Comprehensive Underground Injection Control Program Evaluation
Nebraska Oil and Gas Conservation Commission

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United States Environmental Protection Agency
Region VII Water, Wetlands, and Pesticides Divisions
Drinking Water Management Branch
Underground Injection Control Program

Contents

A. Executive Summary

Overall, EPA finds that NOGCC is operating the Class II UIC program consistent with its primacy approval. The review findings indicate the program is strong in all aspects of the UIC regulatory authorities. These include permitting, enforcement and compliance, monitoring, reporting, well construction and operations, mechanical integrity testing, inspections and data management. State regulations are continuously reviewed and updated to provide any necessary changes and to comply with federal requirements and changes. Furthermore, while some implementation procedures have been altered over the years such as the program's adding electronic data management in addition its paper files, creating an electronic means of keeping inspection data and the development of an internet presence that allows everyone to view the information on both injection and production wells contained in the electronic database; EPA finds that these changes enhance rather than reduce the effectiveness and openness of the program that EPA approved back in 1983. There are several areas in which the NOGCC operates a very strong program:

Protection of Underground Sources of Drinking Water: Although current state regulations only require the protection of underground sources of drinking water (USDW) up to 3,000 mg/L total dissolved solids (TDS) NOGCC operates the program as a matter of practice which protects aquifers that contain from 3,000 mg/L to 10,000 mg/L total dissolved solids (TDS) to provide additional USDW protection and meet the requirements of the federal UIC program.

Permitting Process: NOGCC has a well-developed permitting process in place which addresses all aspects of well permitting. NOGCC utilizes forms and checklists to ensure an owner/operator applying for a permit has addressed all the required information for NOGCC to make a sound permit determination. In the cases of area permits NOGCC reviews the individual proposed wells within the area permit application. NOGCC has regulations in place which require affected parties within one half of a mile be informed of the permit decision and are allowed to provide comment(s) at a NOGCC hearing. NOGCC posts notices of public hearings for permit determinations on the NOGCC website and the areas local newspaper to ensure the information is readily available to any parties who may be interested in attending a hearing. If an existing permit owner/operator requests a major permit modification NOGCC requires the permit to go back through a public comment period. For wells converting from production to injection NOGCC requires, through permit conditions, that the well be remedially cemented behind the casing (if necessary) to protect any aquifers that contain from 3,000 mg/L to 10,000 mg/L TDS to ensure that no fluid migration outside of the intended injection zone occurs.

Inspections: NOGCC requires a field staff member be present for 100% of all mechanical integrity tests to ensure wells are in working condition and mechanical integrity tests are being conducted properly to ensure the protection of underground sources of drinking water. Additionally NOGCC has recently added a robust tablet based inspection program which allows NOGCC staff to document inspections via forms, photographs, and additional information collected in the field.

Compliance and Enforcement: NOGCC has several effective ways of encouraging compliance and conducting enforcement. NOGCC utilizes mailings, e-mails and phone calls to inform an owner/operator of any upcoming required testing which needs to be conducted. If an owner/operator is found to be out of compliance NOGCC has the ability to assess fees or pull the company's ability to sell oil and gas, which are both strong incentives for owner/operators to remain in compliance. Additionally NOGCC has systems in place to deal with and ultimately resolve any perceived or confirmed contamination by the company.

Data Management: NOGCC has been involved with the development of the Risk Based Database Management System (RBDMS) and FracFocus from their infancy. As a result, NOGCC maintains a very robust electronic data management system which has the ability to track all aspects of permitted wells including: mechanical integrity tests, inspection reports, upcoming due dates, and has the ability to flow data from the tablet based inspections program to the RBDMS. Additionally NOGCC has been a valued participant in the development of systems to flow data from RBDMS to the UIC National Database.

While the overall 1425 program is strong, there are still some areas where EPA has some recommendations for improvement in the program. While some are specific to the NOGCC 1425 program others are common to most of the UIC programs both within Region 7 and nationally. These areas include:

1) EPA recommends that NOGCC develop documentation, such as SOPs, desk guides, or other documents to assist in the retention of institutional knowledge on how NOGCC runs the 1425 UIC program.
2) EPA also recommends updating the NOGCC rules and regulations to better reflect the current pricing required for financial assurances which were discussed in interview and represented on Form 3A. This would also include a periodic reevaluation of existing financial assurance requirements on existing wells to ensure that they are adequate to cover the costs of plugging and abandonment.
3) EPA recommends updating the NOGCC rules and regulations regarding the protection of underground sources of drinking water that have a Total Dissolved Solids (TDS) content of greater than 3,000 mg/L and less than 10,000 mg/L so that the rules mimic the current practice of the program.
4) Additionally EPA recommends integrating the NOGCC practice of requiring remedial cementing of conversion wells for the protection of underground sources of drinking water up to 10,000 mg/L TDS into the current NOGCC rules and regulations.
5) EPA recommends NOGCC work on clarifying the extent (where practical) of the aquifer exemptions that were granted under state primacy.
6) EPA encourages NOGCC to actively seek backfilling the current vacancy in the UIC program staff.
7) EPA also encourages NOGCC to work toward better defining the aquifer boundaries within the counties where aquifer exemptions were granted as part of the original primacy package.

Introduction

In accordance with requirements for continuing environmental programs and the Environmental Protection Agency (EPA) Region 7 program review protocol, EPA Region 7 conducted an onsite comprehensive review on September 1 & 2, 2015 of the Nebraska 1425 (Class II) Underground Injection Control (UIC) Program. The Class II UIC Program is administered by the Nebraska Oil and Gas

Conservation Commission (NOGCC). The program is authorized under the Safe Drinking Water Act (SDWA) and operates under provisions of the Act and applicable federal and state regulations and UIC guidance #19 regarding alternate demonstration for state primary enforcement approval.

A comprehensive program review is a periodic, formal evaluation of an authorized program to determine what is working well, deficiencies, and/or recommendations for improvement. EPA maintains responsibility for delegated programs and continues to be accountable for ensuring the statues are fulfilled. The EPA Region 7 evaluates each year to determine when and where to conduct comprehensive program reviews. The decision is based on length of time since the last review, significant changes in the program and state staff changes. In the UIC program, EPA reviews annual state reports, reviews annual grant workplans and grant performance reports, informs states on regulatory changes in the federal program, reviews relevant new state regulations (drafted or promulgated post-authorization), discusses emerging issues, and provides training. For example, EPA collects annual information on the number of Class II wells in the state (also known as a Class II inventory) and on various program statistics, such as the number of enforcement actions taken, permits issued, and inspections conducted. The last comprehensive review of the Nebraska 1425 program was conducted by EPA on August 25-26, 2009.

EPA's comprehensive onsite review of Nebraska Class II UIC program at the NOGCC main office in Sidney was conducted all day September 1 and during the morning to mid-afternoon of September 2 2015. The EPA Region 7 Review Team consisted of UIC staffers Kurt Hildebrandt, and Ben Meissner. During that period, EPA interviewed NOGCC UIC program representatives listed below and examined UIC program files.

NOGCC UIC Program Representatives

Bill Sydow, NOGCC Director

Stan Belieu, NOGCC Deputy Director

This report is structured around interview sessions with NOGCC staff and management, NOGCC's answers to questions provided by EPA in advance of the interview sessions, through communications that occurred prior to this onsite evaluation, through a review of UIC program files at NOGCC, and from follow-up phone calls and emails to and from state program representatives requesting further clarification of our findings. The advance questions and NOGCC answers are provided as Appendix A and will be referred to in this report for detail regarding subjects. In its review of the program, EPA did not re-evaluate the laws, regulations and procedures that the State/NOGCC used in its original demonstration of the program's effectiveness. However, EPA did evaluate if NOGCC was following all of those laws, regulations and procedures in their implementation of the program.

EPA's Class II Regulatory Authority

When oil and gas are extracted, brine or produced fluids (i.e., salt water) is typically brought to the surface. The produced fluids can also contain fluids that were used in stimulation of the production well to enhance the well's ability to produce oil and/or natural gas (e.g. hydraulic fracturing). The produced fluids are segregated from the oil and/or gas and are then are disposed of either to surface water bodies or injection. When states began to implement rules preventing disposal of brine to surface water bodies and soils, injection became the preferred way to dispose of this waste When these produced fluids are injected, they either go into the same underground geologic formation in order to enhance the recovery of oil and/or natural gas from the formation or they are injected into a different (typically deeper) underground geologic formation.

The SDWA authorized EPA to develop and enforce minimum federal requirements that protect public health and USDW from endangering injection well practices (SDWA section 1421(b)). Under this

authority, EPA's UIC program regulates the permitting, construction, operation, and closure of injection wells. EPA categorizes injection wells into six classes (I-VI) based on the type of fluid they inject and/or the well's purpose. See 40 C.F.R. § 144.6.

Of the six well classes, Class II wells are used to: dispose of fluids brought to the surface in the process of natural gas storage operations or production of oil and natural gas; inject fluids (typically brine or water) to recover residual oil or natural gas (enhanced recovery); or inject hydrocarbons for storage. The UIC program does not regulate hydraulic fracturing, except where diesel fuels are used in the fracturing fluids, pursuant to an amendment to the SDWA. See SDWA § 1421(d)(1)(B)(ii).

The SDWA also allows EPA to authorize states to implement the UIC program. This authorization is called primacy. A state has the option to request primacy approval for Class II wells under either Section 1422 or 1425 of the SDWA. Programs authorized under Section 1422 must meet EPA's minimum federal requirements for Class II wells described in 40 C.F.R. Part 145 and Part 146, Subparts A and C. While programs authorized under Section 1425 of the SDWA need demonstrate only that their existing standards are effective in preventing endangerment of USDW. Programs authorized under Section 1425 need to include permitting, inspection, monitoring, record-keeping, enforcement authorities, and reporting requirements. Section 1425 gives states flexibility to demonstrate, and allows EPA to approve, an effective program that differs from the federal program. In assessing whether to approve primacy under Section 1425, EPA carefully reviews a state's laws, rules, and procedures as outlined in EPA's UIC Program Guidance #19.

B. Statutory Authorities and Regulatory Jurisdictions

The regulation of oil and gas production and disposal of produced fluids by the Nebraska Oil and Gas Conservation Commission (NOGCC) predates both the SDWA and EPA. The arrangement of regulating both oil and gas production and produced fluid disposal is typical for state oil and gas programs as the information generated by each aspect is useful in better understanding the characteristics of the producing reservoir. NOGCC was granted primary authority for permitting and regulating the Class II injection program under Section 1425 of the SDWA in 1983 as part of the first wave of oil and gas programs that achieved primacy. The state statutory authority which the Class II program is based on is RSN 57-905 (7) and states, "The commission shall have authority to promulgate and to enforce rules, regulations and orders to effectuate the purposes and the intent of sections 57-901 to 57-921".

The statutes established contain legal definitions for terms which are used throughout the program and can be located in Appendix A. NOGCC utilizes definitions related to the program within Title 267 Chapter 1 of the rules and regulations. In addition to the definitions in the rules and regulations in Chapter 1, NOGCC uses the following two definitions for well classification which can be found in Chapter 4 Section 001 of the rules and regulations:

> 001.01 – Enhanced recovery injection well is a well which injects fluids to increase the recovery of oil and/or gas. A commercial enhanced recovery facility includes single or multiple wells that are specifically engaged in the business of underground injection of brine generated by third party producers for a fee or compensation. In addition, the produced brine must originate off-site as a result of oil and gas production operations only, and must be transported to the facility by tank truck.

001.02 - Disposal well is a well which injects for purposes other than enhanced recovery those fluids brought to the surface in connection with the production of oil and/or gas. A commercial disposal facility includes single or multiple wells that are specifically engaged in the business of underground injection of brine generated by third party producers for a fee or compensation. In addition, the produced brine must originate off-site as a result of oil and gas production operations only, and must be transported to the facility by tank truck.

Authority has been granted to NOGCC which allows the promulgation of new rules or the modification of existing ones under RSN 57-905 (7) which states, "The commission shall have authority to promulgate and to enforce rules, regulations and orders to effectuate the purposes and the intent of sections 57-901 to 57-921.". This authority was, most recently, used to add rules involving well stimulation and annulus rules. These two new rules were added in 2013 and 2014.

C. Administration and Program Development

As of September 1, 2015 the NOGCC oversaw approximately 536 total active Class II permits, of this total 126 are Class II-D and 410 are Class II-EOR. Twenty to twenty-five wells are permitted annually, however this can fluctuate depending on the market. As of September 1, 2015 the NOGCC has only approved around a third of the wells that it had approved around the same time the prior year. Twenty five percent of the NOGCC well count are injection wells.

All individuals within the NOGCC spend a portion of their time working on the UIC program (Appendix C). However two individuals, the Deputy Director and the UIC Administrative Assistant, formally record their time as working on the NOGCC UIC program. All inspectors have been sent to EPA's inspectors' training course, IOGCC inspector certification program and the GWPC training programs (i.e. well integrity) as scheduled.

NOGCC allows for "land-spreading" of solid waste generated by injection well operations. This is only allowed if water based fluids were used for drilling operations. Additional approval for land-spreading requires written permission from the land owner due to their ownership of the land and mineral rights.

The NOGCC maintains physical and electronic copies of records, forms, reports and other items which are required by the permit. These electronic and physical copies are kept at the NOGCC main office in Sidney, NE. These documents are kept on site permanently and not discarded after a set period of time. Commercial and non-commercial Class II disposal wells disposal fluid information require the point of source, volumes, etc. Additionally disposal wells must have disposal fluids trucked in, piping in disposal fluids is not allowed.

All injection wells that are being sold or transferred to another company or individual requires an approval in writing by the NOGCC Director and must meet the following rules and regulations found in Chapter 4 Section 008:

008.01 – Orders authorizing injection into enhanced recovery injection wells and disposal wells shall remain valid for the life of the well, unless revoked by the Commission for cause.

008.02 – An order granting underground injection may be modified, revoked and reissued, or terminated during its term for cause, after notice and hearing, upon the request of any interested

person or at the Commission's initiative. All requests filed requesting review of any order authorizing underground injection shall be in writing and shall contain facts or reasons supporting such request.

008.03 – Upon receipt of a request to modify or revoke an order authorizing underground injection, The Commission shall promptly set the matter for hearing and may revoke, modify and reissue said order if:

008.03A – There is a substantial change of conditions in the enhanced recovery injection well or the disposal well operation, or there are substantial changes in the information originally furnished.

008.03B – Information shows that the permitted operation will have adverse cumulative effects on the environment.

008.03C – Information shows that the operation is not in accordance with the order authorizing the injection.

D. Financial Assurance

In Chapter 3 Section 004 of the rules and regulations NOGCC requires:

004 – Prior to commencement of dirt work preceding drilling, or assuming operation of any well, the person, firm or corporation commencing said drilling or operation shall make, or cause to be made, and file with the Commission a good and sufficient bond in the sum of not less than five thousand dollars ($5,000) for each well or hole and payable to the State of Nebraska, conditioned for the performance of the duty to comply with all the provisions of the laws of the State of Nebraska and the rules, regulations and orders of the Commission. Said bond shall remain in force and effect until plugging of said well or hole is approved by the Director or his authorized deputy, a new bond is filed by a successor in interest or the bond is released by the Director. It is provided, however, that any owner in lieu of such bond may file with the Director a good and sufficient blanket bond in the principal sum of not less than twenty-five thousand dollars ($25,000) covering all wells or holes drilling or to be drilled in the State of Nebraska by the principal in said bond; and upon acceptance and approval by the Director of such blanket bond, said bond shall be considered as compliance with the foregoing provisions requiring an individual well or hole bond.

Any person required to file a surety bond pursuant to the rule may post cash or certificate of deposit in the amount required subject to the following conditions:

- If a person posts cash, it may be in the form of a cashier's check, certified check or legal tender of the United States of America delivered to the Commission.

A certificate of deposit shall comply with the following:

- The certificate of deposit shall be in the name of the Nebraska Oil and Gas Conservation Commission and only the signature of the Commission's authorized representative shall be on the withdrawal card as the authorized signature to withdraw the deposit.

- The certificate of deposit shall be in a bank or financial institution insured by the Federal Deposit Insurance Corporation and located in the State of Nebraska.
- The Commission may reject any certificate of deposit, when, combined with other certificates of deposit on that bank or financial institution, exceeds the limits of Federal Deposit Insurance Corporation insurance coverage.
- The certificate of deposit shall be in the custody of the Commission.
- The certificate of deposit shall be automatically renewable.
- Interest earned on the certificate of deposit is the property of the person who provided the money for it. The certificate of deposit and the money it represents is the property of the Commission until released by the Director.

Any person, other than the producer or owner of the well, engaged in pulling casing from abandoned oil or gas wells and wells used in connection therewith, or who purchases such wells for the purpose of salvaging material from the same, shall file with the Commission a ten thousand dollar ($10,000) blanket bond to guarantee the ultimate plugging of these wells conformable with the rules, regulations or orders of the Commission.

The State Board of Educational Lands and Funds shall be contacted for bonding requirements on State Land, and the U.S. Geological Survey should be contacted for additional bonding requirements on Federal Land.

NOGCC does not require the periodic review, or adjustment for inflation, of bonding amounts to ensure financial assurance is still adequate to cover plugging and abandonment costs. In the past NOGCC has taken funds from their appropriated budget to plug wells or to clean up locations which exceeded the financial assurance amounts. However NOGCC's current goal will to be to utilize the newly implemented "Plugging Fund" to help supplement plugging and cleanup costs.

E. Drilling Fluids/Muds

For Class II wells fresh water is utilized for drilling mud, unless drilling is occurring through a saline formation. In this case saline drilling mud is utilized to ensure co-mingling fluids are inert. If oil/salt drilling mud is utilized then the well is required to have surface casing which extends below the Chadron Formation. NOGCC requires all surface holes be drilled only using water and gel to protect underground sources of drinking water. After surface casing is set and cemented oil/salt drilling mud can be utilized depending on formation conditions. Some additives used in salt mud systems are: gel, lime, caustic, soda ash, pac 1, hydro vis, bar, bio clear, SAPP, saw dust, salt gell, Dris Pac, and cotton hulls.

Waste Disposal:

During 2014 the State of Nebraska produced 58,748,365 bbls of brine. The average water to oil ratio in Nebraska is 20.7 barrels of water for every barrel of oil.

Process waste water typically contains acids, various oils, alkalis, heavy metals, radionuclides, biocides, lubricants, corrosion inhibitors, glycols, amines, untreatable emulsions and other compounds. This process wastewater is derived from well development, production, and maintenance.

The disposal of drilling fluids, stimulation fluids or any oil field waste into any well is prohibited unless approved by the Director prior to disposal. Within thirty days after cessation of drilling operations, non-exempt energy and production waste materials including, but not limited to crankcase oil, shall be contained in non-leaking containers and disposed of in accordance with Nebraska Department of Environmental Quality or any applicable federal regulations. In areas where applicable, and upon application and approval, land farming or land spreading of fresh water based drilling mud may be allowed on the lease with the written permission from the landowner and submitted to the Director.

Waste water is generally injected using a Class II well. A representative sample of the injectate is analyzed before injection in order to ensure the injected fluids are compatible with the injection formation. The Commission has final authority to determine if remediation has achieved a cleanup level of less than one percent by weight for total petroleum hydrocarbons. Cleanup shall be completed as soon as technically feasible. To prevent waste and to minimize the depth of oil penetration, all free oil must be removed immediately for reclamation. All soils containing over one percent by weight of total petroleum hydrocarbons must be remediated or disposed of at an authorized disposal site. To prevent storm-water contamination soil excavated from the spill site which contains over five percent by weight of total petroleum hydrocarbons must be: mixed with clean soil to a mixture of less than five percent, or removed to an authorized disposal site, or contained at a secure location for future remediation. The operator has the choice to select any technically sound method for soil remediation.

NOGCC does encourage reduction and recycling depending on the drilling program. However, many operators recycle their drilling muds and water as a cost saving measure.

NOGCC requires information to be provided anytime waste products are disposed of or transported off-site. These requirements are documented in Chapter 3 022.16A – 022.16D and are as follows.

> 0.22.16A – Every person that transports water produced in association with the production of oil or gas shall possess a run ticket or equivalent documents containing the following:
>
> > 022.16A1 – The name and address of the transporter
> >
> > 022.16A2 – The name of the operator of the lease of origin.
> >
> > 022.16A3 – The location of the lease tank battery by section, township, range, and county.
> >
> > 022.16A4 – The location of the destination by section, township, range and county.
> >
> > 022.16A5 – The date and time the fluids were loaded for transportation and unloaded at the destination.
> >
> > 022.16A6 – The estimated volume of fluids, or the opening and closing tank gauges or meter readings.
> >
> > 022.16A7 – The signature of the driver.
>
> 022.16B – One copy of the documentation shall be left at the facility from which the water was loaded for transportation.

022.16C – One copy of the documentation shall be carried in the vehicle during transportation and shall be produced for examination and inspection by any agent of the Commission or any authorized law officer upon request.

022.16D – All persons that store, possess, or dispose of water produced in association with the production of oil or gas shall retain a record reflecting a complete inventory, including detail of the acceptance and disposition of the fluids for a period of at least five years.

There are currently no Class II wells in Nebraska which are being flared.

There are no local ordinances in Nebraska which apply to energy and production wastes. NOGCC requires that within thirty days after cessation of drilling operations, non-exempt energy and production waste materials including but not limited to crankcase oil shall be contained in non-leaking containers and disposed of in accordance with Nebraska Department of Environmental Quality or any applicable federal regulations. The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal.

Naturally occurring radioactive materials are low enough that they are never an issue, so no regulations are in place to address these.

F. Well Operations

Permitting:

The permitting of disposal and enhanced oil recovery wells is required prior to any injection in Nebraska. Prior to injection, the owner/operator must file an application for injection authority with the NOGCC in accordance with Chapter 4 of the rules and regulations. Chapter 4 Section 002 in the rules and regulations grant NOGCC the ability to permit Class II enhanced recovery and disposal wells:

002.01 – Commencement of water flooding and other enhanced recovery operations involving the introduction of extraneous forms of energy into any reservoir, including cycling or recycling operations and the extraction and separation of liquid hydrocarbons from natural gas in connection therewith is permitted only upon order of the Commission.

002.02 – Underground disposal of salt water, brackish water or other water unfit for domestic, livestock, irrigation or other general uses is permitted only upon order of the Commission.

NOGCC requires specific information to be included with a permit application to allow them to make a permit determination. Generally a site visit is not conducted prior to a permit determination. NOGCC requires the following elements in a complete application and can be found in Chapter 4 Section 004 of the rules and regulations and are as follows:

004.02 – The application for the approval of an enhanced recovery injection or disposal well or wells shall be accompanied by:

004.02A – A plat outlining the area which will be affected by the proposed operation and showing all governmental quarter sections or equivalent lots thereto directly or diagonally offsetting said area. The names of the owner or operator of each separate tract of land shall be shown, and all wells, including dry, abandoned or drilling wells shall be

properly located and designated on said plat. In the case of an operation conducted subject to a unit agreement, the area affected shall be the area subject to such agreement, or that area within one-half (1/2) mile of each injection well, whichever is the greater distance.

004.02B – The names and addresses of each person owning a fee, leasehold, mineral or royalty interest within one-half (1/2) mile of each injection well or within the area required to be shown on the plat, whichever is the greater.

004.02C – A full description of the particular operation for which approval is sought.

004.02D – The names and addresses of the operator or operators of the project.

004.02E – If the wells have been drilled, a copy of each completion report and any available electric or radioactivity logs.

004.02F – A schematic diagram of each well showing:

004.02F1 – The total depth or plug-back of the well.

004.02F2 – The depth of the injection or disposal interval.

004.02F3 – The geological name of the injection or disposal zone.

004.02F4 – The geologic description of the injection or disposal zone including the location and extent of any known faults or fracture systems.

004.02F5 – The depths of the tops and bottoms of the casing and cement to be used in the well.

004.02F6 – The size and specifications of the casing and tubing, and the setting depth and type of packer, if used.

004.02G – Information showing that injection into the proposed zone will not initiate vertical fractures into or through the overlying strata which could enable the injected fluids or formation fluids to enter any fresh water strata.

004.02H – Information that no unplugged wells exist which will allow the migration of the injected fluids or formation fluids to enter any fresh water strata.

004.02I – Information regarding the fracture pressures of the injection zone and the overlying strata, including the source of such information.

004.02J – Proposed operating data:

004.02J1 – Maximum designed or proposed daily injection rates and injection pressures

004.02J2 – The source of any fluids to be injected.

004.02J3 – Analysis of a representative sample of the fluids to be injected.

004.02J4 – Analysis of fresh water from two or more freshwater wells within one mile of the proposed injection well showing the location of the wells and the dates the samples were collected, or a statement why samples were not submitted.

004.02J5 – Geological name of the lowest freshwater zone, if known, and the depth to the base of the freshwater zone.

004.02J6 – The vertical distance separating top of the injection zone and the base of the lowest freshwater strata.

NOGCC accepts applications for multiple UIC wells in a single submission, such as for forming a secondary recovery unit, however all UIC well information is well specific. NOGCC reviews and permits each well within an area permit to ensure underground sources of drinking water are not endangered.

The completeness of a permit application is determined by the engineering/geologic staff at the NOGCC based on the requirements in Chapter 4 Section 004 of the Rules and Regulations. Missing required information or documents are flagged on a checklist containing the requirements stated in Chapter 4 Section 004 of the Rules and Regulations. The checklist is then returned, along with the application, to the Administrative Assistant who contacts the Operator and requests the missing information. Once an application is determined to be complete, it is returned to the Administrative Secretary to prepare the legal notice for publication, and a case number is assigned. When the notification period is complete the application is reviewed by the Hearing Examiner and an order/permit is written. If objections have been received then the application/case must be heard by the full Commission, an order/permit is then drafted and signed by the Commissioners.

NOGCC has the ability to determine, in Chapter 4 Section 008, whether a permit should be modified, revoked and reissues, or terminated on a case by case basis.

008.01 – Orders authorizing injection into enhanced recovery injection wells and disposal wells shall remain valid for the life of the well, unless revoked by the Commission for cause.

008.02 – An order granting underground injection may be modified, revoked and reissued, or terminated during its term for cause, after notice and hearing, upon the request of any interested person or at the Commission's initiative. All requests filed requesting review of any order authorizing underground injection shall be in writing and shall contain facts or reasons supporting such request.

008.03 – Upon receipt of a request to modify or revoke an order authorizing underground injection, the Commission shall promptly set the matter for hearing and may revoke, modify and reissue said order if:

008.03A - There is a substantial change of conditions in the enhanced recovery injection well or the disposal well operation, or there are substantial changes in the information originally furnished.

008.03B - Information shows that the permitted operation will have adverse cumulative effects on the environment.

008.03C - Information shows that the operation is not in accordance with the order authorizing the injection.

If a well needs a modification NOGCC requires a sundry notice from the owner explaining how they need to vary from the permit (if it is a major or minor modification). If a major modification is required a re-notice of the application is required. NOGCC would consider a major modification to a permit be along the lines of requesting a new formation for injection, and a minor modification along the lines of requesting injection into a separate area in the same formation. NOGCC states there have been few major modifications requested to date.

NOGCC rules and regulations state there are no differences involved in getting permitted as a commercial or non-commercial injection well with the exception of a different mechanical integrity test requirement and needing site security. Commercial disposal wells are required to conduct a mechanical integrity test once every year, all other wells require one mechanical integrity test once every five years. Additionally an annulus pressure test at 300 psi at the surface is performed for annulus stability, this is tested initially and then tested once every five years. Commercial facilities are also encouraged to have some type of site security which are found in Chapter 4 Section 006:

006.02F - All commercial facility sites must be physically secured at all times. The Director will determine if a site is secure. The Commission recommends that sites be secured by either of the following:

- Complete enclosure of all wells, tanks/pits and wellhead assemblies within suitable fencing; and/or
- All gates and other entry points shall be locked when the facility is unattended; and/or
- Provide tamper-proof seals or locks for the “master” valve on each well; and/or
- Install locking caps on all valves and connections on holding tanks and headers.

006.02C - All commercial wells must have annual pressure tests to establish the mechanical integrity of the casing, tubing and packer. Casing pressure tests shall be conducted under the supervision of the Director.

NOGCC requires commercial disposal wells to conduct a mechanical integrity test once every year, while all other wells require a mechanical integrity test once every five years. In practice NOGCC does not consider an acceptable percent pressure loss to be considered a passing mechanical integrity test, either the well holds its pressure or it is considered a failing test.

As part of the application process NOGCC requires pre-testing of drinking water at the injection site as well as a representative sample of injectate. These consist of analysis of anions and cations that compose total dissolved solids. This is used to ensure injection and native fluids are compatible.

NOGCC uses the applicable UIC guidance’s and the “brown” EPA RCRA guidance documents when authorizing fluids used for Class II enhanced recovery operations.

Notice of Hearing

Public notice is referenced in Chapter 4 Section 005 of the rules and regulations and require:

005.01 – Upon filing of an application, the Commission shall issue notice thereof, as provided by the Act and these regulations. Said application shall be set for public hearing at such time and place as the Commission may fix.

005.02 – In addition to the notice required by law, notice of the application and the time and place of hearing shall be given by the applicant by certified mail or by delivering a copy of the notice to each person owning a fee, leasehold, mineral or royalty interest within the project area or within one-half (1/2) mile of the injection well, whichever is greater. A copy of such notice shall be filed with the Commission, and the applicant shall certify that notice by certified mail or by delivery to each person has been accomplished at least fifteen (15) days prior to the hearing or give sufficient reason for being unable to do so.

005.03 – In the event no person required to be notified, or the Commission itself files a written objection to the application within ten (10) days of the date of the notice, the application shall be granted; but if any person or the Commission itself files written objection within ten (10) days of the notice, then a hearing shall be held.

005.04 – No notice is necessary to any person who has consented to the proposed installation in writing.

005.05 – An order authorizing an injection well will expire and become null and void if the authorized well or wells are not completed or converted to injection within one (1) year from the date of the order.

NOGCC public notices occur after a legal notice has been posted in the paper. The owner/operator is required to send a return receipt within a certain radius to citizens with contact information by mail and newspaper. Interested parties within ½ mile are identified and notified. For horizontal well areas an additional spacing around the outside of the area in a grid pattern must be used to notify the residents within the area. If a notification period passes without any written objections NOGCC has the ability to have the case approved (around 90% of permits are done this way). If there are objections then the case has to be shown before the commission by interested parties or by the Commission. All public comments (when feasible) which are received get a response confirming the receipt of the objections. Two of the three Commissioners must be present at the hearing, decisions are based on evidence and testimony presented by interested parties and sworn in experts. Sworn in experts are evaluated based on their experience as well as education. The Commission will listen to everyone attending who wishes to speak, but they will not be sworn in as experts nor considered interested parties if outside the area of review. The objector may bring an attorney and experts to present evidence and testimony during the hearing. Once the Commission has heard testimony from the interested parties and sworn in experts it has to make a permit determination. Once a decision has been reached a transcript, which consists of everything which occurred during the hearing not just verbal testimony, of the hearing is written to document the hearing. The determination may be contested which will take it through the judicial system.

The owner/operator who submitted a permit is notified if an application has been approved or denied primarily from phone calls or e-mail. This is followed by a signed order from either the Hearing Examiner or the Commissioners. Decisions from the Commission can be appealed to district court.

Intent to Drill

Prior to the commencement of drilling the owner/operator who plans on installing a well must file an Intent to Drill Form 2 with the NOGCC for approval as well as adhere to regulations in Chapter 3 Section 012.01 – 013.05. The NOGCC does not require public notification regarding intention to drill, however all approved permits are posted on the NOGCC website. These regulations state: Unless later, modified or changed for a particular pool or pools, upon hearing before the Commission, the following shall apply to the drilling of all wells:

> 012.01 – When drilling where high pressures are likely to exist, the owner shall take all reasonable precautions for keeping the well under control at all times and shall provide at the time the well is started proper high pressure fittings and equipment. Under such conditions, the conductor string of casing must be cemented throughout its length, unless other procedure is authorized by the Director or his authorized agent, and all strings of casing must be securely anchored.
>
> 012.02 – In areas where pressures and formations are unknown, sufficient surface casing shall be run to reach a depth below the base of formations generally contributing water supplies for domestic, agricultural and municipal use as well as water bearing formations reasonably expected to be utilized for domestic, agricultural and municipal use if not presently utilized. The amount of surface casing run shall be sufficient to prevent blowouts and uncontrolled flows at reasonable depths and of sufficient size to permit the use of an intermediate string or strings of casing where necessary to control deeper blowout or uncontrolled flow sources. Surface casing shall be set in a relatively impervious formation and shall be cement by the plug or displacement or other approved method with sufficient cement to fill the annulus to the top of the hole except in cases where unusually long strings of surface casing are required and approval is secured from the Director or his authorized agent to use other adequate methods of cementation.
>
> 012.03 – In wells drilled in areas where subsurface conditions are known through drilling experience, surface casing shall be set and cemented to the surface by the pump and plug or displacement or other approved methods at a depth sufficient to protect all domestic, agricultural or municipal water supplies and to insure against blowouts or uncontrolled flows.
>
> 012.04 – Cement shall be allowed to stand under pressure until the cement has reached a compressive strength of five hundred pounds per square inch before drilling the plug. The term "under pressure" as used herein, will be complied with and one float valve is used or if pressure is otherwise held. All cement and cement additives used shall have been tested in accordance with API RP 10B, dated 1974, "Recommended Practices for Testing Oil-Well Cements and Cement Additives," and the results reported to the Director prior to use.
>
> 012.05 – In all proven areas, the use of blowout equipment shall be in accordance with the established practice in the area.
>
> 012.06 – In areas where high pressures may be reasonably anticipated, all drilling wells shall be equipped with a master-gate or its equivalent, an adequate blowout preventer, together with choke and kill line or lines of the proper size and working pressure. The entire control equipment shall be in good working condition at all times.

012.07 – If a well is deepened for the purpose of producing oil and gas from the lower stratum, such deepening to and completion in the lower stratum shall be conducted in such a manner as to protect all upper productive strata.

012.08 – All wells shall be so drilled that the horizontal distance between the bottom of the hole and the location at the top of the hole shall be at all times at a practical minimum.

012.09 – If and when it becomes necessary to run a production string, such production string shall be cemented by the pump and plug method.

012.10 – By approved reasonable methods, the owner shall shut off and exclude all alien water from any oil or gas bearing stratum; and to determine the effectiveness of such operations, the owner shall make a casing test before suspending drilling operations or drilling into the oil or gas bearing stratum and completing the well.

012.11 – Before commencing to drill, proper and adequate pits shall be constructed for the reception and confinement of mud and cuttings. Reserve pits used in the drilling and completion of oil and gas wells shall be designed and constructed to protect the surface and the waters of the state from pollution.

For all reserve pits the minimum criteria shall be as follows:

- Minimum of two foot freeboard is required.
- All topsoil shall be stockpiled on or adjacent to the location and be used for reclamation after drilling operations have been completed with practical.
- Reserve pits shall not contain, at any time, any non-exempt energy and production waste.

The Commission may administratively approve field-wide or area-wide applications covering drilling reserve pit design and construction.

012.12 – For those reserve pits located within one-half (1/2) mile of surface waters of the state, the operator shall meet the requirements set forth in Section 012.11. Additionally, an application filed with Form 2 shall include:

- Drilling location layout plan.
- Pit size.
- Type of mud program.
- Anticipated time pit will be in use.
- Scaled topographic map showing the surface drainage and distance to any lakes, rivers, streams or springs.

012.13 – If salt based or oil based muds are used during the drilling program or if a salt section of sufficient thickness to affect the mud quality is anticipated, then the reserve pit design and construction shall meet the requirements of this rule and an application shall be submitted along with Form 2 for approval.

Minimum design criteria shall be as follows:

- Steel working tanks will be required on the drilling rig circulating system.
- Reserve pits shall be designed to accommodate those fluids while protecting the lands and waters of the state.
- Soil mixture liners, recompacted clay liners and manufactured liners must be compatible with the wastes contained.
- The application shall include the type and specifications of the liner to be used. All liners constructed of manufactured materials must meet or exceed the specifications set forth by the Commission.
- Synthetic liners must be installed over smooth fill sub-grade which is free of pockets, loose rocks, or other materials which could damage the liner. Sand, sifted dirt, or bentonite are suggested as cushion material if needed.
- The application shall contain a plan for disposal of liquids and solids.
- Liner edges must be secured to prevent wind damage.

The Commission may authorize alternative methods upon review of the application.

012.14 – All pits shall be backfilled within one year after completion of drilling operations. The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal. Within thirty days after cessation of drilling operations, non-exempt energy and production waste materials including but not limited to crankcase oil shall be contained in non-leaking containers and disposed of in accordance with Nebraska Department of Environmental Quality or any applicable federal regulations. In those areas where acceptable, and upon application and approval, land farming or land spreading of fresh water based drilling mud may be allowed on the lease.

012.15 – After the reserve pits have been properly backfilled, a biodegradable mulch may be required if soil erosion or the establishment of vegetation is determined to be a problem by the Director.

Location of Wells

There are no specific well siting restrictions for Class II injection wells in the State of Nebraska, however requirements have been added through orders and permits. Groundwater protection areas and sensitive groundwater areas within Nebraska are obtained from GIS coverages of groundwater protection areas obtained from the Nebraska Department of Environmental Quality. Additional requirements added through orders and permits could include: quarterly well inspections conducted by NOGCC, limits placed on injection volumes and pressure, cement bond log requirements, and submission of additional data pertinent to operation as requested. Surface casing depths are reviewed by staff using geophysical methods to ensure their depth extends below any usable drinking water. Additional operating requirements may be placed on a well that is in a sensitive area by the Director. These have included: increased time frequency of MITs, and quarterly field inspection by NOGCC staff. The location of wells are subject to NOGCC rules and regulations in Chapter 3 Section 013 and state:

013.01 – No well drilled for oil or gas in or adjacent to presently producing pools shall be drilled at a location within a legal subdivision which varies substantially from the established locations within legal subdivisions of a majority of the wells in the pool or which will result in a spacing

unit for such wells substantially different from that attributable to the established wells in the pool.

013.02 – All wells drilled to sources of supply at estimated depths in excess of two thousand five hundred (2500) feet for which no spacing pattern has been established by existing wells shall be drilled on 40-acre legal subdivisions or equivalent lots and not less than five hundred (500) feet from the boundaries of said legal subdivisions. The Director may administratively approve an exception to the requirements hereof where topographical conditions, irregular sections or geological conditions make the drilling of a well at the regular location impractical, provided that the owners, as defined in the Act, within a distance of five hundred (500) feet from the proposed well file with the Director a waiver of objection, or consent in writing, agreeing to said exception; Provided further, that a well drilled under the terms of such waiver, or consent, shall be subject to such production limitations as may be necessary to protect correlative rights.

013.03 – All wells drilled to sources of supply at estimated depths of two thousand five hundred (2500) feet or less for which no spacing pattern has been established by existing wells shall not be drilled closer than three hundred (300) feet from the boundaries of a 40-acre legal subdivision or equivalent lot.

013.04 – Upon the receipt, by the Commission, of an application from any person requesting the establishment of special field rules for spacing of wells within a designated area, all or a portion of which is not then subject to special field rules, or upon decision by the Commission to call a hearing for the establishment of such special field rules, application for permits to drill within such area will be held in abeyance by the Commission until such time as the matter has been fully heard and determined; and no further permits to drill within the area designated in the application shall be issued until such determination has been made. Notwithstanding the provisions above, a permit shall be issued if an owner demonstrates to the satisfaction of the Director that a loss of his leasehold will result or that significant drainage may occur if approval of drilling is withheld. However, in event a permit is issued, the permit to drill shall authorize a location for the proposed well which conforms as nearly as practicable to the pattern proposed in each application or petition then on file with the Commission for spacing within the designated area.

013.05 – The foregoing spacing restrictions shall not apply to approved unit operations or authorized secondary recovery projects or to any field where the Commission, after notice and hearing, ordered a different spacing pattern in special field rules.

Area of Review

At a minimum, NOGCC uses a fixed radius of one-half mile. In some cases, NOGCC may use a zone of endangering influence calculation (Theis Equation) if questions regarding wells in the area of review cannot be determined. For an area of review in a new area, well files are pulled and physically reviewed. A paper plat showing the wells, their surface casing depth, operating status and amount of cement used for plugging is generated. This information is compiled and used to determine any wells which need corrective action in the area of review before the permit is issued. If the permit request is for an area permit the area of review is determined to be the area within the geographical boundaries of the permit

request. NOGCC has the ability to place permit conditions into the permit which allows them to ensure any corrective actions needed in the area of review.

Directional Drilling

NOGCC rules and regulations in Chapter 3 Section 014 addresses horizontal well drilling. Horizontal well permit area of reviews are not often done in Nebraska. However NOGCC rules and regulations in Chapter 3 Section 014 state:

> 003-014 - When the intent is to direct the bottom of the hole away from vertical, other than whipstocking necessitated by hole conditions, and the spacing patter is not altered thereby, notice on intention to do so shall be filed with the Director and approval obtained before beginning controlled directional drilling operations. Such notice shall state clearly the depth, exact surface location of the well bore, proposed direction deviation and proposed horizontal distance between the proposed bottom of the hole and the surface location. If approval is obtained, the owner shall file with the Commission within thirty (30) days after the completion of the work an accurate and complete copy of the directional survey made.

Additionally horizontal wells in the zone of endangering influence can have permit conditions worked into the permit to restrict the fluids from flowing up-pipe.

Re-Drilling or Drilling Deeper

NOGCC rules and regulations in Chapter 3 Section 015 addresses re-drilling or drilling wells deeper.

> 015 - When a well is re-drilled or drilled deeper by the original operator, the operator shall advise the Commission of his intentions by filing Form 4 and stating thereon the proposed work to be done and the anticipated results of the work. If the re-drilling or drilling deeper is to be done by anyone other than the original operator, he shall file Form 2 and the seventy-five dollar ($75) permit fee and state on the form that this well is to be re-drilled or drilled deeper. Upon completion of the work Form 5 shall be filed if the well is an oil or gas producer, injection or disposal well, or shut-in with casing in the hole. If the well is a dry hole, Form 6 shall be filed. Copies of any logs and tests made should accompany these forms.

Well Construction and Underground Sources of Drinking Water Protection

NOGCC requires each enhanced recovery injection well or disposal well shall be completed, equipped, operated and maintained in a manner that will prevent pollution of fresh water or damage to sources of oil and/or gas and will confine injected fluids to the formation or zones approved. Additionally injection of any substances shall be through adequate casing or casing and tubing. Annular injection is prohibited. Above ground extensions shall be installed in each annulus in the well and each injection tubing or casing. Such extensions shall be fitted with a cut-off valve and a one-fourth (1/4) inch female fitting to provide for pressure monitoring by attaching a gauge having a one-fourth (1/4) inch male fitting.

NOGCC determines the depth of the lowermost underground source of drinking water from either the evaluation of the open hole logs in the well or offset wells, or from available geologic maps which were prepared under the supervision of the Nebraska Geological Survey.

In Chapter 4 Section 002 of the rules and regulations NOGCC ensures new wells are designed so underground sources of drinking water are isolated and protected by requiring:

002.03 – All injection wells must have sufficient surface casing run to reach a depth below the base of all water sources that are less than three thousand (3,000) parts per million total dissolved solids or water sources that are or could be reasonably utilized as domestic fresh water unless those sources are exempted. Casing shall be sufficiently cemented to fill the annulus to the top of the hole.

002.04 – All injection wells shall be cased and the casing cemented in such a manner that damage will not be caused to oil and gas resources by any injection activity.

002.05 – Authorization for injection may be conditioned upon the applicant taking action to protect fresh water as may be specified by the Commission in its order.

In practice NOGCC utilizes a more protective measurement of ten thousand (10,000) parts per million total dissolved solids when determining surface casing requirements for underground sources of drinking water protection. NOGCC maintains maps and records which show the vertical and horizontal extents of underground sources of drinking water in the state on their website. Most operators consult with the Commission staff prior to permitting a new well to determine the adequate depth of surface casing for the principal aquifer. NOGCC requires wells converting from production to injection to have the casing strings remedially cemented to ensure protection of underground sources of drinking water.

Well Completion

NOGCC requires any modifications or changes in well construction to be submitted using a Form 4 "Sundry Notice" which are then reviewed and approved by NOGCC staff. The owner/operator is required to submit Form 5 after the completion of an injection well, which will provide well specific details which are reviewed by the NOGCC. Within thirty (30) days after completion or re-completion of an oil or gas producing well, injection or disposal well or a well temporarily abandoned with casing in the hole, the owner or operator shall transmit to the Director the well completion or re-completion report, Form 5, in duplicate for wells drilled on Patented or Federal lands, and in triplicate for wells drilled on State Lands. Upon written request geological information will be kept confidential for twelve (12) months after the filing thereof unless written permission to release the information at an earlier date is obtained from the operator. An order authorizing an injection well will expire and become null and void if the authorized well or wells are not completed or converted to injection within one (1) year from the date of the order. NOGCC does go on site to witness completion activities.

Injection Pressures

NOGCC calculates injection pressures based on a fracture gradient of 0.7 psi/ft. The owner/operator is required to submit information showing that injection into the proposed zone will not initiate vertical fractures into or through the overlying strata which could enable the injected fluids or formation fluids to enter any fresh water strata. Nebraska does not permit injection volumes, a well is permitted for an approved injection pressure. Regulations found in Chapter 4 Sections 004.02G – 004.02I stipulate that information must be supplied by the owner/operator showing that injected fluids and formation fluids are not allowed to migrate or be displaced into any underground source of drinking water:

004.02G – Information showing that injection into the proposed zone will not initiate vertical fractures into or through the overlying strata which could enable the injected fluids or formation fluids to enter any fresh water strata.

004.02H – Information that no unplugged wells exist which will allow the migration of injected fluids or formation fluids to enter any fresh water strata.

004.02I – Information regarding the fracture pressures of the injection zone and the overlying strata, including the source of such information.

Mechanical failures or downhole problems which indicate an enhanced recovery injection well or disposal well is not, or may not be, directing or containing the injected fluid into the permitted or authorized injection zone is cause to shut-in the well. If said condition may endanger fresh water sources, the operator shall orally notify the Director within twenty-four (24) hours. Written notice of the failure shall be submitted to the Director within five (5) days of the occurrence together with a plan for repairing and testing the well. Results of the repair and testing shall be reported to the Director and approved before further injection is commenced.

For salt water disposal wells and enhanced recovery wells the operator shall monitor and record actual injection pressure and each annulus pressure at least once each week and report such monitoring monthly. Most operators submit Form 11 "Injection Report" are filed electronically monthly by the owner/operator.

G. Well Conversions (e.g. from injection to production & production to injection)

In order for an owner/operator to perform a well conversion a complete application must be filed with the NOGCC for review and approval. If an owner/operator requests to convert a production well to injection they would be required to remedially cement to prevent aquifer movement and to protect underground sources of drinking water. This involves a review of the request and field observation, and a public notice. Additionally a cement bond may be required. The process of converting a well from production to injection would be established as a permit condition for the owner/operator to comply with.

NOGCC has financial responsibility requirements for the owner/operator to provide before an application is filed. Converted wells must provide a bond in the amount of $10,000 for a single well or $100,000 for multiple wells

All complete applications are assigned a case number and tracked through the permitting process by NOGCC staff.

H. Well Work-Overs

Planned well work-overs require notice to be given to the Director or his authorized deputy and approval obtained in advance of the time when the owner/operator expects to re-complete or abandon a well with the casing in the hole or to change previously approved plans. The owner/operator needs to provide notification of planned well work-over a week in advance for approval and to ensure NOGCC staff can be in attendance. Within thirty (30) days after re-completion, abandonment, or change of plans, a detailed report of the work done and the results obtained shall be submitted on Form 5 or Form 6, whichever is appropriate. Once a well work-over is completed NOGCC requires a new mechanical integrity test be conducted before operations recommence.

The volumes (barrels) and types of materials that typically comprise work-over, treatment and completion are highly variable depending on the type of job being conducted. Most well work-over fluids are captured in temporary tanks and injected downhole. NOGCC does not have jurisdiction on non-energy

and production waste due to non-energy and production waste being handled by Nebraska Department of Environmental Quality or other appropriate rules required. NOGCC does witness well work-over activities.

Well Stimulation/Hydraulic Fracturing Activities

Prior to the initiation of fracture stimulation, the operator must evaluate the well. If the operator proposes stimulation through production casing or through intermediate casing, the casing must be tested to the maximum anticipated treating pressure. If the casing fails the pressure test, it must be repaired or the operator must use a temporary casing/tubing fracturing string. If the operator proposes fracturing through a temporary casing/tubing string it must be strung into a liner or run on a packer set not less than one hundred (100) feet below the cement top of the production or intermediate casing and must be tested to not less than maximum anticipated treating pressure.

Well completions which include hydraulic fracturing, acidizing, or other chemical stimulations done to complete a well are considered permitted under the drilling permit for that well. Less than ten percent of wells have undergone well stimulation/hydraulic fracturing operations.

After review of the EPA Diesel guidance the NOGCC strongly discourages owner/operators from using any of the listed CAS numbers identified as diesel in the guidance. No diesel is used in Nebraska, water based fluids are utilized due to their cheap cost to owner/operators.

For hydraulic fracturing operations the casing/tubing pressures are subject to Chapter 3 Section 042 in the rules and regulations which state:

> 042.03 – Casing/tubing pressure test will be considered successful if the pressure applied has been held for ten (10) minutes with no more than a ten percent pressure loss.
>
> 042.04 – Maximum treating pressure shall not exceed the test pressure determined above.
>
> 042.05 – The surface casing valve must remain open while hydraulic fracturing operations are in progress. The annular space between the fracturing string and production casing must be monitored and may be pressurized to a pressure not to exceed the pressure rating of the lowest rated component that would be exposed to pressure should the fracturing string fail.

Within sixty (60) days of the hydraulic fracture stimulation the operator shall post on the FracFocus Chemical Disclosure Registry (FracFocus.org) all the elements made viewable by the FracFocus web. The updated FracFocus database does not allow confidential chemicals to be input by owner/operators.

I. Mechanical Integrity Tests and Inspections

NOGCC tracks all mechanical integrity test schedules using its Risk Based Data Management System. Database queries are unitized to track all current, future and past mechanical integrity tests. NOGCC has two full time field staff and two part time field staff which witness one hundred percent of all mechanical integrity tests. When a mechanical integrity test is due for its five year mechanical integrity test, notification is sent to the owner/operator and five days' notice is typically provided to NOGCC to dispatch staff to witness the mechanical integrity test. NOGCC has the ability to assess penalties to owner/operators who have not had a mechanical integrity test within the required time. In the past NOGCC has issued notice of violations and has collected penalty fines in the amount of $1,000.

After well failure NOGCC inspectors conduct an on-site inspection to verify the well is no longer being operated. When NOGCC is initially/verbally informed of a well failure the owner/operator is instructed to shut in the well immediately. This is followed by a more descriptive explanation of the well failure which is reviewed by NOGCC. The well is then fixed and a new mechanical integrity test is witnessed by NOGCC staff. The rules and regulations for mechanical failures are found in Chapter 4 Section 007.04 and states:

> 007.04 – Mechanical failures or downhole problems which indicate an enhanced recovery injection well or disposal well is not, or may not be, directing or containing the injected fluid into the permitted or authorized injection zone is cause to shut-in the well. If said condition may endanger fresh water sources, the operator shall orally notify the Director within twenty-four (24) hours. Written notice of the failure shall be submitted to the Director within five (5) days of the occurrence together with a plan for repairing and testing the well. Results of the repair and testing shall be reported to the Director and approved before further injection is commenced.
>
> > 007.04A – If a well poses a substantial risk to a protected aquifer, then repairs or plugging and abandonment shall be initiated within ninety (90) days of the failure date. However, under certain conditions, that date may be extended by the Director.
> >
> > 007.04B – Wells which lack mechanical integrity but do not pose a substantial risk shall be repaired or plugged and abandoned within two hundred seventy (270) days of the failure date. However, if the operator has the ability to monitor the well, then the Director may allow the well to be shut-in.

Well failures are logged in the Risk Based Data Management System. A failure rises to a significant non-compliance when the problem is not being addressed or there is a threat to an underground source of drinking water.

During inspections NOGCC inspectors assess all aspects of exploration, production, and injection cycle from beginning to end. Field activities include: verification of well location using GPS, verification of casing and cementing, monitoring of injection well annulus for positive or negative pressures, reading of pressure gauges, inspection of pits, steel working tanks, blow out preventers, open and cased hole logging, disposal of liquids and solids including completion fluids, spill responses, spill remediation, surface production and storage tanks, heater treaters, gun barrels, flow lines, dikes, and final restoration.

NOGCC inspectors have the authority to sample all production and injection fluids. The Director and his authorized deputies shall have the right at all reasonable times to go upon and inspect any oil or gas properties and wells for the purpose of making any investigation or tests to ascertain whether the provisions of the statutes or these rules or any special field rules are being complied with, and shall report any violation thereof to the Commission (Appendix D). All owners and operators shall permit the Director or authorized deputy, at his risk, in the absence of negligence on the part of the owner, to come upon any lease, property or well operated or controlled by them, and to inspect the record and operation of such wells and to have access at all times to any and all records of wells; provided, that information so obtained shall be kept confidential, unless the owner gives written permission to release such information, and shall be reported only to the Commission or its authorized deputies. Additionally NOGCC has the ability to require more frequent mechanical integrity tests and to integrate them into the permit.

J. Temporarily Abandoned and Permanently Abandoned Wells

When injection well operations cease for a period of sixty (60) days on any well, the operator shall give notice to the Commission of the change to inactive status. In Chapter 3 Section 040 NOGCC has several rules and regulations related to wells in temporarily abandoned status:

> 040.01 – If it is deemed necessary to prevent migration of oil, gas, water, or other substances from the formation or horizon in which it originally occurred, the well shall be plugged or repaired. If the operations on any such inactive well are not resumed within a period of one (1) year after the notice has been given, the operator of the well shall plug and abandon the well in the manner prescribed by the Director. However, upon application prior to the expiration of the one (1) year period, and for good cause shown, the Director may extend the period for one (1) year, provided that the static fluid level is established and maintained at least one hundred fifty (150) feet below the lowest fresh water zone, or the casing is pressure tested to at least three hundred (300) pounds per square inch as measured at surface to prove mechanical integrity.
>
> 040.02 – Application for inactive well status must be submitted on a Form 4 and contain the following information:
>
> - The type of well
> - The bottom hole assembly
> - Pressures as measured by gauge for:
>   - Tubing
>   - Production casing annulus
>   - Surface casing annulus.
> - Static fluid level as measured from ground level.
>   - Method used to determine static fluid level.
>   - Date data was obtained
> - Information stating if any formations with reservoir pressures high enough to initiate flow into the lowermost freshwater aquifer exist.
>
> 040.03 – An additional one (1) year extension(s) may be granted in the same manner.

NOGCC defines an inactive well as "Shut-In" when the completion interval is open to the tubing or to the casing. An inactive well is classified as "Temporarily Abandoned" when the completion interval is isolated. Once a well is shut in the owner/operator must report on Form 4 the static fluid level, a static shot charge is used to determine this level. This information is annually reported, or a mechanical integrity test is allowed, to prove it is not endangering any underground sources of drinking water. The same is required of production wells and the information is submitted electronically. There is no required time limit to determine when a well is abandoned. NOGCC states if the well is maintaining mechanical integrity there is no reason to close the well. All information is tracked electronically with the ability to generate reports.

A well is considered permanently abandoned when a Form 6 "Plugging Report" has been submitted to NOGCC then reviewed and signed by NOGCC staff. NOGCC inspectors must conduct a site visit to ensure the well has been plugged and the land reclaimed prior to the Form 6 being signed.

K. Plugging and Abandonment

All wells require bonding in addition to a yearly fee which will be collected for each well that is inactive for two or more consecutive years. The operator will submit a fee for each well requested for inactive status. For an inactive period of zero to two years there is no fee, for two or more years of inactivity a two hundred dollars ($200) per well per year fee is assessed. These funds shall be used at the discretion of the Commission and the collection of fees may be reduced to five dollars ($5.00) per well at the discretion of the Director if previously collected funds prove sufficient to carry out the purposes of the Well Plugging and Abandonment Trust Fund. Field inspectors will receive at least a twenty four (24) hour notice in order to be present and view plugging. In Chapter 3 Section 028 NOGCC requires:

> 028.01 – A dry or abandoned well must be plugged in such a manner that oil, gas, water or other substance shall be confined to the reservoir in which it originally occurred. The material used in plugging, whether mud-laden fluid, cement, mechanical plug or some other suitable material, must be placed in the well in a manner to permanently prevent migration of oil, gas, water or other substance from the formation or horizon in which it originally occurred.
>
> 028.04 – In order to protect the fresh water strata, no surface casing shall be pulled from any well unless authorized by the Director.
>
> 028.07 – Following abandonment, working pits, reserve pits and/or burn pits shall be backfilled, pads leveled, debris removed or buried and land restored to the reasonable satisfaction of the Director.

Once this has been accomplished a Form 6 is submitted and input into the digital system and uploaded to the NOGCC website. Once this occurs a well is considered permanently abandoned by NOGCC. There are currently 123 wells in the NOGCC inventory which have been identified and approved to be plugged and abandoned. As of the time of the program review NOGCC has not plugged any wells in 2014, however 50 wells have been approved to be plugged.

When a well is plugged and abandoned the well is cut between four to five feet below the ground surface and welded shut. GPS coordinates are obtained by the vendor and verified by NOGCC. Digital information for these wells are uploaded to the NOGCC website and available to any party.

Before a plugging and abandonment bond is released a NOGCC inspector is required to physically go to the site and verify the site has been restored. The tag will then be changed out with a different tag color to physically indicate the status of the well. Detailed maps showing the information at the site are retained.

L. Compliance and Enforcement

Compliance

Aside from on-site inspections NOGCC also uses mailings, e-mail reminders and phone calls are used to encourage, promote and ensure compliance with UIC requirements. Field inspections are done using a NOGCC developed application which is utilized on a tablet. Once the inspections are completed and

logged in the tablet software the: forms, pictures and any related documents are uploaded to the NOGCC Risk Based Data Management System.

Enforcement

Operators without mechanical integrity or exceeding permitted pressures are considered to be in non-compliance. These are brought to the attention of the NOGCC UIC Director, it would be investigated and a notice of violation action would occur. Initially NOGCC tries to address the problem verbally with the owner/operator. If this does not work a notice of violation is issued to the owner/operator. If the problem still does not get addressed then a fine can ultimately be assessed. Additionally NOGCC has the ability to pull the owner/operators ability to sell oil/gas. Any fines and fees that are accrued are put into a cash fund which is only set by allocation.

If contamination is accused an investigator with the Nebraska Department of Environmental Quality or the Environmental Protection Agency will investigate the accusation. If contamination is found a cause hearing is held for the company will be held to allow the company to explain how they are not responsible for the contamination. If it is determined there was contamination caused by the company then the company is required to fix the problem for those affected by the contamination. There are currently no cases being handled through the states Attorney General's office.

In 2014 a Well Plugging and Abandonment Trust Fund was established. This fund is supported through the collection of fees per well, at the discretion of the Director. NOGCC has the authority over old wells which existed before state law and regulation were passed. Additionally NOGCC has a system in place which prioritizes wells in need of plugging.

Within the last five years NOGCC has assess a fine of $15,914.00 for the improper disposal of both produced water and except energy and production wastes.

M. Reporting

For spills exceeding twenty (20) barrels of produced water, in which the water spilled exceeds ten thousand (10,000) parts per million total dissolved solids, or a spill exceeding two hundred (200) barrels of produced water, in which the water spilled contains less than 10,000 parts per million total dissolved solids, the operator must submit on a Form 4 a report to the Commission which shall give the following information:

- A detailed description of the disposal or remediation method used.
- The estimated date of completion of the site cleanup.
- Area, maximum depth and volume in cubic yards of soil affected by produced water.
- A statement signed by the operator stating that all affected soils have been treated and the surface landowner has been notified.

N. Seismicity

NOGCC currently has no plans for induced seismicity in writing, however if induced seismicity were to become a concern then NOGCC would coordinate with the Nebraska Geological Survey and U.S. Geological Survey. However there has been no apparent induced seismic events within the state.

NOGCC has had some discussion with the Nebraska Geological Survey, other state agencies, and operating companies regarding the topic of induced seismicity.

NOGCC has taken a couple of protective actions regarding induced seismicity. NOGCC participates in the induced seismicity workgroup through State's first. Additionally NOGCC has reviewed the EPA Technical Workgroup's induced seismicity document. Additionally NOGCC had a Landsat done to map geologic structures throughout the state.

NOGCC does not currently require owner/operators to perform reviews of existing geologic data to determine if there are any known faulted areas within the area of review. Additionally there are many wells drilled into Precambrian basement rock, however none have been an issue for induced seismicity.

All wells drilled for oil and/or gas shall be adequately logged with appropriate mechanical, electrical, or radiation survey devices unless excepted by the Director. If adverse down hole conditions exist which makes the running of adequate survey devices impractical or hazardous, or in the case of open hole completions, twin wells, or other good cause shown, the Director may waive such required survey upon request by the operator. Logs shall be submitted as one unmarked paper copy, one digital PDF or TIFF (Tagged Image File Format) or digital LAS, or a format approved by the Director of the mechanical, electrical, or radiation survey log, clearly indicating the position of the shoe of the surface casing and including the entire logged interval below the shoe of the surface casing, shall be submitted to the office of the Director within thirty (30) days after such log is run. If an extension of thirty (30) days is needed for filing survey logs, the Director may grant such extension for good cause shown. The owner/operator shall submit on unmarked paper copy and one digital copy.

The NOGCC does not find it necessary at this time to require or evaluate the need for any measures to help mitigate the potential for induced seismicity in Nebraska. However if an earthquake were to occur NOGCC would utilize their website and locate any wells which may be potentially contributing to the earthquake. Then appropriate steps would be taken to investigate the earthquake.

O. Electronic Data Systems

NOGCC maintains a comprehensive electronic data system to track information on wells and operators in Nebraska along with other related information in their Risk Based Data Management System (RBDMS). All NOGCC staff have access rights to enter new/updated information into the RBDMS. New information is typically added on a daily basis. Additionally the RBDMS has the ability for inputting directional information on horizontal wells.

NOGCC makes the information contained in the RBDMS available via their data mining system available on their website.

Work has been conducted by NOGCC to flow data from its electronic data system into the EPA UIC National Data System however a wide range of problems have been encountered which include: the UIC National Database had many "required" data fields that needed to be populated but were not applicable to the NOGCC program, changes in the XML were not communicated clearly with NOGCC, and many changes recommended by the steering committee were not acted on. The data payload would be generated but always failed due to errors, even when error trapping software was being utilized.

P. Communication/Coordination

NOGCC facilitates communication with NDEQ, other local, state, federal, and non-governmental organizations primarily through national conferences such as GWPC, IOGCC, etc.

Q. Resources

NOGCC does not currently foresee any near future problems meeting their PAMs/7520 goals and projections. NOGCC has two inspectors, one is located at the NOGCC office in Sidney, NE while the other is located in McCook, NE. NOGCC believes an increase in state funds are necessary to assist in achieving program goals.

R. Special Topics

1) Discussion of retaining institutional knowledge between staff turnover and retirements. As well as various ways this could be achieved.
2) EPA inquired about how difficult the process of updating rules and regulations was for NOGCC if they were to add or update any rules or regulations.
3) Discussion of current staffing levels and replacement of position recently vacated.
4) Reviewed the following files:
   - Disposal permit for three salt water disposal wells (Class IID) – #1 Huntsman, #22 Huntsman, #48 Huntsman; Cheyenne Country, NE; Case #: 02-2; Order #: R-786
   - Enhanced recovery permit for nine enhanced oil recovery wells (Class IIEOR) – Dundee, Berexco, Inc. Millenia Field; Dundy County, NE; Case #: 08-01; Order #: UIC-1609
   - Permit for conversion of wells to enhanced oil recovery operations – Smith Oil Properties, Inc., #6 Rocky Hollow Unit; Banner County, NE; Case #: UIC 05-10; Order #: UIC-1417
   - Permit for conversion to salt water disposal well – Vista Operating, Inc.; Deuel County, NE; Case #: 08-01; Order #: R-821.
   - Conversion to a salt water disposal well – 13-1 Laucomer; Sioux County, NE; Case #: 14-14, Order #: N/A
   - Unitization agreement for secondary recovery program by water flooding and involuntary unitization – Bellaire Oil Co., Palm; Banner County, NE; Case #: 15-04; Order #: R-892

   Upon completion of these six file reviews, EPA found these files to contain no deficiencies or deviations from the procedures and all files appeared complete.

S. Appendices

A. NOGCC General Rules and Regulations (http://www.nogcc.ne.gov/Publications/NE_Rules.pdf)
B. NOGCC Forms (http://www.nogcc.ne.gov/NOGCCForms.aspx)
C. NOGCC Organization Chart
D. Inspection Forms
E. File Review Documentation
F. EPA Region 7's final program review questions with NOGCC responses.

Appendix A:

NOGCC General Rules and Regulations

TITLE 267 – NEBRASKA OIL AND GAS CONSERVATION COMMISSION 1

OIL AND GAS CODE

CHAPTER 1 - DEFINITIONS

001 COMMISSION
002 DIRECTOR
003 AUTHORIZED DEPUTY
004 BARREL
005 CUBIC FOOT
006 DAY
007 LOG or WELL LOG
008 ACT
009 OIL WELL
010 GAS WELL
011 WELL
012 DESIGNATED AGENT
013 The words FIELD, POOL, PERSON, OWNER, PRODUCER, OIL, GAS, WASTE, CORRELATIVE RIGHTS
014 SPECIAL FIELD RULES
015 COMPLETION or RE-COMPLETION
016 INITIAL PURCHASER
017 COMMINGLING IN THE WELL BORE
018 MULTIPLE COMPLETION
019 FRESH WATER
020 AN INACTIVE WELL
021 DEQ

CHAPTER 2 - GENERAL RULES

CHAPTER 3 - DRILLING, DEVELOPMENT, PRODUCING AND ABANDONMENT

001 RECORDS, REPORTS, NOTICES ---- GENERAL
002 FORM 1 - ORGANIZATION REPORT
003 FORM 2 - NOTICE OF INTENTION TO DRILL OR RE-ENTER
004 FORM 3A - BOND
005 FORM 4 - SUNDRY NOTICES
006 FORM 5 - WELL COMPLETION OR RE-COMPLETION REPORT
007 FORM 6 - PLUGGING RECORD
008 FORM 7A - WELL STATUS AND MONTHLY PRODUCTION REPORT
009 FORM 8 - PRODUCTION TEST AND GAS-OIL RATIO REPORT
010 FORM 9A - RESERVOIR PRESSURE TEST REPORT
011 MILL LEVY RETURN
012 GENERAL DRILLING RULES
013 LOCATION OF WELLS
014 DIRECTIONAL DRILLING
015 RE-DRILLING OR DRILLING DEEPER
016 COMMINGLING IN ONE WELL BORE
017 MULTIPLE ZONE COMPLETIONS
018 MEASUREMENT OF OIL
019 MEASUREMENT OF GAS
020 CONTROL OF "WILD" WELLS
021 DISPOSAL OF GAS
022 POLLUTION AND SURFACE DRAINAGE
023 BURN-OFF PITS
024 LEASE TANK RESERVOIRS AND FIRE HAZARDS
025 OPEN PIT STORAGE OF OIL
026 SUB-SURFACE PRESSURE TESTS
027 GAS-OIL RATIO TESTS
028 PLUGGING
029 PLUGGING OF SEISMIC AND STRATIGRAPHIC TESTS
030 LIABILITY
031 WELL LOGS AND SAMPLES
032 SEISMIC AND STRATIGRAPHIC TESTS
033 LIMITATION OF PRODUCTION
034 MAXIMUM EFFICIENT RATE HEARINGS
035 SPACING UNITS
036 FORM 11 - REPORT OF INJECTION PROJECT
037 FORM 12 - REPORT OF PACKER LEAKAGE TEST
038 FORM 13 - RELEASE
039 FORM 14 - AUTHORIZATION TO TRANSPORT OIL AND/OR GAS FROM LEASE
040 INACTIVE WELLS
TITLE 267 – NEBRASKA OIL AND GAS CONSERVATION COMMISSION 3

CHAPTER 4 - UNDERGROUND INJECTION

001 CLASSIFICATION OF UNDERGROUND INJECTION WELLS
002 APPROVAL OF ENHANCED RECOVERY INJECTION WELLS OR DISPOSAL WELLS
003 AUTHORIZATION FOR EXISTING ENHANCED RECOVERY INJECTION WELLS AND EXISTING DISPOSAL WELLS
004 APPLICATION FOR APPROVAL OF ENHANCED RECOVERY INJECTION AND DISPOSAL WELLS
005 NOTICE OF HEARING
006 OPERATING REQUIREMENTS FOR ENHANCED RECOVERY INJECTION AND DISPOSAL WELLS
007 MONITORING AND REPORTING REQUIREMENTS FOR ENHANCED RECOVERY INJECTION AND DISPOSAL WELLS
008 DURATION OF UNDERGROUND INJECTION WELL ORDERS
009 TRANSFER OF AUTHORITY TO INJECT

CHAPTER 5 - UNIT OPERATIONS AND APPROVAL OF UNIT AGREEMENTS

001 UNIT APPLICATION
002 HEARING

CHAPTER 6 - RULES OF PRACTICE AND PROCEDURE BEFORE THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF NEBRASKA

001 SCOPE AND APPLICATION OF RULES
002 WHO MAY INSTITUTE PROCEEDINGS
003 PARTIES
004 INSTITUTION OF PROCEEDINGS
005 FORM OF PLEADINGS
006 NOTICE OF HEARING
007 HEARINGS
008 ORDERS AND DECISIONS
TITLE 267 – NEBRASKA OIL AND GAS CONSERVATION COMMISSION 4

CHAPTER 1 - DEFINITIONS

001 COMMISSION shall mean the Oil and Gas Conservation Commission of the State of Nebraska.

002 DIRECTOR shall mean Director of the Oil and Gas Conservation Commission of the State of Nebraska.

003 AUTHORIZED DEPUTY shall mean a representative of the Director authorized by the Commission.

004 BARREL shall mean 42 (US) gallons at 60° F., at atmospheric pressure.

005 CUBIC FOOT of gas for reporting purposes shall be the volume of gas contained in one cubic foot of space at a standard pressure of 14.73 psia and at a standard temperature of 60° F.

006 DAY shall mean a period of twenty-four (24) consecutive hours.

007 LOG or WELL LOG shall mean a systematic detailed record of formations encountered in the drilling of a well.

008 ACT shall mean the Oil and Gas Conservation Act of the State of Nebraska.

009 OIL WELL shall mean a well, the principal production of which at the wellhead is oil as defined by the Act.

010 GAS WELL shall mean a well, the principal production of which at the wellhead is gas as defined by the Act and is not an oil well as defined above.

011 WELL, unless otherwise defined in these Rules and Regulations, shall refer only to an oil or gas well, or enhanced recovery injection or disposal injection well, or to a hole drilled for the purpose of producing oil or gas, or injecting fluids for enhanced recovery purposes or injecting wastes associated with oil and gas production, including salt water. It shall not include seismic, core or other exploratory holes drilled for the purpose of obtaining geological information.

012 DESIGNATED AGENT, when used herein, shall mean the designated representative of any oil or gas lessee, owner or operator.

013 The words FIELD, POOL, PERSON, OWNER, PRODUCER, OIL, GAS, WASTE, CORRELATIVE RIGHTS as defined by the Act apply in these Rules and Regulations.

014 SPECIAL FIELD RULES shall mean those rules promulgated for and limited in their application to individual pools or fields entirely or partially within the State of Nebraska.

015 COMPLETION or RE-COMPLETION. An oil well shall be considered completed when the first oil, exclusive of a quantity equal to any crude or refined oil injected

into casing or formation as a part of the completion operations, is produced through wellhead equipment from the producing interval after casing has been run. A gas well shall be considered completed when the well is capable of producing gas through wellhead equipment from the producing zone after casing has been run. A dry hole or nonproductive well shall be considered completed when all provisions of plugging are complied with as set out in these rules.

016 INITIAL PURCHASER shall mean the purchaser having title to the oil or gas when it is first transported from the lease.

017 COMMINGLING IN THE WELL BORE shall mean the production of more than one pool concurrently through a common well bore without segregation within the well bore of the pools exposed to production.

018 MULTIPLE COMPLETION shall mean the completion of any one well in such a manner that each of two or more pools may be produced concurrently and independently through the same well bore and without commingling in the well bore of fluids produced from the various segregated pools.

019 FRESH WATER means a source of water used for drinking water purposes, or water contained in an aquifer which contains less than ten thousand (10,000) parts per million total dissolved solids, unless the aquifer is exempted by the Director.

020 AN INACTIVE WELL is classified as SHUT-IN when the completion interval is open to the tubing or to the casing. An inactive well is classified as TEMPORARILY ABANDONED when the completion interval is isolated.

021 DEQ shall mean the Department of Environmental Quality of the State of Nebraska.

022 EXEMPT E&P WASTE shall mean those exploration and production wastes exempted from hazardous waste regulation under the Resource Conservation and Recovery Act (RCRA).

023 SURFACE WATERS shall mean all waters within the state, including all streams, lakes, ponds, reservoirs, and drainage systems. Surface waters do not include those areas designated as wastewater treatment ponds, irrigation reuse ponds, low-lying areas that retain water on a temporary basis and intermittent streams.

024 ALL OTHER WORDS used herein shall be given their usual customary and accepted meaning; and all words of a technical nature, or peculiar to the oil and gas industry, shall be given that meaning which is generally accepted in said oil and gas industry.

CHAPTER 2 - GENERAL RULES

001 EFFECTIVE SCOPE OF RULES AND REGULATIONS

All rules and regulations of a general nature herein promulgated to prevent waste and to conserve oil and gas in the State of Nebraska shall be effective throughout the State of Nebraska and be in force in all pools and fields except as they may be amended, modified, altered or enlarged generally or in specific individual pools or fields by orders issued by the Commission and except where special field rules apply, in which case the special field rules shall govern to the extent of any conflict.

002 RIGHT TO INSPECT

The Director and his authorized deputies shall have the right at all reasonable times to go upon and inspect any oil or gas properties and wells for the purpose of making any investigation or tests to ascertain whether the provisions of the statutes or these rules or any special field rules are being complied with, and shall report any violation thereof to the Commission.

003 ACCESS TO RECORDS

All producers, operators, drilling contractors, well service companies and initial purchasers of oil and gas within this State, shall make and keep appropriate books and records covering their operations in the State from which they may be able to make and substantiate the reports required by the Commission. Such books, records and copies of said reports and notices required by the Commission shall be kept on file and available for inspection by the Director or his authorized deputies for a period of at least five (5) years. The Director and his authorized deputies shall have access to all well records wherever located. All owners or operators shall permit the Director or authorized deputy, at his risk, in the absence of negligence on the part of the owner, to come upon any lease, property or well operated or controlled by them, and to inspect the record and operation of such wells and to have access at all times to any and all records of wells; provided, that information so obtained shall be kept confidential, unless the owner gives written permission to release such information, and shall be reported only to the Commission or its authorized deputies.

004 REPORTS

All producers, operators, drilling contractors, well service companies and initial purchasers of oil and gas within the State shall from time to time file such reports containing such information and covering such periods as the Commission shall require.

005 TESTS AND SURVEYS

The Commission is authorized to require that special tests or surveys be made to determine physical waste of oil or gas. The Commission, in calling for reports under Rule 2-004 and tests or surveys to be made as provided in this Rule, shall designate the time allowed the operator for compliance, and which provisions as to time shall prevail over any other time provisions in these rules.

006 PROTECTION OF WATER-BEARING FORMATIONS

In the conduct of oil and gas operations, each owner shall exercise due care in the protection of water-bearing formations as required by the applicable statutes of the State of Nebraska.

Special precautions shall be taken in drilling and abandoning wells to guard against any loss of artesian water from the stratum in which it occurs and the contamination of potable water by objectionable water, oil or gas. Before any oil or gas well is completed as a producer, all oil, gas and water strata above and below the producing horizon shall be sealed or separated in order to prevent the intermingling of their contents.

007 CONVERSION TO WATER WELLS

In the case of a well which is capable of producing potable water which may be beneficially used by an individual or a community, the owner shall have the right to dispose of the well to responsible parties providing that written approval of the owner of the surface rights to the land on which the well is located is secured and filed with the Commission and written notice is given to the Director and approved by him subject to the approval of the Commission. A release from responsibility incurred by this action should be secured from the individual or community by the owner of the well and a copy of said release filed with the Director. The State Department of Water Resources should be consulted to determine if the water well that results is under the jurisdiction of said Department.

008 WELL DESIGNATIONS

The owner shall mark each and every well in a conspicuous place, with his name, name of lease, number of the well and legal description of the well and shall take all necessary means and precautions to preserve these markings.

009 NAMING OF FIELDS

All oil and gas fields discovered in the State subsequent to the adoption of these rules and regulations shall be named by the Director or his authorized deputies.

010 FORMS UPON REQUEST

Forms required by the Commission will be furnished upon request. Operators may reproduce forms required by the Commission, provided the blank forms are printed on an equivalent size, color and quality of paper.

Statute: 57-905TITLE 267 – NEBRASKA OIL AND GAS CONSERVATION COMMISSION 9

CHAPTER 3 - DRILLING, DEVELOPMENT, PRODUCING AND ABANDONMENT

001 RECORDS, REPORTS, NOTICES ---- GENERAL

Any required written notice of intention to do work or to change plans previously approved must be filed with the Director and must reach the Director or his authorized deputies and receive his approval before the work is begun; or such approval may be given orally, and if so given, shall thereafter be confirmed by the Director in writing.

In the case of emergency, or any situation where the operations might be unduly delayed, any written notice required by these rules and regulations to be given the Director or his authorized deputies may be given orally or by wire; and, if approval is obtained, the transaction shall be promptly confirmed by the operator in writing as a matter of record.

The owner shall keep and make conveniently available to the Director or his deputies accurate and complete records of the drilling, re-drilling, deepening, plugging or abandoning of all wells, all other well operations and of all alterations to casing. These records shall show all formations penetrated, the quantity and quality of oil, gas or water in each formation tested, the grade, weight, size and landed depth of casing used in drilling each well on the lease premises and any other information obtained in the course of well operation. Such information shall be kept confidential for a period of one year if so requested.

Whenever a person has been designated as an operator by an owner or owners of a lease or well, such an operator may submit the reports as herein required by the Commission. If a producing well is sold by one company or person to another company or person, the Director shall be notified immediately of the change in ownership. Any and all reports submitted shall be typewritten or printed with India ink.

002 FORM 1 - ORGANIZATION REPORT

Any person conducting operations subject to the jurisdiction of the Commission shall, upon demand by the Director, file an "Organization Report" with the Director in the manner and form approved by the Commission.

The designated Agent named by this form shall be a resident of Nebraska and shall be authorized to accept and be served with notices from the Commission.

Any changes in organization or changes of address of the Agent or termination of the Agent's authority shall be reported immediately by filing amended copies of Form 1 with the Commission.

003 FORM 2 - NOTICE OF INTENTION TO DRILL OR RE-ENTER

Before any person shall commence operations for the drilling of any well, such person shall file with the Director a notice of such intent on Form 2 and must secure the Director's approval before proceeding with such operations. A copy of the approved Form 2 must be posted in a conspicuous place on the drilling rig.

The Director or his authorized deputy must be notified at least twenty-four (24) hours in advance of the commencement of drilling activities.

Form 2 shall be filed in triplicate for wells on all Patented and Federal lands and in quadruplicate for wells on all State lands. Unless operations are commenced within one hundred eighty (180) days after date of approval, the approval to drill will become null and void.

If it is desired to revise an approved notice of intention to drill, an amended Form 2 must be filed with the Director for approval.

A fee, paid in advance, of seventy-five two hundred dollars ($75 200) per well and payable to the Nebraska Oil and Gas Conservation Commission must be remitted with Form 2. If it should become necessary for the Commission to contract for the plugging of an abandoned well through failure of the owner or operator to plug it satisfactorily, the costs of these plugging operations may be assessed against the operator or owner.

No permit fee is required for an injection well.

If for any reason an approved location is not drilled, the permit fee is unrefundable nonrefundable but may be transferred to another location provided that the permit has not expired or has not been revoked.

The Commission shall have the authority to revoke a permit if the Commission finds that any fraud, deceit or misrepresentation was made to obtain the approval of said permit.

The Notice of Intention to Drill or Re-Enter shall be accompanied by an accurate plat showing the following information:

Township, range, and section in which the well is to be located.

North arrow.

Scale of drawing expressed as a ratio.

A description of all monuments found, set, reset or replaced, and notation of all distances measured between the corners used in establishing the section boundary in which the well is to be located.

Distances from the nearest established section boundary lines to the proposed well.

Ungraded ground elevation of the proposed well.

Basis of elevations.

Basis of bearings.

004 FORM 3A – BOND

Prior to commencement of dirtwork dirt work preceding drilling, or assuming operation of any well, the person, firm or corporation commencing said drilling or operation shall make, or cause to be made, and file with the Commission a good and sufficient bond in the sum of not less than five thousand dollars ($5,000) for each well or hole and payable to the State of Nebraska, conditioned for the performance of the duty to comply with all the provisions of the laws of the State of Nebraska and the rules, regulations and orders of the Commission. Said bond shall remain in force and effect until plugging of said well or hole is approved by the Director or his authorized deputy, a new bond is filed by a successor in interest or the bond is released by the Director. It is provided, however, that any owner in lieu of such bond may file with the Director a good and sufficient blanket bond in the principal sum of not less than twenty-five thousand dollars ($25,000) covering all wells or holes drilling or to be drilled in the State of Nebraska by the principal in said bond; and upon acceptance and approval by the Director of such blanket bond, said bond shall be considered as compliance with the foregoing provisions requiring an individual well or hole bond.

Any person required to file a surety bond pursuant to this rule may post cash or certificate of deposit in the amount required subject to the following conditions:

If a person posts cash, it may be in the form of a cashier's check, certified check or legal tender of the United States of America delivered to the Commission.

A certificate of deposit shall comply with the following:

The certificate of deposit shall be in the name of the Nebraska Oil and Gas Conservation Commission and only the signature of the Commission's authorized representative shall be on the withdrawal card as the authorized signature to withdraw the deposit.

The certificate of deposit shall be in a bank or financial institution insured by the Federal Deposit Insurance Corporation and located in the State of Nebraska.

The Commission may reject any certificate of deposit, when, combined with other certificates of deposit on that bank or financial institution, exceeds the limits of Federal Deposit Insurance Corporation insurance coverage.

The certificate of deposit shall be in the custody of the Commission.

The certificate of deposit shall be automatically renewable.

Interest earned on the certificate of deposit is the property of the person who provided the money for it. The certificate of deposit and the money it represents is the property of the Commission until released by the Director.

Any person, other than the producer or owner of the well, engaged in pulling casing from abandoned oil or gas wells and wells used in connection therewith, or who purchases such wells for the purpose of salvaging material from the same, shall file with the Commission a ten thousand dollar ($10,000) blanket bond to guarantee the ultimate plugging of these wells conformable with the rules, regulations or orders of the Commission.

The State Board of Educational Lands and Funds shall be contacted for bonding requirements on State Land, and the U. S. Geological Survey should be contacted for additional bonding requirements on Federal Land.

005 FORM 4 - SUNDRY NOTICES

Notice must be given to the Director or his authorized deputy and approval obtained in advance of the time when the owner or operator expects to re-complete or abandon a well with the casing in the hole or to change previously approved plans. Within thirty (30) days after re-completion, abandonment, or change of plans, a detailed report of the work done and the results obtained shall be submitted on Form 5 or Form 6, whichever is appropriate.

006 FORM 5 - WELL COMPLETION OR RE-COMPLETION REPORT

Within thirty (30) days after completion or re-completion of an oil or gas producing well, injection or disposal well or a well temporarily abandoned with casing in the hole, the owner or operator shall transmit to the Director the well completion or re-completion report, Form 5, in duplicate for wells drilled on Patented or Federal Lands, and in triplicate for wells drilled on State Lands. Upon written request geological information will be kept confidential for twelve (12) months after the filing thereof unless written permission to release the information at an earlier date is obtained from the operator.

007 FORM 6 - PLUGGING RECORD

If any well is plugged or abandoned, a record of work done must be filed on Form 6 with the Director within thirty (30) days after the work is completed. The report shall give a detailed account of the manner in which the abandonment or plugging work is carried out, including the nature and quantities of materials used in plugging and the location and extent (by depths) of the plugs of different materials; records of the amount, size and location (by depths) of casing and junk left in the well, and a detailed statement of the volume and weight of mud fluid used. Form 6 shall be filed in duplicate for wells on Patented Lands, and in triplicate for wells on State Lands. Upon written request, geological information will be kept confidential for twelve (12) months after the filing thereof unless written permission to release the information at an earlier date is obtained from the operator.

008 FORM 7A - WELL STATUS AND MONTHLY PRODUCTION REPORT

Each producer or operator of an oil or gas well shall file, with the Director on or before the twenty-fifth (25th) day of each month succeeding the month in which the production occurs, a report on Form 7A, containing all information required by the form including disposition of the oil and gas produced.

009 FORM 8 - PRODUCTION TEST AND GAS-OIL RATIO REPORT

Gas-oil ratio tests, as required by the Commission under Rule 3-027, shall be reported on Form 8 within twenty (20) days after the test is made.

010 FORM 9A - RESERVOIR PRESSURE TEST REPORT

Sub-surface pressure tests, as may be required by the Commission, shall be reported on Form 9A within twenty (20) days after completion of tests.

011 MILL LEVY RETURN

Remitters of the State severance tax shall be responsible for the payment of the mill levy. The total mill levy remittance shall be determined by applying the then current mill levy rate to the total value of oil and gas.

012 GENERAL DRILLING RULES

Unless altered, modified or changed for a particular pool or pools, upon hearing before the Commission, the following shall apply to the drilling of all wells:

012.01 When drilling where high pressures are likely to exist, the owner shall take all reasonable precautions for keeping the well under control at all times and shall provide at the time the well is started proper high pressure fittings and equipment. Under such conditions, the conductor string of casing must be cemented throughout its length,

unless other procedure is authorized by the Director or his authorized agent, and all strings of casing must be securely anchored.

012.02 In areas where pressures and formations are unknown, sufficient surface casing shall be run to reach a depth below the base of formations generally contributing water supplies for domestic, agricultural and municipal use as well as water bearing formations reasonably expected to be utilized for domestic, agricultural and municipal use if not presently utilized. The amount of surface casing run shall be sufficient to prevent blowouts and uncontrolled flows at reasonable depths and of sufficient size to permit the use of an intermediate string or strings of casing where necessary to control deeper blowout or uncontrolled flow sources. Surface casing shall be set in a relatively impervious formation and shall be cemented by the plug or displacement or other approved method with sufficient cement to fill the annulus to the top of the hole except in cases where unusually long strings of surface casing are required and approval is secured from the Director or his authorized agent to use other adequate methods of cementation.

012.03 In wells drilled in areas where subsurface conditions are known through drilling experience, surface casing shall be set and cemented to the surface by the pump and plug or displacement or other approved methods at a depth sufficient to protect all domestic, agricultural or municipal water supplies and to insure against blowouts or uncontrolled flows.

012.04 Cement shall be allowed to stand under pressure until the cement has reached a compressive strength of five hundred (500) pounds per square inch before drilling the plug. The term "under pressure" as used herein, will be complied with if one float valve is used or if pressure is otherwise held. All cement and cement additives used shall have been tested in accordance with API RP 10B, dated 1974, "Recommended Practices for Testing Oil-Well Cements and Cement Additives," and the results reported to the Director prior to use.

012.05 In all proven areas, the use of blowout equipment shall be in accordance with the established practice in the area.

012.06 In areas where high pressures may be reasonably anticipated, all drilling wells shall be equipped with a master-gate or its equivalent, an adequate blowout preventer, together with choke and kill line or lines of the proper size and working pressure. The entire control equipment shall be in good working condition at all times.

012.07 If a well is deepened for the purpose of producing oil and gas from the lower stratum, such deepening to and completion in the lower stratum shall be conducted in such a manner as to protect all upper productive strata.

012.08 All wells shall be so drilled that the horizontal distance between the bottom of the hole and the location at the top of the hole shall be at all times at a practical minimum.

012.09 If and when it becomes necessary to run a production string, such production string shall be cemented by the pump and plug method.

012.10 By approved reasonable methods, the owner shall shut off and exclude all alien water from any oil or gas bearing stratum; and to determine the effectiveness of such operations, the owner shall make a casing test before suspending drilling operations or drilling into the oil or gas bearing stratum and completing the well.

012.11 Before commencing to drill, proper and adequate pits shall be constructed for the reception and confinement of mud and cuttings. Reserve pits used in the drilling and completion of oil and gas wells shall be designed and constructed to protect the surface and the waters of the state from pollution.

For all reserve pits the minimum criteria shall be as follows:

Minimum of two (2) foot freeboard is required.

All topsoil shall be stockpiled on or adjacent to the location and be used for reclamation after drilling operations have been completed when practical.

Reserve pits shall not contain, at anytime, any non-exempt E&P waste.

The Commission may administratively approve field-wide or area-wide applications covering drilling reserve pit design and construction.

012.12 For those reserve pits located within one-half (1/2) mile of surface waters of the state, the operator shall meet the requirements set forth in Section 012.11. Additionally, an application filed with Form 2 shall include:

Drilling location layout plan.

Pit size.

Type of mud program.

Anticipated time pit will be in use.

Scaled topographic map showing the surface drainage and distance to any lakes, rivers, streams or springs.

012.13 If salt based or oil based muds are used during the drilling program or if a salt section of sufficient thickness to affect the mud quality is anticipated, then the reserve pit design and construction shall meet the requirements of this rule and an application shall be submitted along with Form 2 for approval.

Minimum design criteria shall be as follows:

Steel working tanks will be required on the drilling rig circulating system.

Reserve pits shall be designed to accommodate those fluids while protecting the lands and waters of the state.

Soil mixture liners, recompacted clay liners and manufactured liners must be compatible with the wastes contained.

The application shall include the type and specifications of the liner to be used. All liners constructed of manufactured materials must meet or exceed the specifications set forth by the Commission.

Synthetic liners must be installed over smooth fill sub-grade which is free of pockets, loose rocks, or other materials which could damage the liner. Sand, sifted dirt, or bentonite are suggested as cushion material if needed.

The application shall contain a plan for disposal of liquids and solids.

Liner edges must be secured to prevent wind damage.

The Commission may authorize alternative methods upon review of the application.

012.14 All pits shall be backfilled within one year after completion of drilling operations.

The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal.

Within thirty (30) days after cessation of drilling operations, non-exempt E&P waste materials including but not limited to

crankcase oil shall be contained in non-leaking containers and disposed of in accordance with DEQ or any applicable federal regulations.

In those areas where acceptable, and upon application and approval, land farming or land spreading of fresh water based drilling mud may be allowed on the lease.

012.15 After the reserve pits have been properly backfilled, a biodegradable mulch may be required if soil erosion or the establishment of vegetation is determined to be a problem by the Director.

013 LOCATION OF WELLS

013.01 No well drilled for oil or gas in or adjacent to presently producing pools shall be drilled at a location within a legal subdivision which varies substantially from the established locations within legal subdivisions of a majority of the wells in the pool or which will result in a spacing unit for such wells substantially different from that attributable to the established wells in the pool.

013.02 All wells drilled to sources of supply at estimated depths in excess of two thousand five hundred (2500) feet for which no spacing pattern has been established by existing wells shall be drilled on 40-acre legal subdivisions or equivalent lots and not less than five hundred (500) feet from the boundaries of said legal subdivisions. The Director may administratively approve an exception to the requirements hereof where topographical conditions, irregular sections or geological conditions make the drilling of a well at the regular location impractical, provided that the owners, as defined in the Act, within a distance of five hundred (500) feet from the proposed well file with the Director a waiver of objection, or consent in writing, agreeing to said exception; Provided further, that a well drilled under the terms of such waiver, or consent, shall be subject to such production limitations as may be necessary to protect correlative rights.

013.03 All wells drilled to sources of supply at estimated depths of two thousand five hundred (2500) feet or less for which no spacing pattern has been established by existing wells shall not be drilled closer than three hundred (300) feet from the boundaries of a 40-acre legal subdivision or equivalent lot.

013.04 Upon the receipt, by the Commission, of an application from any person requesting the establishment of special field rules for spacing of wells within a designated area, all or a portion of which is not then

subject to special field rules, or upon decision by the Commission to call a hearing for the establishment of such special field rules, application for permits to drill within such area will be held in abeyance by the Commission until such time as the matter has been fully heard and determined; and no further permits to drill within the area designated in the application shall be issued until such determination has been made. Notwithstanding the provisions above, a permit shall be issued if an owner demonstrates to the satisfaction of the Director that a loss of his leasehold will result or that significant drainage may occur if approval of drilling is withheld. However, in event a permit is issued, the permit to drill shall authorize a location for the proposed well which conforms as nearly as practicable to the pattern proposed in each application or petition then on file with the Commission for spacing within the designated area.

013.05 The foregoing spacing restrictions shall not apply to approved unit operations or authorized secondary recovery projects or to any field where the Commission, after notice and hearing, ordered a different spacing pattern in special field rules.

014 DIRECTIONAL DRILLING

When the intent is to direct the bottom of the hole away from vertical, other than whipstocking necessitated by hole conditions, and the spacing pattern is not altered thereby, notice of intention to do so shall be filed with the Director and approval obtained before beginning controlled directional drilling operations. Such notice shall state clearly the depth, exact surface location of the well bore, proposed direction deviation and proposed horizontal distance between the proposed bottom of the hole and the surface location. If approval is obtained, the owner shall file with the Commission within thirty (30) days after the completion of the work an accurate and complete copy of the directional survey made.

015 RE-DRILLING OR DRILLING DEEPER

When a well is re-drilled or drilled deeper by the original operator, the operator shall advise the Commission of his intentions by filing Form 4 and stating thereon the proposed work to be done and the anticipated results of the work.

If the re-drilling or drilling deeper is to be done by anyone other than the original operator, he shall file Form 2 and the seventy-five dollar ($75) permit fee and state on the form that this well is to be re-drilled or drilled deeper.

Upon completion of the work Form 5 shall be filed if the well is an oil or gas producer, injection or disposal well, or shut-in with casing in the hole. If the

well is a dry hole, Form 6 shall be filed. Copies of any logs and tests made should accompany these forms.

016 COMMINGLING IN ONE WELL BORE

The production of oil and gas, or either of them, from more than one pool from one well without segregation of such production as to pool is hereby prohibited unless otherwise authorized or permitted by order of the Commission pursuant to appropriate hearing.

017 MULTIPLE ZONE COMPLETIONS

The initial multiple zone completion of a well in a given field may be permitted by submitting an application therefore to the Commission and securing its order of approval thereof pursuant to an appropriate hearing. The application shall be accompanied by an exhibit showing the location of all wells on adjacent premises and all offset wells on adjoining lands and shall set forth all material facts involved and the manner and method of completion proposed. Thereafter, similar multiple zone completions in said field may be approved by the Director, if so authorized by the Commission, upon request therefore. Such requests shall also be accompanied by an affidavit showing that notice of intention to file such request has been given to the owners, as defined in the Act, of all tracts located within a radius of one-half (1/2) mile of the well in which the multiple zone completion is to be attempted. The Director may require such tests as he deems necessary to determine the effectiveness of the segregation of the different pools.

018 MEASUREMENT OF OIL

The volume of production of oil shall be computed in terms of barrels of clean oil on the basis of properly calibrated meter measurements or tank measurement of oil level differences made and recorded to the nearest quarter inch, using one hundred (100) percent tank capacity tables, subject to the following corrections:

018.01 Correction for Impurities - The percentage of impurities (water, sand and other foreign substances not constituting a natural component part of the oil) shall be determined to the satisfaction of the Director, and the observed gross volume of oil shall be corrected to exclude the entire volume of such impurities.

018.02 Temperature Correction - The observed volume of oil corrected for impurities shall be further corrected to the standard volume at 60° F. in accordance with A.S.T.M. D-1250 Table 6, dated 1956, reapproved 1973.

018.03 Gravity Determination - The gravity of oil at 60° F. shall be determined in accordance with A.S.T.M. D-1250 Table 5, dated 1956, reapproved 1973.

019 MEASUREMENT OF GAS

Production of gas of all kinds, with the exception of gas used on the lease and small amounts of gas produced with oil, as excepted by the Director, shall be measured by orifice type meter or other type meter approved by the Director. The standard of pressure shall be 14.73 pounds per square inch absolute and the standard of temperature shall be 60° F., regardless of the atmospheric pressure and temperature at the point of measurement. All volumes of gas to be reported to the Commission shall be adjusted by computation to these standards unless otherwise authorized by the Director.

020 CONTROL OF "WILD" WELLS

The owner shall take reasonable precautions to prevent any oil, gas or water well from blowing open or "wild" and shall take immediate steps and exercise due diligence to bring under control any such well or burning oil or gas well.

021 DISPOSAL OF GAS

Gas produced in connection with the production of oil shall be flared and burned where there is no market at the well or use on the lease for such gas. The operators of gasoline plants operated for the extraction of liquid hydrocarbons from the gas shall burn the residue gas in flares where no market exists at such plant for the residue gas or when the gas is not returned to an oil pool or field for pressure maintenance or repressuring of the oil pool or field.

022 POLLUTION AND SURFACE DRAINAGE

Owners shall take all reasonable precaution to avoid polluting streams, underground water and land surface and soils. No oil, salt water, brackish water or other water unfit for domestic, livestock, irrigation or other general use shall be allowed to flow over the surface or into any stream or underground fresh water zone.

022.01 Spill Reporting Requirements

Any person operating any well, flowlines flow lines, receiving tanks, storage tanks, or receiving and storage receptacles into which crude oil or salt water is produced, received, or stored or through which oil or produced water is piped or transported shall notify the Director within two (2) business days of any oil and/or produced water spill, leak, or release in excess of twenty (20) barrels. The notice shall be followed within seven (7) working days by a written

report. All such reports of breaks, leaks, and spills shall identify the location of the well, tank, receptacle or flowline flow line by section, township, range, and property name so that the exact location may be readily located. Such report shall specify what steps have been taken or are in progress to remedy the situation reported and shall estimate the quantity of oil and/or produced water lost, or permitted to escape.

The operator shall immediately notify the appropriate State and Federal agencies of any oil or produced water spill, leak, or release which enters any surface or ground water or flows off the lease or unit lands.

022.02 Cleanup Standards for Crude Oil Spills

Cleanup standards set forth in this section apply to only exempt E&P spills that do not: escape off the lease or enter any surface or ground water. For all other spills operators shall notify all appropriate State and Federal agencies.

022.03 Requirements for Cleanup

Removal of Free Oil - To prevent waste and to minimize the depth of oil penetration, all free oil must be removed immediately for reclamation.

Excavation - All soil containing over one (1) percent by weight total petroleum hydrocarbons must be remediated or disposed of at an authorized disposal site.

Prevention of Stormwater Contamination - To prevent stormwater contamination soil excavated from the spill site containing over five (5) percent by weight total petroleum hydrocarbons must be:

Mixed with clean soil to a mixture of less than five (5) percent, or

Removed to an authorized disposal site, or

Contained on secure location for future remediation.

The operator may select any technically sound method for remediation of soil.

022.04 Final Cleanup Level

The Commission shall have final authority to determine if remediation has achieved a cleanup level of less than one (1) percent

by weight total petroleum hydrocarbons. Cleanup shall be completed as soon as technically feasible.

022.05 Remediation Reporting Requirements

For each spill exceeding twenty (20) barrels of crude oil, the operator must submit on a Form 4 a report to the Commission which shall give the following information:

A detailed description of the disposal or remediation method used.

The estimated date of completion of the site cleanup.

Area, maximum depth and volume in cubic yards of soil affected by crude oil.

A statement signed by the operator stating that all affected soils have been treated and the surface landowner has been notified.

022.06 Crude Oil Spills of Twenty (20) Barrels or Less

Spills into the soil of twenty (20) barrels or less of crude oil must be remediated to these standards, but are not required to be reported to the Commission.

022.07 Cleanup Standards for Produced Water Spills

Cleanup standards set forth in this section apply to only exempt E&P spills that do not:

escape off the lease, or

enter any surface or groundwater.

For all other spills operators shall notify the appropriate State and Federal agencies.

022.08 Standards set forth in this section do not include those produced waters released under the terms of a valid National Pollutant Discharge Elimination System (NPDES) permit.

022.09 Requirements for Cleanup

Removal of Free Water - To minimize the depth of produced water penetration, all free water must be removed for disposal.

Establish Containment Systems - To minimize the extent of the affected area, temporary dikes, pits, or tanks should be used.

The operator may select any technically sound method for remediation of affected soil.

022.10 Final Cleanup Level

The Commission shall have final authority to determine if the effected land has been restored to its prior beneficial use. Cleanup shall be completed as soon as technically feasible.

022.11 Remediation Reporting Requirements

For each spill exceeding twenty (20) barrels of produced water, in which the water spilled exceeds ten thousand (10,000) parts per million total dissolved solids, or a spill exceeding two hundred (200) barrels of produced water, in which the water spilled contains less than 10,000 parts per million total dissolved solids, the operator must submit on a Form 4 a report to the Commission which shall give the following information:

A detailed description of the disposal or remediation method used.

The estimated date of completion of the site cleanup.

Area, maximum depth and volume in cubic yards of soil affected by produced water.

A statement signed by the operator stating that all affected soils have been treated and the surface landowner has been notified.

022.12 Produced Water Pits

No person shall construct or operate a pit or pond to retain produced water without first filing an application for a permit on Form 15, RETAINING PIT PERMIT, and obtaining approval from the Director. Permit numbers shall be displayed on a weatherproof sign along with the name of the operator and lease at the pit site. Pits or ponds used to evaporate or retain water which were in existence prior to the effective date of this rule must be re-permitted within one year after the effective date of this rule.

If inspection indicates that the facility no longer meets the requirements of this rule, the use of the facility shall cease.

Upon application, an exception to the construction and operational requirements of Section 022.12 may be granted by the Director upon showing that the pit design, in consideration of

geologic and hydrodynamic conditions, will protect water, soils, wildlife, and migratory birds.

022.12A All pits or ponds used to retain produced water shall:

Be constructed in cut material or at least fifty (50) percent below original ground level.

Be lined with a material compatible with the waste contained.

Not be located in a natural drainage and shall be constructed above the seasonal high water table.

Be bermed or diked and shall have at least two (2) feet of freeboard between the normal operating level of the water in the pit and the top of the banks, dikes or berms.

Be fenced, screened, or netted to prevent access by livestock, wildlife and migratory birds if free oil is likely to be discharged to the pits.

Not be used for the dumping of any wastes other than produced water.

Approved monitoring systems may be required if a pit is located in an area that the Commission can reasonably define as environmentally sensitive.

022.12B Unlined evaporation pits shall be allowed for produced waters containing less than ten thousand (10,000) milligrams per liter total dissolved solids. Unlined evaporation pits that receive less than five (5) barrels per day on a monthly average shall be allowed when it can be shown that the pit will not impact water, soils, wildlife and migratory birds.

022.12C Pit Lining Requirements

The application for a lined pit submitted on Form 15 shall include the type and specifications of the liner to be used. All liners constructed of manufactured materials must meet or exceed the specifications set forth by the Commission.

Soil mixture liners, recompacted clay liners and manufactured liners must be compatible with the waste

contained. The operator must provide evidence of the chemical resistance of the liner selected for use.

Manufactured liners must be installed over smooth fill subgrade which is free of pockets, loose rocks, or other materials which could damage the liner. Sand, sifted dirt, or bentonite are suggested as cushion materials if needed. At no time shall any organic material, except synthetic cushion fabric designed for that purpose, be used for a liner cushion.

Liner edges must be secured to prevent wind damage.

If a lined pit does not have an approved monitoring system, then it shall be drained, cleaned and inspected for leaks or holes each year.

The Director may grant an exception to this pit lining requirement where, the operator shows that due to the surface or subsurface geology, the uses of the known sources of groundwater, the permeability of the surrounding soils, or similar consideration, the known sources of underlying groundwater will not be adversely impacted.

022.12D All retaining pits shall be kept free of surface accumulations of oil and other hydrocarbon substances and shall be cleaned within ten (10) days after the discovery of the accumulation by the operator or notice from the Commission, unless weather conditions or other conditions, as approved by the Commission, do not allow such removal within the time frame specified. In the event such removal is delayed by weather or other factors, the operator will notify the Commission on Form 4 within ten (10) working days of the operator noticing said accumulation, or of Commission notification. The notification will include an estimated time table during which the problem can be practically corrected, in an approved manner.

022.12E This rule shall not apply to pits used in conjunction with drilling or reworking operations under a valid permit to drill unless such pit is used after the cessation of the drilling or reworking operations.

022.12F Produced water may be discharged into pits, onto land, or into other water sources if the operator has a valid discharge permit issued under the National Pollutant Discharge Elimination System (NPDES). The operator shall file a copy of the NPDES permit with the Commission.

022.01 Temporary Emergency Pits and Flare Pits - Operators must file a Form 15 for approval of these facilities. These pits shall be exempt from the construction and monitoring requirements of this section.

Production fluid may not be retained for more than seventy-two (72) hours in any unlined pit prior to disposal.

022.02 Pit closure must be done in accordance with a preapproved plan which must be submitted on a Form 4.

Verbal notice twenty-four (24) hours prior to closure is required to provide the Commission the opportunity to witness the closure procedure.

If closure plans or treatment procedures have changed from the original proposal, then a Form 4 must be resubmitted. Any wastes disposed of off-lease must be transported to an authorized disposal site.

Pit solids showing high concentrations of salt (exchangeable sodium percentage above fifteen (15) by weight) must be encapsulated or chemically or mechanically treated or removed and disposed of in an authorized disposal site.

Oil that may be present must be removed and recycled by commercially available utilized conventional means as soon as the weather permits or disposed of in an authorized disposal site or mixed with soil to less than one (1) percent oil content by weight when road spread, or land farmed.

Dispersants, wetting agents, surface reduction agents, surfactants or other chemicals that destroy, remove or reduce the fluid seal of a pit and allow the fluids therein to seep, drain or percolate into the soil underlying the pit are prohibited.

Pits cannot be used for disposal of refuse, equipment parts or unused chemicals. Proper closure of the pit is compromised by the inappropriate use of the pit for trash disposal and may result in the revocation of the permit.

022.03 After the pits have been properly backfilled, a biodegradable mulch may be required if soil erosion or the establishment of vegetation is determined to be a problem by the Director.

022.04 No water produced in association with oil or gas production shall be transported from the lease of origin for disposal or used for road building without authorization of the Director.

022.16A Every person that transports water produced in association with the production of oil or gas shall possess a run ticket or equivalent documents containing the following:

The name and address of the transporter.

The name of the operator of the lease of origin.

The location of the lease tank battery by section, township, range and county.

The location of the destination by section, township, range and county.

The date and time the fluids were loaded for transportation and unloaded at the destination.

The estimated volume of fluids, or the opening and closing tank gauges or meter readings.

The signature of the driver.

022.16B One copy of the documentation shall be left at the facility from which the water was loaded for transportation.

022.16C One copy of the documentation shall be carried in the vehicle during transportation and shall be produced for examination and inspection by any agent of the Commission or any authorized law officer upon request.

022.16D All persons that store, possess, or dispose of water produced in association with the production of oil or gas shall retain a record reflecting a complete inventory, including detail of the acceptance and disposition of the fluids for a period of at least five (5) years.

023 BURN-OFF PITS

To prevent fire hazards from waste oil, the same shall be collected in burn-off pits which shall be located a safe distance from oil storage tanks, buildings, or other structures and shall be burned as often as necessary to prevent overflowing. Such pits shall be constructed to prevent the escape of oil therefrom and shall have a continuous wall completely surrounding the pit of sufficient height to prevent surface water from running into the pit. Earthen pits will be permitted at locations where the soil is heavy and tight, but shall be prohibited in locations where the soil is porous and closely underlaid underlain by either sand or gravel strata, unless effectively sealed to the satisfaction of the Director.

024 LEASE TANK RESERVOIRS AND FIRE HAZARDS

All oil storage and lease tanks must be surrounded by an earthen dike which shall provide a capacity of one and one-tenth (1-1/10) times the capacity of the largest tank it surrounds. All well and tank locations shall be kept free of dead grass, brush, weeds and other inflammable material and so maintained at all times.

025 OPEN PIT STORAGE OF OIL

The owner shall not, except during an emergency or except by special permission of the Director, permit oil to be temporarily stored or retained in earthen reservoirs or in any other receptacle that may introduce an accident or fire hazard.

026 SUB-SURFACE PRESSURE TESTS

The Director may require sub-surface pressure measurements on a sufficient number of wells in any pool to provide adequate data for establishing maximum efficient rates of production (M. E. R.). Whenever a sub-surface pressure measurement is to be made in a well, such well shall remain completely shut-in for at least twenty-four (24) hours prior to the test. Tests may be witnessed by representatives of the offset operators.

027 GAS-OIL RATIO TESTS

Within thirty (30) days following the completion or re-completion of each well producing oil and gas and thereafter as the Director may require the operator of such well shall make a gas-oil ratio test of such well; and the results of such test shall be reported to the Commission within twenty (20) days after the test is made. Certain wells may be excepted from this rule by the Director upon written request.

028 PLUGGING

The requirements for plugging a well shall be as follows:

028.01 A dry or abandoned well must be plugged in such a manner that oil, gas, water or other substance shall be confined to the reservoir in which it originally occurred. The material used in plugging, whether mud-laden fluid, cement, mechanical plug or some other suitable material, must be placed in the well in a manner to permanently prevent migration of oil, gas, water or other substance from the formation or horizon in which it originally occurred.

028.02 The operator shall have the option as to the method of placing cement in the hole by (1) dump bailer, (2) pumping through tubing or drill pipe, (3) pump and plug or (4) other method approved by the Director or his authorized deputy.

028.03 No substance of any nature or description other than that normally used in plugging operations shall be placed in any well at any time during plugging operations.

028.04 In order to protect the fresh water strata, no surface casing shall be pulled from any well unless authorized by the Director.

028.05 Before a dry hole is plugged, the operator shall notify the office of the Director or his authorized deputy.

028.06 Before a producing well, or any well with production casing in the hole, is plugged, the operator shall notify the office of the Director by submitting Form 4, "Sundry Notices." Operator shall fully describe the proposed plugging and abandonment procedure on said form and shall set out the volume and position of each plug to be placed in the hole and the manner in which said plug will be positioned. A fee, paid in advance, of twenty-five one hundred dollars ($25 100) and payable to the Nebraska Oil and Gas Conservation Commission must be remitted with each Form 4 which gives notice of operator's intention to abandon a well with production casing in the hole.

028.07 Following abandonment, working pits, reserve pits and/or burn pits shall be backfilled, pads leveled, debris removed or buried and land restored to the reasonable satisfaction of the Director.

029 PLUGGING OF SEISMIC AND STRATIGRAPHIC TESTS

It shall be the duty of any person, operator or contractor drilling a seismic or stratigraphic test hole, regardless of diameter or depth, whether cased or uncased, to plug said hole in a manner sufficient to properly protect all fresh water bearing and possible or probable oil or gas bearing formations.

030 LIABILITY

The person who drilled or caused to be drilled any well for oil or gas or any seismic, core or other exploratory hole, whether cased or uncased, shall be liable and responsible for the plugging thereof in accordance with the rules and regulations of the Commission.

031 WELL LOGS AND SAMPLES

All wells drilled for oil and/or gas shall be adequately logged with appropriate mechanical, electrical, or radiation survey devices unless excepted by the Director. If adverse down hole conditions exist which makes the running of adequate survey devices impractical or hazardous, or in the case of open hole completions, twin wells, or other good cause shown, the Director may waive such required survey upon request by the operator.

An unmarked copy of the mechanical, electrical, or radiation survey log, clearly indicating the position of the shoe of the surface casing and including the entire logged interval below the shoe of the surface casing, shall be submitted to the office of the Director within thirty (30) days after such log is run. If an extension of thirty (30) days is needed for filing survey logs, the Director may grant such extension for good cause shown.

Upon written request by the operator, logs of a confidential nature will be held confidential for a period of not more than twelve (12) months.

A driller's log is to be submitted for wells drilled with cable tools. Drill stem tests, if taken, and the information therefrom will be submitted on all wells drilled. Copies of other surveys and tests such as core analysis, water analysis, and mud logs may be submitted at the operator's option. Any survey or tests conducted by the operator shall be maintained in his files for a period of at least two (2) years. Drilling contractors and well service companies shall maintain a file of surveys and tests conducted for a period of not less than five (5) years for all work performed on any well drilled under the rules and regulations of the Commission.

By agreement with the State Geologist, the Commission will notify operators when samples of a well are requested by the Nebraska Geological Survey. When indicated on Form 2, a systematic interval of sample cuttings shall be saved and submitted to the Nebraska Geological Survey in accordance with their request within ninety (90) days following completion or deepening of a well. When requested in writing, samples shall be kept confidential by the Nebraska Geological Survey for a period of not more than twelve (12) months. Samples submitted may be sent through a recognized sample cutting agency or sent directly to the Nebraska Geological Survey, Nebraska Hall, University of Nebraska, Lincoln, Nebraska 68508.

032 SEISMIC AND STRATIGRAPHIC TESTS

Before any person shall commence operations for the drilling of any seismic hole, such person shall file with the Director an accurate plat of all such holes, the proposed depths and the date such operations are expected to commence. No permit fee shall be required.

Wells drilled as stratigraphic type test holes shall come under these rules and regulations with the following exceptions: No fee shall be required for the drilling of a stratigraphic test hole, but Form 2, "Notification of Intent to Drill or Re-Enter," shall be filed with the Director and approved by him prior to the drilling of each test or hole. Locations may be approved within three hundred thirty (330) feet of legal subdivision lines, but estimated total depths do not have to be included in notifications. Records, plugging affidavits and logs do not have to be filed with the Commission except within a period of six (6) months after completion of drilling. In the case of a series of wells drilled as a part of a single investigational program, records, plugging affidavits and logs may be filed with the Commission within six (6) months after completion of the last test hole drilled providing that the Director is informed of the approximate number of tests to be included in the program and that the period of not more than thirty (30) days separate the completion of one test and the commencement of the next test. Special permission for time extension between drilling of successive test holes may be granted by the Director or his authorized deputy for justifiable reasons.

Upon written request by the operator, all records, plugging affidavits, logs, plats and geologic information will be held confidential for a period not to exceed one (1) year.

The operator or drilling contractor shall maintain an accurate map or plat of all shallow exploratory, stratigraphic or seismic holes for a period of at least five (5) years after completion of a program, and all holes shall be satisfactorily plugged.

033 LIMITATION OF PRODUCTION

Whenever the Commission, after notice and hearing, finds that waste as defined in the Act, is occurring in any oil or gas field or pool and that the production of oil or gas from such field or pool should be limited to prevent waste, then the Commission shall issue an order limiting production from such field or pool and specify rules applicable thereto for the allocation or distribution of allowable production therefrom as provided for in the Act.

034 MAXIMUM EFFICIENT RATE HEARINGS

The Commission, on its own motion may, or at the request of any interested party shall call hearings to determine the maximum efficient rate at which any pool in the State can produce oil and gas without waste.

035 SPACING UNITS

The Commission may upon its own motion or upon the motion of any interested party and after notice and hearing establish spacing units of a specified and approximate uniform size and shape for each pool within this State.

036 FORM 11 - REPORT OF INJECTION PROJECT

Operators of pressure maintenance, secondary recovery projects or produced water disposal wells shall file a report on Form 11 on or before the twenty-fifth (25th) day of each month succeeding the month in which the injection occurs.

037 FORM 12 - REPORT OF PACKER LEAKAGE TEST

Operators of wells which are completed to produce oil and/or gas from two or more reservoirs through a common well bore, while segregating the production from each respective reservoir with a packer set in the well bore, shall conduct packer leakage tests immediately following the multiple completion of such wells and thereafter as the Director may require. The results of packer leakage tests shall be reported on Commission Form 12 within twenty (20) days following completion of the test.

038 FORM 13 – RELEASE

Owners may utilize Form 13 in securing a release of further plugging responsibility when a well thought capable of producing water for agricultural, domestic, industrial, or municipal use is disposed of as authorized by Rule 2-007.

039 FORM 14 - AUTHORIZATION TO TRANSPORT OIL AND/OR GAS FROM LEASE

Before any oil and/or gas may be sold, removed or transported from any unit or lease by any person, the owner shall file with the Director Form 14 - AUTHORIZATION TO TRANSPORT OIL AND/OR GAS FROM LEASE - and must secure the Director's approval before proceeding with the sale, removal or transporting of any oil and/or gas which authority shall be effective until further notice or until revoked by the Director. No purchaser shall buy, remove or transport any oil and/or gas from any unit or lease until he has received an approved copy of Form 14. The Director shall revoke said authority if it is found that any fraud, deceit or misrepresentation was made to obtain the approval of said authority, or if any owner is in violation of any rule, regulation or order of the Commission. Said owner may apply for a new permit at any time said owner is in compliance with Sections 57-901 through 57-921, Revised Statutes Nebraska, 1943, and all rules and regulations and orders of the Commission. A new well is exempt from this rule for a period of thirty (30) days following completion.

040 INACTIVE WELLS

Whenever operations cease for a period of sixty (60) days on any well, the operator shall give notice to the Commission of the change to inactive status.

040.01 If it is deemed necessary to prevent migration of oil, gas, water or other substances from the formation or horizon in which it originally occurred, the well shall be plugged or repaired. If the operations on any such inactive well are not resumed within a period of one (1) year after the notice has been given, the operator of the well shall plug and abandon the well in the manner prescribed by the Director. However, upon application prior to the expiration of the one (1) year period, and for good cause shown, the Director may extend the period for one (1) year, provided that the static fluid level is established and maintained at least one hundred fifty (150) feet below the lowest fresh water zone, or the casing is pressure tested to at least three hundred (300) pounds per square inch as measured at surface to prove mechanical integrity.

040.02 Application for inactive well status must be submitted on a Form 4 and contain the following information:

- The type of well.
- The bottom hole assembly.
- Pressures as measured by gauge for:
  - Tubing.
  - Production casing annulus.
  - Surface casing annulus.
- Static fluid level as measured from ground level.
  - Method used to determine static fluid level.
  - Date data was obtained.
- Information stating if any formations with reservoir pressures high enough to initiate flow into the lowermost freshwater aquifer exist.

040.03 An additional one (1) year extension(s) may be granted in the same manner.

CHAPTER 4 - UNDERGROUND INJECTION

001 CLASSIFICATION OF UNDERGROUND INJECTION WELLS

001.01 Enhanced recovery injection well is a well which injects fluids to increase the recovery of oil and/or gas.

A commercial enhanced recovery facility includes single or multiple wells that are specifically engaged in the business of underground injection of brine generated by third party producers for a fee or compensation. In addition, the produced brine must originate off-site as a result of oil and gas production operations only, and must be transported to the facility by tank truck.

001.02 Disposal well is a well which injects for purposes other than enhanced recovery those fluids brought to the surface in connection with the production of oil and/or gas.

A commercial disposal facility includes single or multiple wells that are specifically engaged in the business of underground injection of brine generated by third party producers for a fee or compensation. In addition, the produced brine must originate off-site as a result of oil and gas production operations only, and must be transported to the facility by tank truck.

002 APPROVAL OF ENHANCED RECOVERY INJECTION WELLS OR DISPOSAL WELLS

002.01 Commencement of waterflooding water flooding and other enhanced recovery operations involving the introduction of extraneous forms of energy into any reservoir, including cycling or recycling operations and the extraction and separation of liquid hydrocarbons from natural gas in connection therewith is permitted only upon order of the Commission.

002.02 Underground disposal of salt water, brackish water or other water unfit for domestic, livestock, irrigation or other general uses is permitted only upon order of the Commission.

002.03 All injection wells must have sufficient surface casing run to reach a depth below the base of all water sources that are less than three thousand (3,000) parts per million total dissolved solids or water sources that are or could be reasonably utilized as domestic fresh water unless those sources are exempted. Casing shall be sufficiently cemented to fill the annulus to the top of the hole.

002.04 All injection wells shall be cased and the casing cemented in such a manner that damage will not be caused to oil and gas resources by any injection activity.

002.05 Authorization for injection may be conditioned upon the applicant taking action to protect fresh water as may be specified by the Commission in its order.

003 AUTHORIZATION FOR EXISTING ENHANCED RECOVERY INJECTION WELLS AND EXISTING DISPOSAL WELLS

003.01 Each enhanced recovery injection well authorized under order of the Commission prior to the effective date of this rule is an existing enhanced recovery well. Injection is prohibited in any existing enhanced recovery well unless the operator has included that well on an injection well inventory submitted to the Commission within one (1) year following the effective date of this rule. The inventory of authorized existing injection wells shall include each well name and number, location, Commission order number, date of order, maximum authorized injection rate and maximum authorized injection pressure.

003.02 Each disposal well being operated under order of the Commission prior to the effective date of this rule is an existing disposal well. Injection is prohibited into any existing disposal well unless the operator has included that well on an injection well inventory submitted to the Commission within one (1) year following the effective date of this rule. The inventory of authorized existing disposal wells shall include each well name and number, location, Commission order number or other authorization, date of order or authorization, maximum authorized injection rate and maximum authorized injection pressure.

003.03 Each commercial facility well being operated under order of the Commission prior to the effective date of this rule is an existing commercial facility well. Commercial injection is prohibited within six (6) months following the effective date of this rule, unless the operator files with the Commission a list of that commercial well and the well or wells meets or exceeds the requirements set forth in this chapter.

004 APPLICATION FOR APPROVAL OF ENHANCED RECOVERY INJECTION AND DISPOSAL WELLS

004.01 Each application for the approval of a new enhanced recovery injection well or disposal well shall be filed and verified by a duly

authorized representative of the operator. The original and six (6) copies of the application and one (1) complete set of attachments shall be furnished containing all the information required by these rules. More than one (1) well may be included on an application, provided, that such wells are associated with a single project or unit operation. An application for the approval of injection wells which are a part of a proposed enhanced recovery project or unit may be consolidated with the application for the approval of the enhanced recovery project or unit.

004.02 The application for the approval of an enhanced recovery injection or disposal well or wells shall be accompanied by:

004.02A A plat outlining the area which will be affected by the proposed operation and showing all governmental quarter sections or equivalent lots thereto directly or diagonally offsetting said area. The names of the owner or operator of each separate tract of land shall be shown, and all wells, including dry, abandoned or drilling wells shall be properly located and designated on said plat. In the case of an operation conducted subject to a unit agreement, the area affected shall be the area subject to such agreement, or that area within one-half (1/2) mile of each injection well, whichever is the greater distance.

004.02B The names and addresses of each person owning a fee, leasehold, mineral or royalty interest within one-half (1/2) mile of each injection well or within the area required to be shown on the plat, whichever is the greater.

004.02C A full description of the particular operation for which approval is sought.

004.02D The names and addresses of the operator or operators of the project.

004.02E If the wells have been drilled, a copy of each completion report and any available electric or radioactivity logs.

004.02F A schematic diagram of each well showing:

The total depth or plug-back of the well.

The depth of the injection or disposal interval.

The geological name of the injection or disposal zone.

A geologic description of the injection or disposal zone including the location and extent of any known faults or fracture systems.

The depths of the tops and bottoms of the casing and cement to be used in the well.

The size and specifications of the casing and tubing, and the setting depth and type of packer, if used.

004.02G Information showing that injection into the proposed zone will not initiate vertical fractures into or through the overlying strata which could enable the injected fluids or formation fluids to enter any fresh water strata.

004.02H Information that no unplugged wells exist which will allow the migration of the injected fluids or formation fluids to enter any fresh water strata.

004.02I Information regarding the fracture pressures of the injection zone and the overlying strata, including the source of such information.

004.02J Proposed operating data:
Maximum designed or proposed daily injection rates and injection pressures.

The source of any fluids to be injected.

Analysis of a representative sample of the fluids to be injected.

Analysis of fresh water from two or more freshwater wells within one mile of the proposed injection well showing the location of the wells and the dates the samples were collected, or a statement why samples were not submitted.

Geological name of the lowest freshwater zone, if known, and the depth to the base of the freshwater zone.

The vertical distance separating top of the injection zone and the base of the lowest freshwater strata.

005 NOTICE OF HEARING

005.01 Upon filing of an application, the Commission shall issue notice thereof, as provided by the Act and these regulations. Said application shall be set for public hearing at such time and place as the Commission may fix.

005.02 In addition to the notice required by law, notice of the application and the time and place of hearing shall be given by the applicant by certified mail or by delivering a copy of the notice to each person owning a fee, leasehold, mineral or royalty interest within the project area or within one-half (1/2) mile of the injection well, whichever is the greater. A copy of such notice shall be filed with the Commission, and the applicant shall certify that notice by certified mail or by delivery to each person has been accomplished at least fifteen (15) days prior to the hearing or give sufficient reason for being unable to do so.

005.03 In the event no person required to be notified, or the Commission itself files a written objection to the application within ten (10) days of the date of the notice, the application shall be granted; but if any person or the Commission itself files written objection within ten (10) days of the notice, then a hearing shall be held.

005.04 No notice is necessary to any person who has consented to the proposed installation in writing.

005.05 An order authorizing an injection well will expire and become null and void if the authorized well or wells are not completed or converted to injection within one (1) year from the date of the order.

006 OPERATING REQUIREMENTS FOR ENHANCED RECOVERY INJECTION AND DISPOSAL WELLS

006.01 Initial Requirements:

006.02A Each enhanced recovery injection well or disposal well shall be completed, equipped, operated and maintained in a manner that will prevent pollution of fresh water or damage to sources of oil and/or gas and will confine injected fluids to the formation or zones approved.

006.02B Injection of any substance shall be through adequate casing or casing and tubing. Annular injection is

prohibited. Above ground extensions shall be installed in each annulus in the well and each injection tubing or casing. Such extensions shall be fitted with a cut-off valve and a one-fourth (1/4) inch female fitting to provide for pressure monitoring by attaching a gauge having a one-fourth (1/4) inch male fitting.

Each commercial facility well must be equipped with tubing and packer.

006.02C Before operating a new well drilled or converted for enhanced recovery injection or disposal, the casing shall be tested under the supervision of the Director.

006.02D The operator shall monitor and record actual injection pressure and each annulus pressure at least once each week and report such monitoring monthly.

006.02E Each well or group of wells which inject fluids under pressure utilizing a positive displacement pump shall have installed both high pressure and low pressure safety switches which will shut down the pump in case of pressure increase over the authorized pressure or sudden pressure loss.

006.02F All commercial facility sites must be physically secured at all times. The Director will determine if a site is secure. The Commission recommends that sites be secured by either of the following:

Complete enclosure of all wells, tanks/pits and wellhead assemblies within suitable fencing; and/or

All gates and other entry points shall be locked when the facility is unattended; and/or

Provide tamper-proof seals or locks for the "master" valve on each well; and/or

Install locking caps on all valves and connections on holding tanks and headers.

006.02 Mechanical Integrity Pressure or Monitoring Test Requirements:

The following pressure or monitoring test must be performed on all new and existing enhanced recovery injection wells and disposal wells to periodically establish the mechanical integrity of the casing, and tubing and packer, if used.

006.02A Pressure Test: All new enhanced recovery injection wells and disposal wells authorized by the Commission after February 3, 1983, shall have the casing pressure tested prior to use and thereafter no less than once each five (5) years. Wells with tubing and packer installed shall have the tubing-casing annulus pressure tested to a pressure of three hundred (300) pounds per square inch. Wells without tubing and packer installed shall be tested to a pressure equal to one hundred twenty-five (125) percent of the maximum authorized injection pressure or at a pressure of three hundred (300) pounds per square inch, whichever is greater. Existing injection wells shall be tested not less than once each five (5) years. Casing pressure tests shall be conducted under the supervision of the Director.

006.02B On existing injection wells without tubing and packer, the operator shall demonstrate the absence of fluid movement in vertical channels adjacent to the injection well bore by the use of tracer surveys, noise logs, temperature surveys or other tests or combination of tests approved by the Director, at least once each three (3) years. Such tests shall be run under the supervision of the Director.

006.02C All commercial wells must have annual pressure tests to establish the mechanical integrity of the casing, tubing and packer. Casing pressure tests shall be conducted under the supervision of the Director.

007 MONITORING AND REPORTING REQUIREMENTS FOR ENHANCED RECOVERY INJECTION AND DISPOSAL WELLS

007.01 Immediately upon the commencement of injection operations, the operator shall notify the Commission of the date on which injection was commenced.

007.02 Within ten (10) days after the discontinuances of injection operations, the operator shall notify the Commission of the date of such discontinuance and the reasons therefore.

007.03 Except as may otherwise be required, the operator shall monitor injection pressure and injection rate of each injection well on a monthly basis and report the results on Form 11. Units or projects with more than one injection well may utilize manifold monitoring.

007.04 Mechanical failures or downhole problems which indicate an enhanced recovery injection well or disposal well is not, or may not be, directing or containing the injected fluid into the permitted or authorized injection zone is cause to shut-in the well. If said condition may endanger fresh water sources, the operator shall orally notify the Director within twenty-four (24) hours. Written notice of the failure shall be submitted to the Director within five (5) days of the occurrence together with a plan for repairing and testing the well. Results of the repair and testing shall be reported to the Director and approved before further injection is commenced.

007.04A If a well poses a substantial risk to a protected aquifer, then repairs or plugging and abandonment shall be initiated within ninety (90) days of the failure date. However, under certain conditions, that date may be extended by the Director.

007.04B Wells which lack mechanical integrity but do not pose a substantial risk shall be repaired or plugged and abandoned within two hundred seventy (270) days of the failure date. However, if the operator has the ability to monitor the well, then the Director may allow the well to be shut-in.

007.05 Enhanced recovery injection wells and disposal wells shall be plugged and abandoned in accordance with the provisions of Rule 3-028.

008 DURATION OF UNDERGROUND INJECTION WELL ORDERS

008.01 Orders authorizing injection into enhanced recovery injection wells and disposal wells shall remain valid for the life of the well, unless revoked by the Commission for cause.

008.02 An order granting underground injection may be modified, revoked and reissued, or terminated during its term for cause, after notice and hearing, upon the request of any interested person or at the Commission's initiative. All requests filed requesting review of any order authorizing underground injection shall be in writing and shall contain facts or reasons supporting such request.

008.03 Upon receipt of a request to modify or revoke an order authorizing underground injection, the Commission shall promptly set the matter for hearing and may revoke, modify and reissue said order if:

008.03A There is a substantial change of conditions in the enhanced recovery injection well or the disposal well

operation, or there are substantial changes in the information originally furnished.

008.03B Information shows that the permitted operation will have adverse cumulative effects on the environment.

008.03C Information shows that the operation is not in accordance with the order authorizing the injection.

009 TRANSFER OF AUTHORITY TO INJECT

An order authorizing an enhanced recovery injection well or disposal well shall not be transferred from one operator to another without the approval of the Commission. Prior to transfer of ownership of any injection well or change of operator, the new operator shall file written notice of such change with the Commission on Form 4 showing the proposed date of transfer along with proof of compliance with the bonding provisions of Rule 3-004.

CHAPTER 5 - UNIT OPERATIONS AND APPROVAL OF UNIT AGREEMENTS

001 An application for an order for the unit operations of a pool, pools, or parts thereof and for the pooling of the interests in the oil and gas in the proposed unit area shall contain:
001.01 A plat outlining the area which will be affected by the proposed operation and showing all governmental quarter sections or lots equivalent thereto directly or diagonally offsetting said area. The names of the owner or operator of each separate tract of land shall be shown, and all wells, including dry, abandoned or drilling wells shall be properly located and designated on said plat. In the case of an operation conducted subject to a unit agreement, the area affected shall be the area subject to such agreement.

001.02 The names and addresses of each owner as defined by the Act, or operator as shown by the Commission records, of lands within the area which will be affected by the operation and of lands directly or diagonally offsetting said area.

001.03 A full description of the particular operation for which approval is sought.

001.04 The names and addresses of the operator or operators of the project.

001.05 The formation or formations from which all wells are producing or have produced.

001.06 The name, depth and description of the reservoir, reservoirs, pool, pools or parts thereof to be so operated.

001.07 The names of all persons owning or having an interest in the oil and gas in the proposed unit area or the production therefrom, including mortgagees and the owners of other liens or encumbrances, as disclosed by the public records in the county in which the unit area is situated and their addresses, if known. If the name or address of any person is unknown, the application shall so indicate.

001.08 A proposed plan of unitization applicable to the proposed unit area which the petitioner considers fair, reasonable and equitable.

001.09 A proposed operating plan covering the manner in which the unit will be supervised and managed and costs allocated and paid, unless all owners within the unit area have already executed an operating agreement covering such supervision, management and allocation and payment of costs.
TITLE 267 – NEBRASKA OIL AND GAS CONSERVATION COMMISSION 44

002 A hearing on an application filed under Chapter 4 and a hearing on an application filed under this rule may be consolidated for the purpose of hearing and taking testimony if a part of the testimony in one matter is also material in the other. Separate orders may be entered on each application.

Statute: 57-901; 57-905; 57-910; 57-911TITLE 267 – NEBRASKA OIL AND GAS CONSERVATION COMMISSION 45

CHAPTER 6 - RULES OF PRACTICE AND PROCEDURE BEFORE THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF NEBRASKA

001 SCOPE AND APPLICATION OF RULES

001.01 Scope of Rules

These rules shall be known and designated as "Rules of Practice and Procedure before the Oil and Gas Conservation Commission of the State of Nebraska," in all proceedings relating to the conservation of oil and gas in the State of Nebraska and to the administration of the Act.

002 WHO MAY INSTITUTE PROCEEDINGS

002.01 Proceedings Instituted by Commission and Any Interested Person

The Commission, upon its own motion, or any interested person, may institute proceedings upon any question relating to the conservation of oil and/or gas or to the administration of the Nebraska Oil and Gas Conservation Act.

003 PARTIES

003.01 Petitioner

The Commission entering its order to show cause or entering its order to initiate a proceeding, or a party other than the Commission instituting a proceeding, shall be known as the Petitioner.

003.02 Respondent

Any party against whom a proceeding is instituted shall be known as Respondent.

003.03 Intervener

Any party not designated as a petitioner or respondent shall be known as an Intervener.

004 INSTITUTION OF PROCEEDINGS

004.01 Copies

All proceedings, except those initiated by the Commission on its own motion, shall be instituted by filing six (6) copies of a typewritten or printed application, petition or complaint. An additional copy shall be filed for each party named as a respondent. One (1)

copy of the application, petition or complaint shall be mailed by the Secretary to each other party or his attorney of record, if the address of such other party is known or can be determined. One (1) copy shall be mailed to any other person requesting same in writing.

004.02 Promulgation, Amendment or Repeal of Rules

Any interested person requesting the promulgation, amendment or repeal of any rule adopted by the Commission shall file an application or a petition therefore, in number as set forth in Rule 6-004.01. The procedure for the submission, consideration and disposition thereof shall be the same as in other proceedings commenced by any interested person before the Commission.

004.03 Filing and Docketing

When a proceeding is instituted, the Secretary of the Commission shall assign it a number and enter the proceeding with the date of its filing or the date of the entry of the Commission order instituting such proceeding, on a separate page of a docket provided for such purpose. All pleadings offered subsequent to the institution of a proceeding shall be noted with the date of filing upon the docket page of said proceeding or a continuation thereof.

004.04 Additional Copies

The Secretary may at any time require the party filing, or offering for filing, a pleading to furnish such additional copies of the same as may be deemed necessary.

004.05 Execution

In any proceeding instituted on motion of the Commission, the original application, complaint or order to show cause must be signed by at least two (2) members of the Commission. Any other original application, petition or complaint shall be signed by the person filing it, or his attorney, with mailing address shown.

004.06 Representation by Attorneys

Any attorney duly authorized to practice law before the courts of record of any other state shall, upon motion, be admitted to practice before the Commission, provided it shall appear to the Commission that he has associated and appearing with him in any proceeding before the Commission an attorney who is a resident of Nebraska and regularly admitted to practice in the State of Nebraska.

004.07 Cost of Hearing

A petition filed with the Commission for a public hearing shall be accompanied by a filing fee of one two hundred fifty dollars ($100 250).

005 FORM OF PLEADINGS

005.01 Application, Petition or Complaint

Each original pleading shall show the venue "Before the Nebraska Oil and Gas Conservation Commission" and shall contain a heading showing the names of the petitioner and the respondents, if any. Such pleadings shall be drawn so as to fully and completely advise the Commission in plain language of all of the pertinent facts involved and shall state concisely the matters complained of and what relief or action is sought from the Commission.

005.02 Answers, Protest, Notice of Protest

Any interested person may appear at the hearing and support, protest or otherwise be heard concerning any such matter provided that any person desiring to protest the granting of the petition shall, at least five (5) days prior to the date of the hearing, file a written protest with the Commission, which shall briefly state the basis of the protest. Any person who files a protest with the Commission shall at the same time serve a copy thereof on the person filing the petition. Such service shall be made by mailing a copy of the protest, postage prepaid, to the petitioner.

006 NOTICE OF HEARING

006.01 Time of Notice; Emergency Orders

Before any rule, regulation, or order, or amendment thereof, shall be made by the Commission, there shall be held a public hearing upon at least fifteen (15) days notice at such time and place as may be prescribed by the Commission and any interested person shall be entitled to be heard, except that when an emergency requiring immediate action is found by the Commission to exist, the Commission may issue an emergency order, without notice of hearing, which shall be effective upon promulgation but shall remain effective for no more than twenty (20) days.

006.02 Manner of Notice and Contents

When a proceeding has been instituted, either by the Commission on its own motion or by a party, the Commission shall cause notice of the hearing before the Commission to be given by personal service or by one publication in a newspaper of general

circulation in each county where the land affected, or some part thereof, is situated. Said notice shall be issued in the name of the State of Nebraska, shall be signed by a member of the Commission or the Secretary of the Commission and shall specify the style and number of the proceeding, the time and place of the hearing, the purpose of the proceeding and the issues involved.

006.03 Notice by Personal Service

Should the Commission elect to give notice by personal service as provided in Rule 6-006.02, such service may be made by any officer authorized to serve summons, or by any agent of the Commission, in the same manner and extent as is provided by law for the service of summons in civil actions in the District Courts in this State. Proof of Service by such agent shall be by his affidavit and Proof of Service by any officer shall be in the form required by law with respect to service of process in civil actions.

006.04 Service of Notice in Special Proceedings

006.04A In all cases where

there is an application for the entry of a pooling order under Section 57-909 R.S. Nebraska, or

there is an application for the entry of a unitization order under Section 57-910 to 57-910.12 R.S. Nebraska, notice of the hearing to be held on such application shall be served on the interested parties as hereinafter defined by certified mail at least fifteen (15) days prior to the date of the hearing.

For the purpose of pooling applications filed under Section 57-909, the term, "interested parties," shall mean those persons who own any oil or gas leasehold, mineral or royalty interest in the tracts to be pooled.

For the purpose of unitization applications filed under Section 57-910 to 57-910.12, the term, "interested parties," shall mean those persons whose names are required to be set forth in the application.

006.04B In all cases where a complaint is made to the Commission that any provision of the Act or any rule, regulation, or order of the Commission is being violated, notice of the hearing to be held on such complaint, or order to show cause, shall be served on the interested parties, as hereinafter defined, in the same manner as is provided in the Rules of Civil Procedure for the service of process in civil actions in the District Courts in this State, as the same may be implemented, interpreted and made specific by the Commission.

In such cases the party or parties complained against and such other persons as the Commission finds may be affected by the act complained of shall be deemed the interested party or parties.

006.04C In all cases where there is an application for an exception to an established well spacing pattern, in addition to notice of hearing as required by the Act, the applicant shall serve notice of hearing upon all interested parties by certified mail. The term "interested parties" shall mean those persons who own any leasehold, mineral or royalty interest in contiguous or cornering tracts of the size established in the existing spacing pattern. Applicant shall file a certificate showing the names and addresses of the interested parties, as above defined, upon whom notice has been or is being served.

The Commission may on its own motion establish temporary spacing for wildcat reservoirs after notice and hearing. Notice in such cases shall be by publication in the legal newspaper of the county where the discovery is located.

006.04D In all cases where there is an application for the approval of the commencement of an enhanced recovery project, or approval of any injection well under Chapter 4, in addition to any notice provided for in Rule 6-006.02, notice of the filing of such application shall be given by the applicant by certified mail or by personal delivery of a copy of the said notice to each person owning a fee, leasehold, mineral or royalty interest within the area which will be affected by the operation

and of lands directly or diagonally offsetting said area or within one-half (1/2) mile of a proposed injection well, whichever is greater. Such notice shall state the time and place of hearing. Proof of the mailing or service of such notice shall be made by affidavit which shall be filed with the Commission.

006.04E All notices required by this Rule shall be given as soon as practicable after the filing of the application, but in any event at least fifteen (15) days prior to the date of hearing. Service of notice shall be deemed complete as of the date of mailing.

006.04F All notices required by this Rule shall contain the following statements: "Any person desiring to protest the granting of the application shall, at least five (5) days prior to the date of the hearing, file a written protest with the Commission, which shall briefly state the basis of the protest. Any person who files a protest with the Commission shall at the same time serve a copy thereof on the person filing the application. Such service shall be by mailing a copy of the protest, postage prepaid, to the applicant. Complete copies of the application in the above-styled cause may be obtained from the Nebraska Oil and Gas Conservation Commission, P. O. Box 399, Sidney, Nebraska 69162."

006.05 Additional Notices

When any proceeding other than those referred to in Rules 6-004.01 and 6-006.04 has been instituted in addition to the service or publication of the notice of hearing as required by the Act, the applicant shall mail to each respondent or interested party and to all persons who have requested notification of such proceeding, as provided in Rule 6-006.06, a written notice of hearing. The term "Interested Party" shall mean those persons who own any leasehold, mineral or royalty interest in the lands affected.

006.06 Request for Notices

Any person desiring notification by mail from the Secretary of the hearings before the Commission shall request same in writing by filing with the Secretary his name and address and designating the area or areas in which interested and as to which he desires to receive such notices.

007 HEARINGS

007.01 Examiners

The Commission may appoint one or more examiners who may conduct any of its hearings in accordance with Section 57-905(12). All hearings may be set for hearing before an Examiner except:

007.01A Matters which the Commission or the Director believes should be heard before the Commission.

007.01B Matters in which the application or a motion pursuant to which the hearing is held specifically requests that the hearing be heard before the Commission; provided that such motion is filed at least five (5) days prior to the hearing.

007.01C Matters involving the adoption or change of any rule or regulation.

007.01D Matters initiated on the motion of the Commission for the enforcement of any rule, regulation, order or statutory provision.

007.02 Continuances

Any party who desires a continuance shall, immediately upon receipt of notice of the hearing or as soon thereafter as facts requiring such continuance come to his knowledge, notify the Commission in writing of said desire, stating in detail the reasons why such continuance is necessary. Any such party may be required to submit affidavits in support of such request. The Commission or its examiners, in passing upon a request for continuance, shall consider whether such request was promptly made. For good cause shown, a continuance not to exceed thirty (30) days may be granted without the necessity of notice in addition to the original notice of hearing. The Commission or its examiners may at any time order a continuance on its own motion. Only under exceptional circumstances will requests for continuance of a hearing be considered unless submitted at least seven (7) days prior to the hearing date. The Secretary shall notify all interested parties immediately of the granting of a continuance.

007.03 Conduct of Hearings; Transcript

A transcript of the testimony shall be made and upon request and payment therefore a copy thereof will be furnished any person

requesting the same. Any person testifying in response to a subpoena issued by the Commission or its examiners and any person testifying in support of any application or a petition or a complaint or a motion, or in opposition thereto, shall be required to do so under oath or affirmation which may be administered by any member of the Commission or its examiners.

007.04 Quorum

Two (2) members of the Commission constitute a quorum for the transaction of business.

007.05 Presentation and Consideration of Evidence

Full opportunity shall be afforded all persons registering their appearances to present evidence in support of their case or defense by oral or documentary evidence, to submit rebuttal evidence and to conduct such cross-examination as may be required for a full and true disclosure of facts. Any evidence which is not irrelevant, immaterial, incompetent or unduly repetitious may be received and made a part of the record in the case, including records and documents in the possession of the Commission of which it desires to avail itself. No other factual information or evidence will be considered in the determination of a case.

Documentary evidence may be received in the form of copies or excerpts or by incorporation by reference.

007.06 Judicial Notice

The Commission or its examiners may take notice of judicially cognizable fact and in addition may take notice of general, technical or scientific facts within their specialized knowledge. Parties shall be notified either before or during the hearing or by reference in preliminary reports, or otherwise, of the material so noticed. They shall be afforded an opportunity to contest such facts and material so noticed. The Commission or its examiners may utilize their experience, technical competence and specialized knowledge in evaluating the evidence and may give probative effect to evidence which possesses probative value commonly accepted by reasonably prudent men in the conduct of their affairs.

007.07 Subpoenas and Production of Records

The Commission or its examiners may upon its own motion or upon application of any interested party issue subpoenas requiring attendance of witnesses and the production of books, papers and

other instruments to the same extent and in the same manner and in accordance with the procedure provided in the Nebraska Rules of Civil Procedure which authorizes issuance of subpoenas by Clerks of the District Courts.

007.08 Depositions

Depositions may be taken by the Commission or its examiners or by parties to a proceeding and used before the Commission in the same manner and under the same conditions prescribed in the Nebraska Rules of Civil Procedure relating to the taking and using of depositions in the Courts of this State.

007.09 Disposition by the Commission or its examiners may be made of any contested case by stipulation, agreed settlement, consent order or default.

007.10 Registration of Appearances of Hearings

All persons who wish to speak for the record at any public hearing before the Commission or its examiners shall register their appearance at the door on a form to be provided by the Commission. Other persons present may register their appearance. The registration form when completed shall be handed to the reporter whose duty it shall be to see that each person desiring to speak has completed and deposited with him such form. The registration form shall contain spaces for the following information: (1) name, (2) address, (3) person the registrant is representing, (4) capacity in which the registrant appears and (5) the interest of the registrant in the proceeding. Such registration form must be signed. Below the signature there shall be a space for registrant to indicate that he wishes to order a copy of the transcript and will pay the cost of making such copy. The request for a copy of the transcript may be completed at the conclusion of the hearing or such later time as may be agreeable. At the conclusion of the hearing all registration cards shall be kept as a part of the record.

008 ORDERS AND DECISIONS

008.01 Time of Entry; Contents

The Commission or its examiners shall enter its order within thirty (30) days after the hearing and cause the same to be indexed in books to be kept for that purpose. Every decision and order adverse to a party to the proceeding, rendered by the Commission or its examiners in a contested case, shall be in writing and accompanied by findings of fact and conclusions of law. The findings

of fact shall consist of a concise statement of the conclusions upon each contested issue of fact. Parties to the proceeding shall be notified of the decision and order in person or by mail. A copy of the decision and order and accompanying findings and conclusions shall be delivered or mailed upon request to each party or his attorney of record.

008.02 Any person having an interest in property affected by an order issued by an examiner and who is dissatisfied with such order may appeal to the Commission by filing a petition on appeal to the Commission within fifteen (15) days of the entering of the examiner's order. The Commission shall hold a hearing on the appeal within forty-five (45) days of the filing of an appeal to the Commission and issue its order within fifteen (15) days after the hearing.

008.03 Quantum of Proof Required

No decision shall be rendered, sanction imposed or rule or order issued except on consideration of the whole record or such portions thereof as may be cited by any party and is supported by and in accordance with a preponderance of the reliable probative and substantial evidence.

008.04 Proceedings for Re-Hearing

No applications or proceedings for re-hearing before the Commission shall be filed except in accordance with Section 57-905(12).

008.05 Briefs

The Commission or its examiners may require the submission of briefs, and any party desiring to submit a brief may do so. The parties shall indicate at the close of the testimony whether they desire to file briefs and the subject matter proposed to be covered. The time for filing briefs will be fixed by the Commission or its examiners. Briefs shall be double spaced except for citations. Five (5) copies shall be filed with the Commission and one (1) copy served upon each party to the proceeding or his attorney of record requesting the same.

Statute: 57-905; 57-911

Appendix B

NOGCC Forms

Nebraska Oil and Gas Conservation Commission
Form 2

NOTICE OF INTENT TO DRILL OR RE-ENTER

Instructions: Notice must be given to the Director and approval obtained before proceeding with the work described herein. Submit the original of this form only. The Commission will reproduce copies as required.

TYPE OF WORK Drill ☐ Re-enter ☐ Drill Horizontal or Directional Well ☐

TYPE OF WELL Oil ☐ Gas ☐ Injection ☐

Operator	Telephone Number

Address

Name of Lease	Well Number	Field and Reservoir (if wildcat, so state)	Elevation (Ground)

Well Location Qtr-Qtr Sec Twp Rng	County

Surface Location of Well - Footage (Report location from exterior section lines)
Feet from N___ S___ line Feet from E___ W___ line of the Section

Bottom Hole Location If Well is Directionally Drilled – Footage (Report location from exterior section lines)
Feet from N___ S___ line Feet from E___ W___ line of the Section

Latitude and Longitude of Surface Location - Degrees	Nearest Distance from Proposed Location to Property or Lease Line - Footage

Number of Acres in Lease	Distance from Proposed Location to Nearest Drilling, Completed, or Applied for Well, on the Same Lease	Number of Wells on Lease, Including This Well, Completed in or Drilling in this Reservoir

Proposed Measured Depth, Feet	Proposed True Vertical Depth, Feet	Deepest Formation to be Penetrated	Approximate Start Date	Drilling Contractor

PROPOSED CASING and CEMENTING PROGRAM

Purpose of String	Hole Size Inches	Casing Size Inches	Weight LBS/Ft	Casing Grade	Setting Depth Top	Setting Depth Bottom	Cement Volume and Type Sacks and Class	Estimated Top of Cement, Feet

Status of Bond **$10,000 One Well Bond Attached** ☐ **$100,000 Blanket Bond on File** ☐

NOGCC Approval

Permit/API No._____

Approved By _____

Approval Date _____

_____
Signature of Operator or Agent

_____
Title

_____
Date

Sample Cut Required by Nebraska Geological Survey

Yes ☐ **No** ☐

Please include the requisite fee, survey plat for the location and Form 2A, Permit Application for a Temporary Earthen Reserve Pit, with this notice.

Rev. 6/03

Nebraska Oil and Gas Conservation Commission
FORM 2A

PERMIT APPLICATION FOR A TEMPORARY EARTHEN RESERVE PIT

PART I - TYPE OF PERMIT (CHECK ONE) GENERAL or AREA ____ INDIVIDUAL ____

FOR THOSE RESERVE PITS LOCATED WITHIN ONE-HALF MILE OF THE WATERS OF THE STATE, THE OPERATOR MUST ATTACH TO THIS FORM, A SCALED TOPOGRAPHIC MAP SHOWING THE PIT LOCATION RELATIVE TO THE SURFACE DRAINAGE AND DISTANCES TO WATER.

Operator

Address

Drilling Contractor Rig #

Lease/Well #

Location Qtr-Qtr Sec Twp Rng County

Number and Size of Working Pits #1 #2 #3

Size of Reserve Pit Freeboard Ft.

Method of Disposal of Pit Contents

Type of Mud System (CHECK ONE) Fresh Water Oil Based Salt Saturated

Anticipated Time Pit will be in Use

**IF A SALT BASED OR OIL BASED MUD SYSTEM IS USED, APPLICANT MUST COMPLETE PART II OF THIS FORM.

I HEREBY CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT.

SIGNED_____TITLE _____ DATE _____

PART II - FOR SALT OR OIL BASED MUD SYSTEMS (ATTACH TOPOGRAPHIC MAP OF THE AREA SHOWING ALL DRAINAGE, LIST THE SPECIFICATIONS OF THE PIT LINER TO BE USED, AND PLANS FOR PIT CONTENT DISPOSAL)

THIS SPACE FOR COMMISSION USE

PERMIT/API # _____ DATE _____

APPROVED BY _____

CONDITIONS OF APPROVAL, IF ANY:

Rev. 06/03

Nebraska Oil and Gas Conservation Commission
Form 3A

STATE OF NEBRASKA

OIL AND GAS OPERATORS BOND

BOND NO. _____

PENAL SUM $ _____

KNOW ALL MEN BY THESE PRESENTS,

That we, _____,

of the County of _____, State of _____,

as Principal, and _____,

of _____, as surety, authorized to do business in the State of Nebraska, are held firmly bound unto the State of Nebraska in the penal sum as indicated, lawful money of the United States, for which payment, well and truly to be made, we bind ourselves and each of us, and each of our heirs, executors, administrators or successors, and assigns jointly and severally, firmly by these presents.

Whereas the above bounden principal proposes to engage in the drilling, producing and operating of a well or wells for oil and/or gas, or proposes to drill holes for stratigraphic information in and upon lands situated within the State of Nebraska, at a location described as follows:

I ☐ **"ONE-WELL BOND"** Penal Sum $10,000

Well Number	Name of Lease	County

Well Location	Sec.	Twp.	Rng.

II ☐ **"BLANKET BOND"** Penal Sum $100,000

Any and all wells drilled and operated by the principal in the State of Nebraska

NOW, THEREFORE, the above bounden principal shall comply with all of the provisions of the laws of the State of Nebraska and the rules, regulations and orders of the Nebraska Oil and Gas Conservation Commission, and file with the Nebraska Oil and Gas Conservation Commission all notices and records required by said Commission.

This obligation shall remain in full force and effect until released by the Nebraska Oil and Gas Conservation Commission at the request of Principal or Surety.

Witness our hands and seals this

_____Day of _____, 20____

_____
(Principal)

_____
(Signature)

_____
(Print or Type Name & Title)

Witness our hands and seals this

_____Day of _____, 20____

_____
(Surety)

_____
(Signature)

_____
(Print or Type Name & Title)

Approved: _____
(Date)

_____
Director,
Nebraska Oil and Gas Conservation Commission

Countersigned:

_____
(Resident Agent)

Print Name _____

Surplus Lines Agent? ☐ Yes ☐ No

(If the principal is a corporation, the bond must be executed by its duly authorized officers, with the seal for the Corporation affixed. When agent for principal or surety executes this bond, power of attorney or other evidence of authority must accompany the bond.)

Rev. 12/02

Nebraska Oil and Gas Conservation Commission
Form 4

SUNDRY NOTICE

Instructions: Notice must be given to the Director and approval obtained before proceeding with the work outlined herein. Submit the original of this form only. The Commission will reproduce copies as required.

Notice of Intention to Recomplete ☐ Notice of Intention to Abandon Well ☐

Notice of Intention to Change Plans ☐ Other _____ ☐

Operator

Address & Telephone

Well No. & Name	NOGCC Lease No.	API No.	Field & Reservoir (If wildcat, so state)

Location

Qtr.-Qtr. Sec. Twp. Rng. County

Footage Location

_____ Ft. from N ____ or S ____ line, and _____ Ft. from E ____ or W ____ line of Section.

DETAILS OF WORK PROPOSED

I/We hereby swear that the statements herein made are complete and correct.

_____
Signature

_____ _____
NOGCC Director Title

_____ _____
Date Date

Rev. 12/02

Nebraska Oil and Gas Conservation Commission
Form 5

WELL COMPLETION OR RE-COMPLETION REPORT

Instructions: Within thirty days following the completion or re-completion of any well, the owner or operator shall submit the original of this form. The Commission will reproduce copies as required. Geological information will be held confidential for a period of twelve months upon written request. If multiple completion, submit separate report for each completion.

TYPE OF WORK	Oil Well ☐	Gas Well ☐	Injection Well ☐	Directional Well ☐
	Workover ☐	Deepen ☐	Plug Back ☐	Same Reservoir ☐

Operator

Address

API Number	Lease Name	Well Number	Field and Reservoir (If wildcat, so state)

Surface Location
Qtr-Qtr. Sec. Twp. Rng.

County

Surface Location of Well – Footage (Report location from exterior section lines)
Feet from N ___ S ___ line Feet from E ___ W ___ line of the Section

Bottom Hole Location If Well is Directionally Drilled – Footage (Report location from exterior section lines)
Feet from N___ S ___ line Feet from E ___ W___ line of the Section

Latitude and Longitude of Surface Location – Degrees and Minutes

Spud Date	Date Reached TD	Date Completed	Elevation	Reference of Elevation
				KB___ DF___ GL___

Measured Depth, Ft	True Vertical Depth, Ft	PBTD, Ft	Single or Multiple Zone Completion	Producing Interval(s) for this Completion - Top, Bottom, Name

Type of Logs Run in Well

CASING, LINER and CEMENTING RECORD

Purpose of String	Hole Size Inches	Casing Size Inches	Weight LBS/Ft	Casing Grade	Setting Depths Top	Setting Depths Bottom	Cement Volume and Type Sacks and Class	Estimated Top of Cement

PERFORATION and STIMULATION RECORD

Formation	Top Perforation	Bottom Perforation	Shots/Ft	Size and Type	Stimulation and/or Squeeze History Summary of Fluid Types and Volumes

TUBING and PACKER RECORD

Tubing Size Inches	Tubing Weight LBS/Ft	Tubing Grade	Tubing Setting Depth Ft	Packer Type or Model	Packer Setting Depth, Ft	Annulus Integrity Test, Annular Fluid and Surface Pressure, PSIG

INITIAL PRODUCTION

Date of First Production	Producing Method – Flowing, Pumping, Gas Lift	Choke Size, Inches	Flowing Tubing Pressure, PSIG	Casing Pressure, PSIG

RATE OF PRODUCTION 24 HOUR TEST PERIOD	Oil, BBLS	Gas, MCF	Water, BBLS	Gas/Oil Ratio, SCF/BBL

Disposition of Gas (Vented, Flared, used on lease, sold)

Oil and/or Gas Purchaser

I/We hereby swear that the statements herein made are complete and correct.

Signature

Printed or Typed Name & Title

Date

(If new well, complete Well Log on reverse side of form.)
Rev. 12/02

WELL LOG

Show important formations penetrated, with tops. Detail all cores. Report all drill stem tests, giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, fluid recovery and flow rate if gas to surface during test. Enclose one copy of each open-hole log run in well.

FORMATION RECORD

Formation Name	Top of Formation Measured Depth, Ft	Top of Formation True Vertical Depth, Ft If Directional Well

CORING RECORD

Formation Name	Interval Cored	Core Recovery, Feet

Enclose one copy of the core analysis with this Form 5.

DRILL STEM TESTS

DST Number	Top of Interval	Bottom of Interval	IHP	IFBHP Pressure	IFBHP Time	ISIBHP Pressure	ISIBHP Time	FFBHP Pressure	FFBHP Time	FSIBHP Pressure	FSIBHP Time	FHP	Description of Pipe Recovery
	Additional Information												
	Additional Information												
	Additional Information												
	Additional Information												

Additional Information:

WELL LOG

Show important formations penetrated, with tops. Detail all cores. Report all drill stem tests, giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, fluid recovery and flow rate if gas to surface during test. Enclose one copy of each open-hole log run in well.

FORMATION RECORD		
Formation Name	Top of Formation Measured Depth, Ft	Top of Formation True Vertical Depth, Ft If Directional Well

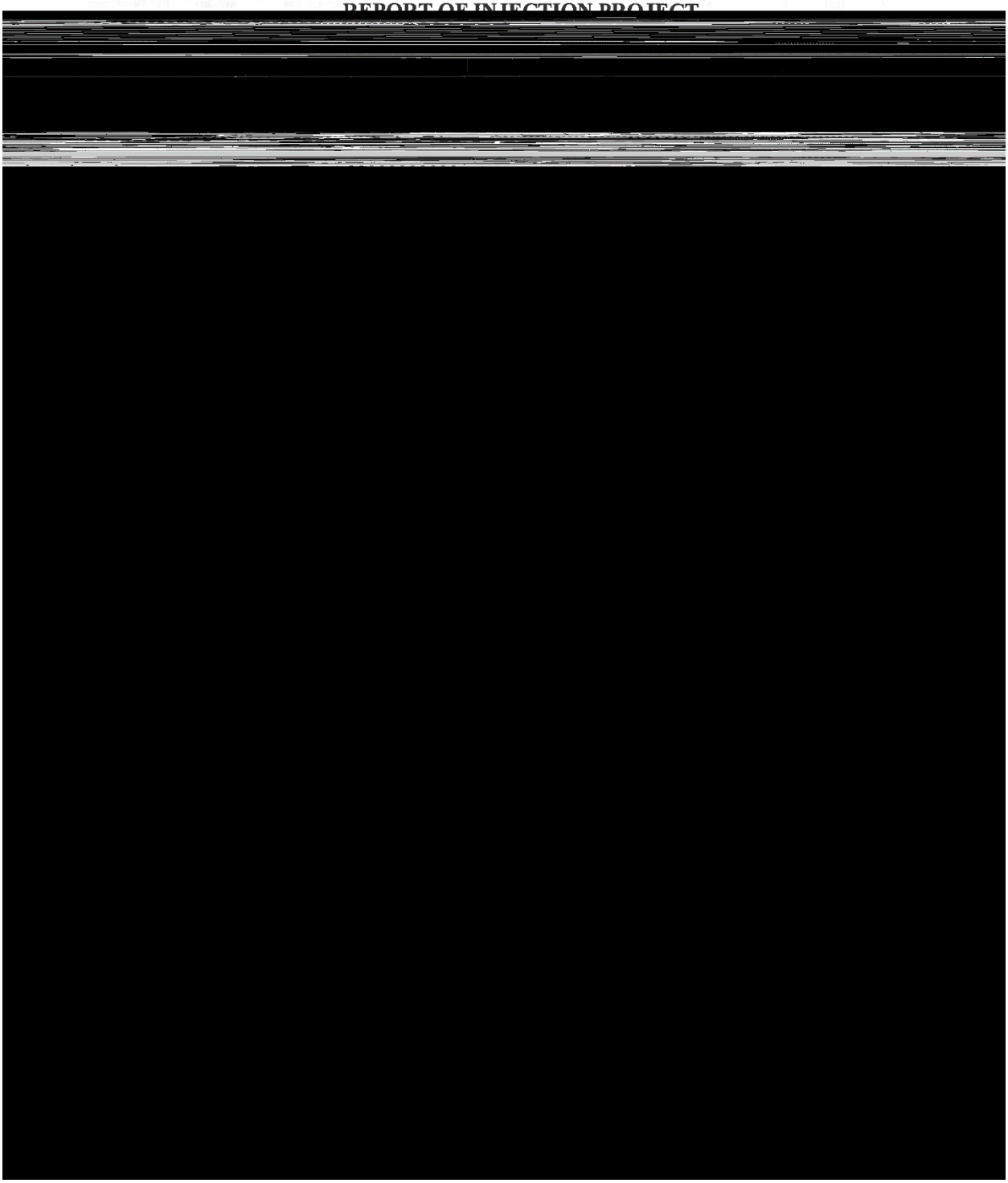
CORING RECORD		
Formation Name	Interval Cored	Core Recovery, Feet
Enclose one copy of the core analysis with this Form 6.		

DRILL STEM TESTS														
DST Number	Top of Interval	Bottom of Interval	IHP	IFBHP Pressure	IFBHP Time	ISIBHP Pressure	ISIBHP Time	FFBHP Pressure	FFBHP Time	FSIBHP Pressure	FSIBHP Time	FHP	Description of Pipe Recovery
	Additional Information												
	Additional Information												
	Additional Information												
	Additional Information												

Additional Information:

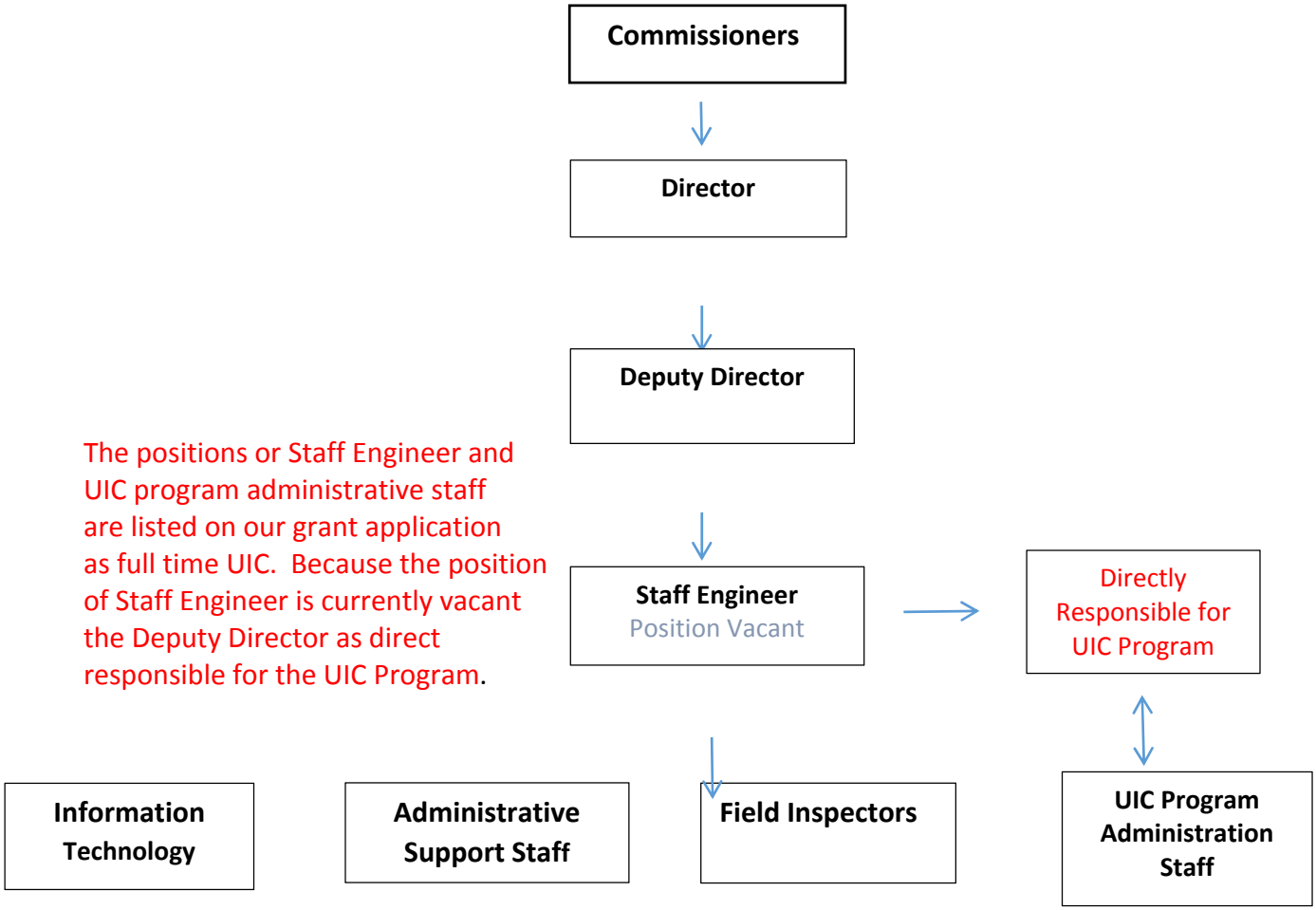
Nebraska Oil and Gas Conservation Commission
Form 11 EOR

REPORT OF INJECTION PROJECT



Date	API Number	Well Name	Injection/ Tubing String PSIG	Tubing/Casing Annulus PSIG	Long String/ Surface Casing Annulus/PSIG

Appendix C:


Commissioners
Director
Deputy Director
The positions or Staff Engineer and UIC program administrative staff are listed on our grant application as full time UIC. Because the position of Staff Engineer is currently vacant the Deputy Director as direct responsible for the UIC Program.
Staff Engineer
Position Vacant
Directly Responsible for UIC Program
Information Technology
Administrative Support Staff
Field Inspectors
UIC Program Administration Staff

.

Appendix D

Inspection Forms

NOGCC UIC PROGRAM
ANNULUS INSPECTION FORM

DATE

OPERATOR

FIELD _____ _____ COUNTY _____

WELL NAME _____ _____

WELL API # 26- _____ _____

OBSERVED PRESSURES

TUBING _____ PSI INJECTION PUMP RUNNING? YES NO

CASING _____ PSI

OPERATOR REQUIRED TO MAKE REPAIRS?

YES NO

IF YES, THAN WHAT REPAIRS ARE REQUIRED

_____ _____ _____

_____ _____

_____ _____

DATE OPERATOR NOTIFIED REPAIRS ARE DUE

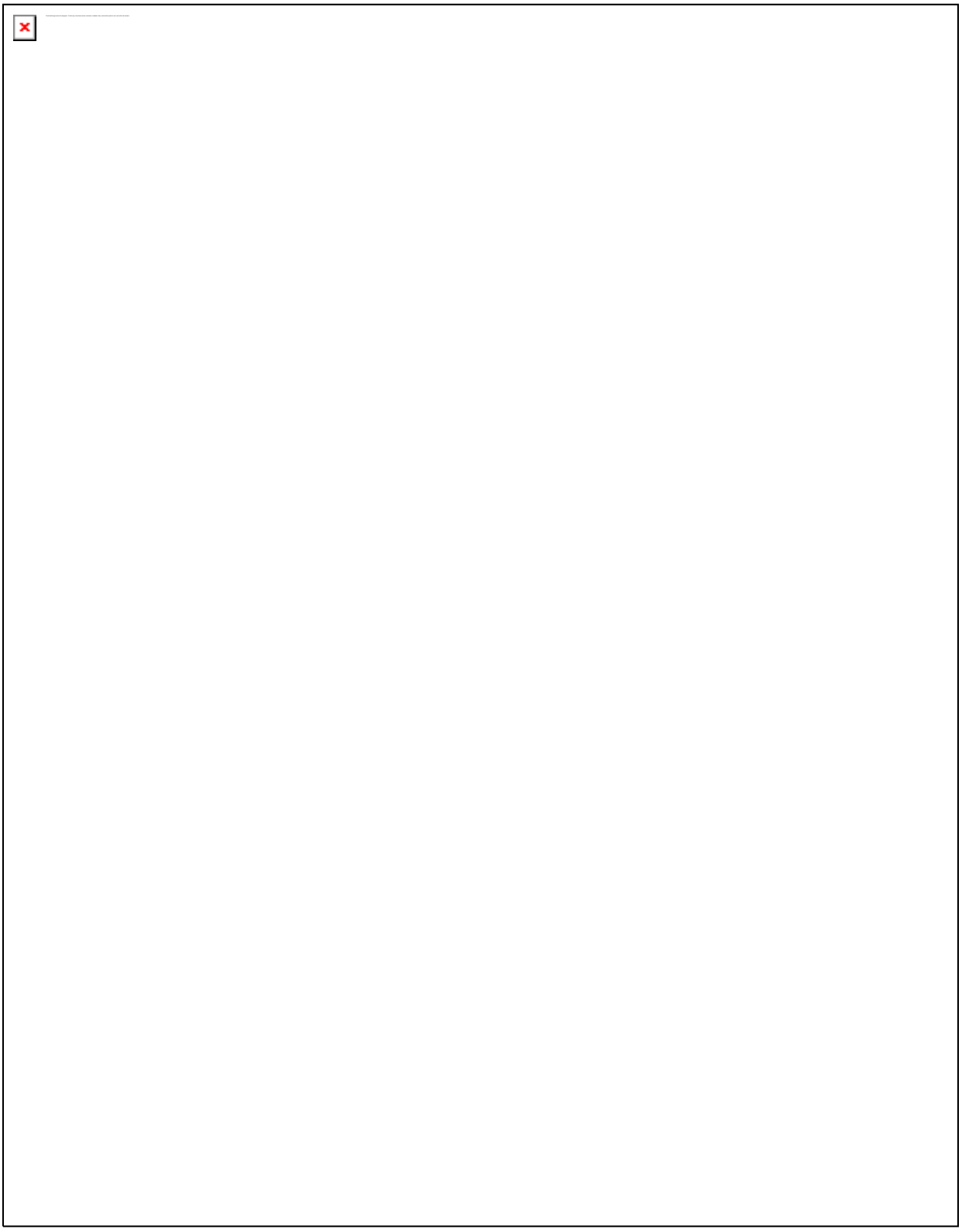
DATE WELL RECHECKED _____

WELL ACCEPTABLE YES NO

NOTES

_____ _____ _____

_____ _____



Appendix E

NOGCC File Review Documentation:

Case 1:

Name: #1 Huntsman, #22, Huntsman, #48 Huntsman

Case #: 02-2

Order #: R-786

Dates: July 23, 2002

Description: Disposal permit for three salt water disposal wells associated with Huntsman Gas Storage.

T14N, R49W, Section 6, SW SW NW; NW NW; NW NW

Cheyenne County, Nebraska.

Summary: No deficits or deviations from procedure were observed in this file.

Case 2:

Name: 9 Enhanced Recovery Wells Dundee, Berexco, Inc. Millenia Field.

Case #: 08-01

Order#: UIC-1609

Dates: February 27, 2008

Description: Permit application for 9 enhanced recovery wells located in

T1N; R36W; Section 6 SW, SE

T1N; R36W; Section 7, NE SE; NE SW; SW SE; NE NE; SE NW

T1N; R36W; Section 8 SW NW, SW SW, Section 18 NW NE.

Dundy County, Nebraska

Summary: No Deficits for deviations from procedures were observed in this file.

Case 3:

Name: Smith Oil Properties, Inc., #6 Rocky Hollow Unit

Case #: UIC 05-10

Order#: UIC-1417

Dates: December 6, 2005

Description: Conversion of wells to enhanced oil recovery operations.

T18N, R56W, Section 25; NW SW

Banner County, Nebraska

Summary: No deficits or deviations from procedures were observed in this file.

Case 4:

Name: Vista Operating, Inc.

Case #: 08-01

Order #: R-821

Dates: March 25, 2008

Description: Conversion to salt water disposal well.

T14N, R43W, Section 12: SW, SW

Deuel County, NE

Summary: No deficits or deviations from the procedures was observed.

Case 5:

Name: 13-1 Laucomer

Case #: 14-14

Order #: N/A

Dates: November 10, 2014

Description: Conversion to a salt water disposal well.

352 from the north line and 1907 from the west line of T25N, R56W, Section 13 NE, NW

Sioux County, NE

Summary: No deficits or deviations from the procedures were observed, file appeared complete.

Case 6:

Names: Bellaire Oil Co, Palm

Case #: 15-04

Order #: R-892

Dates: July 28, 2015

Description: Unitization agreement for secondary recovery program by water flooding and involuntary unitization.

T17N, R58W, Section 16: SW/4 SW/4

Section 17: S/2 SE/4; SE/4 SW/4

Section 20: NE/4 NE/4, NW/4; NE/4 SE/4

Section 21: NW/4 NW/4; S/2 NW/4; NW/4 NE/4 N/2 SW/4; NW/4 SE/4, Banner County, NE.

Summary: No deficits or deviations from the procedures were observed, file appeared complete.

Appendix F

EPA Region 7's final program review questions with NOGCC responses.

Comprehensive Review of the Nebraska Safe Drinking Water Act Section 1425 Underground Injection Control (UIC) Program

Nebraska Oil & Gas Conservation Commission (NOGCC)

October 2015

*NOGCC initial responses are colored in red.

*Responses during program review interview are colored in blue.

*NOGCC follow up responses are colored in orange.

A. Statutory Authorities and Regulatory Jurisdictions

1. What year did EPA grant primary authority to your agency for permitting and regulating Class II injection?
   1983

2. What is the state statutory authority upon which your UIC program is based?
   RSN 57-905 (7) states, "The commission shall have authority to promulgate and to enforce rules, regulations and orders to effectuate the purposes and the intent of sections 57-901 to 57-921."

Do these statutes or rules contain definitions for the following terms: injection; enhanced recovery; brine or salt water disposal; commercial disposal; well stimulation (eg. hydraulic fracturing); produced fluids; and underground source of drinking water or fresh water? If so, please provide copies of the definitions for those terms.

001 **FRESH WATER** means a source of water used for drinking water purposes, or water contained in an aquifer which contains less than ten thousand (10,000) parts per million total dissolved solids, unless the aquifer is exempted by the Director.

CLASSIFICATION OF UNDERGROUND INJECTION WELLS

001.01 Enhanced recovery injection well is a well which injects fluids to increase the recovery of oil and/or gas.

A commercial enhanced recovery facility includes single or multiple wells that are specifically engaged in the business of underground injection of brine generated by third party producers for a fee or compensation. In addition, the produced brine must originate off-site as a result of oil and gas production operations only, and must be transported to the facility by tank truck.

001.02 Disposal well is a well which injects for purposes other than enhanced recovery those fluids brought to the surface in connection with the production of oil and/or gas.

A commercial disposal facility includes single or multiple wells that are specifically engaged in the business of underground injection of brine generated by third party producers for a fee or compensation. In addition, the produced brine must originate off-site as a result of oil and gas production operations only, and must be transported to the facility by tank truck

002.01 Commencement of waterflooding and other enhanced recovery operations involving the introduction of extraneous forms of energy into any reservoir, including cycling or recycling operations and the extraction and separation of liquid hydrocarbons from natural gas in connection therewith is permitted only upon order of the Commission.

- Most water flooding is done with groundwater.

002.02 Underground disposal of salt water, brackish water or other water unfit for domestic, livestock, irrigation or other general uses is permitted only upon order of the Commission.

002.03 All injection wells must have sufficient surface casing run to reach a depth below the base of all water sources that are less than three thousand (3,000) parts per million total dissolved solids or water sources that are or could be reasonably utilized as domestic fresh water unless those sources are exempted. Casing shall be sufficiently cemented to fill the annulus to the top of the hole.

002.04 All injection wells shall be cased and the casing cemented in such a manner that damage will not be caused to oil and gas resources by any injection activity.

002.05 Authorization for injection may be conditioned upon the applicant taking action to protect fresh water as may be specified by the Commission in its order.

3. Does your statutory authority include the ability to promulgate new rules or modify existing ones? If so, please describe and cite the enabling authority or authorities.

Yes. RSN 57-905 (7) states, "The commission shall have authority to promulgate and to enforce rules, regulations and orders to effectuate the purposes and the intent of sections 57-901 to 57-921."

4. What changes have been made to the regulations since primacy was granted and how have those changes impacted the UIC program?

- Well stimulation annulus rules were added recently (2013 & 2014).

Special Request Item: *EPA requests that NOGCC provide a copy or link for all current state statutes, rules, regulations, policies, procedures, and orders which are applicable to the injection of Class II eligible wastes for disposal, enhanced recovery and hydrocarbon storage.*

http://www.nogcc.ne.gov/NOGCCrulesstatutesindex.aspx

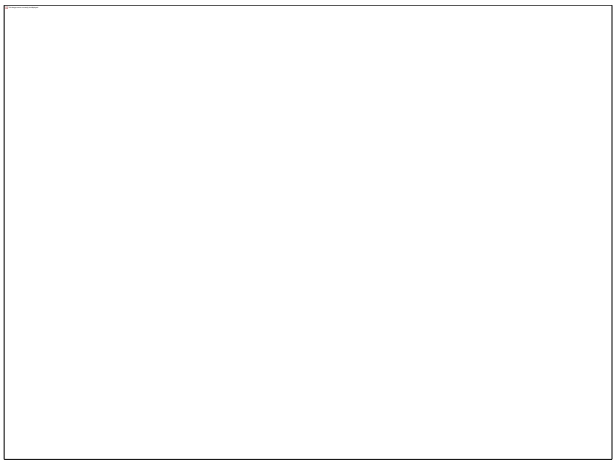
B. Administration and Program Development

1. Please provide an agency organizational chart and identify UIC positions along with their roles and responsibilities.

   Within our organization, every individual spends a portion of their time working on our UIC program; however, only two individuals, the Deputy Director and UIC Administrative Assistant formally record their time to the program. See attached organization chart.

2. What training is required for new UIC staff and how do existing staff stay current on the UIC program?
   All inspectors have been sent to EPA's inspectors' training school, IOGCC inspector certification program and GWPC training programs i.e. well integrity, as scheduled.

3. How many Class II wells by operating status are in the NOGCC inventory at this time?



- Around 20 – 25 wells are permitted a year (both injection and production), but does fluctuate depending on the market. Down to one third of the wells approved of the wells approved this time last year. Twenty five percent of the NOGCC well count are injection wells. Abbreviations included in appendix.

4. Does NOGCC allow for the "land-spreading" of solid waste generated by injection well drilling operations? If so is this information maintained by NOGCC and available to the public?
   Yes, if water based fluids were used. Approval for land-spreading requires the written permission of land owner. Information is not on our website.

- Required to have an agreement with the property owner and company since they own the land and mineral rights.

5. Does NOGCC have any regulations which govern the retention by injection well owners/operators in Nebraska of records, forms, reports and other items that are required by a permit? If so, what is the retention period that these records must be maintained and kept on file and available upon NOGCC request?
   All records are retained both electronically and in paper forever.

- Information for disposal fluids require the point of source, volume etc. (not just required of commercial wells). Commercial disposal wells must have disposal fluid trucked in, not allowed to be brought in by pipe.

6. Does the NOGCC have any notification requirements regarding injection wells being sold or transferred to another company or individual(s)? If so, are there any time limits or constraints when this must be accomplished?
   Must be approved in writing by the Director

   - 008.01 Orders authorizing injection into enhanced recovery injection wells and disposal wells shall remain valid for the life of the well, unless revoked by the Commission for cause.

008.02 An order granting underground injection may be modified, revoked and reissued, or terminated during its term for cause, after notice and hearing, upon the request of any interested person or at the Commission's initiative. All requests filed requesting review of any order authorizing underground injection shall be in writing and shall contain facts or reasons supporting such request.

- The legal definition of interested party is used by NOGCC, any party within the area of review (AoR).

008.03 Upon receipt of a request to modify or revoke an order authorizing underground injection, the Commission shall promptly set the matter for hearing and may revoke, modify and reissue said order if:

008.03A There is a substantial change of conditions in the enhanced recovery injection well or the disposal well operation, or there are substantial changes in the information originally furnished.

008.03B Information shows that the permitted operation will have adverse cumulative effects on the environment.

008.03C Information shows that the operation is not in accordance with the order authorizing the injection.

C. Well Operations

Permitting:

1. What information is required by NOGCC in an intent to drill application?

http://www.nogcc.ne.gov/Forms/NE_Form2_IntentToDrill.pdf

Unless altered, modified or changed for a particular pool or pools, upon hearing before the Commission, the following shall apply to the drilling of all wells:

012.01 When drilling where high pressures are likely to exist, the owner shall take all reasonable precautions for keeping the well under control at all times and shall provide at the time the well is started proper high pressure fittings and equipment. Under such conditions, the conductor string of casing must be cemented throughout its length, unless other procedure is authorized by the Director or his authorized agent, and all strings of casing must be securely anchored.

012.02 In areas where pressures and formations are unknown, sufficient surface casing shall be run to reach a depth below the base of formations generally contributing water supplies for domestic, agricultural and municipal use as well as water bearing formations reasonably expected to be utilized for domestic, agricultural and municipal use if not presently utilized. The amount of surface casing run shall be sufficient to prevent blowouts and uncontrolled flows at reasonable depths and of sufficient size to permit the use of an intermediate string or strings of casing where necessary to control deeper blowout or uncontrolled flow sources. Surface casing shall be set in a relatively impervious formation and shall be cemented by the plug or displacement or other approved method with sufficient cement to fill the annulus to the top of the hole except in cases where unusually long strings of surface casing are required and approval is secured from the Director or his authorized agent to use other adequate methods of cementation.

012.03 In wells drilled in areas where subsurface conditions are known through drilling experience, surface casing shall be set and cemented to the surface by the pump and plug or displacement or other approved methods at a depth sufficient to protect all domestic, agricultural or municipal water supplies and to insure against blowouts or uncontrolled flows.

012.04 Cement shall be allowed to stand under pressure until the cement has reached a compressive strength of five hundred (500) pounds per square inch before drilling the plug. The term "under pressure" as used herein, will be complied with if one float valve is used or if pressure is otherwise held. All cement and cement additives used shall have been tested in accordance with API RP 10B, dated 1974, "Recommended Practices for Testing Oil-Well Cements and Cement Additives," and the results reported to the Director prior to use.

012.05 In all proven areas, the use of blowout equipment shall be in accordance with the established practice in the area.

012.06 In areas where high pressures may be reasonably anticipated, all drilling wells shall be equipped with a master-gate or its equivalent, an adequate blowout preventer, together with choke and kill line or lines of the proper size and working pressure. The entire control equipment shall be in good working condition at all times.

012.07 If a well is deepened for the purpose of producing oil and gas from the lower stratum, such deepening to and completion in the lower stratum shall be conducted in such a manner as to protect all upper productive strata.

012.08 All wells shall be so drilled that the horizontal distance between the bottom of the hole and the location at the top of the hole shall be at all times at a practical minimum.

012.09 If and when it becomes necessary to run a production string, such production string shall be cemented by the pump and plug method.

012.10 By approved reasonable methods, the owner shall shut off and exclude all alien water from any oil or gas bearing stratum; and to

determine the effectiveness of such operations, the owner shall make a casing test before suspending drilling operations or drilling into the oil or gas bearing stratum and completing the well.

012.11 Before commencing to drill, proper and adequate pits shall be constructed for the reception and confinement of mud and cuttings. Reserve pits used in the drilling and completion of oil and gas wells shall be designed and constructed to protect the surface and the waters of the state from pollution.

For all reserve pits the minimum criteria shall be as follows:

- Minimum of two (2) foot freeboard is required.
- All topsoil shall be stockpiled on or adjacent to the location and be used for reclamation after drilling operations have been completed when practical.
- Reserve pits shall not contain, at anytime, any non-exempt E&P waste.

The Commission may administratively approve field-wide or area-wide applications covering drilling reserve pit design and construction.

012.12 For those reserve pits located within one-half (1/2) mile of surface waters of the state, the operator shall meet the requirements set forth in Section 012.11. Additionally, an application filed with Form 2 shall include:

- Drilling location layout plan.
- Pit size.
- Type of mud program.
- Anticipated time pit will be in use.
- Scaled topographic map showing the surface drainage and distance to any lakes, rivers, streams or springs.

012.13 If salt based or oil based muds are used during the drilling program or if a salt section of sufficient thickness to affect the mud quality is anticipated, then the reserve pit design and construction shall meet the requirements of this rule and an application shall be submitted along with Form 2 for approval.

Minimum design criteria shall be as follows:

- Steel working tanks will be required on the drilling rig circulating system.
- Reserve pits shall be designed to accommodate those fluids while protecting the lands and waters of the state.
- Soil mixture liners, recompacted clay liners and manufactured liners must be compatible with the wastes contained.

- The application shall include the type and specifications of the liner to be used. All liners constructed of manufactured materials must meet or exceed the specifications set forth by the Commission.
- Synthetic liners must be installed over smooth fill sub-grade which is free of pockets, loose rocks, or other materials which could damage the liner. Sand, sifted dirt, or bentonite are suggested as cushion material if needed.
- The application shall contain a plan for disposal of liquids and solids.
- Liner edges must be secured to prevent wind damage.

The Commission may authorize alternative methods upon review of the application.

012.14 All pits shall be backfilled within one year after completion of drilling operations.

The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal.

Within thirty (30) days after cessation of drilling operations, non-exempt E&P waste materials including but not limited to crankcase oil shall be contained in non-leaking containers and disposed of in accordance with DEQ or any applicable federal regulations.

In those areas where acceptable, and upon application and approval, land farming or land spreading of fresh water based drilling mud may be allowed on the lease.

012.15 After the reserve pits have been properly backfilled, a biodegradable mulch may be required if soil erosion or the establishment of vegetation is determined to be a problem by the Director.

001 LOCATION OF WELLS

013.01 No well drilled for oil or gas in or adjacent to presently producing pools shall be drilled at a location within a legal subdivision which varies substantially from the established locations within legal subdivisions of a majority of the wells in the pool or which will result in a spacing unit for such wells substantially different from that attributable to the established wells in the pool.

013.02 All wells drilled to sources of supply at estimated depths in excess of two thousand five hundred (2500) feet for which no spacing pattern has been established by existing wells shall be drilled on 40-acre legal subdivisions or equivalent lots and not less than five hundred (500) feet from the boundaries of said legal subdivisions. The Director may administratively approve an exception to the requirements hereof where topographical conditions, irregular sections or geological conditions make the drilling of a well at the

regular location impractical, provided that the owners, as defined in the Act, within a distance of five hundred (500) feet from the proposed well file with the Director a waiver of objection, or consent in writing, agreeing to said exception; Provided further, that a well drilled under the terms of such waiver, or consent, shall be subject to such production limitations as may be necessary to protect correlative rights.

013.03 All wells drilled to sources of supply at estimated depths of two thousand five hundred (2500) feet or less for which no spacing pattern has been established by existing wells shall not be drilled closer than three hundred (300) feet from the boundaries of a 40-acre legal subdivision or equivalent lot.

013.04 Upon the receipt, by the Commission, of an application from any person requesting the establishment of special field rules for spacing of wells within a designated area, all or a portion of which is not then subject to special field rules, or upon decision by the Commission to call a hearing for the establishment of such special field rules, application for permits to drill within such area will be held in abeyance by the Commission until such time as the matter has been fully heard and determined; and no further permits to drill within the area designated in the application shall be issued until such determination has been made. Notwithstanding the provisions above, a permit shall be issued if an owner demonstrates to the satisfaction of the Director that a loss of his leasehold will result or that significant drainage may occur if approval of drilling is withheld. However, in event a permit is issued, the permit to drill shall authorize a location for the proposed well which conforms as nearly as practicable to the pattern proposed in each application or petition then on file with the Commission for spacing within the designated area.

013.05 The foregoing spacing restrictions shall not apply to approved unit operations or authorized secondary recovery projects or to any field where the Commission, after notice and hearing, ordered a different spacing pattern in special field rules.

002 DIRECTIONAL DRILLING

When the intent is to direct the bottom of the hole away from vertical, other than whipstocking necessitated by hole conditions, and the spacing pattern is not altered thereby, notice of intention to do so shall be filed with the Director and approval obtained before beginning controlled directional drilling operations. Such notice shall state clearly the depth, exact surface location of the well bore, proposed direction deviation and proposed horizontal distance between the proposed bottom of the hole and the surface location. If approval is obtained, the owner shall file with the Commission within thirty (30) days after the completion of the work an accurate and complete copy of the directional survey made.

- Horizontal well permit AoR is not often done in Nebraska. Horizontal wells in the zone of endangering influence (ZOEI) can have permit conditions worked into the permit to not allow the fluids to flow up-pipe.

003 RE-DRILLING OR DRILLING DEEPER

When a well is re-drilled or drilled deeper by the original operator, the operator shall advise the Commission of his intentions by filing Form 4 and stating thereon the proposed work to be done and the anticipated results of the work.

If the re-drilling or drilling deeper is to be done by anyone other than the original operator, he shall file Form 2 and the seventy-five dollar ($75) permit fee and state on the form that this well is to be re-drilled or drilled deeper.

Upon completion of the work Form 5 shall be filed if the well is an oil or gas producer, injection or disposal well, or shut-in with casing in the hole. If the well is a dry hole, Form 6 shall be filed. Copies of any logs and tests made should accompany these forms.

2. Does NOGCC have any public notification requirements regarding the intention to drill? If so, please elaborate.
   No, all permits are posted on our website

3. What information is required by NOGCC in an injection well permit application?
   The required elements of a complete application can be found in Chapter 4 Section 004 of the Rules and Regulations.

004.02A	A plat map showing all wells, including dry, abandoned or drilling wells shall be properly located and designated on said plat. In the case of an operation conducted subject to a unit agreement, the area affected shall be the area subject to such agreement, or that area within one-half (1/2) mile of each injection well, whichever is the greater distance.
004.02B	The names and addresses of each person owning a fee, leasehold, mineral or royalty interest within one-half (1/2) mile of each injection well or within the area required to be shown on the plat, whichever is the greater.
004.02C	A full description of the particular operation for which approval is sought.
004.02D	The names and addresses of the operator or operators of the project.
004.02E	If the wells have been drilled, a copy of each completion report and any available electric or radioactivity logs.
004.02F	A schematic diagram of each well showing:
004.02F1	The total depth or plug-back of the well.

004.02F2 The depth of the injection or disposal interval.

004.02F3 The geological name of the injection or disposal zone.

004.02F4 A geologic description of the injection or disposal zone including the location and extent of any known faults or fracture systems.

004.02F5 The depths of the tops and bottoms of the casing and cement to be used in the well.

004.02F6 The size and specifications of the casing and tubing, and the setting depth and type of packer, if used.

004.02G Information showing that injection into the proposed zone will not initiate vertical fractures into or through the overlying strata which could enable the injected fluids or formation fluids to enter any fresh water strata.

004.02H Information that no unplugged wells exist which will allow the migration of the injected fluids or formation fluids to enter any fresh water strata.

004.02I Information regarding the fracture pressures of the injection zone and the overlying strata, including the source of such information.

004.02J Proposed operating data:

004.02J1 Maximum designed or proposed daily injection rates and injection pressures.

004.02J2 The source of any fluids to be injected.

004.02J3 Analysis of a representative sample of the fluids to be injected.

004.02J4 Analysis of fresh water from two or more freshwater wells within one mile of the proposed injection well showing the location of the wells and the dates the samples were collected, or a statement why samples were not submitted.

004.02J5 Geological name of the lowest freshwater zone, if known, and the depth to the base of the freshwater zone.

004.02J6 The vertical distance separating top of the injection zone and the base of the lowest freshwater strata.

- For unitization orders geologic, participants and nearby wells are looked at which may be injecting to help with EOR to ensure everything is equitable, people may be involuntarily included into unitization.

4. Does the state allow for area (multi well) permits? If so, what are the differences in the type of information that is required in the application?
   NOGCC accepts applications for multiple UIC wells in with a single submission, i.e. for forming of a secondary recovery unit, however all UIC well information is well specific.
   - UIC order process requires every well to be individually permitted, but do allow for area permits to be established (each well is individually reviewed to ensure no underground sources of drinking water (USDW) endangerment may occur).

5. Who makes a determination if a permit application is complete?
   The Engineering/Geologic staff (Stan, or Bill) screen the applications for completeness based on the requirements stated in Chapter 4 Section 004 of the Rules and Regulations.
   - If a notification period passes without any written objections NOGCC has the ability to have the case approved (around 90% permits are done this way).

6. What procedure is followed when an application is found to be incomplete?
   The missing required information or documents are flagged on a checklist containing the requirements as stated in Chapter 4 Section 004 of the Rules and Regulations. The checklist is then returned, along with the application, to the Administrative assistant who contacts the Operator and requests the missing information

7. Once an application has been determined to be complete, what is the process for development of a draft permit?
   Once an application is determined to be complete, it is returned to the Administrative Secretary to prepare the legal notice for publication, and a case number is assigned. When the notification period is complete the application is reviewed by the Hearing Examiner and an order/permit is written. If objections have been received than the application/case must be heard by the full Commission, an order/permit is than drafted and signed by the commissioners.

8. What are the well siting restrictions for Class II injection wells in Nebraska and are there regulations and/or restrictions governing the distance at which wells may be placed from drinking water wells, public drinking water sources, surface waters, residential/commercial buildings, geologic hazards or any other environmentally sensitive areas? If so, please specify.
   None specific to NOGCC rules, we have added requirements though orders/permits. These requirements can include quarterly well inspections conducted by NOGCC staff, limits place on injection volumes and pressure, cement bond log requirement, submission of additional data pertinent to operation as requested.

9. Are there groundwater protection areas and/or sensitive groundwater areas within the state of Nebraska? If so, please identify them and describe how this information is used during the UIC permitting process.
   GIS coverages of groundwater protection areas are obtained from NDEQ.

   Surface casing depths are reviewed by staff using geophysical methods to ensure their depth extends below any usable drinking water.

   Additional operating requirements maybe placed on a well that is in a sensitive area by the Director. These have included: Increased time frequency of MIT, Quarterly field inspection by NOGCC staff.

10. Is a site visit ever conducted in advance of a permit determination? If so, what is looked at during the visit?
    No, generally not

11. What is the state's process for public participation (i.e., public notification requirements, public hearing process) and how are any comments received during that process addressed?

    005 NOTICE OF HEARING

    005.01 Upon filing of an application, the Commission shall issue notice thereof, as provided by the Act and these regulations. Said application shall be set for public hearing at such time and place as the Commission may fix.

    005.02 In addition to the notice required by law, notice of the application and the time and place of hearing shall be given by the applicant by certified mail or by delivering a copy of the notice to each person owning a fee, leasehold, mineral or royalty interest within the project area or within one-half (1/2) mile of the injection well, whichever is the greater. A copy of such notice shall be filed with the Commission, and the applicant shall certify that notice by certified mail or by delivery to each person has been accomplished at least fifteen (15) days prior to the hearing or give sufficient reason for being unable to do so.

    005.03 In the event no person required to be notified, or the Commission itself files a written objection to the application within ten (10) days of the date of the notice, the application shall be granted; but if any person or the Commission itself files written objection within ten (10) days of the notice, then a hearing shall be held.

- Public notice occurs after legal notice in the paper, the owner/operator is required to send a return receipt within a certain radius to citizens with contact information by mail and paper. For horizontal well areas an additional spacing around the outside of the area in a grid pattern must be used to notify the residents within the area. The area looked at for those affected is ½ mile (interested parties). If a notification period passes without any written objections NOGCC has the ability to have the case approved (around 90% permits are done this way). If there are objections then the case has to be shown before the commission by interested parties (in the AoR) or by the commission. All public comments (when feasible) which are received get a response confirming the receipt of the objections. The objector can bring an attorney and experts, then the commission has to make a decision. People with objections are weighed in experience and education, the commission will listen to everyone attending but they won't be sworn in as experts. So not everyone talking is sworn in as an expert. The transcript consists of everything occurring during the hearing, not just the verbal testimonies. It is a quasi-judicial system for public notices and hearings. Must have two of the three commissioners present for the hearings, decisions are based on evidence and testimony and it's either approved or not approved, which can go up to the judicial system.

12. How is the owner/operator notified if an application has been approved or denied, and if denied is there an appeal process?

    Usually a phone call or an email followed by a signed order from either the Hearing Examiner or the Commissioners.
    A commission decision can be appeal to District Court.

13. How does NOGCC determine whether a permit should be modified, revoked and reissued, or terminated?
    Done on a case by case as below:

    002.01 Authorization for injection may be conditioned upon the applicant taking action to protect fresh water as may be specified by the Commission in its order.

    002.02 Upon receipt of a request to modify or revoke an order authorizing underground injection, the Commission shall promptly set the matter for hearing and may revoke, modify and reissue said order if:

    a. There is a substantial change of conditions in the enhanced recovery injection well or the disposal well operation, or there are substantial changes in the information originally furnished.

    b. Information shows that the permitted operation will have adverse cumulative effects on the environment.

    Information shows that the operation is not in accordance with the order authorizing the injection.

14. If an owner/operator wants to amend an existing injection permit, is the process treated the same or differently from that of a new permit application?
Depends on the nature of the amendment if remark different than new application and permit

    - If wells need a modification NOGCC requires a sundry notice explaining how they need to vary from the permit (major or minor). If a major modification is required a new notification is required

15. Does NOGCC differentiate between major and minor permit modifications? If so, what is considered a major permit modification and is the process to modify the permit different?
A major permit modification would require re-notice of the application

    - A major modification would be something such as a missing target formation or requesting a new formation for injection. A minor modification would be in a separate area in the same formation. There is less than a handful of major modifications.

16. Are the permit application or operating requirements for Class II commercial salt water disposal wells in Nebraska different from those for Class II non-commercial salt water disposal wells? If so how do they differ?

    a. All commercial facility sites must be physically secured at all times. The Director will determine if a site is secure. The Commission recommends that sites be secured by either of the following:

        i. Complete enclosure of all wells, tanks/pits and wellhead assemblies within suitable fencing; and/or

        ii. All gates and other entry points shall be locked when the facility is unattended; and/or

        iii. Provide tamper-proof seals or locks for the "master" valve on each well; and/or

        iv. Install locking caps on all valves and connections on holding tanks and headers.

        v. All commercial wells must have annual pressure tests to establish the mechanical integrity of the casing, tubing and packer. Casing pressure tests shall be conducted under the supervision of the Director.

- There are no differences in coming into the program as a commercial or non-commercial injection well with the exception of the MIT requirement. Commercial disposal wells require a MIT once every year, all other wells require one MIT every five years. Commercial facilities are also encouraged to have some sort of site security. An annulus pressure test at 300 psi at the surface is performed for annulus stability, tested initially then tested every five years. An MIT does not indicate a specific percent loss, NOGCC states either it holds its pressure and passes or fails.

17. Does NOGCC require the permit applicant for a Class II injection well to provide an analysis of the produced waters that will be injected at the proposed well? If so what is required in the analysis
    Yes, the anions and cations that compose the TDS

- Require pre-testing of drinking water and injection water for compatibility. Wells require a representative sample of injectate as part of the application process.

18. Are there restrictions on the types of fluids that can be used in Class II enhanced recovery operations? If so, what are those restrictions?
    Would use the applicable UIC guidance and the "brown" EPA RCRA guidance.

Special Request Item: *If available, EPA requests a copy of flow chart of the state's injection well permit process.*

Area of Review:

1. What method(s) does NOGCC employ to determine an Area or Review (AoR) a fixed radius and/or a zone of endangering influence?
   At a minimum, NOGCC uses a fixed radius of one-half mile. In some cases, NOGCC may use a Zoei calculation (Theis Equation) if questions regarding wells in the AOR cannot be determined. For an AOR in a new area, well files are pulled and physically reviewed. A paper plat showing the wells, their surface casing depth, operating status and amount of cement used for plugging is generated.

2. If the permit request is for an area permit, how is the AoR determined?
   The area within the geographical boundaries of the permit request

3. Where in the current State UIC regulations are there provisions that address "corrective action" for other wells found in an AOR?
   Other permit conditions may be placed on the order/permit for wells in the AOR

4. How are wells which are in need of corrective action but outside of the permit applicant's control dealt with or does that stop the permit from being issued?
   Though permit/UIC order conditions
   - The area is looked at for other wells in the AoR which can impact permitting conditions.

Well Construction and USDW Protection:

1. What are the requirements for how new Class II wells are to be constructed?

    a. Each enhanced recovery injection well or disposal well shall be completed, equipped, operated and maintained in a manner that will prevent pollution of fresh water or damage to sources of oil and/or gas and will confine injected fluids to the formation or zones approved.

    b. Injection of any substance shall be through adequate casing or casing and tubing. Annular injection is prohibited. Above ground extensions shall be installed in each annulus in the well and each injection tubing or casing. Such extensions shall be fitted with a cut-off valve and a one-fourth (1/4) inch female fitting to provide for pressure monitoring by attaching a gauge having a one-fourth (1/4) inch male fitting.

    c.

2. How does NOGCC determine the depth of the lowermost USDW and how is that information used when setting the surface casing?

    The depth of the USDW is either determined from the evaluation of either the openhole logs in the well, or offset wells, or from available geologic maps which were prepared under the supervision of the Nebraska Geological Survey.

3. How does NOGCC ensure that a new well is designed so that USDWs are effectively isolated and protected?

    002.06 All injection wells must have sufficient surface casing run to reach a depth below the base of all water sources that are less than three thousand (3,000) parts per million total dissolved solids or water sources that are or could be reasonably utilized as domestic fresh water unless those sources are exempted. Casing shall be sufficiently cemented to fill the annulus to the top of the hole.

4. Does NOGCC maintain maps or other records showing the extent vertically and horizontally of USDWs in the state? If so, is this information updated as additional information becomes available and is this information readily available to permit applicants?
    Yes, via our web-site. Most operators consult with Commission staff prior to permitting a new well to determine the adequate depth of surface casing for the principle aquifer

5. Does NOGCC require wells converting from production wells to injection wells to have the casing strings which go through any USDWs cemented in place?
    Yes, we would require remedial cementing

Well Completion:

1. How does NOGCC handle modifications or changes in the construction from those provided in the application?
   Must be submitted using a Form 4 "Sundry Notice" and approved by NOGCC

2. What level of detail or information is required from the owner/operator after completion of an injection well?
   http://www.nogcc.ne.gov/Forms/NE_Form5_WellComplete.pdf

3. How long does a well owner/operator have to provide a well completion or re-completion report of a Class II injection well or disposal well back to the state? Is this timeframe a specified by regulation?

   WELL COMPLETION OR RE-COMPLETION REPORT

   Within thirty (30) days after completion or re-completion of an oil or gas producing well, injection or disposal well or a well temporarily abandoned with casing in the hole, the owner or operator shall transmit to the Director the well completion or re-completion report, Form 5, in duplicate for wells drilled on Patented or Federal Lands, and in triplicate for wells drilled on State Lands. Upon written request geological information will be kept confidential for twelve (12) months after the filing thereof unless written permission to release the information at an earlier date is obtained from the operator. An order authorizing an injection well will expire and become null and void if the authorized well or wells are not completed or converted to injection within one (1)year from the date of the order

4. Does the state ever witness well completion activities?
   Yes

Injection Pressures:

1. Are there provisions in the State's UIC regulations which:

   a. Address maximum injection volumes and/or pressures necessary to assure that fractures are not initiated in the confining zone; and,

Injection pressure are based on using a fracture gradient of .7psi/ft.

Information showing that injection into the proposed zone will not initiate vertical fractures into or through the overlying strata which could enable the injected fluids or formation fluids to enter any fresh water strata.

- Nebraska does not permit volumes, a well is permitted for an approved injection pressure.

b. Stipulate that injected fluids and formation fluids are not allowed to migrate or be displaced into any underground source of drinking water (USDW)?

004.02A Information that no unplugged wells exist which will allow the migration of the injected fluids or formation fluids to enter any fresh water strata.

004.02B Information regarding the fracture pressures of the injection zone and the overlying strata, including the source of such information.

2. Please provide EPA a copy of these state provisions.

3. Are owners/operators required to notify the NOGCC of problems associated with over-pressuring or lack of adequate confinement for Class II wells?
Mechanical failures or downhole problems which indicate an enhanced recovery injection well or disposal well is not, or may not be, directing or containing the injected fluid into the permitted or authorized injection zone is cause to shut-in the well. If said condition may endanger fresh water sources, the operator shall orally notify the Director within twenty-four (24) hours. Written notice of the failure shall be submitted to the Director within five (5) days of the occurrence together with a plan for repairing and testing the well. Results of the repair and testing shall be reported to the Director and approved before further injection is commenced

4. For salt water disposal wells and enhanced recovery wells, what is the NOGCC requirement regarding the frequency of monitoring and recording of actual injection pressure and annulus pressure?

a. The operator shall monitor and record actual injection pressure and each annulus pressure at least once each week and report such monitoring monthly.

5. How frequently are these pressures reported to NOGCC and how long is the monitoring report maintained by the owner/operator and NOGCC??
Most Form 11 “Injection report” are filed electronically monthly

Confinement of Injected Fluids:

1. Do state regulations specifically prohibit fracturing of confining units as a consequence of stimulation or exceeding the permitted maximum injection volumes and/or pressures in the injection zone (i.e., the formation(s) where injection is taking place)?

Special Request Item: *EPA requests that NOGCC provide examples of access to files containing plans for testing, drilling, and construction as part of the permit application.*

D. Financial Assurance

1. Please explain in detail the various mechanisms that are allowed to be used by the owner/operator in order to establish financial assurance. For each financial assurance mechanism, please indicate the following:

2. How the dollar amounts are established and if there are limits on what those amounts are; and

3. What kind of periodic review occurs to ensure that the level of financial assurance is still adequate?

    - NOGCC does not require periodic reviews to ensure financial assurance is still adequate.

4. What is the timing for when a well owner/operator must have a financial assurance mechanism in place?

5. Is the well owner/operator required to adjust the plugging and abandonment cost estimate annually to adjust for inflation? If not annually, then at what frequency are they required to adjust these cost figures?

    - The well owner/operator is not required to adjust cost estimates to adjust for inflation.

6. Is the State of Nebraska or NOGCC named as "the payee" on all financial assurance mechanisms in the event of default or cancellation by the owner/operator? If not, which mechanisms list Nebraska as the payee and which mechanisms do not? Please provide EPA examples of these mechanisms.

7. Have there been instances in Nebraska since 2000 where the financial guarantees posted by the owner/operator were insufficient and state funds were required to be expended in order to accomplish well plugging?

Prior to commencement of dirt work preceding drilling, or assuming operation of any well, the person, firm or corporation commencing said drilling or operation shall make, or cause to be made, and file with the Commission a good and sufficient bond in the sum of not less than five thousand dollars ($5,000) for each well or hole and payable to the State of Nebraska, conditioned for the performance of the duty to comply with all the provisions of the laws of the State of Nebraska and the rules, regulations and orders of the Commission. Said bond shall remain in force and effect until plugging of said well or hole is approved by the Director or his authorized deputy, a new bond is filed by a successor in interest or the bond is released by the Director. It is provided, however, that any owner in lieu of such bond may file with the Director a good and sufficient blanket bond in the principal sum of not less than twenty-five thousand dollars ($100,000) covering all wells or holes drilling or to be drilled in the State of Nebraska by the principal in said bond; and upon acceptance and approval by the Director of such blanket bond, said bond shall be considered as compliance with the foregoing provisions requiring an individual well or hole bond.

Any person required to file a surety bond pursuant to this rule may post cash or certificate of deposit in the amount required subject to the following conditions:

- If a person posts cash, it may be in the form of a cashier's check, certified check or legal tender of the United States of America delivered to the Commission.

A certificate of deposit shall comply with the following:

- The certificate of deposit shall be in the name of the Nebraska Oil and Gas Conservation Commission and only the signature of the Commission's authorized representative shall be on the withdrawal card as the authorized signature to withdraw the deposit.
- The certificate of deposit shall be in a bank or financial institution insured by the Federal Deposit Insurance Corporation and located in the State of Nebraska.
- The Commission may reject any certificate of deposit, when, combined with other certificates of deposit on that bank or financial institution, exceeds the limits of Federal Deposit Insurance Corporation insurance coverage.
- The certificate of deposit shall be in the custody of the Commission.
- The certificate of deposit shall be automatically renewable.
- Interest earned on the certificate of deposit is the property of the person who provided the money for it. The certificate of deposit and the money it represents is the property of the Commission until released by the Director.

In the past NOGCC has taken funds from our appropriated budget to plug wells or to clean up locations. Our goal will be to use the newly established "plugging fund" to help supplement plugging and cleanup costs.

E. Well Conversions (e.g. from injection to production & production to injection):

1. What steps are required by NOGCC for an owner/operator to perform a well conversion?
   A complete application must be filed for NOGCC review and approval

- If an owner/operator wants to convert a production well to injection they would be required to remedially cement to prevent aquifer movement and protect USDW supplies, involves a review of the request and field observation, sometimes requires a cement bond log and requires a public notice. The process of converting a well from production to injection would be a permit condition for them to comply with.

2. Does NOGCC have financial responsibility requirements for the owner/operator when a well is to be converted? If so, please explain what NOGCC requires.
   Yes, must be bonded before application is filed

- New wells which have never been permitted or converted wells: Needs a bond for $10,000 for a single well or $100,000 for multiple wells

3. How many well conversions has the NOGCC identified in 2014 and how does NOGCC track these conversions?
   All complete applications are assigned a case number and tracked through the permitting process.

F. Drilling Fluids/Muds:

1. For Class II wells, what are the major drilling fluid/mud types used in Nebraska?
   Fresh water systems for all wells drilled without a salt section, salt saturated for loactions with a salt section.

   All surface holes are drilled only using water and gel, to protect USDWs. After surface casing is set and cemented. In every well drilled the additives used can vary slightly. An example of the additives used in salt mud system are: gel, lime, caustic, soda ash, pac 1, hydro vis, bar, bio clear, SAPP, saw dust, salt gell, Dris Pac, and cotton hulls.

- Fresh water drilling mud is used unless drilling through a saline formation, then saline drilling mud is used to ensure fluids are inert. If oil/salt drilling mud is used then surface casing is required to be below the Chadron.

2. What are the specific additives that are used in drilling muds and fluids in the state?

Waste Disposal:

1. What is the estimated volume of total brine production in Nebraska in 2014 and what is the average water to oil ratio?
   Brine production = 58,748,365 bbls; Ratio = 20.7 bw/bo

2. Process waste water typically contains acids, various oils, alkalis, heavy metals, radionuclides, biocides, lubricants, corrosion inhibitors, glycols, amines, untreatable emulsions and other compounds. This process wastewater is derived from well development, production, and maintenance.

The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal.

Within thirty (30) days after cessation of drilling operations, non-exempt E&P waste materials including but not limited to crankcase oil shall be contained in non-leaking containers and disposed of in accordance with DEQ or any applicable federal regulations.

In those areas where acceptable, and upon application and approval, land farming or land spreading of fresh water based drilling mud may be allowed on the lease with the written permission obtained from the landowner and submitted to the Director.

Is there anything in the NOGCC regulations or state statutes regarding the analytical sampling of process waste water for waste characterization and disposal?

Waste water is general injected use a Class II well, solid waste is as follows:

The Commission shall have final authority to determine if remediation has achieved a cleanup level of less than one (1) percent by weight total petroleum hydrocarbons. Cleanup shall be completed as soon as technically feasible.

Removal of Free Oil - To prevent waste and to minimize the depth of oil penetration, all free oil must be removed immediately for reclamation.

Excavation - All soil containing over one (1) percent by weight total petroleum hydrocarbons must be remediated or disposed of at an authorized disposal site.

Prevention of Stormwater Contamination - To prevent stormwater contamination soil excavated from the spill site containing over five (5) percent by weight total petroleum hydrocarbons must be:

- Mixed with clean soil to a mixture of less than five (5) percent, or
- Removed to an authorized disposal site, or
- Contained on secure location for future remediation.

The operator may select any technically sound method for remediation of soil.

- Is the NOGCC aware if any operators are reusing and/or recycling their drilling wastes? If so, what percentages of operators in the NOGCC Class II universe are reusing/recycling?
  Yes, depending on the drilling program many operators recycle drill muds, and water.

- Does the NOGCC encourage operators to reuse and recycle? If so, how

- Does the NOGCC require a copy of shipping manifest anytime waste products are being disposed or conveyed offsite?

  022.16A Every person that transports water produced in association with the production of oil or gas shall possess a run ticket or equivalent documents containing the following:

  022.16A1 The name and address of the transporter.

  022.16A2 The name of the operator of the lease of origin.

022.16A3 The location of the lease tank battery by section, township, range and county.

022.16A4 The location of the destination by section, township, range and county.

022.16A5 The date and time the fluids were loaded for transportation and unloaded at the destination.

022.16A6 The estimated volume of fluids, or the opening and closing tank gauges or meter readings.

022.16A7 The signature of the driver.

022.16B One copy of the documentation shall be left at the facility from which the water was loaded for transportation.

022.16C One copy of the documentation shall be carried in the vehicle during transportation and shall be produced for examination and inspection by any agent of the Commission or any authorized law officer upon request.

022.16D All persons that store, possess, or dispose of water produced in association with the production of oil or gas shall retain a record reflecting a complete inventory, including detail of the acceptance and disposition of the fluids for a period of at least five (5) years.

- What is the percentage of Class II wells in Nebraska that are being flared and are not being captured?
  0%

3. Do any local ordinances apply to E&P wastes in Nebraska? If so, please provide examples.
   No

4. Are there any statutory or regulatory provisions in Nebraska requiring the segregation of E&P and hazardous wastes?
   Within thirty (30) days after cessation of drilling operations, non-exempt E&P waste materials including but not limited to crankcase oil shall be contained in non-leaking containers and disposed of in accordance with DEQ or any applicable federal regulations.

5. Does NOGCC encourage source reduction, recycling, etc.? If so, how is the conveyed to all owner/operators of oil & gas activities in the state of Nebraska?

- NOGCC does encourage reduction and recycling. However most businesses tend to do this on their own as a cost saving measure.

6. Does the E&P waste program allow for the disposal of drilling fluids and muds in non-industrial landfills and if so, how is this tracked and monitored within Nebraska? Is there a paper trail i.e. manifests, invoices, hardcopy sampling data, etc. and where are these documents maintained if at all?
   The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal.

7. Are naturally occurring radioactive materials (NORM) tracked from each oil & gas field and if so, how is it tracked?
   No

- NORMs are low enough that they are never an issue, so no regulations are in place to address these.

G. Well Work-Overs:

1. What information is required from an owner/operator in advance of a planned well work-over and what information are they required to provide following completion?
   Notice must be given to the Director or his authorized deputy and approval obtained in advance of the time when the owner or operator expects to re-complete or abandon a well with the casing in the hole or to change previously approved plans. Within thirty (30) days after re-completion, abandonment, or change of plans, a detailed report of the work done and the results obtained shall be submitted on Form 5 or Form 6, whichever is appropriate.

- Work overs are approved by the NOGCC, on injection wells the owner/operator will notify NOGCC of work overs. Once the work over is complete NOGCC requires a new MIT be conducted before operation.

2. How far in advance of a planned workover is the well owner/operator required to notify the state?
   For approval usually one week.

3. What are the estimated volumes (barrels), and the types of materials that typically comprise work-over, treatment and completion fluids?
   High variable according the type of job being done

4. How are these well work-over fluids disposed of? If not injected into a Class II well, how is the disposal tracked and verified to ensure that these wastes meet RCRA waste disposal requirements?
   Most are captured in temporary tanks and injected. NOGCC would not have jurisdiction on non-E&P waste as non-E&P waste must handle as for the NDEQ or other appropriate rules require.

5. How is deck drainage from the production site handled/disposed of?
   As above

6. What is the typical volume in barrels of deck drainage that is generated from a Class II well?

7. Does the state ever witness well work-over activities?
   Yes

Well Stimulation/Hydraulic Fracturing Activities:

1. What information is required from an owner/operator in advance of a planned well stimulation/hydraulic fracturing operation and what information are they required to provide following completion.

   Prior to the initiation of fracture stimulation, the operator must evaluate the well. If the operator proposes stimulation through production casing or through intermediate casing, the casing must be tested to the maximum anticipated treating pressure. If the casing fails the pressure test, it must be repaired or the operator must use a temporary casing/tubing fracturing string.

   If the operator proposes fracturing through a temporary casing/tubing string it must be stung into a liner or run on a packer set not less than one hundred (100) feet below the cement top of the production or intermediate casing and must be tested to not less than maximum anticipated treating pressure.

2. How far in advance of a planned well stimulation/hydraulic fracturing operation is the well owner/operator required to notify the state?

Well completions which include hydraulic fracturing, acidizing, or other chemical stimulations done to complete a well are considered permitted under the drilling permit for that well

3. How many active Class II wells in the NOGCC inventory have under gone well stimulation/hydraulic fracturing operations?
   We do track this stat. But likely less than ten

4. Has NOGCC reviewed the EPA Diesel guidance? Has this guidance changed and/or affected the way you are implementing the NOGCC program?
   Yes, we would tell an operator they are very strongly discouraged from using any of the listed CAS numbers that are defined as "diesel" in a Frac job.

- Diesel guidance: No diesel is used in Nebraska, water based fluids are used due to their cheap cost. Diesel use is strongly discouraged (there is no reason in Nebraska to use diesel).

5. For hydraulic fracturing operations, how long does the casing/tubing pressure have to be held to be considered successful and what is the maximum pressure loss that is allowed?

   042.03 Casing/tubing pressure test will be considered successful if the pressure applied has been held for ten (10) minutes with no more than a ten percent pressure loss.

   042.04 Maximum treating pressure shall not exceed the test pressure determined above.

   042.05 The surface casing valve must remain open while hydraulic fracturing operations are in progress. The annular space between the fracturing string and production casing must be monitored and may be pressurized to a pressure not to exceed the pressure rating of the lowest rated component that would be exposed to pressure should the fracturing string fail.

6. Does NOGCC require that owner/operators post on FracFocus all chemical constituents used in the fracturing process? If so, how long after the hydraulic fracturing operation has been completed does it typically take for this information to be posted and is there a time limit required under regulation or statue?

   Within sixty (60) days of the hydraulic fracture stimulation is performed, the operator shall post on the FracFocus Chemical Disclosure Registry (FracFocus.org) all the elements made viewable by the FracFocus web

- There is a specific requirement to use FracFocus within 60 days of the fracing job. New FracFocus is being used as they are required disclose everything used (but not what they are used for) confidential chemicals are not allowed anymore.

7. If not, does NOGCC request that owner/operators voluntarily post the chemical products used in their fracturing process online on FracFocus? If so, has this been successful and how long after the hydraulic fracturing operation has been completed does it typically take for this information to be posted?

8. What has been the level of interest displayed by the public regarding hydraulic fracturing within Nebraska? Has national media attention within the last 24 months or so had any bearing within Nebraska?

   Yes

H. Temporarily Abandoned and Permanently Abandoned Wells:

1. How much time must pass before NOGCC can or will designate a Class II injection well as temporarily abandoned?

Whenever operations cease for a period of sixty (60) days on any well, the operator shall give notice to the Commission of the change to inactive status

2. What are the requirements for a well in temporarily abandoned status?

040.01 If it is deemed necessary to prevent migration of oil, gas, water or other substances from the formation or horizon in which it originally occurred, the well shall be plugged or repaired. If the operations on any such inactive well are not resumed within a period of one (1) year after the notice has been given, the operator of the well shall plug and abandon the well in the manner prescribed by the Director. However, upon application prior to the expiration of the one (1) year period, and for good cause shown, the Director may extend the period for one (1) year, provided that the static fluid level is established and maintained at least one hundred fifty (150) feet below the lowest fresh water zone, or the casing is pressure tested to at least three hundred (300) pounds per square inch as measured at surface to prove mechanical integrity.

040.02 Application for inactive well status must be submitted on a Form 4 and contain the following information:

- The type of well.
- The bottom hole assembly.
- Pressures as measured by gauge for:
  - Tubing.
  - Production casing annulus.
  - Surface casing annulus.
- Static fluid level as measured from ground level.
  - Method used to determine static fluid level.
  - Date data was obtained.
- Information stating if any formations with reservoir pressures high enough to initiate flow into the lowermost freshwater aquifer exist.

3. Is there a time limit for how long a well can remain in temporarily abandoned status? If so, what actions are required by the state to be taken by the owner/operator once that time limit is reached?

040.01 An additional one (1) year extension(s) may be granted in the same manner.

4. Does the state differentiate between temporarily abandoned and permanently abandoned wells? If so how, is that distinction made?

AN INACTIVE WELL is classified as SHUT-IN when the completion interval is open to the tubing or to the casing. An inactive well is classified as TEMPORARILY A BANDONED when the completion interval is isolated

- After a well is shut in the owner/operator have to report on Form 4 the static fluid level, a static shot is used for this. Annually reported, or MIT is allowed to prove it is not endangering USDWs. On producing wells the same thing is required and information electronically submitted, no required time limit is used before a well is considered abandoned (of the inactive wells 56% production is from water floods). If maintaining integrity there is no reason to close the well, it is all tracked digitally to generate reports.

5. What are the circumstance under which NOGCC can or will designate a Class II injection well as permanently abandoned?
When a Form 6 Plugging Report is reviewed and signed

6. In addition to receiving a plugging record from the operator, are there any other means used by NOGCC to confirm that a permanently abandoned well was plugged?
   Location must be released by inspector

7. Currently, are there any cases of wells still needing to be plugged after they have been determined to be permanently abandoned? If so, how many?

I. Plugging and Abandonment:

- GPS coordinates are recorded for each well location. When a well is plugged and abandoned the well is cut about four to five feet below surface and welded shut. GPS is obtained by the vendor and verified by NOGCC (which is the coordinates used). Digital information for these wells is available to any party.

1. Please explain the various financial responsibility instruments or methods implemented in Nebraska to assure plugging of Class II wells?
   All wells require bonding in addition to that:

FEE FOR INACTIVE WELL

A yearly fee will be collected for each well that is inactive for two or more consecutive years. The operator will submit a fee for each well requested for inactive status. The fee structure is as follows:

Inactive Period, Year(s)	Fee
0 to 2	$ 0/Year
2 or more	$200/Year

The funds shall be used at the discretion of the Commission and the collection of fees may be reduced to five dollars ($5.00) per well at the discretion of the Director if previously collected funds prove sufficient to carry out the purposes of the Well Plugging and Abandonment Trust Fund.

- Fees go to the plugging and abandonment fund which isn't accessible except to use for plugging. $100 fee, field inspector gets 24 hour notice to have NOGCC view plugging, then a form 6 is submitted and put into the digital system and shown on the website.

2. In addition to receiving a plugging record from the operator, is there any other means used by NOGCC to confirm that an abandoned well was plugged?
   Physical inspection

3. Do NOGCC inspectors ever conduct a well visit to confirm if a well has been plugged or witness well plugging? If so what percentage of wells plugged are ever visited or have the plugging witnessed?
   To be released from a bond the well must be inspected by NOGCC staff.

- Before the plugging and abandonment bond is released a NOGCC inspector is required to physically go to the site and verify the site has been restored, and then the tag will be changed (colored tags are associated with different well status. P&A is blue, dry hole is yellow etc.). Very detailed maps showing information is retained.

4. How many abandoned wells has the NOGCC identified in 2014 and have been added to the inventory?

   There are currently 123 wells in the NOGCC inventory which have been identified to be plugged and abandoned

   a. Of the wells identified in 2014 as being abandoned, how many of these wells were historically permitted wells from the NOGCC?

   b. Of these historically permitted wells, does the NOGCC attempt to identify and/or locate the owner/operator for compensation? If so, how is this done?

5. How many wells has NOGCC plugged in to date in 2014?
   NOGCC has not plugged any wells in 2014, 50 wells have been approved to be plugged.

J. Seismicity:

- There were two counties with significant earthquakes, one was an earthquake swarm ending in 1979, along with micro-quakes in the Nemaha uplift.

1. In light of recent media attention focused on induced seismicity, are there state statutes or other rules or policies which address potential induced seismicity in Nebraska? If not, has the NOGCC discussed if there is a need for with entities such as USGS, NIOGA, NDEQ, etc.?

   Some discussions with NE Geologic Survey, other state agencies, operating companies

- If induced seismicity were to become a concern NOGCC would coordinate with Nebraska Geological Survey and USGS. However there has been no apparent induced seismicity in the state. No steps are currently in writing at the movement

2. What protective actions is NOGCC taking to minimize the likelihood of any induced seismic events as the result of Class II well activities?

   NOGCC participants in the induced seismicity workgroup though State's First, we have also reviewed the EPA Technical Workgroup's excellent document regarding this topic

- NOGCC had a Landsat done for structures throughout the state to identify features.

3. Does NOGCC require owner/operators to perform a comprehensive review of existing geologic data to determine if there are known faulted areas within the AoR for a proposed injection well in the state and a prohibition on locating new Class II disposal wells within these areas?

   No

4. Are there currently any known wells within Nebraska that have been drilled into the Precambrian basement rock? If there are Class II wells drilled into the Precambrian, does NOGCC see the need to require the plugging with cement of these wells and a prohibition of injection in this same formation?

   Many wells drilled to Precambrian; however this has not been an issue.

5. Does NOGCC require a complete suite of geophysical logs (including, at a minimum, gamma ray, compensated density-neutron, and resistivity logs) to be run on newly drilled Class II disposal wells? If so, are these completed logs, with analytical interpretation, currently submitted to the NOGCC? If not currently required, has NOGCC given any thought on making this a requirement?

All All wells drilled for oil and/or gas shall be adequately logged with appropriate mechanical, electrical, or radiation survey devices unless excepted by the Director. If adverse down hole conditions exist which makes the running of adequate survey devices impractical or hazardous, or in the case of open hole completions, twin wells, or other good cause shown, the Director may waive such required survey upon request by the operator.

Logs shall be submitted as one unmarked paper copy, one digital PDF or TIFF (Tagged Image File Format) or digital LAS, or a format approved by the Director of the mechanical, electrical, or radiation survey log, clearly indicating the position of the shoe of the surface casing and including the entire logged interval below the shoe of the surface casing, shall be submitted to the office of the Director within thirty (30) days after such log is run. If an extension of thirty (30) days is needed for filing survey logs, the Director may grant such extension for good cause shown.

hall be submitted as one unmarked paper copy, one digital PDF or TIFF (Tagged

6. Does NOGCC require or evaluate the need for the following measures pertaining to the help mitigate the potential for induced seismicity in Nebraska:

No necessary at this time

- If an earthquake were to occur NOGCC would go to their state website and locate any wells which may be contributing to the potential earthquake. Volumes in Nebraska are much smaller than states which are experiencing induced seismicity. Appropriate steps would be taken to investigate the earthquake. No steps are currently in writing at the moment.

a. Submission, at time of permit application, of any available information concerning the existence of known geological faults within a specified distance of the proposed well location, and submission of a plan for monitoring any seismic activity that may occur?

b. Having the permit applicant conduct a geophysical survey in areas where there is sparse subsurface geologic information?

c. Measurement or calculation of original downhole reservoir pressure prior to initial injection?

d. Having the permit applicant conduct step-rate injection tests to establish formation parting pressure and better establish maximum injection rates?

e. Installation of a continuous pressure monitoring system?

f. Installation of an automatic shut-off system set to operate if the fluid injection pressure exceeds the permitted maximum level?

g. Installation of an electronic data recording system or manifest system for purposes of tracking all fluids brought by a brine transporter for injection?

K. MITs and Inspections:

1. How does NOGCC track an operator's compliance with the applicable 5-year Mechanical Integrity Test (MIT)?
   NOGCC tracks MIT schedules using its data base RBDMS. Data base queries are unitized to track all current, future and past MITs

- MITs are currently tracked in the NOGCC database to help for scheduling when wells are due for MIT. NOGCC witnesses 100% of all MIT. NOGCC currently has two full time field staff, along with two part time field staff. Notification is sent out to the owner/operators and around four to five days' notice is typically provided to NOGCC (no specific time limit to number of days).

2. Are there any penalties assessed to owner/operators who are not within the applicable 5-year MIT?
   Can be
   NOGCC has issued NOVs and has collected penalty fines in the amount of $1,000.00

3. Are well owner/operators required to notify the NOGCC of a down-hole failure, or notify the NOGCC regarding conditions which may endanger the subsurface environment or the public? If so, how soon must the injection well owner/operator notify the state?

   After well failure NOGCC inspectors conduct an on-site inspection to verify the well is no longer being operated

   007.04 Mechanical failures or downhole problems which indicate an enhanced recovery injection well or disposal well is not, or may not be, directing or containing the injected fluid into the permitted or authorized injection zone is cause to shut-in the well. If said condition may endanger fresh water sources, the operator shall orally notify the Director within twenty-four (24) hours. Written notice of the failure shall be submitted to the Director within five (5) days of the occurrence together with a plan for repairing and testing the well. Results of the repair and testing shall be reported to the Director and approved before further injection is commenced.

- Well failures require immediate well shut in, the owner/operator needs to go fix the well and a new MIT needs to be viewed. Ideally scheduled Monday through Friday, but can be adjusted if needed. Notification of failure verbally within a day and in writing or e-mail within seven days, this is typically verbal and e-mail. When notified initially/verbally the owner/operator is told to shut in the well immediately, then a more descriptive explanation is provided and reviewed, then fixed, and MIT witnessed. Failures are logged, annular MIT failures are not considered

significant non-compliance, the time to fix it depends on the type of failure (if thought to endanger USDW's it is 90 days, if not then 180 days is required). A failure rises to SNC when they are not addressing the problem or there is a threat to an USDW, if yes then the well is shut in.

4. When the NOGCC is performing an inspection, what are all of the elements that NOGCC is looking at during the inspection?
   NOGCC inspectors assess all aspects of exploration, production, and injection cycle from cradle to grave. Field activities include: Verification of well location using GPS, verification of casing and cementing, monitoring of injection well annulus for positive or negative pressures, reading of pressure gauges, inspection of pits, steel working tanks, blow out preventers, open and cased hole logging, disposal of liquids and solids including completion fluids, spill responses, spill remediation, surface production and storage tanks, heater treaters, gun barrels, flow lines, dikes, and final restoration. NOGCC inspectors have the authority to sample all production and injection fluids.

5. Does the NOGCC inspector have the authority to sample production and injection fluids, tank contents, and take note of any other conditions that could threaten public health and the environment? If so, does NOGCC input the data into a database?
   Yes

The Director and his authorized deputies shall have the right at all reasonable times to go upon and inspect any oil or gas properties and wells for the purpose of making any investigation or tests to ascertain whether the provisions of the statutes or these rules or any special field rules are being complied with, and shall report any violation thereof to the Commission.

All owners or operators shall permit the Director or authorized deputy, at his risk, in the absence of negligence on the part of the owner, to come upon any lease, property or well operated or controlled by them, and to inspect the record and operation of such wells and to have access at all times to any and all records of wells; provided, that information so obtained shall be kept confidential, unless the owner gives written permission to release such information, and shall be reported only to the Commission or its authorized deputies.

See appendix for copies of field reports regarding MIT and Annulus inspection checklists.

- NOGCC has the ability to require more frequent MIT but don't typically require it of permits, would need to provide form 5 once done.

Special Request Item: *EPA requests that NOGCC provide their latest guidelines for conducting mechanical integrity tests and copies of a Class II inspection report.*

L. Compliance and Enforcement:

Enforcement:

- If contamination is accused an investigator with NDEQ/EPA will look into it. A show cause hearing for the company to explain how it was not their fault is done. If it is determined there was contamination the company has to fix the problem for those affected.

1. What are the most common types of UIC violations that are subject to a Notice of violation (NOV) and follow-up enforcement action by NOGCC? What is NOGCC's process for initiating an enforcement action?

- Operators without mechanical integrity or exceeding psi are considered to be in non-compliance, these are brought to the attention of the NOGCC UIC Directors attention and it would be investigated and a notice of violation action would occur. First the problem is attempted to be fixed verbally, if this does not work then a notice of violation is issued and proceeds that way ultimately leading to a fine/repair if a notice of violation does not work. Additionally NOGCC has the ability to pull the owner/operators ability to sell oil/gas. Any fines/fees that are accrued are put into a cash fund which is only set by allocation.

2. How many and what, if any, ongoing enforcement actions are be handled through the Attorney General's office?

   No cases are currently being handled through the Attorney General's office

   a. If so, what situations would prompt such an action?

3. Where a responsible party cannot be located, does Nebraska have an Oil and Gas Remedial Fund in place to plug wells?

   New in 2014

   The funds shall be used at the discretion of the Commission and the collection of fees may be reduced to five dollars ($5.00) per well at the discretion of the Director if previously collected funds prove sufficient to carry out the purposes of the Well Plugging and Abandonment Trust Fund.

   a. If so, how much did NOGCC allocate for this fund in 2013 and 2014?

   b. How is the fund supported?
      As above

   c. Is there a means in place for prioritizing wells for plugging?
      Yes

   d. Is NOGCC able to exercise authority over old wells existing before State law and regulations were passed?
      Yes

3. Has NOGCC levied financial penalties against owner/operators within the last five years? If so, what was the dollar value of the penalties by year and what were the violations that caused the financial penalties?

   The largest was $ $15,914.00 calculated for improper disposal of both produced water and except E&P wastes

   Special Request Item: *Please provide the EPA review team access to files containing administrative orders, consent agreements, civil/criminal referrals issued to UIC facilities within the past 5 years.*

   Compliance:

1. Besides on-site inspections, what other means does NOGCC employ to encourage, promote, and ensure compliance with UIC requirements?

Mailings, email reminders and phone calls are regulatory reminders done by Administrative Assistant

2. How or in what manner do Oil and Gas Advisory meetings factor in to the State's overall compliance process?

   NA

3. Are inspections entered into a database system? If so which databases does NOGCC use and how often is the data updated? Please provide EPA a printout of one such inspection that was entered into the NOGCC inspection database.

   - Field inspections are done using an NOGCC developed application which runs on a tablet. Once inspections are done the forms, pictures and any related documents are uploaded to the NOGCC Risk Based Data Management System (RBDMS) on a daily basis.

M. Reporting:

1. What are NOGCC's reporting requirements for Class II wells? As below

2. What is the retention time for records that are required to be kept at or near a well site but not reported to the state?
   NA

3. What is the required amount of time that an owner/operator is to contact the NOGCC and report any spills, leaks or releases of oil and/or produced water?

   For each spill exceeding twenty (20) barrels of produced water, in which the water spilled exceeds ten thousand (10,000) parts per million total dissolved solids, or a spill exceeding two hundred (200) barrels of produced water, in which the water spilled contains less than 10,000 parts per million total dissolved solids, the operator must submit on a Form 4 a report to the Commission which shall give the following information:

   - A detailed description of the disposal or remediation method used.
   - The estimated date of completion of the site cleanup.

- Area, maximum depth and volume in cubic yards of soil affected by produced water.
- A statement signed by the operator stating that all affected soils have been treated and the surface landowner has been notified.

a. Does the NOGCC require a written report and if so, how many days after the release and what is the minimum information that is required in this report?

Yes, as above

N. Electronic Data Systems:

1. Does NOGCC maintain an electronic data system to track information on wells and operators in Nebraska along with other related information? If so, what is the name of the system and what is the extent of the information that it tracks?

   Risk Based Data Management System (RBDMS) is the comprehensive data management system

2. How and who enters new information and/or updated well information into this system?

   All staff

3. How soon typically is the information added?

   Daily

4. Are there other entities who have access rights for entering information into the system?

   All staff

5. Does the system at this time allow for the inputting of directional information on horizontal wells, i.e. how many legs from the well pad, which direction and/or how many degrees, depth, etc.?

   Yes

6. Is the information contained in electronic data system available to the public and if so, how?

   Yes, via our data mining system

7. What progress or problems is NOGCC having in the data entry area?

8. Is NOGCC working on flowing data from its electronic data system into the EPA UIC National Data System and if so, what problems have they encountered?

   Do you really what me to answer this?

NOGCC UIC staff and IT staff have spent dozens of hours trying to get NOGCC data to flow. NOGCC has experienced a wide range of problems, including: The UIC National database had many "required" data fields that needed to be populated. Changes in the XML were not communicated to NOGCC. The changes recommended by the steering committee were not acted on. The data payload would be generated but always failed due to errors, even after running the error trapping software.

O. Communication/Coordination:

1. How does NOGCC facilitate communication with NDEQ or other local, state, federal, or Non-Governmental Organizations?
   Mostly at national conferences: GWPC, IOGCC etc.

P. Resources:

1. Does NOGCC foresee in the near future problems in meeting their PAMs/7520 Goals and Projections?
   No

2. Are current funding levels for staff adequate for full UIC program implementation?
   More and more state funds are necessary

3. How many field inspectors total does the NOGCC employ and are they all located at the NOGCC office located in Sydney?

   Two inspectors. One located in McCook

Q. Topics for discussion during the site visit:

1. Potential Class VI wells/CO2 injection/sequestration activities in Nebraska

2. Porosity storage of natural gas

3. Uranium mining and deep disposal of waste water from processing operations