KANSAS UNDERGROUND INJECTION CONTROL PERMIT CLASS V FLUID INJECTION WELL

Pursuant to the provisions of Kansas Statutes Annotated (65-164, 65-165, 65-166, 65-170g and 65-171d) and Kansas Administrative Regulations (Chapter 28, Article 46),

Owner/Operator:	Northern Natural Gas Company
Owner/Operator Mailing Address:	1111 S 103 rd Street Omaha, NE 68124-1000
Facility Name:	Cunningham Storage Facility
Facility Location:	20307 NE 150th Avenue Cunningham, KS 67035
Facility Contact:	Randall Peschka
Facility Telephone Number:	402.536.8006
Well Identification:	WIW #2
Well Location:	Lat 37.75147191, Long -98.50108340 SW/4 Section 26, Township 26S, R 11W Pratt County, Kansas
Receiving Formation:	Viola

is authorized to inject brine in accordance with the construction, operation, monitoring and reporting requirements as set forth herein.

The permittee shall comply with all conditions in this permit, federal and state regulations governing Class V non-hazardous waste injection wells and the requirements of the Kansas Department of Health and Environment (KDHE).

This permit is effective _____, and will expire _____.

FACILITY DESCRIPTION: This is a natural gas porosity storage facility.

_____
Secretary, Kansas Department of Health and Environment

_____
Date

I. INJECTION LIMITATIONS, MONITORING, REPORTING AND TESTING REQUIREMENTS

A. The permittee is authorized to inject brine produced from the Arbuckle Formation for the purpose of stabilizing the pressure in the Viola Formation to prevent the migration of storage gas.

B. Such injection shall be controlled, limited and monitored by the permittee as specified in this permit. Monitoring data required to be submitted to KDHE on a monthly basis shall be submitted no later than 28 days after the last day of the month for which the monitoring data are being reported. Monitoring data required to be submitted to KDHE on a quarterly basis shall be submitted no later than 28 days after the last day of the calendar quarter for which monitoring data are being reported. All monitoring data required for reports shall be submitted on forms prescribed by KDHE. The monitoring reports submitted to KDHE shall be originally signed. Monitoring reports and other information required by this permit shall be directed to:

Kansas Department of Health and Environment
Bureau of Water, Geology Section
1000 SW Jackson St. Suite 420
Topeka, KS 66612-1367

C.

Injection and Operational Parameters	Injection or Parameter Limitation	Measurement or Analysis Frequency	Reporting Requirement	Sample or Measurement Type
Injection Pressure (inches mercury or pounds per square inch gauge)	Gravity flow, no wellhead pressure allowed during normal brine injection operations	Continuous	Monthly	Gauge and Electronic Continuous Recording Device
Maximum Daily Injection Volume (gallons per day)	168,000 gpd	Continuous	Monthly	Meter and Electronic Continuous Recording Device
Injection Rate (gallons per minute)	Monitor	Continuous	Monthly	Meter and Electronic Continuous Recording Device
Minimum Allowable Operating Annulus Pressure (pounds per square inch gauge)	60 psig	Continuous	Monthly	Gauge and Electronic Continuous Recording Device

Injection and Operational Parameters	Injection or Parameter Limitation	Measurement or Analysis Frequency	Reporting Requirement	Sample or Measurement Type
Seal Pot Liquid Level (inches)	Liquid level must be visible in sight glass	Continuous	Monthly	Sight Glass
pH (standard units)	5.0-10.0	Weekly	Monthly	Grab
Temperature (ºF)	Monitor	Weekly	Monthly	Grab
Chloride (mg/l)	Monitor	Quarterly	Quarterly	Grab
Conductivity (Mmhos)	Monitor	Quarterly	Quarterly	Grab
Total Alkalinity as $CaCO_3$ (mg/l)	Monitor	Quarterly	Quarterly	Grab
Sodium (mg/l)	Monitor	Quarterly	Quarterly	Grab
Calcium (mg/l)	Monitor	Quarterly	Quarterly	Grab
Magnesium (mg/l)	Monitor	Quarterly	Quarterly	Grab
Sulfate (mg/l)	Monitor	Quarterly	Quarterly	Grab
Total Dissolved Solids (mg/l)	Monitor	Quarterly	Quarterly	Grab
Total Suspended Solids (mg/l)	Monitor	Quarterly	Quarterly	Grab

D. The gauge, meter, electronic continuous recording device and sight glass shall at all times be maintained operational and shall at all times be located to properly measure the activity being monitored.

E. Inspection readings of injection flow rate and volume, wellhead annulus pressure, wellhead injection pressure and seal pot liquid level shall be made daily and reported in the monthly monitoring report submitted to KDHE. The inspection readings for wellhead annulus pressure and injection pressure shall include readings of both the gauge and the continuous recording device. The date and time these readings are taken and the initials of the person taking the readings shall be included in the monthly monitoring report.

F. The monthly average, maximum and minimum values for the daily inspection readings of injection flow rate and volume, wellhead annulus pressure and wellhead injection pressure for the month shall be reported in the monthly monitoring report submitted to KDHE. The monthly average for injection flow rate and volume shall be calculated using only the number of days for which injection occurred during the month. The total volume of liquid injected for the month shall also be reported in the monthly monitoring report submitted to KDHE.

G. The maximum and minimum values determined from the continuous recording data for the entire month for wellhead annulus pressure and wellhead injection pressure shall be reported in the monthly monitoring report submitted to KDHE.

H. The analytical results of representative injection fluid samples required by this permit shall be reported in the monitoring reports submitted to KDHE. The samples shall be collected from the injection stream during injection. The injection fluid samples shall be collected at the sample port located immediately upstream of the injection well. The data reported shall include the date the sample was collected, the date the sample was analyzed, analytical results, the name of the laboratory conducting the analyses and the laboratory certification number. All analyses of injected brine required by this permit shall be conducted by a laboratory certified by KDHE to analyze for the constituents listed in this permit.

I. The following shall also be reported to KDHE by the permittee:

1. A well treatment plan or workover plan shall be submitted to KDHE for review and approval prior to commencing a well treatment or workover. No well treatment or workover shall commence until the permittee has obtained approval for the well treatment or workover plan from KDHE. Any well treatment procedures used, including those associated with normal maintenance and malfunction correction, and all well workovers shall be reported to KDHE within 30 days of completion. Some well maintenance procedures may include short durations of positive wellhead pressure to re-establish vacuum or other required maintenance.

2. Notification to KDHE within 2 hours of discovery of all spills associated with the operation of the injection well or well system.

3. Notification of KDHE of any well malfunction or failure within 24 hours of becoming aware of the circumstances.

4. The results and interpretation of mechanical integrity tests and any other tests or logs of the injection well or injection zone within 30 days of completion.

5. A written description and explanation of any noncompliance with the operating limitations as specified by this permit for wellhead injection pressure, injection flow volume or injection limits occurring during the month being reported shall be submitted with the monthly monitoring report.

6. Any addition of liquid to the annulus seal pot shall be reported in the monthly monitoring report. The date the liquid was added and the volume added shall be included in the monthly monitoring report.

7. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to KDHE, the permittee shall submit such facts or corrected information to KDHE within 5 days of becoming aware of the circumstances.

J. The monitoring of the pressure buildup in the injection zone shall be conducted at least once annually including, at a minimum, a shut down of the injection well for a

time sufficient to measure the static formation pressure. A plan for this test shall be submitted to KDHE for review and approval prior to conducting the test. The test shall not commence until approval of the test plan has been obtained from KDHE. The test results and interpretation of this test shall be submitted to KDHE within 30 days of test completion. The submittal shall be in a format that includes a comparison between the most recent measurement and previous pressure measurements obtained since the effective date of the permit.

K. The static fluid level of the injection interval shall be measured at least once annually. The method used to measure the static fluid level shall have the prior approval of KDHE. The results of the measurements shall be submitted to KDHE within 30 days of completion of the measurement. The submittal shall be in a format that includes a comparison between the most recent measurement and previous fluid level measurements obtained since the effective date of the permit.

L. Quarterly analysis frequency and reporting is based on calendar quarters.

II. MECHANICAL INTEGRITY TESTING

A two-part mechanical integrity test (MIT) to check for internal and external mechanical integrity shall be conducted at least once every 5years. The internal MIT is to check for significant leakage in the casing, tubing and packer and the external MIT is to check for significant fluid movement through vertical channels adjacent to the wellbore. Whenever KDHE believes that because of a down-hole problem the continued use of the well constitutes a threat to public health, or the fresh and/or usable waters or the soils of the State, or the release of injected fluid into an unauthorized zone is occurring, the permittee shall be required to immediately cease injection and conduct a MIT. If determined necessary by KDHE, a MIT shall be conducted when there has been a well workover. A MIT plan shall be submitted to KDHE for review and approval prior to conducting any MIT. No MIT work shall commence until approval of the MIT has been obtained from KDHE. The internal MIT shall be witnessed by KDHE. If the well fails a MIT, the requirements of Section III. B. of this permit shall be implemented by the permittee. The results and interpretation of a MIT shall be submitted to KDHE within 30 days of test completion.

III. ANNULUS PRESSURE DECLINE, ANNULUS LIQUID LOSS, ANOMALOUS OPERATIONAL DATA, LOSS OF MECHANICAL INTEGRITY

A. If the annulus pressure declines below 60 psig, or loss of annulus liquid indicating a loss of mechanical integrity occurs, or anomalous operational data indicating a loss of mechanical integrity occurs, the permittee shall 1) immediately investigate and identify the cause of the annulus pressure decline, annulus liquid loss or anomalous operational data and 2) notify KDHE within 24 hours of becoming aware of the circumstances. The results of this investigation shall be reported to KDHE within 24 hours of completion. If the well appears to be lacking mechanical integrity, the permittee shall:

1. Immediately cease injection of fluids.

2. Take all steps required by KDHE to determine the presence or absence of mechanical integrity. If the well is determined to have mechanical integrity, injection may resume after the permittee has obtained authorization from KDHE.

B. If a loss of mechanical integrity is determined pursuant to Section III. A. of this permit or as the result of a MIT, the permittee shall:

1. Immediately cease injection of fluids.

2. Notify KDHE within 24 hours of the determination.

3. Take all steps determined necessary by KDHE to determine whether there may have been a release of brine into any unauthorized zone. If there is evidence there may have been a release into an unauthorized zone, the permittee shall orally notify KDHE within 24 hours of the determination. A written notice shall also be provided to KDHE within 5 days of the determination including a description of the release.

4. Comply with any immediate corrective or remedial action specified by KDHE. If determined necessary by KDHE, the permittee shall submit to KDHE a remediation and corrective action plan and implementation schedule for review and approval. Work shall not commence until approval of the remediation and corrective action plan has been obtained from KDHE.

5. Restore and demonstrate mechanical integrity to the satisfaction of KDHE. A plan for any well workover or MIT shall be submitted to KDHE for review and approval. Work shall not commence until the permittee has obtained approval of the workover or MIT plan from KDHE.

6. Injection shall resume only upon authorization from KDHE.

IV. PLUGGING, ABANDONMENT

The well shall be plugged and abandoned upon reaching the end of its useful life or when determined necessary by KDHE to protect human health or the fresh and/or usable waters or the soils of the State. The permittee currently has a plugging and abandonment plan on file with KDHE. The permittee shall revise and update the plugging and abandonment plan when required by KDHE. The permittee shall notify KDHE at least 60 days prior to plugging and abandonment of the well. With the notice, the permittee shall submit a revised and updated plugging and abandonment plan to KDHE for review and approval. The permittee shall conform to all plugging and abandonment requirements of state and federal regulations and KDHE. The well shall be plugged in a manner which will not allow the movement of fluids into or between sources of fresh and/or usable water or allow the movement of injected fluids out of the injection zone. Plugging and abandonment work shall not commence until approval of the plugging and abandonment plan has been obtained from KDHE. The report of plugging and abandonment and related information shall be submitted

to KDHE within 30 days after completion of the plugging operation on forms provided by KDHE.

V. FINANCIAL RESPONSIBILITY FOR PLUGGING AND ABANDONMENT

The permittee shall maintain financial responsibility and financial resources to close, plug and abandon the underground injection well and appurtenances in a manner required by KDHE. The permittee shall show evidence of financial responsibility to KDHE by the submission of a surety bond or other adequate financial assurance such as financial statements or other materials acceptable to KDHE. Financial assurance documents shall be revised and updated when required by KDHE. The permittee currently demonstrates financial assurance by submission of a Performance Bond and Standby Trust Agreement.

VI. CONSTRUCTION REQUIREMENTS

A. The well shall be cased and cemented such that: 1) injected fluids and injection zone or other formation fluids do not cause deterioration of the water quality of fresh and/or usable water zones, 2) the loss of fresh and/or usable water due to downward migration is prevented, and 3) the release of injected fluids into an unauthorized zone is prevented.

Borehole, casing, tubing and cement specifications for the injection well:

Borehole Size	Casing or Tubing Size & Material	Weight lbs/ft	Casing Seat Depth	Type of Cement & Additives	Number of Sacks of Cement
17 ½”	13 3/8”	H-40 48#/ft	200’	Class A w/3% CaCl & 6% gel	80
12 1/4”	9 5/8””	H-40 32.3 #/ft	1800’	Lead Slurry: 65/35 Pozmix w/6% gel, 3% CaCl & .25lbs. Floseal Tail Slurry: Class A w/2% gel, 2% CaCl	391 150
8 ¾”	7”	K-55 23 #/ft	4,285’	Two Stage Cement Job: Bottom Stage: Lead Slurry: 65/35 Pozmix w/6% gel, .25 # Floseal Tail Slurry: ASC Thixotropic w/5# Gilsonite & 7% gas stop Top Stage: 60/40 Pozmix w/4% gel, .25 # Flowseal	114 100 246

Borehole Size	Casing or Tubing Size & Material	Weight lbs/ft	Casing Seat Depth	Type of Cement & Additives	Number of Sacks of Cement
NA	3.50” TK-99 Coated	J-55 or K-55 9.3#/ft	Packer 4250’, w/30’ tail pipe	NA	NA

NA= Not Applicable

Packer Type: D & L AS1-X
Packer Seating Depth: +/- 4,255 feet

A schematic illustrating the completion of the well is included as Attachment II.

B. Type of Annulus Fluid: Corrosion inhibitor and fresh water

Minimum Annulus Pressure: 60 psig

C. Injection is into the Viola Formation through openhole from approximately 4,285 feet to 4,293 feet in depth.

VII. SPILL PREVENTION AND CONTAINMENT

Underground brine piping consist of high density polyethylene noncorrosive material.

VIII. CONVERSION

A notice of conversion of the well to a use other than brine injection as authorized by this permit shall be submitted to KDHE at least 60 days prior to conversion. A conversion plan shall be submitted with the notice to KDHE for review and approval. The well shall not be converted until approval of the conversion plan has been obtained from KDHE.

IX. SCHEDULE OF COMPLIANCE

1. This well shall not be operated until a pressure MIT witnessed by KDHE has been conducted and deemed satisfactory by KDHE.

2. This well shall not be operated until all drilling, casing and cementing records and all log and log interpretations have been submitted to and approved by KDHE.

X. STANDARD CONDITIONS - ATTACHMENT I

In addition to the specified conditions stated herein, the permittee shall comply with the provisions of Attachment I.

XI. OTHER CONDITIONS

Viola Formation pressure monitoring requirements:

The Viola Formation pressure shall be measured in the observation wells depicted in Attachment III at least once annually and the results submitted to KDHE within 30 days of completing the pressure measurement event. The pressure measurement results shall be presented in a format that provides a comparison of the most recent measurement with all previous pressure measurements obtained since the effective date of this permit.

Groundwater monitoring requirements:

The groundwater shall be monitored for any impact of the injection operation on the Big Bend Aquifer. The groundwater in monitoring wells depicted in Attachment IV shall be sampled at least semi-annually and the results submitted to KDHE within 30 days of receipt of the analytical results from the laboratory. The samples shall be analyzed for chloride, sulfate, sodium, pH and Total Dissolved Solids concentrations. The analyses shall be conducted by a KDHE laboratory certified for the required constituents. The analytical results shall be submitted to KDHE in a format that compares the most recent results with all previous results obtained since the effective date of this permit. This submittal shall include the name and certification number of the laboratory that conducted the analyses. If the results of the monitoring indicate potential endangerment or endangerment of the public health or the environment, KDHE may require the permittee to submit a corrective action plan and schedule of implementation to KDHE for review and consideration of approval. Corrective action may include the requirement by KDHE to cease the injection operation.

Effective March 24, 2011

ATTACHMENT I

STANDARD CONDITIONS FOR
UNDERGROUND INJECTION CONTROL PERMITS

CLASS V
INJECTION WELLS

CONDITIONS APPLICABLE TO ALL PERMITS

A. Duty to Comply: The permittee shall comply with all conditions of the permit, Federal and State laws and regulations. Any permit noncompliance constitutes a violation of the appropriate act or regulations and is grounds for enforcement action; for permit termination, revocation and reissuance, modification or denial of a permit renewal application.

B. Duty to Reapply: If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. An application to renew this permit shall be filed with KDHE at least 180 days prior to its expiration date.

C. Duty to Halt or Reduce Activity: It shall not be an acceptable defense for a permittee, in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate: The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

E. Proper Operation and Maintenance: The permittee shall at all times properly operate and maintain all facilities and systems of monitoring, treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures This provision requires the operation of back-up or auxiliary facilities or similar systems when necessary to maintain compliance with the conditions of the permit.

F. Property Rights: This permit does not convey any property rights of any sort, or any excusive privilege.

G. Duty to Provide Information: The permittee shall furnish to KDHE within a reasonable time, any information which KDHE may request to determine whether cause exists for modifying, revoking, reissuing or terminating the permit, or to determine compliance with this permit. The permittee shall also furnish to KDHE, upon request, copies of reports and information required to be kept by this permit.

H. Inspection and Entry: The permittee shall allow the Secretary, or any authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor for the purpose of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location.

I. Samples, Measurements and Records:

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all electronic data collected at a minimum of every 30 seconds for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years for the date of sample, measurement, report or application. This period may be extended by request of KDHE at any time.

3. The permittee shall retain records concerning the nature and composition of all injected fluids until three (3) years after the completion of any plugging and abandonment procedures. KDHE may require the owner or operator to deliver the records to KDHE at the conclusion of the retention period.

4. Records of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurements;

   b. The individual(s) who performed the sampling or measurements;

   c. The date(s) analyses were performed;

   d. The individual(s) who performed the analyses;

   e. The analytical sampling, and sample preservation techniques or methods used; and

   f. The results of such analyses.

J. Signatory Requirements: All permit applications, reports required by this permit, or other information requested by KDHE shall be signed and certified in accordance with the requirements of K.A.R. 28-46-22.

K. Transfer of Permit: This permit is not transferable to any person except after notice and approval by KDHE. KDHE may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the appropriate Act. In some case, modification and reissuance is mandatory. The current owner shall notify KDHE at least thirty (30) days in advance of the proposed transfer date. ~~J~~ The notice shall include a written agreement between the existing and new permitee containing a specific date for transfer of permit responsibility, coverage and liability between them, and the notice demonstrates the financial requirements will be met by the new permittee. The new permittee shall submit to KDHE at least thirty (30) days prior to the proposed transfer date a new permit application including the financial assurance documents guaranteeing resources are available to properly plug and abandon the well.

L. Emergency Reporting: The permittee shall within twenty-four (24) hours of becoming aware of the circumstances orally report to KDHE any noncompliance which may endanger human health or environment. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause the period of noncompliance, including exact dates and times, corrective action taken, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The permittee shall comply with any corrective or remedial action required by KDHE.

M. Operational Requirements:

1. The permittee shall not allow the movement of fluid containing any contaminant into any formation or aquifer not permitted to receive fluid by this permit.

2. If any water quality monitoring of an aquifer indicates the movement of any contaminant into any formation or aquifer not permitted to receive fluids by this permit, the permittee shall take such action as required by KDHE, including taking the well out of service, closure of the well or plugging and abandonment of the well.

N. Permit Modifications and Terminations: After notice and opportunity for a hearing, this permit may be modified, suspended or revoked, or terminated in whole or in part during its term for cause as provided, but not limited to those set forth in K.A.R. 28-46-15 and K.A.R. 28-46-16 or if the KDHE or Environmental Protection Agency standards or regulations on which the permit was based have been changed by promulgation of new or amended codes, statutes, regulations or standards or by judicial decision after the permit was issued. The permittee shall furnish to KDHE, within a reasonable amount of time, any information which KDHE may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish, upon request, copies of all records required to be kept by this permit.

O. Severability: The provisions of this permit are severable and if any provision of this permit and any circumstance is held invalid, the application of such provision to other circumstances and the remainder of the permit shall not be affected thereby.

P. Change in Injection Stream: Any facility changes or process modifications which may result in new, different or altered injection streams or an increase in injection volumes shall be reported to KDHE at least one hundred eighty (180) days before such changes.

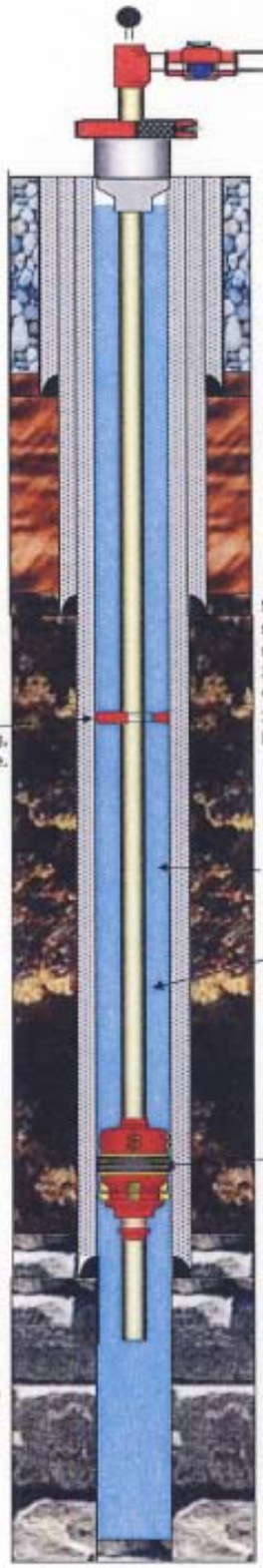
Q. Anticipated Noncompliance: If for any reason, the permittee will be unable to comply with permit requirements, the permittee shall give advance notice to KDHE. The notice shall include the reason for the anticipated noncompliance and a description of steps taken to reduce, eliminate and prevent recurrence of the noncompliance. Upon receiving proper notice from the permittee KDHE may grant for a specified time a temporary waiver to a permit requirement for the purpose of testing or treating the well or for conducting a well workover or to protect human health or the environment.

R. Permit Actions: The filing of a request by the permittee for a permit modification, a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

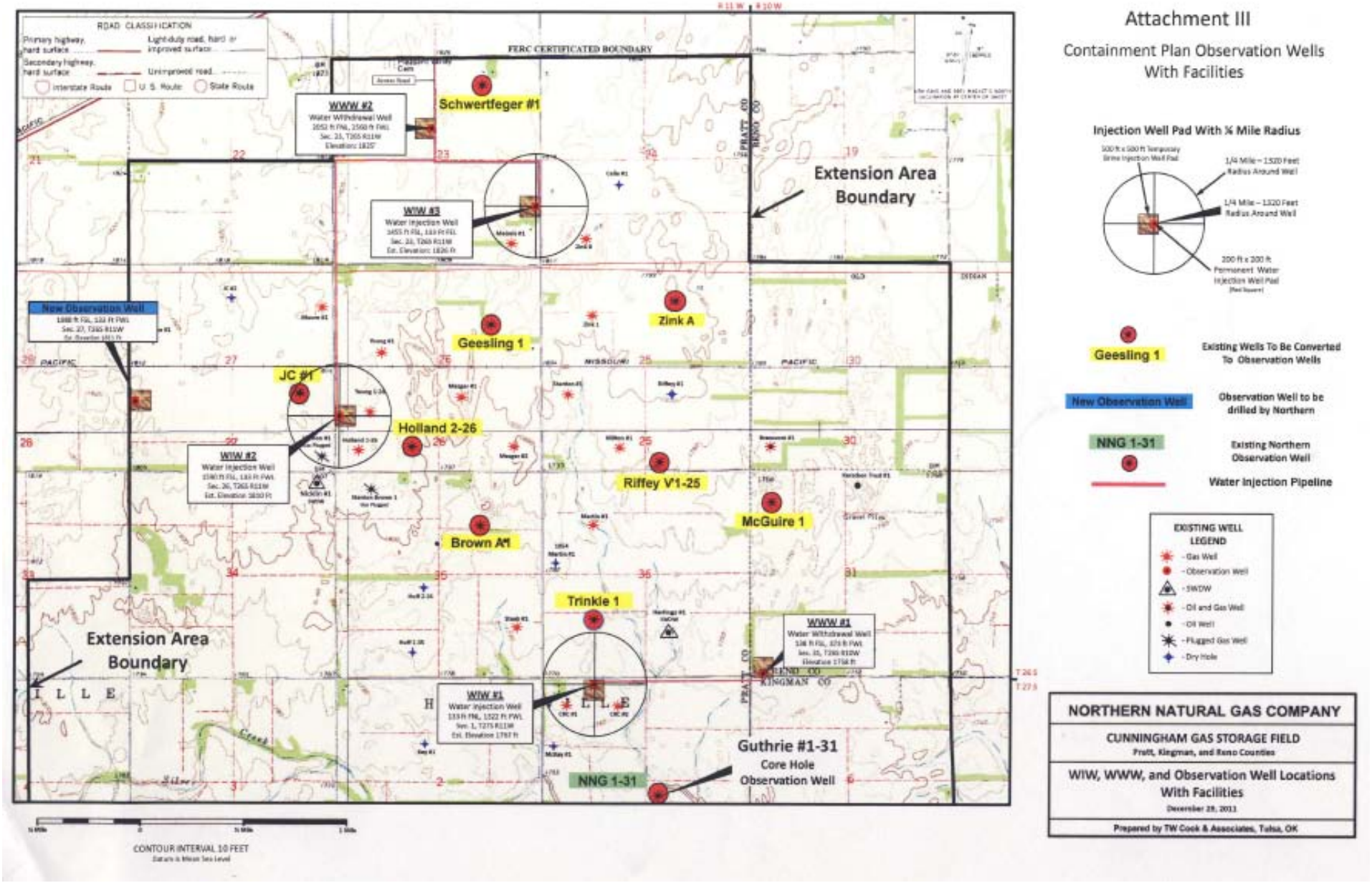
Northern Natural Gas
A MIDAMERICAN ENERGY HOLDINGS COMPANY

Attachment II

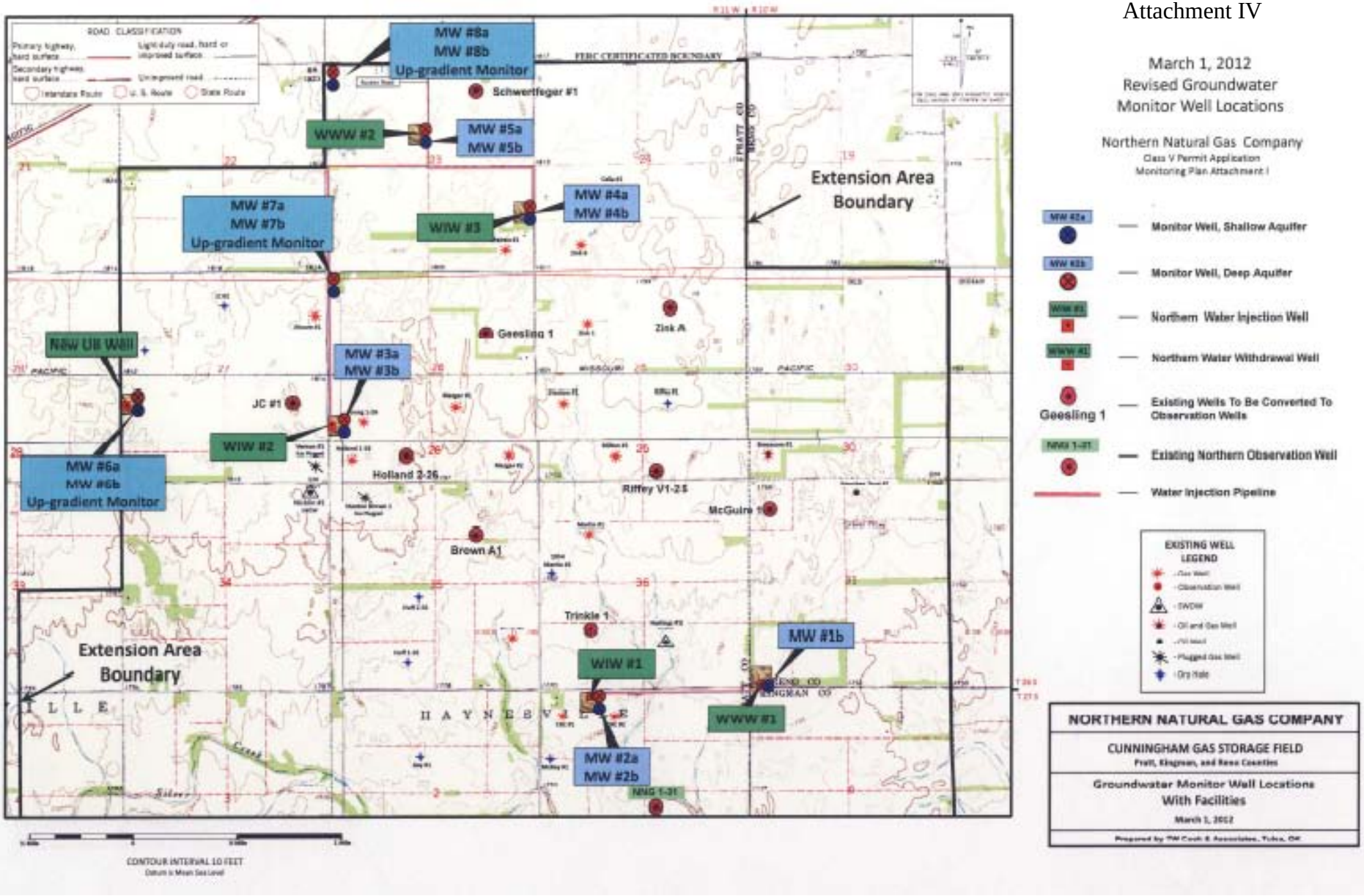
Class V Injection Well Application
Proposed Water Injection Wells #1, #2 & #3
Cunningham Storage Facility



T&C CONSULTING
A Division of T&C MFG & Operating, Inc.
"Many Options With One Hat"


Attachment III
Containment Plan Observation Wells With Facilities
ROAD CLASSIFICATION
FERC CERTIFICATED BOUNDARY
WWW #2
Water Withdrawal Well
Schwertfeger #1
WIW #3
Water Injection Well
Extension Area Boundary
New Observation Well
Geesling 1
Zink A
JC #1
Holland 2-26
WIW #2
Water Injection Well
Riffey V'1-25
McGuire 1
Brown A'1
Trinkle 1
WWW #1
Water Withdrawal Well
WIW #1
Water Injection Well
Extension Area Boundary
Guthrie #1-31
Core Hole
Observation Well
NNG 1-31
CONTOUR INTERVAL 10 FEET
Injection Well Pad With ¼ Mile Radius
1/4 Mile – 1320 Feet Radius Around Well
200 ft x 200 ft Permanent Water Injection Well Pad
Geesling 1
Existing Wells To Be Converted To Observation Wells
New Observation Well
Observation Well to be drilled by Northern
NNG 1-31
Existing Northern Observation Well
Water Injection Pipeline
EXISTING WELL LEGEND
- Gas Well
- Observation Well
- SWDW
- Oil and Gas Well
- Oil Well
- Plugged Gas Well
- Dry Hole
NORTHERN NATURAL GAS COMPANY
CUNNINGHAM GAS STORAGE FIELD
Pratt, Kingman, and Reno Counties
WIW, WWW, and Observation Well Locations With Facilities
December 28, 2011
Prepared by TW Cook & Associates, Tulsa, OK

Attachment IV

March 1, 2012
Revised Groundwater
Monitor Well Locations

Northern Natural Gas Company
Class V Permit Application
Monitoring Plan Attachment I