

RECEIVED APR 11 2018

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OMB No. 2040-0042 Approval Expires 12/31/2018



United States Environmental Protection Agency
Underground Injection Control
Permit Application
(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		
ND 22389-11621	T/A	C
U		

Read Attached Instructions Before Starting
For Official Use Only

Application approved	Date received	Permit Number	Well ID	FINDS Number
mo day year	mo day year			

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Mann Oil Company, LLC			Owner Name Mann Oil Company, LLC		
Street Address 109 N 4th St, Suite 200		Phone Number 701-751-4315	Street Address 109 N 4th St, Suite 200		Phone Number 701-751-4315
City Bismarck	State ND	ZIP CODE 58501	City Bismarck	State ND	ZIP CODE 58501

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator	1389

VIII. Well Status (Mark "x")		
<input checked="" type="checkbox"/> A. Operating	Date Started mo day year 07 08 1997	<input type="checkbox"/> B. Modification/Conversion <input type="checkbox"/> C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)			
<input checked="" type="checkbox"/> A. Individual	<input type="checkbox"/> B. Area	Number of Existing Wells 1	Number of Proposed Wells 0
		Name(s) of field(s) or project(s)	

X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s)) 11	B. Type(s) (enter code(s)) D	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)

XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')	
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line		
						35	149	89	NESE				

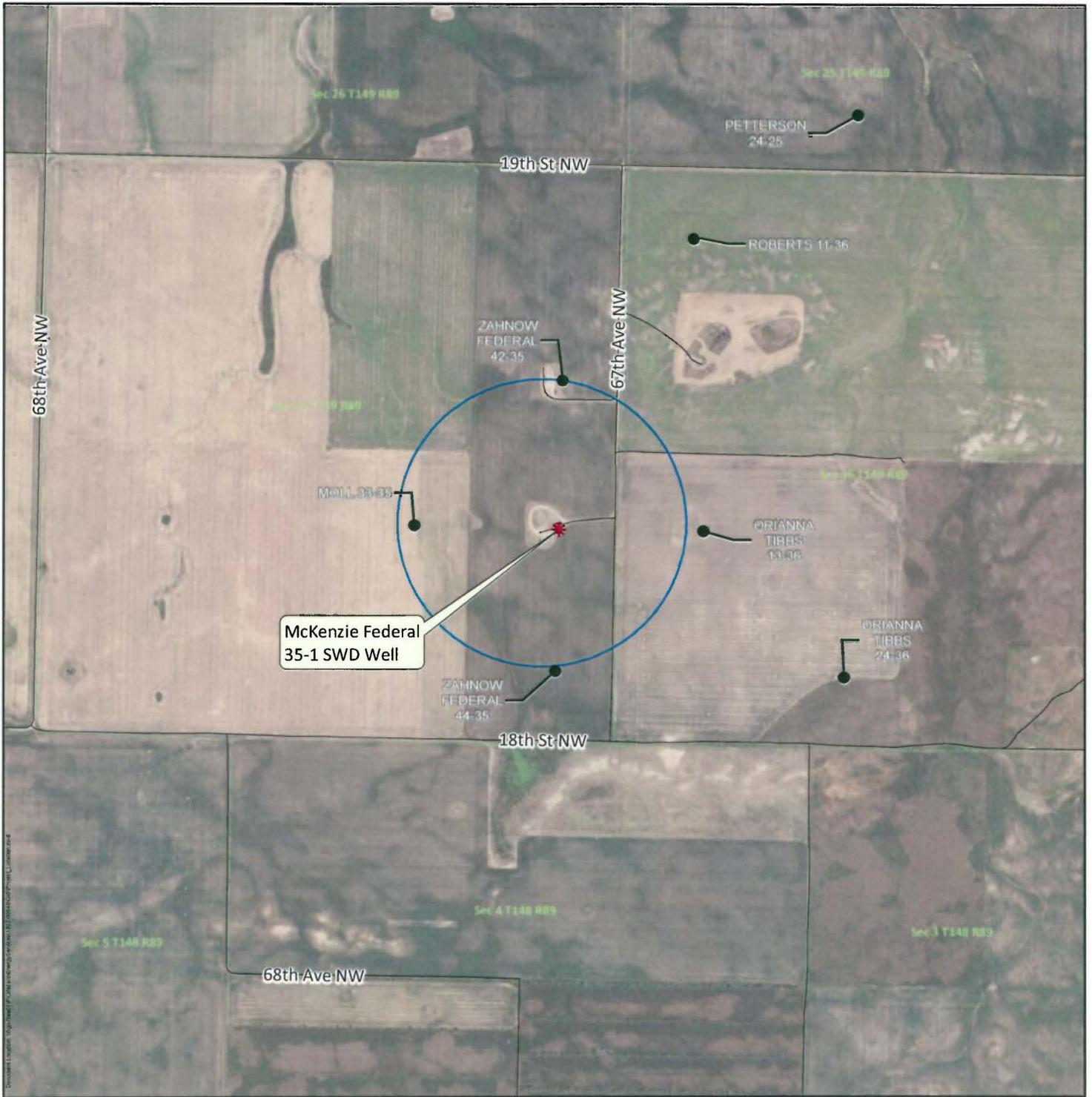
XIII. Attachments
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification
I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title (Type or Print) Adam Dever CFO	B. Phone No. (Area Code and No.) 701 751 4315
C. Signature 	D. Date Signed 4/6/18

Attachment A. AREA OF REVIEW METHODS

Equations were not used; therefore, the area of review is a fixed radius of ¼ mile. Please see the project location map below.



McKenzie Federal 35-1 SWD Well
Mann Energy Services
McLean County, ND
Project Location Map

Legend

- * Well Location
- Oil & Gas Well
- 1/4 Mile Buffer

Kilometers

0 0.25 0.5

Miles

0 0.25 0.5



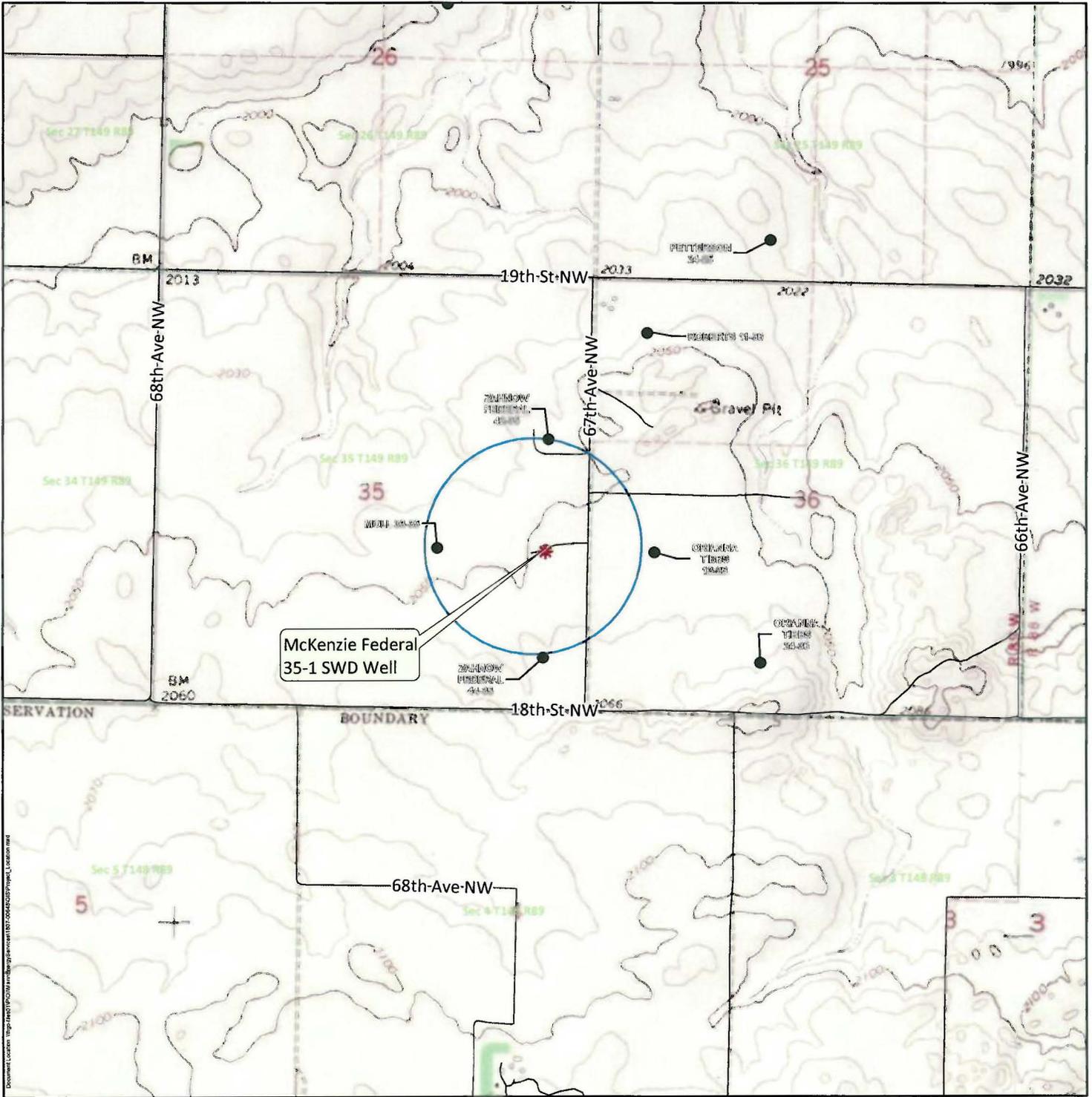
KLJ Project Number: 1807-00648
 Date Created: 3/23/2018 Created By: JCC

Attachment B. MAPS OF WELL/AREA AND AREA OF REVIEW

and

Attachment C. CORRECTIVE ACTION PLAN AND WELL DATA

Please see the Maps and area of review reports below.

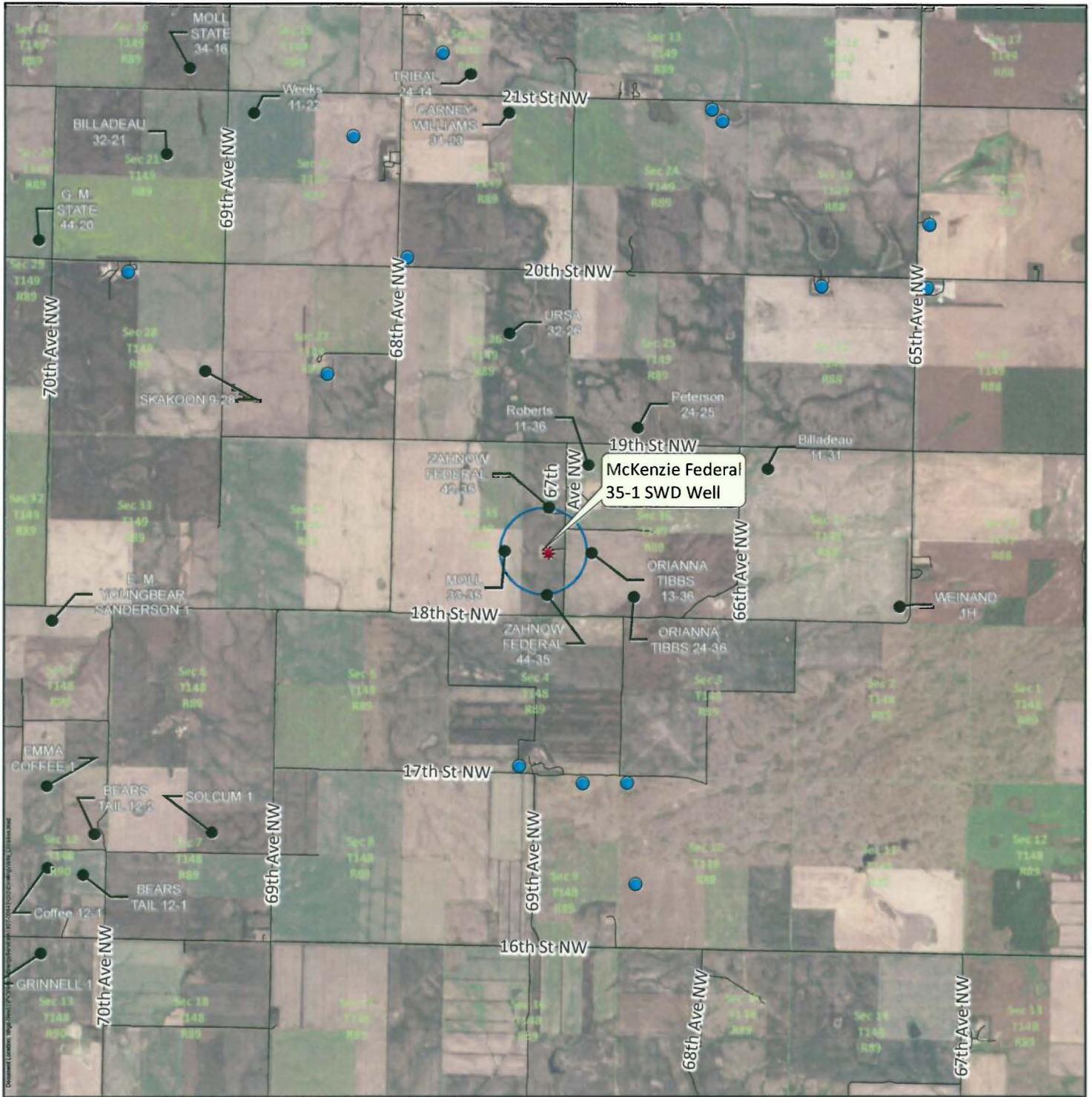


**McKenzie Federal 35-1 SWD Well
Mann Energy Services
McLean County, ND
Project Location Map**

Legend

- * Well Location
- Existing Oil & Gas Well
- 1/4 Mile Buffer





McKenzie Federal 35-1 SWD Well
Mann Energy Services
McLean County, ND
Well Map

Legend

- * Well Location
- Water Well (NDSWC)
- 1/4 Mile Buffer
- Oil & Gas Well (NDIC)



KLJ Project Number: 1807-00648
 Date Created: 3/23/2018 Created By: JCC

AREA OF REVIEW DATA SHEET

(WELLS WITHIN 1/4 MILE RADIUS PENETRATING INJECTION ZONE)
(05-2000)

Well File No. 14601

Well Name and Number McKenzie Federal #35-1						Number of Wells in AOR 4	
Footages 1980 F S L 660 F E L		Qtr-Qtr NESE	Section 35	Township 149 N	Range 89 W	County McLean	
Field Centennial				Injection Zone Dakota Group		Injection Zone Top 4385 Feet	

AREA OF REVIEW WELLS

Well Name and Number Orianna Tibbs #13-36				Status PNA	Status Date 10/15/1996	Well File No. 13053	
Footages 1980 F S L 660 F W L		Qtr-Qtr NWSW	Section 36	Township 149 N	Range 89 W	County McLean	
Surface Casing 8 5/8 "	Surface Casing Depth 816 Feet	Cement Volume 400 Sacks	Top of Cement		Top of Cement Determined By		
Production Casing 5 1/2 "	Production Casing Depth 8120 Feet	Cement Volume 685 Sacks	Top of Cement 0 Feet	Top of Cement Determined By <input type="checkbox"/> CBL <input type="checkbox"/> Temp <input type="checkbox"/> Calc October 15, 1993			
Injection Zone Dakota Group		Injection Zone Top 4382 Feet	Pierre Shale Top 1735 Feet	Logs on File DLL,CND,BCS,CBL,DT			
Comments CIBP @ 7832' w/ 6sx, production casing was pulled from 3800' and cmt plugs placed at csg stub, sc shoe, and surface.							

Well Name and Number Moll #33-35				Status DRY	Status Date 12/7/1994	Well File No. 13079	
Footages 1981 F S L 1983 F E L		Qtr-Qtr NWSE	Section 35	Township 149 N	Range 89 W	County McLean	
Surface Casing 9 5/8 "	Surface Casing Depth 839 Feet	Cement Volume 460 Sacks	Top of Cement		Top of Cement Determined By		
Production Casing 5 1/2 "	Production Casing Depth 8085 Feet	Cement Volume 760 Sacks	Top of Cement 0 Feet	Top of Cement Determined By <input type="checkbox"/> CBL <input type="checkbox"/> Temp <input type="checkbox"/> Calc December 7, 1994			
Injection Zone Dakota Group		Injection Zone Top 4400 Feet	Pierre Shale Top 1714 Feet	Logs on File CBL,CYB,DLL,CND			
Comments CICR @ 7790' w/ 25sx on top, no squeeze; production casing was pulled from 4027' and cmt plugs placed at csg stub, sc shoe, and surface.							

Well Name and Number Zahnow Federal #44-35				Status DRY	Status Date 7/28/1991	Well File No. 13208	
Footages 660 F S L 660 F E L		Qtr-Qtr SESE	Section 35	Township 149 N	Range 89 W	County McLean	
Surface Casing 8 5/8 "	Surface Casing Depth 1789 Feet	Cement Volume 840 Sacks	Top of Cement		Top of Cement Determined By		
Production Casing "	Production Casing Depth Feet	Cement Volume Sacks	Top of Cement Feet	Top of Cement Determined By <input type="checkbox"/> CBL <input type="checkbox"/> Temp <input type="checkbox"/> Calc			
Injection Zone Dakota Group		Injection Zone Top 4413 Feet	Pierre Shale Top 1744 Feet	Logs on File DLL,CND,DTS			
Comments Cement plugs set @ 7860',6780',6250',4990',4250' in open hole, and surf csg shoe and surface.							

AREA OF REVIEW DATA SHEET

{WELLS WITHIN 1/4 MILE RADIUS PENETRATING INJECTION ZONE}
(05-2000)

Well File No. 14601

Well Name and Number McKenzie Federal #35-1						Number of Wells in AOR 4	
Footages 1980 F S L 660 F E L		Qtr-Qtr NESE	Section 35	Township 149 N	Range 89 W	County McLean	
Field Centennial				Injection Zone Dakota Group		Injection Zone Top 4385 Feet	

AREA OF REVIEW WELLS

Well Name and Number Zahnow Federal #42-35				Status F	Status Date 10/6/1990	Well File No. 12946	
Footages 1980 F N L 660 F E L		Qtr-Qtr SENE	Section 35	Township 149 N	Range 89 W	County McLean	
Surface Casing 8 5/8 "	Surface Casing Depth 1736 Feet	Cement Volume 700 Sacks	Top of Cement		Top of Cement Determined By		
Production Casing 5 1/2 "	Production Casing Depth 8045 Feet	Cement Volume 910 Sacks	Top of Cement 4189 Feet	Top of Cement Determined By <input checked="" type="checkbox"/> CBL <input type="checkbox"/> Temp <input type="checkbox"/> Calc October 5, 1990			
Injection Zone Dakota Group		Injection Zone Top 4385 Feet	Pierre Shale Top 1725 Feet	Logs on File DLL,BCS,CBL,CYB,DTS			
Comments							

Well Name and Number				Status	Status Date	Well File No.	
Footages F L F L		Qtr-Qtr	Section	Township N	Range W	County	
Surface Casing "	Surface Casing Depth Feet	Cement Volume Sacks	Top of Cement		Top of Cement Determined By		
Production Casing "	Production Casing Depth Feet	Cement Volume Sacks	Top of Cement Feet	Top of Cement Determined By <input type="checkbox"/> CBL <input type="checkbox"/> Temp <input type="checkbox"/> Calc			
Injection Zone		Injection Zone Top Feet	Pierre Shale Top Feet	Logs on File			
Comments							

Well Name and Number				Status	Status Date	Well File No.	
Footages F L F L		Qtr-Qtr	Section	Township N	Range W	County	
Surface Casing "	Surface Casing Depth Feet	Cement Volume Sacks	Top of Cement		Top of Cement Determined By		
Production Casing "	Production Casing Depth Feet	Cement Volume Sacks	Top of Cement Feet	Top of Cement Determined By <input type="checkbox"/> CBL <input type="checkbox"/> Temp <input type="checkbox"/> Calc			
Injection Zone		Injection Zone Top Feet	Pierre Shale Top Feet	Logs on File			
Comments							

Attachment E. NAME AND DEPTH OF USDWs (CLASS II)

For Class II wells, submit geologic name, and depth to bottom of all underground sources of drinking water which may be affected by the injection. The lowest fresh water zone which may be affected by the project is the Fort Union Formation, with a depth to base of fresh water at approximately 935 feet. The top perforation of the well occurs at approximately 4,845 feet, with a top confining zone approximately 441 feet thick consisting of impermeable shale. A search of North Dakota State Water Commission drilling log and water well information did not yield any documented wells within the ¼-mile area of review. No underground sources of drinking water are anticipated to be impacted by the use of this well.

Attachment G. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (Class II)

The McKenzie Federal 35-1 SWD Well was drilled to a bottom depth of 8,080 feet, as it was originally constructed to recover oil and gas resources. The well was later converted into a salt water disposal well by plugging the bottom of the well with concrete and creating perforations at depths ranging from 4,845 to 5,070 feet. The injection zone would be within the Dakota Formation that is found from approximately 4,830 to 5,070 feet. This formation consists of clean quartzose sandstone with occasional thin shales. Above the injection zone lies the Mowry Formation, which is a confining zone that is approximately 441 feet thick. This zone consists of dark gray to black color impermeable shale that is silty in part with high clay content, and has a fracture pressure of approximately 3,860 pounds per square inch (PSI). The bottom confining zone is the Morrison Formation with a thickness of approximately 213 feet. This zone consists of low permeability shale that has a gray to green to red color with some thin interbedded siltstones and limestone.

Bill Barrett Corporation
NDIC Case # 8461
Docket Date: February 23, 2005
McKenzie Federal 1-35,
NDIC Well File #14601
Centennial Field, McLean Co, N.D.

PERMIT REQUEST FOR FLUID INJECTION

Operator: Bill Barrett Corp
1099 18th Street Suite 2300
Denver, Co 80202

Well Name: McKenzie Federal #1-35

Location: 1980 FSL 660 FEL,
NE SE Section 35 T149N R89W
McLean Co, N.D.

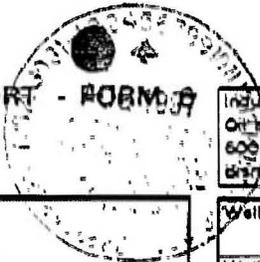
Requested Injection Zone: Dakota Formation
Clean Quartzose sandstone with occasional thin shales
Found from 4836 to 5120' MD

Overlying Confining Zone: Mowry Formation
Thickness: 441 feet
Impermeable shale, dark gray to black, silty in part, high
clay content.

Bottom Confining Zone: Morrison Formation
Thickness: 213 feet
Low permeability shale, gray to green to red, some thin
interbedded siltstones and limestones.



WELL COMPLETION OR RECOMPLETION REPORT - FORM 3
INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
 SFN 2468 (2-92)



Industrial Commission of N.D.
 Oil and Gas Division
 600 East Boulevard
 Bismarck, ND 58505

Designate Type of Completion
 Oil Well Gas Well Other _____
 Work Over Deepened Plug Back

Operator: Naumann Oil and Gas, Inc. Phone Number: 915-683-5051
 Address: P.O. Box 10159
 City: Midland State: TX Zip Code: 79702

Well File No. 14601
 Well Name and No. 1-35
 McKenzie Federal
 Spacing (Unit Description) E SE/4
 Field Centennial
 Pool Madison
 Mission Canyon
 Wildcat, Development, Extension
 Development

LOCATIONS (Show footages, quarter-quarter, section, township and range)

At Surface 1980 FSL County: McLean
 660 FEL NESE Section 35-149-89
 At Top Prod. Interval, Reported Below: As above
 At Total Depth: As above Welder's Verification No.
 Date Spudded: 6-5-97 Date TD Reached: 6-19-97 Drilling Contractor & Rig. No.: Wolverine 33 Elevation (KB): 2059
 Total Depth (MD & TVD): 8080' Plug Back TD (MD & TVD): (see back) 8002'
 Producing Interval(s). This Completion. Top, Bottom, Name (MD & TVD): 7946-52 Sherwood
 No. of DST's Run (see back): 1 Date Directional Survey Submitted:
 Type of Electric and Other Logs Run (See Instructions): GR, BHC Sonic, DLL, MSFL, CBL
 Was Well Cored? No Yes - List intervals:

CASING RECORD (Report all strings set in well)

Casing Size	Depth Set (MD)	Hole Size	Weight (Lbs./Ft.)	Sacks Cement	Top of Cement
16" conductor	41'				Surface
8-5/8"	1780'	12-1/4"	J-55 24#	630sx SKS	Surface
5-1/2"	8080'	7-7/8"	I-80 20#	810 sv -G-	4236'

LINER RECORD

TUBING RECORD

Size	Top (MD)	Bottom (MD)	Sacks Cement	Size	Depth Set (MD)	Anchor Set (MD)	Packer Set (MD)
				27-7/8"	7974'		7911

PERFORATION RECORD

Interval (MD)	Holes Per Ft.	Potential (O&W)	Purpose	Acid, Freq, Sqs, etc.	Amount & Kind of Material Used
7946-51	2 SPF	109 oil		500 gal	NFFF
		32 wtr			

PRODUCTION

Date of First Production Through Permanent Wellhead: 7-8-97 Producing Method (Flowing, gas lift, pumping - size & type of pump): Swab Well Status (Prod. or shut-in): Shut-in

Date of Test	Hours Tested	Choke Size	Production for Test	Oil (Bbls.)	Gas (Mcf.)	Water (Bbls.)	Oil Gravity - API (Com.)
7-10-97	10	NA		109	no gauge	32	39.5
Flowing Tubing Pressure	Casing Pressure	Calculated 24 hour rate	Oil (Bbls.)	Gas (Mcf.)	Water (Bbls.)	Gas-Oil Ratio	
NA	NA		220	no gauge	60	NA	

Disposition of Oil & Gas (Purchaser & Transporter): held in test tank Test Witnessed By: Larry Baker

List of Attachments/Comments

Shut-in waiting on production facilities and to install electric power.
 Will re-submit Sundry notice with 24 hr. pumping rates for oil and water, and will gauge gas rate volume.

Attachment H. Operating Data

Please see NDIC application for injection and Astro-Chem Lab Inc, water analysis below for pertinent information.



APPLICATION FOR INJECTION - FORM 14

INDUSTRIAL COMMISSION OF NORTH DAKOTA
 OIL AND GAS DIVISION
 600 EAST BOULEVARD DEPT 405
 BISMARCK, ND 58505-0840
 SFN 18669 (12-2004)

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

Permit Type <input type="checkbox"/> Enhanced Recovery <input checked="" type="checkbox"/> Saltwater Disposal <input type="checkbox"/> Gas Storage	Injection Well Type <input checked="" type="checkbox"/> Converted <input type="checkbox"/> Newly Drilled	Commercial SWD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Operator Bill Barrett Corporation		Telephone Number 303 293 9100
Address 1099 18th Street Suite 2300	City Denver	State CO
Well Name and Number McKenzie Federal 1-35		Zip Code 80202
Field or Unit Centennial		

LOCATIONS

At Surface	1980 F S L	660 F E L	Qtr-Qtr NE SE	Section 35	Township 149 N	Range 89 W	County McLean
Bottom Hole Location	1980 F S L	660 F E L	Qtr-Qtr NE SE	Section 35	Township 149 N	Range 89 W	County McLean

Geologic Name of Injection Zone Dakota	Top 4826 Feet	Injection Interval 4830-5070' (Gross interval) Feet
Geologic Name of Top Confining Zone Mowry Shale	Thickness 441 Feet	Geologic Name of Bottom Confining Zone Morrison Shale
Bottom Hole Fracture Pressure of the Top Confining Zone 3860 PSI		Gradient 0.80 PSI/Ft
Estimated Average Injection Rate and Pressure 200 BPD @ 150 PSI	Estimated Maximum Injection Rate and Pressure 250 BPD @ 150 PSI	
Geologic Name of Lowest Known Fresh Water Zone Fort Union		Depth to Base of Fresh Water Zone 935 Feet
Total Depth of Well (MD & TVD) 8080 Feet	Logs Previously Run on Well BCS, DLL, CBL	

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

NAME OF STRING	SIZE	WEIGHT (Lbs/Ft)	SETTING DEPTH	SACKS OF CEMENT	TOP OF CEMENT	TOP DETERMINED BY
Surface <input checked="" type="checkbox"/>	8 5/8	J-55 24#	1780	630	Surface	
Intermediate <input checked="" type="checkbox"/>	5 1/2	I-80 20#	8080	810	4236	
Long String <input type="checkbox"/>						

	TOP	BOTTOM	SACKS OF CEMENT
Liner <input type="checkbox"/>			

	TYPE
Proposed Tubing	L-80

Proposed Packer Setting Depth 4750 Feet	Model Internally coated AS1-X	<input checked="" type="checkbox"/> Compression <input type="checkbox"/> Permanent <input checked="" type="checkbox"/> Tension
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FOR STATE USE ONLY

Permit Number and Well File Number 14601	
UIC Number W161 S571C	Approval Date March 30, 2005
By <i>David M. Luskey</i>	
Title UNDERGROUND INJECTION SUPERVISOR	

ASTRO-CHEM LAB, INC.

4102 2nd Ave. West

Williston, North Dakota 58802-0972
P.O. Box 972

Phone: (701) 572-7355

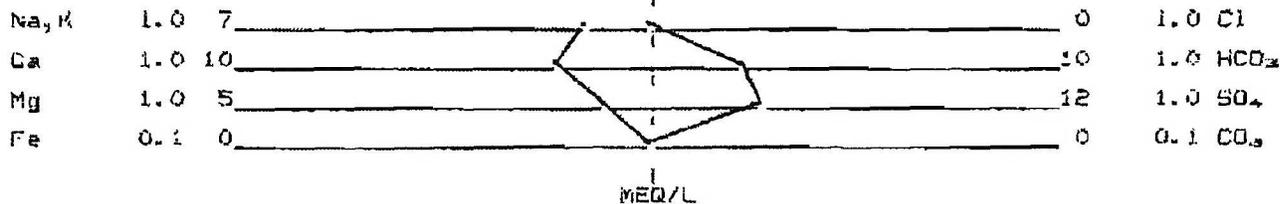
WATER ANALYSIS REPORT

SAMPLE NUMBER W-05-0298 DATE OF ANALYSIS 2-17-05
COMPANY Bill Barrett Corporation
CITY Denver STATE CO
WELL NAME AND/OR NUMBER Arnold Moll
DATE RECEIVED 2-7-05 DST NUMBER
SAMPLE SOURCE
LOCATION NESE OF SEC. 27 TWN. 149N RANGE 89W COUNTY
FORMATION DEPTH
DISTRIBUTION Chris Barrington - Denver, CO
 Larry Jacobson - Williston, ND

RESISTIVITY @ 77°F = 5,400 Ohm-Meters pH = 7.28
 SPECIFIC GRAVITY @ 77°F = 1.000 H₂S = Negative
 TOTAL DISSOLVED SOLIDS (CALCULATED) = 1621 mg/L (1621 ppm)
 SODIUM CHLORIDE (CALCULATED) = 8 mg/L (8 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	10.4	206	CHLORIDE	0.1	4
MAGNESIUM	5.2	58	CARBONATE	0.0	0
SODIUM	6.8	156	BICARBONATE	10.4	635
IRON	0.0	0.0	SULFATE	11.5	553
CHROMIUM	0.0	0.0	NITRATE	0.0	0
BARIUM	0.0	0.0			
POTASSIUM	0.3	10			

WATER ANALYSIS PATTERN



REMARKS Conductivity = 1670.9 µmhos/cm

ANALYZED BY: C. Jungels

ASTRO-CHEM LAB, INC.

4102 2nd Ave. West

Williston, North Dakota 58802-0972
P.O. Box 972

Phone: (701) 572-7355

WATER ANALYSIS REPORT

SAMPLE NUMBER W-05-0299 DATE OF ANALYSIS 2-17-05
COMPANY Bill Barrett Corporation
CITY Denver STATE CO
WELL NAME AND/OR NUMBER Robin Lind
DATE RECEIVED 2-7-05 DST NUMBER
SAMPLE SOURCE
LOCATION SWSE OF SEC. NW30 TWN. 149N RANGE 88W COUNTY
FORMATION DEPTH
DISTRIBUTION Chris Barrington - Denver, CO
 Larry Jacobson - Williston, ND

RESISTIVITY @ 77°F = 5.400 Ohm-Meters pH = 7.58

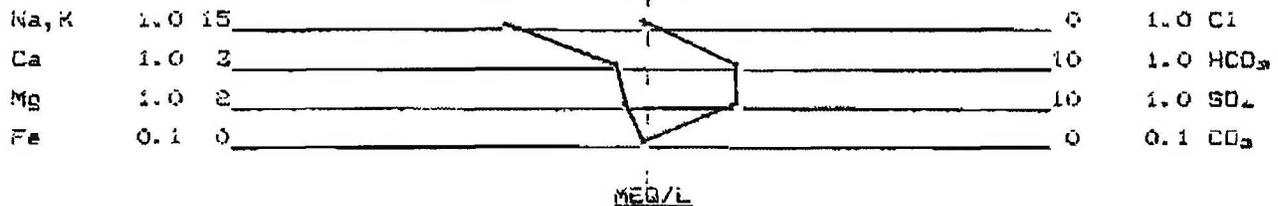
SPECIFIC GRAVITY @ 77°F = 1.000 mgS = Negative

TOTAL DISSOLVED SOLIDS (CALCULATED) = 1547 mg/L (1547 ppm)

SODIUM CHLORIDE (CALCULATED) = 7 mg/L (7 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	2.8	56	CHLORIDE	0.1	4
MAGNESIUM	2.4	27	CARBONATE	0.0	0
SODIUM	14.4	331	BICARBONATE	10.2	622
IRON	0.0	0.0	SULFATE	10.3	496
CHROMIUM	0.0	0.0	NITRATE	0.0	3
BARIUM	0.0	0.0			
POTASSIUM	0.2	9			

WATER ANALYSIS PATTERN



REMARKS Conductivity = 1870.9 µmhos/cm

ANALYZED BY: C. Jungels

ASTRO-CHEM LAB, INC.

4102 2nd Ave. West

Williston, North Dakota 58802-0972
P.O. Box 972

Phone: (701) 572-7355

WATER ANALYSIS REPORT

SAMPLE NUMBER W-05-0297 DATE OF ANALYSIS 2-17-05
COMPANY Bill Barrett Corporation
CITY Denver STATE CO
WELL NAME AND/OR NUMBER Roy Lind
DATE RECEIVED 2-7-05 DST NUMBER
SAMPLE SOURCE
LOCATION SWSE OF SEC. NW30 TWN. 149N RANGE 88W COUNTY
FORMATION DEPTH
DISTRIBUTION Chris Barrington - Denver, CO
 Larry Jacobson - Williston, ND

RESISTIVITY @ 77°F = 3.780 Ohm-Meters pH = 7.70

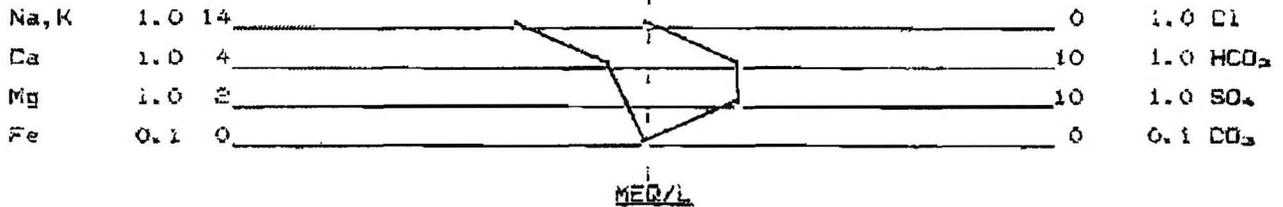
SPECIFIC GRAVITY @ 77°F = 1.000 H_2S = Negative

TOTAL DISSOLVED SOLIDS (CALCULATED) = 1540 mg/L (1540 ppm)

SODIUM CHLORIDE (CALCULATED) = 7 mg/L (7 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	4.4	97	CHLORIDE	0.1	4
MAGNESIUM	2.0	22	CARBONATE	0.0	0
SODIUM	13.7	316	BICARBONATE	9.8	398
IRON	0.0	0.1	SULFATE	10.3	496
CHROMIUM	0.0	0.0	NITRATE	0.1	7
BARIUM	0.0	0.0			
POTASSIUM	0.3	10			

WATER ANALYSIS PATTERN



REMARKS Conductivity = 1870.9 μ mhos/cm
 Total iron is present in this water sample.

ANALYZED BY: C. Jungels

ASTRO-CHEM LAB, INC.

4102 2nd Ave. West

Williston, North Dakota 58802-0972
P.O. Box 972

Phone: (701) 572-7355

WATER ANALYSIS REPORT

SAMPLE NUMBER W-05-0295 DATE OF ANALYSIS 2-17-05
COMPANY Bill Barrett Corporation
CITY Denver STATE CO
WELL NAME AND/OR NUMBER Viola Shelter/Weston Shelter
DATE RECEIVED 2-7-05 DST NUMBER
SAMPLE SOURCE
LOCATION SESE OF SEC. SW 4 TWN. 148N RANGE 89W COUNTY
FORMATION DEPTH
DISTRIBUTION Chris Barrington - Denver, CO
 Larry Jacobson - Williston, ND

RESISTIVITY @ 77°F = 6.750 Ohm-meters pH = 7.90

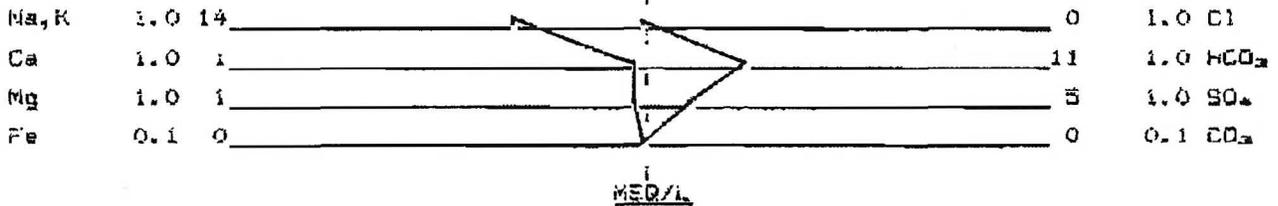
SPECIFIC GRAVITY @ 77°F = 1.000 H₂S = Negative

TOTAL DISSOLVED SOLIDS (CALCULATED) = 1237 mg/L (1237 ppm)

SODIUM CHLORIDE (CALCULATED) = 10 mg/L (10 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	1.4	28	CHLORIDE	0.2	6
MAGNESIUM	0.8	9	CARBONATE	0.0	0
SODIUM	13.5	310	BICARBONATE	10.7	653
IRON	0.0	0.0	SULFATE	4.6	221
CHROMIUM	0.0	0.0	NITRATE	0.0	2
BARIUM	0.0	0.0			
POTASSIUM	0.2	8			

WATER ANALYSIS PATTERN



REMARKS Conductivity = 1454.5 µmhos/cm

ANALYZED BY: C. Jungels

ASTRO-CHEM LAB, INC.

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Williston, North Dakota 58802-0972
P.O. Box 972

Phone: (701) 572-7355

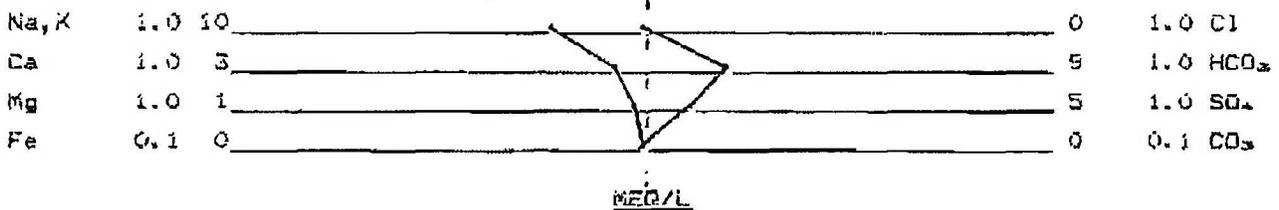
WATER ANALYSIS REPORT

SAMPLE NUMBER W-05-0296 DATE OF ANALYSIS 2-17-05
COMPANY Bill Barrett Corporation
CITY Denver STATE CO
WELL NAME AND/OR NUMBER Viola Shelter/Weston Shelter
DATE RECEIVED 2-7-05 DST NUMBER
SAMPLE SOURCE
LOCATION SESE OF SEC. SW 9 TWN. 148N RANGE 89W COUNTY
FORMATION DEPTH
DISTRIBUTION Chris Barrington - Denver, CO
 Larry Jacobsen - Williston, ND

RESISTIVITY @ 77°F = 10,620 Ohm-Meters pH = 7.65
 SPECIFIC GRAVITY @ 77°F = 1.000 H₂S = Negative
 TOTAL DISSOLVED SOLIDS (CALCULATED) = 1114 mg/L (1114 ppm)
 SODIUM CHLORIDE (CALCULATED) = 7 mg/L (7 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	3.4	67	CHLORIDE	0.1	4
MAGNESIUM	1.4	16	CARBONATE	0.0	0
SODIUM	9.6	220	BICARBONATE	9.2	561
IRON	0.0	0.0	SULFATE	4.9	237
CHROMIUM	0.0	0.0	NITRATE	0.0	0
BARIUM	0.0	0.0			
POTASSIUM	0.2	5			

WATER ANALYSIS PATTERN



REMARKS Conductivity = 1349.1 µmhos/cm

ANALYZED BY: C. Jungels

Source of water for disposal:

Zahnow Federal #42-35, SE NE 35 T149N R89W

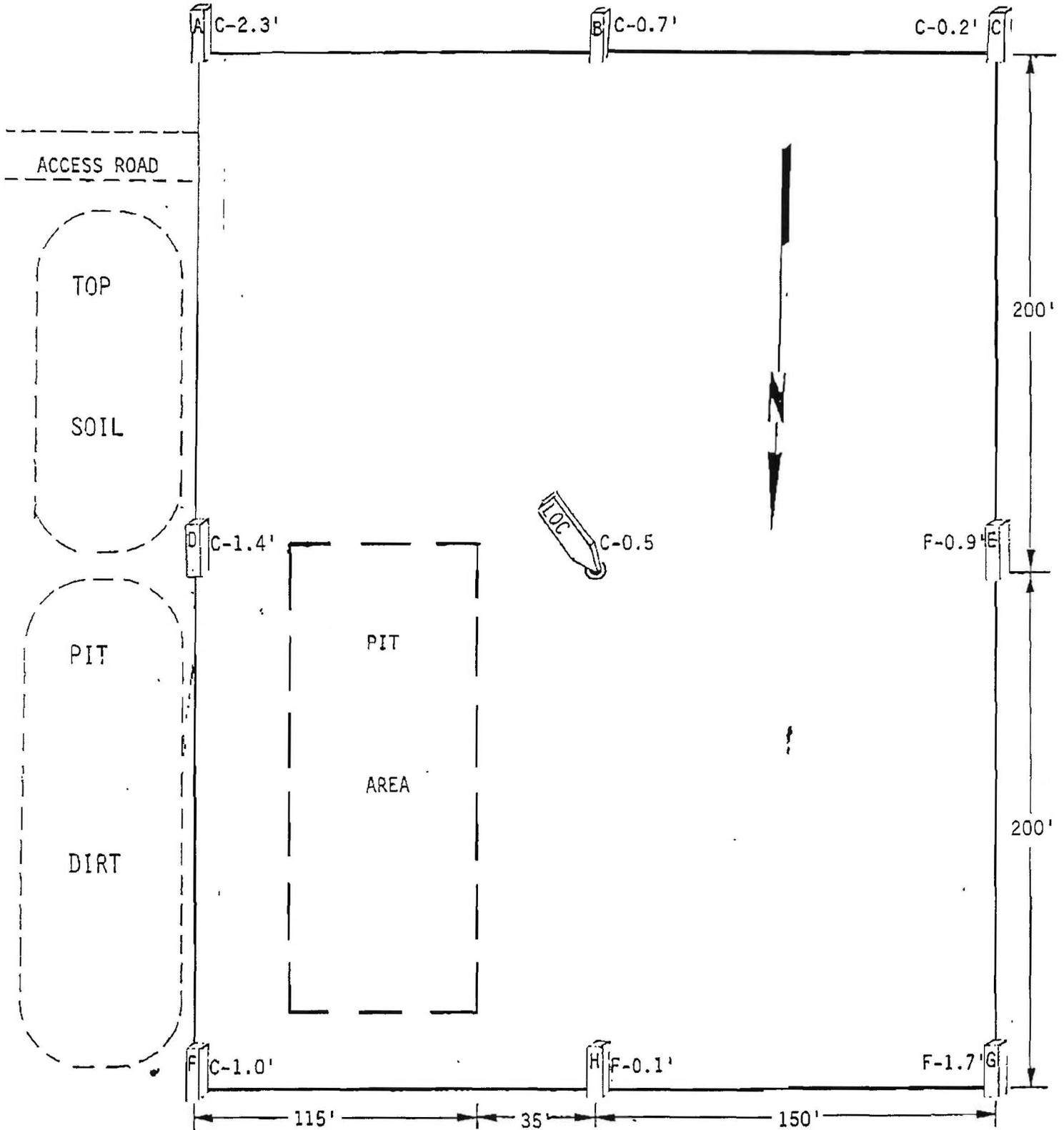
Producing oil well from Mission Canyon Formation
Water to be piped underground from source to disposal well

Attachment M. Construction Details

Please see schematics below.

PAD LAYOUT

SCALE 1" = 50'

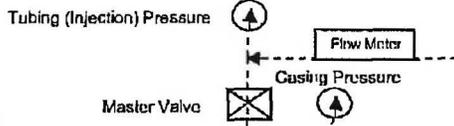


Bill Barrett Corporation Well Data and Schematic

*All information included was previously expressed by other companies. WBD has the most current information to our knowledge

WELL: McKenzie Federal
NUMBER: #1-35
FIELD: Centennial
COUNTY: McLean
STATE: North Dakota
Elevation GL= 2,043'
Elevation KB= 2,059'

OPERATOR: BILL BARRETT
Surface: 1,980' FSL & 660' FEL
SECTION: NENE 35
TWP: 149N
RANGE: 89W
API No. 33-055-00108
Updated: McKinney



CBL TOC (07/07/97): 4,236'

Top Dakota Formation: 4,826'

Perforate Dakota Formation 4 spf (04/15/05)

40 shots	10'	4,845'	4,855'
40 shots	10'	4,865'	4,875'
80 shots	20'	4,885'	4,905'
80 shots	20'	4,920'	4,940'
80 shots	20'	5,020'	5,040'
80 shots	20'	5,050'	5,070'
400 shots	100'		

Wellhead

16" Conductor set @41'

Surface Casing: 8.625" set @ 1780'
M&P 610 6x

Packer Fluid: 30 gals PC-CI-1260P in 84 bbls SW
144 lbs Limited use 2-7/8", 6.5# J-55, 8rd EUE Tubing

9.8 ppg

PBTD: ~5,180'

9 ppg SW Spacer

MIT (04/17/05): Good for 5 years: ND SDO&G: Garbe

PI: 1,100 psi with 1/2 bbl on 5-1/2" x 2-7/8" annulus
Pf: 1,075 psi in 20 minutes
UIC: W161S571C, 03/30/05

5-1/2" 20# AS1-X Lok-set Packer @4,767' KB with 18K
 End of 2-7/8" Tail Pipe @4,773.89' KB Assy. set (04/16/05)
Injection rate: 1 bpm @2,250 psi; 25 bbls SW (04/16/05).
3,000 gals 15% HCL (04/17/05): 5.2 bpm @2,688 psi (avg)
 Over displaced acid with 10 bbls 140^o, 9.8 ppg SW
 Max: 5.2 bpm @2,888 psi; ISIP: 1,086 psi; Vac: 13 min.

5 sx Type II cmt. ETOC: 5,182' (04/14/05)
 WL set Owens 10K CIBP @5,225' (04/14/05)

25 sx (5.2 bbls) @15.6 ppg; y = 1.15 cmt balance plug
 Estimated cmt from 6632-6412' (09/15/04)

25 sx (5.2 bbls) @15.6 ppg; y = 1.15 cmt balance plug
 Estimated cmt from 7848'- 7628' (09/15/04)

7872' CIBP (09/15/04)

Production Casing: 5.5" 17/20# Set @ 8,080'; 810 sx
Top of Cement: 4236' per CBL dated 7/7/1997

Current Injection Rate (05/12/05):
 3-1/2 bpm on vacuum

2-7/8" 6.5# J-55: Burst: 7,260 psi, Collapse: 7,690 psi
 ID: 2.44"; Drift: 2.347"

5-1/2" 17# J-55: Burst: 5,320 psi, Collapse: 4,810 psi
 (minimum) ID 4.892"; Drift: 4.767"

5-1/2" 20# LS-65: Burst 7,470 psi, Collapse: 7,540 psi
 (minimum) ID: 4.778"; Drift: 4.653"

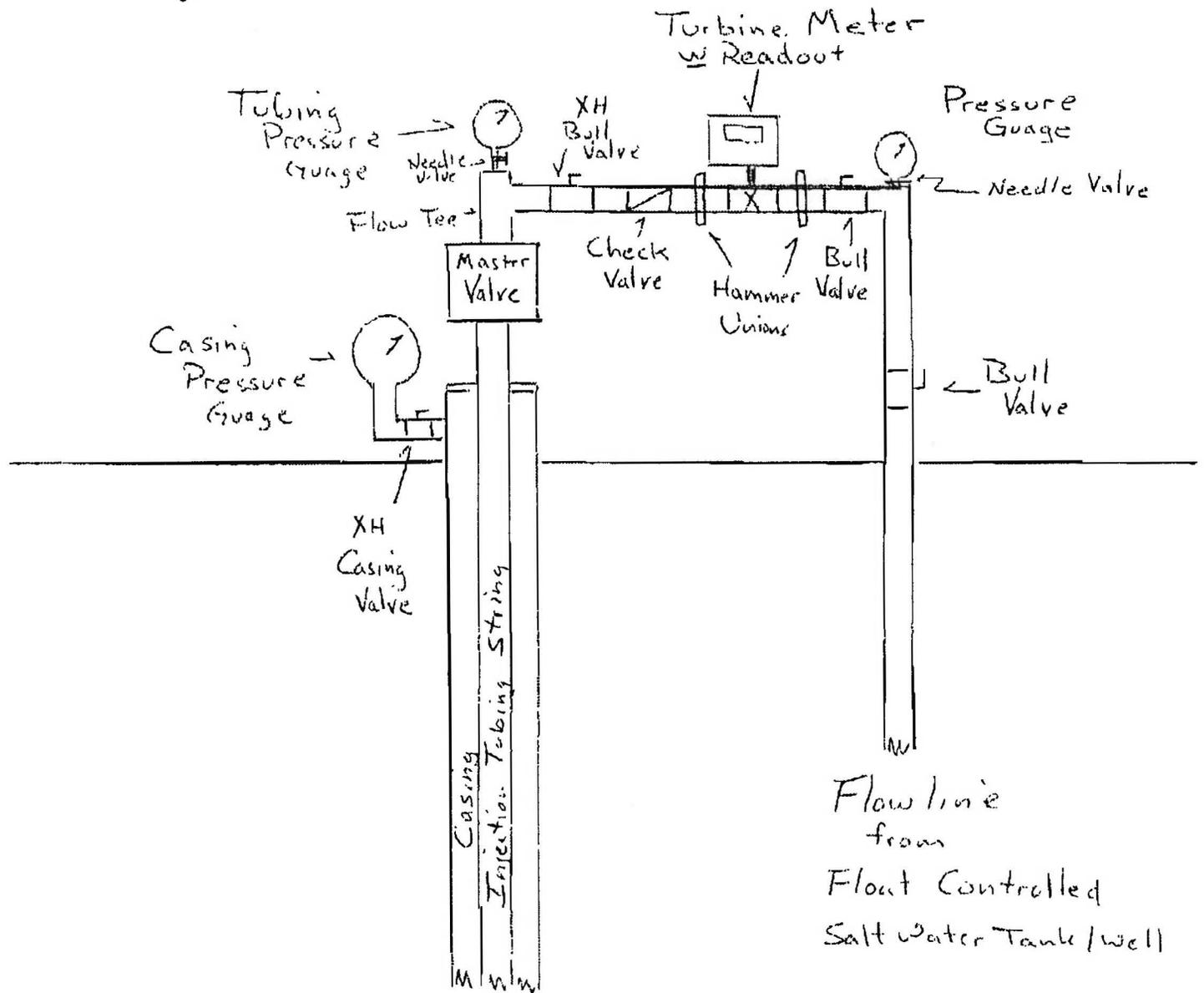
Perforations:
 7946-7952' 7/8/1997

Bill Barrett Corporation
 NDIC Case #8461 February 23, 2005
 NDIC Well File #14601



NDIC Case #8461
February 23, 2005
Bill Barrett Corporation
#1-35 McKenzie Federal
Sec. 35-T149N-R89W
Centennial Field
McLean Co., N.D.

Proposed Surface Installation



Attachment Q. PLUGGING AND ABANDONMENT PLAN

Please see NDIC Sundry Notice outlining the plugging and abandonment plan below.



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (03-2018)

Well File No.
14601

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

Notice of Intent Approximate Start Date
 Report of Work Done Date Work Completed

Drilling Prognosis Spill Report
 Redrilling or Repair Shooting
 Casing or Liner Acidizing
 Plug Well Fracture Treatment
 Supplemental History Change Production Method
 Temporarily Abandon Reclamation
 Other _____

Well Name and Number
Mckenzie Federal #35-1

Footages	Qtr-Qtr	Section	Township	Range
1980 F S L 660 F E L	NE SE	35	145 N	89 W
Field	Pool	County		
Centennial	Dakota	McLean		

24-HOUR PRODUCTION RATE			
Before		After	
Oil	Bbbs	Oil	Bbbs
Water	Bbbs	Water	Bbbs
Gas	MCF	Gas	MCF

Name of Contractor(s)
TBD

Address	City	State	Zip Code
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DETAILS OF WORK

Contact ND Field Inspector 24 hrs prior to commencement of plugging operations
Move in and rig up plugging unit
Pick up bit and scraper and run in to perfs at 4845'
Run in hole with cast iron cement retainer (CICR) and set at 4550'
Establish injection rate into perfs
Roll hole with a clean heavy salt water and test casing
Sting in to CICR, mix and pump 125 sx class G cement into the perfs
NOTE: Pressure must be caught and perfs must be squeezed, if no pressure is caught, pump additional cement sufficient to get a squeeze
Sting out and spot 30 sx on top of CICR
Perf at 60'
Circulate cement down casing and out annulus ensuring a surface plug both inside and out of the casing
Cut off wellhead 4' below plow depth, weld on steel plate with ND file # on plate
Submit form 7 plugging report and form 4 notice of intent to reclaim to NDIC after plugging

Company	Telephone Number
Mann Oil Company LLC	(701) 751-4315
Address	
109 N 4th St, Suite 200	
City	State
Bismarck	ND
Signature	Zip Code
	58501
Printed Name	Date
Adam Dever	April 5, 2018
Title	Email Address
CFO	adamd@mannenergy.com

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input type="checkbox"/> Approved
Date	
By	
Title	

Attachment R. Necessary Resources

Please see a copy of the Surety bond below.



SINGLE WELL BOND (IN EXCESS OF 2000' DEPTH) - FORM 3A
 INDUSTRIAL COMMISSION OF NORTH DAKOTA
 OIL AND GAS DIVISION
 800 EAST BOULEVARD DEPT 405
 BISMARCK, ND 58505-0840
 SFN 5744 (02-2012)

Surety Company Bond No.
 1060961

NDIC Bond No.

THE BOND FORM AND THE NOTARY PAGE SHALL BE PRINTED OR COPIED FRONT TO BACK BEFORE SIGNING AND NOTARIZING.
 PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
 PLEASE SUBMIT THE ORIGINAL.

The principal of this bond is Mann Oil Company, LLC
 whose address is PO Box 812, New Town, ND 58763

The surety of this bond is Lexon Insurance Company
 whose address is 900 South Frontage Road, Suite 250, Woodridge, IL 60517

Surety is incorporated in the State of Texas and is authorized to do business in North Dakota.

In consideration of allowing the principal to drill or operate an oil and/or gas well, principal and surety are indebted to the State of North Dakota in the sum of \$50,000, for which payment principal and surety bind ourselves and our legal representatives and successors, jointly and severally.

The condition of this obligation is that the principal desires to drill or operate an oil and/or gas well within the State of North Dakota and this bond is required by N.D.C.C. § 38-08-04 and the North Dakota Industrial Commission's administrative rules. If the principal, in its operations, fully complies with N.D.C.C. Chapter 38-08 and the Industrial Commission's orders and administrative rules, together with all amendments to Chapter 38-08 and the administrative rules, then this obligation is void, otherwise it remains in full force and effect.

North Dakota law governs this bond.

Instructions for signatures: If you are a corporation, use your full corporate name and have a corporate officer sign. If you are a partnership, so state and have at least one general partner sign. If you are an individual doing business under a business name, state your name and your business' name and after your signature state that you are the sole owner. Any other person signing on behalf of the principal or surety must attach a power of attorney.

Name of Principal Mann Oil Company, LLC		Telephone Number (701) 627-5114	
Address PO Box 812		City New Town	State ND
		Zip Code 58763	
Signature	Printed Name Malaney Mann	Title President	Date 5/2/2012

(SEE OTHER SIDE FOR NOTARY)

Name of Surety Lexon Insurance Company		Telephone Number (630) 495-9380	
Address 900 South Frontage Road, Suite 250		City Woodridge	State IL
		Zip Code 60517	
Signature 	Printed Name Zachary R. Bradley	Title Attorney-in-fact	Date 5/2/2012

(SEE OTHER SIDE FOR NOTARY)

ACKNOWLEDGEMENT OF PRINCIPAL	
STATE OF _____) COUNTY OF _____) ss	Notary Seal
On _____, _____ known to me to be the person described in and who executed the foregoing instrument, personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.	
Notary Public _____	My Commission Expires _____

ACKNOWLEDGEMENT OF SURETY	
STATE OF <u>Kansas</u>) COUNTY OF <u>Johnson</u>) ss	Notary Seal Mary K. Angerman NOTARY PUBLIC State of Kansas My Appt. Exp. <u>5/25/2015</u>
On <u>5/2/2012</u> , <u>Zachary R. Bradley</u> known to me to be the person described in and who executed the foregoing instrument, personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.	
<u>Mary K. Angerman</u> Notary Public	My Commission Expires <u>5/25/2015</u>

Instructions

1. Please refer to Section 43-02-03-15 of the North Dakota Administrative Code regarding bonds.
2. Name of principal shall be the name of the operator and shall be the same as reported on the Organization Report - Form 2 (SFN 5748).
3. The bond form and the notary page shall be printed or copied front to back before signing and notarizing.
4. The original of this report shall be filed with the Industrial Commission of North Dakota, Oil and Gas Division, 600 East Boulevard, Dept. 405, Bismarck, ND 58505-0840.

POWER OF ATTORNEY

LX - 109035

Lexon Insurance Company

KNOW ALL MEN BY THESE PRESENTS, that LEXON INSURANCE COMPANY, a Texas Corporation, with its principal office in Louisville, Kentucky, does hereby constitute and appoint: Gary E. Bradley, Mary K. Angerman, Zachary R. Bradley *****

its true and lawful Attorney(s)-In-Fact to make, execute, seal and deliver for, and on its behalf as surety, any and all bonds, undertakings or other writings obligatory in nature of a bond.

This authority is made under and by the authority of a resolution which was passed by the Board of Directors of LEXON INSURANCE COMPANY on the 1st day of July, 2003 as follows:

Resolved, that the President of the Company is hereby authorized to appoint and empower any representative of the Company or other person or persons as Attorney-In-Fact to execute on behalf of the Company any bonds, undertakings, policies, contracts of indemnity or other writings obligatory in nature of a bond not to exceed \$2,500,000.00, Two-million five hundred thousand dollars, which the Company might execute through its duly elected officers, and affix the seal of the Company thereto. Any said execution of such documents by an Attorney-In-Fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company. Any Attorney-In-Fact, so appointed, may be removed for good cause and the authority so granted may be revoked as specified in the Power of Attorney.

Resolved, that the signature of the President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Assistant Secretary, and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certificate so executed and sealed shall, with respect to any bond of undertaking to which it is attached, continue to be valid and binding on the Company.

IN WITNESS THEREOF, LEXON INSURANCE COMPANY has caused this instrument to be signed by its President, and its Corporate Seal to be affixed this 21st day of September, 2009.



LEXON INSURANCE COMPANY

BY [Signature] David E. Campbell President

ACKNOWLEDGEMENT

On this 21st day of September, 2009, before me, personally came David E. Campbell to me known, who being duly sworn, did depose and say that he is the President of LEXON INSURANCE COMPANY, the corporation described in and which executed the above instrument; that he executed said instrument on behalf of the corporation by authority of his office under the By-laws of said corporation.

OFFICIAL SEAL MAUREEN K. AYE Notary Public, State of Illinois My Commission Expires 09/21/13

[Signature] Maureen K. Aye Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of LEXON INSURANCE COMPANY, A Texas Insurance Company, DO HEREBY CERTIFY that the original Power of Attorney of which the foregoing is a true and correct copy, is in full force and effect and has not been revoked and the resolutions as set forth are now in force.

Signed and Sealed at Woodridge, Illinois this 2nd Day of May, 20 12.



[Signature] Phillip G. Lauer Assistant Secretary

WARNING: Any person who knowingly and with intent to defraud any insurance company or other person, files an application for insurance or statement of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact material thereto, commits a fraudulent insurance act, which is a crime and subjects such person to criminal and civil penalties.