

## FACT SHEET

### CLASS V BRINE INJECTION WELL PERMIT APPLICATIONS

#### I. Background Information

1. Owner/Operator: Northern Natural Gas Company (NNG)  
Facility: Cunningham Storage Facility  
Mailing Address: 1111 S 103<sup>rd</sup> Street  
Omaha, NE 68124-1000  
Contact Person: Randall Peschka  
Telephone Number: 402.536.8006

2. The applications for permits pertain to the permitting of proposed new Class V brine injection wells located in the SW/4 of Section 26, Township 26 South, Range 11 West; SE/4 Section 23, Township 26 South, Range 11 West, and NW/4 Section 1, Township 27 South, Range 11 West, Pratt County, Kansas. Brine produced from the Arbuckle Formation will be injected for the purpose of stabilizing the pressure in the Viola Formation to prevent the migration of storage gas.

The well number, KDHE Underground Injection Control permit number and location of the proposed wells are as follows:

Well Number: #WIW #1  
Permit No.: KS-05-151-001  
Location: Latitude: 37.732257  
Longitude: -98.4784462

Well Number: #WIW #2  
Permit No.: KS-05-151-002  
Location: Latitude: 37.75147191  
Longitude: -98.50108340

Well Number: WIW #3  
Permit No.: KS-05-151-003  
Location: Latitude: 37.76572  
Longitude: -98.48373

#### II. Injection Details

1. The injection interval is the Viola Formation from a bottom depth of approximately 4,293 feet to a top depth of approximately 4,285 feet below ground surface.
2. Injection is by means of gravity flow, no pump pressure is allowed during normal injection operations.

3. The maximum rate of injection is 168,000 gallons per day per well.

III. Description of Fluids to be Injected

The NNG Cunningham Storage Facility is a porosity natural gas storage facility. Brine produced from the Arbuckle Formation will be injected for the purpose of stabilizing the pressure in the Viola Formation to prevent the migration of storage gas.

IV. Description of Injection Interval

The Viola formation is a limestone at the base of the formation grading upwards to a dolomite. The Viola Formation is a major oil and gas producer in the area and is used for the storage of natural gas at the NNG facility. The Viola is encountered at a depth of approximately 4285 feet. The Viola formation is capable of receiving significant quantities of fluid without use of wellhead pressure due to its porous and permeable nature.

V. Chemical Characteristics of Injection Interval Formation Waters

The connate Viola Formation water in the vicinity of the wells exceeds the "usable" water standards of 10,000 mg/l total dissolved solids and, therefore, the Viola Formation need not be protected from the injection of brine fluids. Viola Formation water contains approximately 85,000 mg/l total dissolved solids.

VI. Construction, Monitoring, and Operation of Well

All construction, monitoring and operation of these wells will meet the requirements that apply to Class V injection wells under the Kansas Underground Injection Control Regulations, K.A.R. 28-46-1 through 28-46-44, appropriate Federal Regulations and the requirements of KDHE.

VII. Proposed Basis for Draft Permit Conditions

1. General

- (a) Applicable federal laws
- (b) Applicable federal regulations
- (c) Applicable state statutes
- (d) Applicable state regulations
- (e) Applicable state and federal water quality standards
- (f) Technical guidance and reference documents
- (g) Permit application and supporting documents
- (h) Technical expertise and professional judgment of permit writers and Department technical staff
- (i) Technical input and consultation with federal, state and local agencies and representatives of citizen groups

2. Specific

The following specific documents may be used to draft permit limitations, conditions, operating procedures, monitoring and reporting requirements:

- (a) Clean Water Act (Public Law 95-217)
- (b) Safe Drinking Water Act
- (c) 40 CFR part 122-125, 144-147, 233, 251, 260-217 and Guidance 1425
- (d) K.S.A. Chapter 65
- (e) Kansas UIC Regulations 28-46-1 through 28-46-44
- (f) EPA-600/2-77-240, An Introduction to the Technology of Subsurface Wastewater Injection
- (g) Type Logs of Kansas published by the Kansas Geological Society
- (h) U.S.G.S. Professional Paper 708, Groundwater Hydraulics
- (i) Freeze and Cherry - Groundwater
- (j) Davis and DeWiest - Hydrogeology
- (k) Applicable bulletins and other related publications by the Kansas Geological Survey
- (l) Applicable publications by the U.S. Geological Survey
- (m) Warner and Lehr Subsurface Wastewater Injection(o)Adams and Charrier, Drilling Engineering

VIII. Area of Review

A 0.25-mile radius area of review, as required by KDHE, has been examined by KDHE.

IX. Closure Plan

NNG has on file with KHDE a well closure plan that meets the requirements of the state and federal regulations and the requirements of KDHE.

X. Evidence of Financial Responsibility

NNG has established the necessary financial assurance for the future closure of the disposal wells by use of a bond and standby trust agreement.

XI. Additional information may be obtained from:

Mike Cochran  
 Kansas Department of Health and Environment, Geology Section  
 1000 SW Jackson Ste., Suite 420, Topeka, Kansas 66612-1367  
 785. 296.5560

In anticipation of public interest and a desire to comment, the agency has allowed at least 30 days from the date of public notice to submit comment. A public hearing is also scheduled.