The plan must provide for real-time sharing of data between the operator of the production facility, the crude oil or produced water underground gathering pipeline owner, and the operator at the point or points of disposal, storage, or sale. If a discrepancy in the shared data is observed, the party observing the data discrepancy shall notify all other parties and action must be taken to determine the cause. A record of all data discrepancies must be retained by the crude oil or produced water underground gathering pipeline owner. If requested, copies of such records must be filed with the commission.

11. Spill response.

All crude oil and produced water underground gathering pipeline owners shall maintain a spill response plan during the service life of any crude oil or produced water underground gathering pipeline. The plan should detail the necessary steps for an effective and timely response to a pipeline spill. The spill response plan should be tailored to the specific risks in the localized area. Response capabilities should address access to equipment and tools necessary to respond, as well as action steps to protect the health and property of impacted landowners, citizens, and the environment.

12. Corrosion control.

a. Underground gathering pipelines must be designed to withstand the effects of external corrosion and maintained in a manner that mitigates internal corrosion.

b. All metallic underground gathering pipelines installed must have sufficient corrosion control.

c. All coated pipe must be electronically inspected prior to placement using coating deficiency (i.e. holiday) detectors to check for any faults not observable by visual examination. The holiday detector must be operated in accordance with manufacturer's instructions and at a voltage level appropriate for the electrical characteristics of the pipeline system being tested. During installation all joints, fittings, and tie-ins must be coated with materials compatible with the coatings on the pipe. Coating materials must:

(1) Be designed to mitigate corrosion of the buried pipeline;

(2) Have sufficient adhesion to the metal surface to prevent under film migration of moisture;

(3) Be sufficiently ductile to resist cracking;

(4) Have enough strength to resist damage due to handling and soil stress;

(5) Support any supplemental cathodic protection; and

(6) If the coating is an insulating type, have low moisture absorption and provide high electrical resistance.

d. Cathodic protection systems must meet or exceed the minimum criteria set forth in the National Association of Corrosion Engineers standard practice Control of External Corrosion on Underground or Submerged Metallic Piping Systems.

e. If internal corrosion is anticipated or detected, the underground gathering pipeline owner shall take prompt remedial action to correct any deficiencies, such as increased pigging, use of corrosion inhibitors, internal coating of the pipeline (e.g. an epoxy paint or other plastic liner), or a combination of these methods. Corrosion inhibitors must be used in sufficient quantity to protect the entire part of the pipeline system that the inhibitors are designed to protect.

13. Pipeline integrity.

A crude oil or produced water underground gathering pipeline owner may not operate a pipeline unless it has been pressure tested and demonstrated integrity. In addition, an owner may not return to service a portion of pipeline which has been repaired, replaced, relocated, or otherwise changed until it has demonstrated integrity.

a. The crude oil and produced water underground gathering pipeline owner shall notify the commission at least forty-eight hours prior to commencement of any pipeline integrity test to allow a representative of the commission to witness the testing process and results. The notice must include the pipeline integrity test procedure.

b. The crude oil and produced water underground gathering pipeline owner shall submit within sixty days of the underground gathering pipeline being placed into service the integrity test results which must include the following:

(1) The name of the pipeline gathering system and any other separately named portions thereof;

(2) The date of the test;

(3) The duration of the test;

(4) The length of pipeline which was tested;

(5) The maximum and minimum test pressure;

(6) The starting and ending pressure;

(7) A copy of the chart recorder or digital log results;

(8) A geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems

research institute (Esri) shape file format showing the location of the centerline of the portion of the pipeline that was tested;

(9) A copy of the test procedure used; and

(10) A third-party inspector certificate summarizing the pipeline has been pressure tested and whether it demonstrated integrity, including the identification of any leaks, ruptures, or other integrity issues encountered, and an explanation for any substantial pressure gain or losses during the integrity test, if applicable.

c. All crude oil and produced water underground gathering pipeline owners shall maintain a pipeline integrity demonstration plan during the service life of any crude oil or produced water underground gathering pipeline. The director, for good cause, may require a pipeline integrity demonstration on any crude oil or produced water underground gathering pipeline.

14. Pipeline repair.

Each owner, in repairing an underground gathering pipeline or pipeline system, shall ensure that the repairs are made in a manner that prevents damage to persons or property.

An owner may not use any pipe, valve, or fitting, for replacement or repair of an underground gathering pipeline, unless it is designed to meet the maximum operating pressure.

a. At least forty-eight hours prior to any underground gathering pipeline repair or replacement, the underground gathering pipeline owner shall notify the commission, as provided by the director, except in an emergency.

b. Within one hundred eighty days of repairing or replacing any underground gathering pipeline the owner of the pipeline shall file with the director a geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the location of the centerline of the repaired or replaced pipeline and an affidavit of completion containing the following information:

(1) A statement that the pipeline was repaired in compliance with section 43-02-03-29.1.

(2) The reason for the repair or replacement.

(3) The length of pipeline which was repaired or replaced.

(4) Pressure and duration to which the pipeline was tested prior to returning to service.

c. Clamping or squeezing as a method of repair for any produced water underground gathering pipeline must be approved by the director. Prior to clamping or squeezing the pipeline, the owner shall file a sundry notice (form 4) with the director and obtain approval of the clamping or squeezing plan. The notice must include documentation that the pipeline can be safely clamped or squeezed as prescribed by the manufacturer's specifications. If an emergency requires clamping or squeezing, the owner or the owner's agent shall obtain verbal approval from the director and the notice shall be filed within seven days of completing the repair. Any damaged portion of a produced water underground gathering pipeline that has been clamped or squeezed must be replaced before it is returned to service.

15. Pipeline abandonment.

a. At least forty-eight hours prior to abandoning any underground gathering pipeline, the underground gathering pipeline owner shall notify the director verbally.

b. When an underground gathering pipeline or any part of such pipeline is abandoned as defined under subsection 1 of North Dakota Century Code section 38-08-02 after March 31, 2014, the owner shall leave such pipeline in a safe condition by conducting the following:

(1) Disconnect and physically isolate the pipeline from any operating facility, associated above ground equipment, or other pipeline.

(2) Cut off the pipeline or the part of the pipeline to be abandoned below surface at pipeline level.

(3) Purge the pipeline with fresh water, air, or inert gas in a manner that effectively removes all fluid.

(4) Remove cathodic protection from the pipeline.

(5) Permanently plug or cap all open ends by mechanical means or welded means.

(6) The site of all associated above ground equipment must be reclaimed pursuant to section 43-02-03-34.1.

(7) If the bury depth is not at least three feet below final grade, such portion of pipe must be removed.

c. Within one hundred eighty days of completing the abandonment of an underground gathering pipeline the owner of the pipeline shall file with the director a geographical information system layer utilizing North American datum 83 geographic coordinate system (GCS) and in an environmental systems research institute (Esri) shape file format showing the location of the pipeline centerline and an affidavit of completion containing the following information:

   (1) A statement that the pipeline was abandoned in compliance with section 43-02-03-29.1.

   (2) The type of fluid used to purge the pipeline.

   (3) The date of pipeline abandonment.

   (4) The length of pipeline abandoned.

History: Effective January 1, 2017; amended effective April 1, 2020; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-30. NOTIFICATION OF FIRES, LEAKS, SPILLS, OR BLOWOUTS. All persons controlling or operating any well, pipeline and associated above ground equipment, receiving tank, storage tank, facility, treating plant, or any other receptacle or production facility associated with oil, gas, or water production, injection, processing, or well servicing, shall verbally notify the director immediately and follow up utilizing the online initial notification report within twenty-four hours after discovery of any fire, leak, spill, blowout, or release of fluid. The initial report must include the name of the reporting party, including telephone number and address, date and time of the incident, location of the incident, type and cause of the incident, estimated volume of release, containment status, waterways involved, immediate potential threat, and action taken. If any such incident occurs or travels offsite of a facility, the persons, as named above, responsible for proper notification shall within a reasonable time also notify the surface owners upon whose land the incident occurred or traveled. Notification requirements prescribed by this section do not apply to any leak or spill involving only freshwater or to any leak, spill, or release of crude oil, produced water, or natural gas liquid that is less than one barrel total volume and remains onsite of a site where any well thereon was spud before September 2, 2000, or on a facility that was constructed before September 2, 2000, and do not apply to any leak or spill or release of crude oil, produced water, or natural gas liquid that is less than ten barrels total volume cumulative over a fifteen-day time period, and remains onsite of a site where all wells thereon were spud after September 1, 2000, or on a facility that was constructed after September 1, 2000. The initial notification must be followed by a written report within ten days after cleanup of the incident, unless deemed unnecessary by the director. Such report must include the following information: the operator and description of the facility, the legal description of the location of the incident, date of occurrence, date of cleanup, amount and type of each fluid involved, amount of each fluid recovered, steps taken to remedy the situation, root cause of the incident unless deemed unnecessary by the director, and action taken to prevent reoccurrence, and if applicable, any additional information pursuant to subdivision e of subsection 1 of North Dakota Century Code section 37-17.1-07.1. The ~~signature~~ name, title, and telephone number of the company representative must be included on such report. The persons, as named above, responsible for proper notification shall within a reasonable time also provide a copy of the written report to the surface owners upon whose land the incident occurred or traveled.

The commission, however, may impose more stringent spill reporting requirements if warranted by proximity to sensitive areas, past spill performance, or careless operating practices as determined by the director.

History: Amended effective April 30, 1981; January 1, 1983; May 1, 1992; July 1, 1996; January 1, 2008; April 1, 2010; April 1, 2014; October 1, 2016; April 1, 2018; April 1, 2020:_____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-34.1. RECLAMATION OF SURFACE.

1. Within a reasonable time, but not more than one year, after a well is plugged, or if a permit expires, has been canceled or revoked, or a treating plant or saltwater handling facility is decommissioned, the site, access road, and other associated facilities constructed shall be reclaimed as closely as practicable to original condition pursuant to North Dakota Century Code section 38-08-04.12. Prior to site reclamation, the operator or the operator's agent shall file a sundry notice (form 4) with the director and obtain approval of a reclamation plan. The operator or operator's agent shall provide a copy of the proposed reclamation plan to the surface owner at least ten days prior to commencing the work unless waived by the surface owner. Verbal approval to reclaim the site may be given. The notice shall include:

   a. The name and address of the reclamation contractor;

   b. The name and address of the surface owner and the date when a copy of the proposed reclamation plan was provided to the surface owner;

   c. A description of the proposed work, including topsoil redistribution and reclamation plans for the access road and other associated facilities; and

   d. Reseeding plans, if applicable.

   The commission will mail a copy of the approved notice to the surface owner.

All equipment, waste, and debris shall be removed from the site. All pipelines shall be purged and abandoned pursuant to section 43-02-03-29.1. Flow lines shall be removed if buried less than three feet [91.44 centimeters] below final contour.

2. Gravel or other surfacing material shall be removed, stabilized soil shall be remediated, and the site, access road, and other associated facilities constructed for the well, treating plant, or saltwater handling facility shall be reshaped as near as is practicable to original contour.

3. The stockpiled topsoil shall be evenly distributed over the disturbed area and, where applicable, the area revegetated with native species or according to the reasonable specifications of the appropriate government land manager or surface owner.

4. A site assessment may be required by the director, before and after reclamation of the site.

5. Within thirty days after completing any reclamation, the operator shall file a sundry notice with the director reporting the work performed.

6. The director, with the consent of the appropriate government land manager or surface owner, may waive the requirement of reclamation of the site and access road after a well is plugged or treating plant or saltwater handling facility is decommissioned. ~~and~~ The operator shall record documentation of the waiver with the recorder of the county in which the site or road is located.

History: Effective April 1, 2012; amended effective April 1, 2014; October 1, 2016; April 1, 2018; April 1, 2020; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-38.1. PRESERVATION OF CORES AND SAMPLES. Unless waived by the director, operators shall have a well site geologist or mudlogger on location for at least the first well drilled on a multi-well pad to collect sample cuttings and to create a mudlog and geologic report. Sample cuttings of formations, taken at intervals prescribed by the state geologist, in all wells drilled for the production of oil or gas, injection, disposal, storage operations, or geologic information in North Dakota, shall be washed and packaged in standard sample envelopes which in turn shall be placed in proper order in a standard sample box; carefully identified as to operator, well name, well file number, American petroleum institute number, location, depth of sample; and shall be sent free of cost to the state core and sample library within thirty days after completion of drilling operations.

The operator of any well drilled for the production of oil or gas, injection, disposal, storage operations, or geologic information in North Dakota, during the drilling of or immediately following the completion of any well, shall inform the director of all intervals that are to be cored, or have been cored. Unless specifically exempted by the director, all cores taken shall be preserved, placed in a standard core box and the entire core forwarded to the state core and sample library, free of cost, within one hundred eighty days after completion of drilling operations. The director may grant an extension of the one hundred eighty-day time period for good reason. If an exemption is granted, the operator shall advise the state geologist of the final disposition of the core.

This section does not prohibit the operator from taking such samples of the core as the operator may desire for identification and testing. The operator shall furnish the state geologist with the results of all identification and testing procedures within thirty days of the completion of such work. The state geologist may grant an extension of the thirty-day time period for good reason.

The size of the standard sample envelopes, sample boxes, and core boxes shall be determined by the director and indicated in the cores and samples letter.

History: Effective October 1, 1990; amended effective January 1, 2006; April 1, 2014; April 1, 2020; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-55. ABANDONMENT OF WELLS, TREATING PLANTS, <u>UNDERGROUND GATHERING PIPELINES,</u> OR SALTWATER HANDLING FACILITIES - SUSPENSION OF DRILLING.

1. The removal of production equipment or the failure to produce oil or gas <u>for one year constitutes abandonment of the well.</u>~~, or the~~ <u>The</u> removal of production equipment or the failure to produce water from a source well~~,~~ for one year constitutes abandonment of the well. The removal of injection equipment or the failure to use an injection well for one year constitutes abandonment of the well. The failure to plug a stratigraphic test hole within one year of reaching total depth constitutes abandonment of the well. The removal of treating plant equipment or the failure to use a treating plant for one year constitutes abandonment of the treating plant. The removal of saltwater handling facility equipment or the failure to use a saltwater handling facility for one year constitutes abandonment of the saltwater handling facility. An abandoned well must be plugged and its site must be reclaimed, an abandoned treating plant must be removed and its site must be reclaimed, and an abandoned saltwater handling facility must be removed and its site must be reclaimed, pursuant to sections 43-02-03-34 and 43-02-03-34.1. A well not producing oil or natural gas in paying quantities for one year may be placed in abandoned-well status pursuant to subsection 1 of North Dakota Century Code section 38-08-04. If an injection well is inactive for extended periods of time, the commission may, after notice and hearing, require the injection well to be plugged and abandoned. <u>If an underground gathering pipeline is inactive for seven</u>

<u>years, the commission may, after notice and hearing, require the pipeline to be properly abandoned pursuant to sections 43-02-03-29 and 43-02-03-29.1.</u>

2. The director may waive for one year the requirement to plug and reclaim an abandoned well by giving the well temporarily abandoned status for good cause. This status may only be given to wells that are to be used for purposes related to the production of oil and gas within the next seven years. If a well is given temporarily abandoned status, the well's perforations must be isolated, the integrity of its casing must be proven, and its casing must be sealed at the surface, all in a manner approved by the director. The director may extend a well's temporarily abandoned status and each extension may be approved for up to one year. A fee of one hundred dollars shall be submitted for each application to extend the temporary abandonment status of any well. A surface owner may request a review of a well temporarily abandoned for at least seven years pursuant to subsection 1 of North Dakota Century Code section 38-08-04.

3. In addition to the waiver in subsection 2, the director may also waive the duty to plug and reclaim an abandoned well for any other good cause found by the director. If the director exercises this discretion, the director shall set a date or circumstance upon which the waiver expires.

4. The director may approve suspension of the drilling of a well. If suspension is approved, a plug must be placed at the top of the casing to prevent any foreign matter from getting into the well. When drilling has been suspended for thirty days, the well, unless otherwise authorized by the director, must be plugged and its site reclaimed pursuant to sections 43-02-03-34 and 43-02-03-34.1.

History: Amended effective April 30, 1981; January 1, 1983; May 1, 1990; May 1, 1992; August 1, 1999; January 1, 2008; April 1, 2010; April 1, 2012; April 1, 2014; October 1, 2016; April 1, 2018; April 1, 2020; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04

43-02-03-88.1. SPECIAL PROCEDURES FOR INCREASED DENSITY WELLS, POOLING, FLARING EXEMPTION, UNDERGROUND INJECTION, COMMINGLING, CONVERTING MINERAL WELLS TO FRESHWATER WELLS, AND CENTRAL TANK BATTERY OR CENTRAL PRODUCTION FACILITIES APPLICATIONS.

1. Applications to amend field rules to allow additional wells on existing spacing units, for pooling under North Dakota Century Code section 38-08-08, for a flaring exemption under North Dakota Century Code section 38-08-06.4 and section 43-02-03-60.2, for underground injection under chapter 43-02-05, for commingling in one well bore the fluids from two or more pools under section 43-02-03-42, for converting a mineral well to a freshwater well under section 43-02-03-35, and for establishing central tank batteries or central production facilities under section

43-02-03-48.1, must be signed by the applicant or the applicant's representative. The application must contain or refer to attachments that contain all the information required by law as well as the information the applicant wants the commission to consider in deciding whether to grant the application. The application must designate an employee or representative of the applicant to whom the commission can direct inquiries regarding the application.

2. The commission shall give the county auditor notice at least fifteen days prior to the hearing of any application in which a request for a disposal under chapter 43-02-05 is received.

3. The applications referred to in subsection 1 will be advertised and scheduled for hearing as are all other applications received by the commission. The applicant, however, unless required by the director, need not appear at the hearing scheduled to consider the application, although additional evidence may be submitted prior to the hearing. Any interested party may appear at the hearing to oppose or comment on the application. Any interested party may also submit written comments on or objections to the application prior to the hearing date. Such submissions must be received no later than five p.m. on the last business day prior to the hearing date and may be part of the record in the case if allowed by the hearing examiner.

4. The director is authorized, on behalf of the commission, to grant or deny the applications referred to in subsection 1.

5. In any proceeding under this section, the applicant, at the hearing, may supplement the record by offering testimony and exhibits in support of the application.

6. In the event the applicant is not required by the director to appear at the hearing and an interested party does appear to oppose the application or submits a written objection to the application, the hearing ~~officer~~ examiner shall continue the hearing to a later date, keep the record open for the submission of additional evidence, or take any other action necessary to ensure that the applicant, who does not appear at the hearing as the result of subsection 3, is accorded due process.

History: Effective May 1, 1992; amended effective May 1, 1994; May 1, 2004; April 1, 2012; April 1, 2014; April 1, 2018; _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-08-04
38-08-11	38-08-08

43-02-03-90.2. OFFICIAL RECORD. The evidence in each case heard by the commission, unless specifically excluded by the hearing ~~officer~~ examiner, includes the certified directional surveys, all oil, water, and gas production records, and all injection records on file with the commission.

Any interested party may submit written comments on or objections to the application prior to the hearing date. Such submissions must be received no later than five p.m. on the last business day prior to the hearing date and may be part of the record in the case if allowed by the hearing examiner. Settlement negotiations between parties to a contested case are only admissible as governed by North Dakota Century Code section 28-32-24, although the hearing ~~officer~~ examiner may strike such testimony from the record for good cause.

History: Effective May 1, 1992; amended effective April 1, 2010; April 1, 2012; October 1, 2016; _____.

General Authority	Law Implemented
NDCC 28-32-06	NDCC 28-32-06

43-02-03-90.4. NOTICE OF ORDER BY MAIL. The commission ~~may~~ shall give notice of an ~~order by mailing the~~ order, and findings and conclusions upon which it is based, to all parties ~~by Regular mail provided it files an affidavit of service by mail indicating upon whom the order was served~~ pursuant to North Dakota Century Code section 38-08-11.

History: Effective May 1, 1992; _____.

General Authority	Law Implemented
NDCC 28-32-13	NDCC 28-32-13

Section 43-02-14 is hereby created:

GEOLOGICAL STORAGE OF OIL OR GAS
CHAPTER 43-02-14

43-02-14-01. DEFINITIONS. The terms used throughout this chapter have the same meaning as in chapters 43-02-02.1, 43-02-03, and 43-02-05, and North Dakota Century Code chapters 38-08, 38-12, 38-25, and 47-31 except:

1. "Facility area" means the areal extent of the storage reservoir or salt cavern.

2. "Storage reservoir" means the total pore space occupied by the injected produced oil or gas during all phases of the project plus any reasonable or necessary horizontal buffer zones.

History: Effective ____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-02. SCOPE OF CHAPTER. This chapter pertains to the geological storage of hydrogen and produced oil or gas with little to no processing involved. If the rules differ from federal requirements on federally regulated storage facilities, the federal rules take precedence. The storage facility operator shall provide sufficient documentation to the director confirming the storage facility is federally operated. Applications filed with the commission proposing to inject gas for the purposes of enhanced oil or gas recovery will be processed under chapter 43-02-05. This chapter does not apply to Class III injection wells used to create a salt cavern. Applications for Class III wells are under the jurisdiction of the state geologist pursuant to chapter 43-02-02.1. The commission may grant exceptions to this chapter, after due notice and hearing, when such exceptions will result in the prevention of waste and operate in a manner to protect correlative rights.

History: Effective ____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-02.1. APPLICATION OF RULES FOR GEOLOGICAL STORAGE FACILITIES. All geological storage facilities, injection wells, and monitoring wells are also subject to the provisions of chapters 43-02-03, 43-02-05, and 43-05-01 where applicable.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-02.2. INJECTION INTO UNDERGROUND SOURCE OF DRINKING WATER PROHIBITED. Underground injection of oil or gas that causes or allows movement of fluid into an underground source of drinking water is prohibited.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-02.3. TRANSITIONING FROM ENHANCED OIL OR GAS RECOVERY TO GEOLOGICAL STORAGE. A storage facility operator injecting oil or gas for the primary purpose of geological storage into an oil and gas reservoir shall apply for a geological storage facility and injection well permit. In determining if there is an increased risk to underground sources of drinking water, the commission shall consider the following factors:

1. Increase in reservoir pressure within the injection zone.
2. Oil or gas injection rates.
3. Decrease in reservoir production rates.
4. Distance between the injection zone and underground sources of drinking water.
5. Suitability of the enhanced oil or gas recovery area of review delineation.
6. Quality of abandoned well plugs within the area of review.
7. The storage facility operator’s plan for recovery of oil or gas at the cessation of injection.
8. The source and properties of the injected oil or gas.

9. Any additional site-specific factors as determined by the commission.

History: Effective _____.

General Authority | Law Implemented
NDCC 38-08-04 | NDCC 38-25

43-02-14-02.4. PROHIBITION OF UNAUTHORIZED INJECTION. Any underground injection of oil or gas for the purpose of geological storage, except into a well authorized by permit issued under this chapter, is prohibited. The construction of any well or site or access road is prohibited until the permit authorizing construction of the well or site or access road has been issued.

History: Effective _____.

General Authority | Law Implemented
NDCC 38-08-04 | NDCC 38-25

43-02-14-02.5. EXISTING WELL CONVERSION. Storage facility operators seeking to convert an existing well to an injection well for the purpose of geological storage of oil or gas must demonstrate to the commission that the well is constructed in a manner that will ensure the protection of underground sources of drinking water.

History: Effective _____.

General Authority | Law Implemented
NDCC 38-08-04 | NDCC 38-25

43-02-14-03. BOOKS AND RECORDS TO BE KEPT TO SUBSTANTIATE REPORTS. All owners, operators, drilling contractors, drillers, service companies, or other persons engaged in drilling, completing, operating, or servicing storage facilities shall make and keep appropriate books and records until dissolution of the storage facility, covering their operations in North Dakota from which they may be able to make and substantiate the reports required by this chapter.

History: Effective _____.

General Authority | Law Implemented
NDCC 38-08-04 | NDCC 38-25

43-02-14-04. ACCESS TO RECORDS. The commission and the commission's authorized agents shall have access to all storage facility records wherever located. All owners, operators, drilling contractors, drillers, service companies, or other persons engaged in drilling, completing, operating, or servicing storage facilities shall permit the commission, or its authorized agents, to come upon any lease, property, well, or drilling rig operated or controlled by them, complying with state safety rules and to inspect the records and operation of wells and to conduct sampling and testing. Any information so obtained shall be public information. If requested, copies of storage facility records must be filed with the commission.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-05. GEOLOGICAL STORAGE FACILITY PERMIT HEARING.

1. At least thirty days prior to the scheduled hearing, the applicant shall give notice of the hearing to persons outlined in North Dakota Century Code 38-25-04.

2. Notice given by the applicant must contain the following:

   a. A legal description of the land within the oil or gas facility area.

   b. The date, time, and place the commission will hold a hearing on the permit application.

   c. A statement of purpose of the application.

   d. A statement that a digital copy (.pdf format) of the permit may be obtained from the commission.

   e. A statement that all comments regarding the geological storage facility permit application must be in writing and submitted to the commission by five p.m. on the last business day prior to the hearing date or presented at the hearing.

   f. Storage in an oil and gas reservoir must contain:

      (1) A statement that amalgamation of the pore space within the geological storage reservoir is required to operate the geological storage facility, which requires consent of persons who own at least fifty-five percent, unless otherwise provided for as outlined in North Dakota Century Code section 38-25-05, of the pore space, and a statement that the commission may require the pore space owned by nonconsenting owners to be included in the geological storage facility.

(2) A statement that unitization of oil and gas minerals and oil and gas leases within the geological storage reservoir is required to operate the geological storage facility, which requires consent of persons who own at least fifty-five percent, unless otherwise provided for as outlined in North Dakota Century Code section 38-25-05, of the oil and gas minerals and oil and gas leases, and a statement that the commission may require the oil and gas minerals and oil and gas leases owned by nonconsenting owners to be included in the geological storage facility.

g. Storage in a saline reservoir must contain a statement that amalgamation of the pore space within the geological storage reservoir is required to operate the geological storage facility, which requires consent of persons who own at least sixty percent of the pore space, and a statement that the commission may require the pore space owned by nonconsenting owners to be included in the geological storage facility.

h. Storage in a salt cavern must contain

(1) A statement that amalgamation of the pore space within the salt cavern is required to operate the geological storage facility, which requires consent of persons who own at least sixty percent of the pore space, and a statement that the commission may require the pore space owned by nonconsenting owners to be included in the geological storage facility.

(2) A statement that unitization of salt minerals and salt leases within the salt cavern is required to operate the geological storage facility, which requires consent of persons who own at least fifty-five percent of the salt minerals and salt leases, and a statement that the commission may require the salt minerals and salt leases owned by nonconsenting owners to be included in the geological storage facility.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-05.1. AREA OF REVIEW AND CORRECTIVE ACTION.

1. The storage facility operator shall prepare, maintain, and comply with a plan to delineate the area of review for a proposed storage facility, periodically reevaluate the delineation, and perform corrective action that meets the requirements of this section and is acceptable to the commission. The requirement to maintain and implement a commission-approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. As a part of the storage facility permit application, the storage facility operator shall submit an area of review and corrective

action plan that includes the following:

a. The method for delineating the area of review, results of the reservoir or geomechanical modeling and simulation, inputs that will be made, and the site characterization data on which the model will be based.

b. A description of:

(1) The reevaluation date, not to exceed five years, at which time the storage facility operator shall reevaluate the area of review.

(2) The monitoring and operational conditions that would warrant a reevaluation of the area of review prior to the next scheduled reevaluation date.

(3) How monitoring and operational data will be used to inform an area of review reevaluation.

(4) How corrective action will be conducted to meet requirements of this section, and how corrective action will be adjusted if there are changes in the area of review.

2. The storage facility operator shall perform the following actions to delineate the area of review and identify all wells that require corrective action:

a. Applicable to oil and gas and saline reservoirs. Predict, using existing site characterization, monitoring and operational data, and reservoir modeling and simulation, the projected lateral and vertical migration of the injectate in the subsurface from the commencement of injection activities until the oil or gas movement ceases, or until the end of a fixed time as determined by the director:

(1) Be based on detailed geologic data collected to characterize the injection zone, confining zones, and any additional zones; and anticipated operating data, including injection pressures, rates, and total volumes over the proposed life of the storage project.

(2) Consider any geologic heterogeneities, other discontinuities, data quality, and their possible impact on model predictions.

(3) Consider potential migration through faults, fractures, and artificial penetrations.

b. Applicable to salt caverns. Using site specific geology, cavern construction data acquired during dissolution mining, and geomechanical modeling, determine necessary buffers as setbacks for the following:

(1) Future drilling in the proximity of the cavern.

(2) Additional caverns.

3. The storage facility operator shall perform corrective action on all wells in the area of review that are determined to need corrective action, using methods designed to prevent the movement of injectate or fluid into or between underground sources of drinking water or other unauthorized zones.

4. At the reevaluation date, not to exceed five years, as specified in the area of review and corrective action plan, or when monitoring and operational conditions warrant, the storage facility operator shall:

   a. Reevaluate the area of review in the same manner specified in subdivision a of subsection 2 or subdivision b of subsection 2, whichever is applicable.

   b. Identify all wells or caverns in the reevaluated area of review in the same manner specified in subsection 2.

   c. Perform corrective action on wells requiring action in the reevaluated area of review in the same manner specified in subsection 3.

   d. Submit an amended area of review and corrective action plan or demonstrate to the commission through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the plan are subject to the director's approval and must be incorporated into the permit.

5. All modeling inputs and data used to support area of review delineations and reevaluations must be retained until project completion. Upon project completion, the storage facility operator shall deliver the records to the commission.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-06. PERMIT REQUIREMENTS – STORAGE IN OIL AND GAS RESERVOIR. An application for a geological storage facility permit must include at least the following:

1. The name and address of the operator of the storage facility.

2. Address surface, pore space, and mineral ownership by filing the following:

   a. An affidavit of mailing, including the name and address of each owner, certifying that all surface owners of record within the storage reservoir and one-half mile adjacent have been notified of the proposed geological storage project.

b. An affidavit of mailing, including the name and address of each owner, certifying that all mineral lessees, mineral owners of record, pore space owners and pore space lessees of record within the storage reservoir and one-half mile adjacent have been notified of the proposed geological storage project.

c. Legal descriptions of surface ownership of record within the storage reservoir and one-half mile adjacent.

d. Legal descriptions of mineral lessees and mineral owners of record within the storage reservoir and one-half mile adjacent.

e. Legal descriptions of pore space owners and pore space lessees of record within the storage reservoir and one-half mile adjacent.

3. Applicant shall request a permit for all oil or gas injection wells, monitoring wells, and surface facilities by filing the following:

a. Application for permit to drill filed on a form provided by the director pursuant to chapter 43-02-03; and

b. Application for permit to inject filed on a form provided by the director including at least the following:

(1) The name and address of the operator of the injection well.

(2) The estimated bottom hole fracture pressure of the upper confining zone.

(3) Average maximum daily rate of oil or gas to be injected.

(4) Average and maximum requested surface injection pressure.

(5) Geologic name and depth to base of the lowermost underground source of drinking water which may be affected by the injection.

(6) Existing or proposed casing, tubing, and packer data.

(7) Existing or proposed cement specifications, including amounts and actual or proposed top of cement.

(8) A plat and maps depicting the area of review, based on the associated geological storage facility permit, and detailing the location, well name, and operator of all wells in the area of review. The plat and maps must include all injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes, permitted wells, water wells, surface

bodies of water, and other pertinent surface features, such as occupied dwellings and roads.

(9) A review of the surficial aquifers within one mile of the proposed injection well site or surface facilities.

(10) Proposed injection program, including method of transportation of the oil or gas to the injection facility and the injection well.

(11) List identifying all source wells or sources of injectate.

(12) All logging and testing data on the well which has not been previously submitted.

(13) Schematic or other appropriate drawings and tabulations of the wellhead and surface facilities, including the size, location, construction, and purpose of all tanks, the height and location of all dikes and containment, including a calculated containment volume, all areas underlain by a synthetic liner, the location of all flow lines and a tabulation of any pressurized flow line specifications. It must also include the proposed road access to the nearest existing public road and the authority to build such access.

(14) A schematic drawing of the well detailing the proposed well bore construction, including the size of the borehole; the total depth and plug back depth; the casings and tubing sizes, weights, grades, and top and bottom depths; the perforated interval top and bottom depths; the packer depth; the injection zone and upper and lower confining zones top and bottom depths.

(15) A detailed description of the proposed completion or conversion procedure, including any proposed well stimulation.

(16) Any other information required by the director to evaluate the proposed well.

4. A map showing the extent of the pore space that will be occupied by the injection and geological storage of oil or gas over the life of the project.

5. A map showing the outside boundary of the oil or gas facility area, its delineated area of review, and the surface and bottom hole location of all proposed injection wells, monitoring wells, cathodic protection boreholes, and surface facilities.

6. Structural and stratigraphic cross sections that describe the geologic conditions of the geological storage reservoir.

7. A structure map of the top and base of the geological storage reservoir.

8. An isopach map of the geological storage reservoir.

9. Identification of all structural spill points or stratigraphic discontinuities controlling the isolation of stored oil or gas and associated fluids within the geological storage reservoir.

10. Geomechanical information sufficient to demonstrate that the confining zone is free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected oil or gas stream.

11. Any known regional or local faulting. If faults are known or suspected, a cross section that includes a depiction of the fault at depth.

12. A method for delineating the area of review, including the computational model to be used, assumptions that will be made, and the site characterization data on which the model will be based.

13. A map of all wells, including all injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes, water wells, and other subsurface structures within the oil or gas facility area and its delineated area of review.

14. A determination that all abandoned wells have been properly plugged and all operating wells have been constructed in a manner that prevents the oil or gas or associated fluids from escaping the geological storage reservoir.

15. A tabular description and well bore diagram of each well’s type, construction, date drilled, location, depth, record of plugging, and completion.

16. Quantitative analysis from a state-certified laboratory of freshwater from all available freshwater wells within the oil or gas facility area and its delineated area of review. The location of all wells by quarter-quarter, section, township, and range must also be submitted. This requirement may be waived by the director in certain instances.

17. Quantitative analysis from a third party laboratory of a representative sample of the oil or gas to be injected. A compatibility analysis with the receiving formation may also be required.

18. A map showing all occupied dwellings within the oil or gas facility area and its delineated area of review.

19. Corrective action plan pursuant to section 43-02-14-05.1.

20. Identify whether the area of review extends across state jurisdiction boundary lines.

21. Address the potential for unrecoverable injected oil or gas.

22. Address enrichment of the injected gas by hydrocarbons native to the oil and gas reservoir.

23. The stimulation plan for all geological storage facility wells, if any, including a description of the stimulation fluids to be used, and a determination that the stimulation will not interfere with containment.

24. An emergency and remedial response plan pursuant to section 43-02-14-15.

25. A corrosion monitoring and prevention plan for all wells and surface facilities.

26. A leak detection and monitoring plan for all surface facilities.

27. A leak detection and monitoring plan to monitor any movement of the oil or gas outside of the geological storage reservoir. This may include monitoring wells and the collection of baseline information of oil or gas background concentrations in ground water, surface soils, and chemical composition of in situ waters within the oil or gas facility area, and its delineated area of review.

28. A time frame for extraction of injected oil or gas and expected recovery percentages.

29. Address associated water recovery and a plan for disposal.

30. Any additional information the director may require.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-07. PERMIT REQUIREMENTS – STORAGE IN SALINE RESERVOIR. An application for a geological storage facility permit must include at least the following:

1. The name and address of the operator of the storage facility.

2. Address surface and pore space ownership by filing the following:

    a. An affidavit of mailing, including the name and address of each owner, certifying that all surface owners of record within the storage reservoir and one-half mile adjacent have been notified of the proposed geological storage project.

    b. An affidavit of mailing, including the name and address of each owner, certifying that all pore space owners and pore space lessees of record within the storage reservoir and one-half mile adjacent have been notified of the proposed geological storage project.

c. Legal descriptions of surface ownership of record within the storage reservoir and one-half mile adjacent.

d. Legal descriptions of pore space owners and pore space lessees of record within the storage reservoir and one-half mile adjacent.

3. Applicant shall request a permit for all oil or gas injection wells, monitoring wells, and surface facilities by filing the following:

a. Application for permit to drill filed on a form provided by the director pursuant to chapter 43-02-03; and

b. Application for permit to inject filed on a form provided by the director including at least the following:

(1) The name and address of the operator of the injection well.

(2) The estimated bottom hole fracture pressure of the upper confining zone.

(3) Average maximum daily rate of oil or gas to be injected.

(4) Average and maximum requested surface injection pressure.

(5) Geologic name and depth to base of the lowermost underground source of drinking water which may be affected by the injection.

(6) Existing or proposed casing, tubing, and packer data.

(7) Existing or proposed cement specifications, including amounts and actual or proposed top of cement.

(8) A plat and maps depicting the area of review, based on the associated geological storage facility permit, and detailing the location, well name, and operator of all wells in the area of review. The plat and maps must include all injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes, permitted wells, water wells, surface bodies of water, and other pertinent surface features, such as occupied dwellings and roads.

(9) A review of the surficial aquifers within one mile of the proposed injection well site or surface facilities.

(10) Proposed injection program, including method of transportation of the oil or gas to the injection facility and the injection well.

(11) List identifying all source wells or sources of injectate.

(12) All logging and testing data on the well which has not been previously submitted.

(13) Schematic or other appropriate drawings and tabulations of the wellhead and surface facilities, including the size, location, construction, and purpose of all tanks, the height and location of all dikes and containment, including a calculated containment volume, all areas underlain by a synthetic liner, the location of all flow lines and a tabulation of any pressurized flow line specifications. It must also include the proposed road access to the nearest existing public road and the authority to build such access.

(14) A schematic drawing of the well detailing the proposed well bore construction, including the size of the borehole; the total depth and plug back depth; the casings and tubing sizes, weights, grades, and top and bottom depths; the perforated interval top and bottom depths; the packer depth; the injection zone and upper and lower confining zones top and bottom depths.

(15) A detailed description of the proposed completion or conversion procedure, including any proposed well stimulation.

(16) Any other information required by the director to evaluate the proposed well.

4. A map showing the extent of the pore space that will be occupied by the injection and geological storage of oil or gas over the life of the project.

5. A map showing the outside boundary of the oil or gas facility area, its delineated area of review, and the surface and bottom hole location of all proposed injection wells, monitoring wells, cathodic protection boreholes, and surface facilities.

6. Structural and stratigraphic cross sections that describe the geologic conditions of the geological storage reservoir.

7. A structure map of the top and base of the geological storage reservoir.

8. An isopach map of the geological storage reservoir.

9. Identification of all structural spill points or stratigraphic discontinuities controlling the isolation of stored oil or gas and associated fluids within the geological storage reservoir.

10. Geomechanical information sufficient to demonstrate that the confining zone is free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected oil or gas stream.

11. Any known regional or local faulting. If faults are known or suspected, a cross section that includes a depiction of the fault at depth.

12. A method for delineating the area of review, including the computational model to be used, assumptions that will be made, and the site characterization data on which the model will be based.

13. A map of all wells, including all injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes, water wells, and other subsurface structures within the oil or gas facility area and its delineated area of review.

14. A determination that all abandoned wells have been properly plugged and all operating wells have been constructed in a manner that prevents the oil or gas or associated fluids from escaping the geological storage reservoir.

15. A tabular description and well bore diagram of each well's type, construction, date drilled, location, depth, record of plugging, and completion.

16. Quantitative analysis from a state-certified laboratory of freshwater from all available freshwater wells within the oil or gas facility area and its delineated area of review. The location of all wells by quarter-quarter, section, township, and range must also be submitted. This requirement may be waived by the director in certain instances.

17. Quantitative analysis from a third party laboratory of a representative sample of the oil or gas to be injected. A compatibility analysis with the receiving formation may also be required.

18. A map showing all occupied dwellings within the oil or gas facility area, including the delineated area of review.

19. Corrective action plan pursuant to section 43-02-14-05.1

20. Identify whether the area of review extends across state jurisdiction boundary lines.

21. Address the potential for migration of unrecoverable injected oil or gas.

22. The stimulation plan for all geological storage facility wells, if any, including a description of the stimulation fluids to be used, and a determination that the stimulation will not interfere with containment.

23. An emergency and remedial response plan pursuant to section 43-02-14-15.

24. A corrosion monitoring and prevention plan for all wells and surface facilities.

25. A leak detection and monitoring plan for all surface facilities.

26. A leak detection and monitoring plan to monitor any movement of the oil or gas outside of the geological storage reservoir. This may include monitoring wells and the collection of baseline information of oil or gas background concentrations in ground water, surface soils, and chemical composition of in situ waters within the oil or gas facility area, its delineated area of review.

27. A time frame for extraction of injected oil or gas and expected recovery percentages.

28. Address associated water recovery and a plan for disposal.

29. Any additional information the director may require.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-08. PERMIT REQUIREMENTS – STORAGE IN SALT CAVERN. An application for a geological storage facility permit must include at least the following:

1. The name and address of the operator of the storage facility.

2. Address surface, pore space, and salt mineral ownership by filing the following:

   a. An affidavit of mailing, including the name and address of each owner, certifying that all surface owners of record within the salt cavern and one-half mile adjacent have been notified of the proposed geological storage project.

   b. An affidavit of mailing, including the name and address of each owner, certifying that all salt mineral lessees, salt mineral owners of record, pore space owners and pore space lessees of record within the salt cavern and one-half mile adjacent have been notified of the proposed geological storage project.

   c. Legal descriptions of surface ownership of record within the salt cavern and one-half mile adjacent.

d. Legal descriptions of salt mineral lessees and salt mineral owners of record within the salt cavern and one half-mile adjacent.

e. Legal descriptions of pore space owners and pore space lessees of record within the salt cavern and one-half mile adjacent.

3. Applicant shall request a permit for all oil or gas injection wells, monitoring wells, and surface facilities by filing an application for permit to inject filed on a form provided by the director including at least the following:

   a. The name and address of the operator of the injection well.

   b. The estimated bottom hole fracture pressure of the upper confining zone.

   c. Average maximum daily rate of oil or gas to be injected.

   d. Average and maximum requested surface injection pressure.

   e. Current capacity and geometry of the cavern.

   f. Tools used to confirm capacity and geometry of cavern.

   g. Current thickness of remaining salt at top and bottom of cavern.

   h. Geologic name and depth to base of the lowermost underground source of drinking water which may be affected by the injection.

   i. Existing or proposed casing, tubing, and packer data.

   j. Existing or proposed cement specifications, including amounts and actual or proposed top of cement.

   k. A plat and maps depicting the area of review, based on the associated geological storage facility permit, and detailing the location, well name, and operator of all wells in the area of review. The plat and maps must include all injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes, permitted wells, water wells, surface bodies of water, and other pertinent surface features, such as occupied dwellings and roads.

   l. A review of the surficial aquifers within one mile of the proposed injection well site or surface facilities.

   m. Proposed injection program, including method of transportation of the oil or gas to the injection facility and the injection well.

n. List identifying all source wells or sources of injectate.

o. All logging and testing data on the well which has not been previously submitted.

p. Schematic or other appropriate drawings and tabulations of the wellhead and surface facilities, including the size, location, construction, and purpose of all tanks, the height and location of all dikes and containment, including a calculated containment volume, all areas underlain by a synthetic liner, the location of all flow lines and a tabulation of any pressurized flow line specifications. It must also include the proposed road access to the nearest existing public road and the authority to build such access.

q. A schematic drawing of the well detailing the proposed well bore construction, including the size of the borehole; the total depth and plug back depth; the casings and tubing sizes, weights, grades, and top and bottom depths; the perforated interval top and bottom depths; the packer depth; the injection zone and upper and lower confining zones top and bottom depths.

r. A detailed description of the proposed completion or conversion procedure.

s. Any other information required by the director to evaluate the proposed well.

4. Anticipated capacity and geometry of the cavern.

5. Minimum and maximum capacity of the cavern to be utilized.

6. Tools used to confirm capacity and geometry of the cavern.

7. Current thickness of remaining salt at the top and bottom of the cavern.

8. Description and schematics for brine management at the surface.

9. Description of measures in place to prevent unintended flow back.

10. A map showing the extent of the pore space that will be occupied by the injection and geological storage of oil or gas over the life of the project.

11. A map showing the outside boundary of the oil or gas facility area, its delineated area of review, and the surface and bottom hole location of all proposed injection wells, monitoring wells, cathodic protection boreholes, and surface facilities.

12. Structural and stratigraphic cross sections that describe the geologic conditions of the salt cavern.

13. A structure map of the top and base of the salt formation being utilized.

14. An isopach map of the salt formation being utilized.

15. Geomechanical analysis of the cavern used to determine cavern stability, using, but not limited to the following:

    a. Geologic characteristics.

    b. Petrophysical properties.

    c. Rock mechanical properties.

    d. In situ stresses.

    e. Any other input data acquired and utilized.

16. Address the following cavern stability issues at minimum:

    a. Salt creep and mitigation measures.

    b. Minimum salt roof thickness.

    c. Roof collapse.

    d. Maximum cavern diameter.

    e. Spacing between offsetting caverns.

    f. Minimum setback for drilling in the vicinity.

    g. Salt thinning due to any stratigraphic change.

    h. Any dissolution zones in the salt.

    i. Minimum operating pressures and capacity volumes, roof geometry, and height/diameter ratios used to prevent any of the above or other pertinent stability issues.

17. Any known regional or local faulting. If faults are known or suspected, a cross section that includes a depiction of the fault at depth.

18. A method for delineating the area of review, including the geomechanical model to be used, assumptions that will be made, and the site characterization data on which the model will be based.

19. A map of all wells, including all injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes, water wells, and other subsurface

structures within the oil or gas facility area and its delineated area of review.

20. A determination that all abandoned wells have been properly plugged and all operating wells have been constructed in a manner that prevents the oil or gas or associated fluids from escaping the salt cavern.

21. A tabular description and well bore diagram of each well's type, construction, date drilled, location, depth, record of plugging, and completion.

22. Quantitative analysis from a state-certified laboratory of freshwater from all available freshwater wells within the geological storage facility. The location of all wells by quarter-quarter, section, township, and range must also be submitted. This requirement may be waived by the director in certain instances.

23. Quantitative analysis from a third party laboratory of a representative sample of the oil or gas to be injected. A compatibility analysis with the receiving formation may also be required.

24. A map showing all occupied dwellings within the oil or gas facility area, including the delineated area of review.

25. Corrective action plan pursuant to section 43-02-14-05.1.

26. Identify whether the area of review extends across state jurisdiction boundary lines.

27. An emergency and remedial response plan pursuant to section 43-02-14-15.

28. A corrosion monitoring and prevention plan for all wells and surface facilities.

29. A leak detection and monitoring plan for all surface facilities.

30. A leak detection and monitoring plan to monitor any movement of the oil or gas outside of the salt cavern. This may include monitoring wells and the collection of baseline information of oil or gas background concentrations in ground water, surface soils, and chemical composition of in situ waters within the oil or gas facility area and its delineated area of review.

31. Any additional information the director may require.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-09. SITING. All injection wells shall be sited in such a fashion that they inject into a formation which has confining zones that are free of known open faults or fractures within the facility area and its delineated area of review.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-10. CONSTRUCTION REQUIREMENTS.

1. All injection wells shall be cased and cemented to prevent movement of fluids into or between underground sources of drinking water or into an unauthorized zone. The casing and cement used in construction of each new injection well shall be designed for the life expectancy of the well. All wells used for injection into a storage reservoir or salt cavern must have surface casing set and cemented at a point not less than fifty feet [15.24 meters] below the base of the Fox Hills formation. In determining and specifying casing and cementing requirements, all the following factors shall be considered:

    a. Depth to the injection zone and lower confining zone, or salt cavern specifics. Long string casing must be set at least to the top of the injection zone and cemented as approved by the director.

    b. Depth to the bottom of all underground sources of drinking water.

    c. Estimated minimum, maximum, and average injection pressures.

    d. Fluid pressure.

    e. Estimated fracture pressures.

    f. Physical and chemical characteristics of the injection zone.

2. Appropriate logs and other tests shall be conducted during the drilling and construction of injection wells. Any well drilled or converted to an injection well shall have a cement bond log from which a presence of channels and micro-annulus can be determined radially. Cement bond logs shall contain elements approved by the director.

3. After an injection well has been completed, approval must be obtained on a sundry notice filed on a form provided by the director prior to any subsequent perforating.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-11. MECHANICAL INTEGRITY.

1. An injection well has mechanical integrity if:

   a. There is no significant leak in the casing, tubing, or packer; and

   b. There is no significant fluid movement into an underground source of drinking water through channels adjacent to the well bore.

2. One of the following methods must be used to evaluate the absence of significant leaks:

   a. Pressure test with liquid or gas.

   b. Monitoring of positive annulus pressure following a valid pressure test.

   c. Radioactive tracer survey.

3. On a schedule determined by the commission, the storage facility operator shall use one or more of the following methods to determine the absence of significant fluid or gas movement:

   a. A cement bond log from which a presence of channels and micro-annulus can be determined radially.

   b. A temperature log.

   c. Any alternative testing method that provides equivalent or better information and that the director requires or approves.

4. The operator of an injection well immediately shall shut-in the well if mechanical failure indicates fluids are, or may be, migrating into an underground source of drinking water or an unauthorized zone, or if so directed by the director.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-12. PLUGGING OF INJECTION WELLS. The proper plugging of an injection well requires the well be plugged with cement or other types of plugs, or both, in a manner which will not allow movement of fluids into an underground source of drinking water. The operator shall file a notice of intention to plug on a form provided by the director and shall obtain the director's approval of the plugging method prior to the commencement of plugging operations.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-13. PRESSURE RESTRICTIONS.

1. The following applies to geological storage in an oil and gas reservoir or saline reservoir: Injection pressure at the wellhead shall not exceed a maximum authorized injection pressure which shall be calculated to assure that the pressure in the storage reservoir during injection does not initiate new fracture or propagate existing fractures in the confining zones. In no case shall injection pressure initiate fractures in the confining zones or cause the movement of injection or formation fluids into an unauthorized zone or underground source of drinking water.

2. The following applies to geological storage in a salt cavern:

   a. A minimum operating pressure protective of the cavern's integrity must be maintained.

   b. A maximum allowable operating pressure must be established based on the casing seat or the highest elevation of the cavern's roof, whichever is higher in elevation.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-13.1. SALT CAVERN INTEGRITY. The operator shall execute the emergency and remedial response plan pursuant to section 43-02-14-15 in the event of loss of integrity in the storage cavern for any reason.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-14. BONDING REQUIREMENTS. All storage facilities, injection wells, and monitoring wells must be bonded as provided in section 43-02-03-15.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-15. EMERGENCY AND REMEDIAL RESPONSE PLAN. The storage facility operator shall maintain a commission-approved emergency and remedial response plan. This plan must include emergency response and security procedures. The plan, including revision of the list of contractors and equipment vendors, must be updated as necessary or as the commission requires. Copies of the plans must be available at the storage facility and at the storage facility operator's nearest operational office.

1. The emergency and remedial response plan requires a description of the actions the storage facility operator shall take to address movement of the injection or formation fluids that may endanger an underground source of drinking water during any phase of the project. The requirement to maintain and implement a commission-approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The plan must also detail:

    a. The safety procedures concerning the facility and residential, commercial, and public land use within the facility area and its delineated area of review.

    b. Contingency plans for addressing oil or gas leaks from any well, flow lines, or other facility, and loss of containment from the storage reservoir or salt cavern and identify specific contractors and equipment vendors capable of providing necessary services and equipment to respond to such leaks or loss of containment.

2. If the storage facility operator obtains evidence that the injected oil or gas stream, or displaced fluids may endanger an underground source of drinking water, the storage facility operator shall:

a. Immediately cease injection.

b. Take all steps reasonably necessary to identify and characterize any release.

c. Notify the director immediately and submit a subsequent sundry notice filed on a form provided by the director within twenty-four hours.

d. Implement the emergency and remedial response plan approved by the director.

3. The commission may allow the operator to resume injection prior to remediation if the storage facility operator demonstrate that the injection operation will not endanger underground sources of drinking water.

4. The storage facility operator shall review annually the emergency and remedial response plan developed under subsection 1. Any amendments to the plan are subject to the commission's approval, must be incorporated into the storage facility permit, and are subject to the permit modification requirements. Amended plans or demonstrations that amendments are not needed shall be submitted to the commission as follows:

a. With the area of review reevaluation.

b. Following any significant changes to the facility, such as addition of injection or monitoring wells, or on a schedule determined by the commission.

c. When required by the commission.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-16. REPORTING, MONITORING, AND OPERATING REQUIREMENTS.

1. The operator of a storage facility shall meter or use an approved method to keep records and shall report monthly to the director, the volume and nature of the injected hydrocarbons, the average, minimum, and maximum injection pressures, the maximum injection rates, and such other information as the director may require. The operator of each storage facility shall, on or before the fifth day of the second month succeeding the month in which the well is capable of injection, file with the director the aforementioned information for the storage facility in a format provided by the director.

2. Immediately upon the commencement or recommencement of injection, the operator shall notify the director of the injection date verbally and in writing.

3. The operator shall place accurate gauges on the tubing and the tubing-casing annulus of all injection wells utilized in the storage facility. Accurate gauges shall also be placed on any other annuluses deemed necessary by the director.

4. The operator of a storage facility shall keep the wells, surface facilities, and injection system under continuing surveillance and conduct such monitoring, testing, and sampling as the director may require verifying the integrity of the surface facility, gathering system, and injection wells to protect surface and subsurface waters. Prior to commencing operations, the injection pipeline must be pressure tested. All existing injection pipelines where the pump and the wellhead are not located on the same site are required to be pressure tested annually.

5. The operator of a storage facility shall report any noncompliance with regulations or permit conditions to the director verbally within twenty-four hours followed by a written explanation within five days. The operator shall cease injection operations if so directed by the director.

6. Within ten days after the discontinuance of injection operations, the operator shall notify the director of the date of such discontinuance and the reason therefor.

7. Upon the completion or recompletion of an injection well or the completion of any remedial work or attempted remedial work such as plugging back, deepening, acidizing, shooting, formation fracturing, squeezing operations, setting liner, perforating, reperforating, tubing repairs, packer repairs, casing repairs, or other similar operations not specifically covered herein, a report on the operation shall be filed with the director within thirty days. The report shall present a detailed account of all work done including the reason for the work, the date of such work, the shots per foot and size and depth of perforations, the quantity of sand, crude, chemical, or other materials employed in the operation, the size and type of tubing, the type and location of packer, the result of the packer pressure test, and any other pertinent information or operations which affect the status of the well and are not specifically covered herein.

8. Annular injection of fluids is prohibited.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-17. LEAK DETECTION AND REPORTING.

1. Leak detection must be integrated, where applicable and must be inspected and tested on a semiannual basis and, if defective, shall be repaired or replaced within ten days. Any repaired or replaced detection equipment must be retested if required by the commission. An extension of time for repair or replacement of leak detection equipment may be granted upon a showing of good cause by the storage facility operator. A record of each inspection must include the inspection results and be maintained by the operator at least until project completion, and must be made available to the commission upon request.

2. Pursuant to section 43-02-03-30 the storage facility operator shall immediately report to the commission any leak detected at any well or surface facility.

3. The storage facility operator shall immediately report to the commission any pressure changes or other monitoring data from subsurface observation wells or injection wells that indicate the presence of leaks in the storage reservoir or salt cavern.

4. The storage facility operator shall immediately report to the commission any other indication that the storage facility is not containing oil, gas, or brine, whether the lack of containment concerns the storage reservoir or salt cavern, surface equipment, or any other aspect of the storage facility.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-18. STORAGE FACILITY PERMIT TRANSFER.

1. The storage operator and proposed transferee shall notify the commission in writing of any proposed permit transfer. The notice must contain the following:

    a. The name and address of the person to whom the permit is to be transferred.

    b. The name of the permit subject to transfer and location of the storage facility and a description of the land within the facility area.

    c. The date that the storage operator desires the proposed transfer to occur.

    d. Meet the bonding requirements of section 43-02-14-14.

2. A transfer may only take place after notice and hearing. The transferee must demonstrate that all requirements of chapter 43-02-14 are complied with. The transferee must outline necessary permit modifications based on operational changes, if

any.

3. Commission review. The commission shall review the proposed transfer to ensure that the purposes of North Dakota Century Code chapter 38-25 are not compromised but are promoted. For good cause, the commission may deny a transfer request, delay on acting on it, and place conditions on its approval.

4. Commission approval required. A permit transfer can occur only upon the commission's written order. The transferor of a permit shall receive notice from the commission that the approved new storage facility operator has met the bonding requirements of section 43-02-14-14.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-19. MODIFICATION, REVOCATION, AND REISSUANCE OR TERMINATION OF PERMITS.

1. Permits are subject to review by the commission. Any interested person (i.e., the storage operator, local governments having jurisdiction over land within the area of review, and any person who has suffered or will suffer actual injury or economic damage) may request that the commission review permits issued under this chapter for one of the reasons set forth below. All requests must be in writing and must contain facts or reasons supporting the request. If the commission determines that the request may have merit or at the commission's initiative for one or more of the reasons set forth below, the commission may schedule a hearing to review the permit and thereafter issue an order modifying or revoking the permit. Permits, after notice and hearing, may be modified or revoked and reissued when the commission determines one of the following events has occurred:

   a. Changes to the facility area.

   b. Area of review or corrective action reevaluations pursuant to section 43-02-14-05.1.

   c. Operating outside of parameters of the permit of sections 43-02-14-06, 43-02-14-07, or 43-02-14-08, whichever is applicable.

   d. Amendment to the emergency and remedial response plan of section 43-02-14-15.

   e. Amendment to the leak detection plan of section 43-02-14-17.

   f. Review of monitoring and testing results conducted in accordance with injection well permit requirements.

g. The commission receives information that was not available at the time of permit issuance. Permits may be modified during their terms for this cause only if the information was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified application of different permit conditions at the time of the issuance.

h. The standards or regulations on which the storage facility permit was based have been changed by promulgation of new or amended standards or regulations or by judicial decision after the permit was issued.

i. The commission determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the storage operator has little or no control and for which there is no reasonably available remedy.

j. There are material and substantial additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

2. If the commission tentatively decides to modify or revoke and reissue a permit, the commission shall incorporate the proposed changes to the original permit. The commission may request additional information and, in the case of a modified permit, may require the submission of an updated application. In the case of a revoked and reissued permit, the commission shall require the submission of a new permit application.

3. In a permit modification under this section, only those conditions to be modified shall be reopened when a revised permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the unmodified permit. When a permit is revoked and reissued, the entire permit is reopened just as if the permit had expired and was being reissued. During any revocation and reissuance proceeding, the storage operator shall comply with all conditions of the existing permit until a new final permit is reissued.

4. Suitability of the storage facility location will not be considered at the time of a permit modification or revocation unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.

5. The following are causes for terminating an injection well permit during its term:

   a. Noncompliance by the storage operator with any permit condition.

   b. Failure by the storage operator to fully disclose all relevant facts or misrepresentation of relevant facts to the commission.

c. A determination that the permitted activity endangers human health or the environment.

6. If the commission tentatively decides to terminate a permit, the commission shall issue notice of intent to terminate.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

43-02-14-19.1. MINOR MODIFICATIONS OF PERMIT. Upon agreement between the storage facility operator and the commission, the commission may modify a permit to make the corrections or allowances without the storage operator filing an application to amend a permit. Any permit modification not processed as a minor modification under this section must be filed as an application to amend an existing permit under section 43-02-14-18. Minor modifications may include:

1. Correct typographical errors.

2. Require more frequent monitoring or reporting by the storage operator.

3. Change quantities or types of fluids or gases injected which are within the capacity of the facility as permitted and, in the judgement of the commission, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification.

4. Change construction requirements approved by the commission, provided that any such alteration shall comply with the requirements of this chapter and no such changes are physically incorporated into construction of the well prior to approval of the modification by the commission.

5. Amending any of the plans of this chapter where the modifications merely clarify or correct the plan, as determined by the commission.

History: Effective _____.

General Authority	Law Implemented
NDCC 38-08-04	NDCC 38-25

CHAPTER 43-05-01
GEOLOGIC STORAGE OF CARBON DIOXIDE

43-05-01-11. INJECTION WELL CONSTRUCTION AND COMPLETION STANDARDS.

1. The storage operator shall ensure that all injection wells are constructed and completed to prevent movement of the carbon dioxide stream or fluids into underground sources of drinking water or outside the authorized storage reservoir. The injection wells must be constructed and completed in a way that allows the use of appropriate testing devices and workover tools. The casing and cement or other materials used in the construction of each new injection well must be designed for the well's life expectancy. In determining and specifying casing and cementing requirements, all of the following factors must be considered:

   a. Depth to the injection zone;

   b. Injection pressure, external pressure, internal pressure, and axial loading;

   c. Hole size;

   d. Size and grade of all casing strings (wall thickness, external diameter, nominal weight, length, joint specification, and construction material);

   e. Corrosiveness of the carbon dioxide stream and formation fluids;

   f. Down-hole temperatures;

   g. Lithology of injection and confining zone;

   h. Type or grade of cement and cement additives; and

   i. Quantity, chemical composition, and temperature of the carbon dioxide stream.

2. Surface casing in all newly drilled carbon dioxide injection and subsurface observation wells drilled below the underground source of drinking water must be set fifty feet [15.24 meters] below the base of the lowermost underground source of drinking water and cemented pursuant to section 43-02-03-21.

3. The long string casing in all injection and subsurface observation wells must be cemented pursuant to section 43-02-03-21. Sufficient cement must be used on the long string casing to fill the annular space behind the casing to the surface of the ground and a sufficient number of centralizers shall be used to assure a good cement job. The long string casing must extend to the injection zone.

4. Any liner set in the well bore must be cemented with a sufficient volume of cement to fill the annular space.

5 All cements used in the cementing of casings in injection and subsurface observation wells must be of sufficient quality to maintain well integrity in the carbon dioxide injection environment. Circulation of cement may be accomplished by staging. The commission may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the storage operator can demonstrate by using logs that the cement does not allow fluid movement behind the well bore.

6. All casings must meet the standards specified in any of the following documents, which are hereby adopted by reference:

   a. The most recent American petroleum institute bulletin on performance properties of casing, tubing, and drill pipe;

   b. Specification for casing and tubing (United States customary units), American petroleum institute specification 5CT, as published by the American petroleum institute;

   c. North Dakota Administrative Code Section 43-02-03-21; or

   d. Other equivalent casing as approved by the commission.

7. All casings used in new wells must be new casing or reconditioned casing of a quality equivalent to new casing and that has been pressure-tested in accordance with the requirements of subsection 6. For new casings, the pressure test conducted at the manufacturing mill or fabrication plant may be used to fulfill the requirements of subsection 6.

8. The location and amount of cement behind casings must be verified by an evaluation method approved by the commission. The evaluation method must be capable of evaluating cement quality radially and identifying the location of channels to ensure that underground sources of drinking water are not endangered.

9. All injection wells must be completed with and injection must be through tubing and packer. In order for the commission to determine and specify requirements for tubing and packer, the storage operator shall submit the following information:

   a. Depth of setting;

   b. Characteristics of the carbon dioxide stream (chemical content, corrosiveness, temperature, and density) and formation fluids;

   c. Maximum proposed injection pressure;

d. Maximum proposed annular pressure;

e. Proposed injection rate (intermittent or continuous) and volume and mass of the carbon dioxide stream;

f. Size of tubing and casing; and

g. Tubing tensile, burst, and collapse strengths.

10. All tubing strings must meet the standards contained in subsection 6. All tubing must be new tubing or reconditioned tubing of a quality equivalent to new tubing and that has been pressure-tested. For new tubing, the pressure test conducted at the manufacturing mill or fabrication plant may be used to fulfill this requirement.

11. All wellhead components, including the casinghead and tubing head, valves, and fittings, must be made of steel having operating pressure ratings sufficient to exceed the maximum injection pressures computed at the wellhead and to withstand the corrosive nature of carbon dioxide. Each flow line connected to the wellhead must be equipped with a manually operated positive shutoff valve located on or near the wellhead.

12. All packers, packer elements, or similar equipment critical to the containment of carbon dioxide must be of a quality to withstand exposure to carbon dioxide.

13. All injection wells must have at all times an accurate, operating pressure gauge or pressure recording device. Gauges must be calibrated as required by the commission and evidence of such calibration must be available to the commission upon request.

14. All newly drilled wells must establish internal and external mechanical integrity as specified by the commission and demonstrate continued mechanical integrity through periodic testing as determined by the commission. All other wells to be used as injection wells must demonstrate mechanical integrity as specified by the commission prior to use for injection and be tested on an ongoing basis as determined by the commission using these methods:

a. Pressure tests. Injection wells, equipped with tubing and packer as required, must be pressure-tested as required by the commission. A testing plan must be submitted to the commission for prior approval. At a minimum, the pressure must be applied to the tubing casing annulus at the surface for a period of thirty minutes and must have no decrease in pressure greater than ten percent of the required minimum test pressure. The packer must be set at a depth at which the packer will be opposite a cemented interval of the long string casing and must be set no more than fifty feet [15.24 meters] above the uppermost perforation or open hole for the storage reservoirs<u>, or at the location approved by the director</u>; and

b. The commission may require additional testing, such as a bottom hole temperature and pressure measurements, tracer survey, temperature survey, gamma ray log, neutron log, noise log, casing inspection log, or a combination of two or more of these surveys and logs, to demonstrate mechanical integrity.

15. The commission has the authority to witness all mechanical integrity tests conducted by the storage operator.

16. If an injection well fails to demonstrate mechanical integrity by an approved method, the storage operator shall immediately shut in the well, report the failure to the commission, and commence isolation and repair of the leak. The operator shall, within ninety days or as otherwise directed by the commission, perform one of the following:

    a. Repair and retest the well to demonstrate mechanical integrity; or

    b. Properly plug the well.

17. All injection wells must be equipped with shutoff systems designed to alert the operator and shut in wells when necessary.

18. Additional requirements may be required by the commission to address specific circumstances and types of projects.

History: Effective April 1, 2010; amended effective April 1, 2013; _____

General Authority
NDCC 28-32-02

Law Implemented
NDCC 38-22

43-05-01-17. STORAGE FACILITY FEES.

1. The storage operator shall pay the commission ~~a fee of one cent on each ton of carbon dioxide injected for storage. The fee must be deposited in the carbon dioxide storage facility administrative fund.~~ as follows:

    a. Carbon dioxide sources that contribute to the energy and agriculture production economy of North Dakota:

        (1) A fee of one cent on each ton of carbon dioxide injected for storage. The fee must be deposited in the carbon dioxide storage facility administrative fund.

~~2.~~ (2) The storage operator shall pay the commission a fee of seven cents on each ton of carbon dioxide injected for storage. The fee must be deposited in the carbon dioxide storage facility trust fund.

b. Carbon dioxide sources that do not fall under the definition of subdivision a of subsection 1:

(1) The storage operator shall pay a per ton of carbon dioxide injected commission fee determined by hearing. The fee must be deposited in the carbon dioxide storage facility administrative fund and consider:

(a) The commission's expenses during regulation of the storage facility's construction, operational, and preclosure phases.

(2) The storage operator shall pay a per ton of carbon dioxide injected commission fee determined by hearing. The fee must be deposited in the carbon dioxide storage facility trust fund and must consider:

(a) The cost of post closure emergency and remedial response associated with the storage facility.

(b) The cost of long-term monitoring post closure associated with the storage facility.

3. Moneys from the carbon dioxide storage facility trust fund, including accumulated interest, may be relied upon to satisfy the financial assurance requirements pursuant to section 43-05-01-09.1 for the postclosure period. If sufficient moneys are not available in the carbon dioxide storage facility trust fund at the end of the closure period, the storage operator shall make additional payments into the trust fund to ensure that sufficient funds are available to carry out the required activities on the date at which they may occur. The commission shall take into account project-specific risk assessments, projected timing of activities (e.g., postinjection site care), and interest accumulation in determining whether sufficient funds are available to carry out the required activities.

History: Effective April 1, 2010; amended effective April 1, 2013; _____.

General Authority	Law Implemented
NDCC 28-32-02	NDCC 38-22