RECEIVED AUG 11 2016

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		
ND22350-11263	T/A	C
U Clarks Creek 200-07SWD		

Read Attached Instructions Before Starting

For Official Use Only

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

II. Owner Name and Address

Owner Name			
Clarks Creek 200-07SWD			
Street Address		**Phone Number**	
600 17th Street, Suite 1000N		(303) 262-9973	
City	**State**	**ZIP CODE**	
Denver	CO	80202	

III. Operator Name and Address

Owner Name			
EOG Resources, Inc.			
Street Address		**Phone Number**	
600 17th Street, Suite 1000N		(303) 262-9973	
City	**State**	**ZIP CODE**	
Denver	Co	80202	

IV. Commercial Facility	V. Ownership	VI. Legal Contact	VII. SIC Codes
[ ] Yes [x] No	[x] Private [ ] Federal [ ] Other	[ ] Owner [x] Operator	213312/1389

VIII. Well Status *(Mark "x")*

A. Operating	Date Started mo day year	B. Modification/Conversion	C. Proposed
[ ]		[ ]	[x]

IX. Type of Permit Requested *(Mark "x" and specify if required)*

A. Individual	B. Area	Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)
[x]	[ ]		1	

X. Class and Type of Well *(see reverse)*

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
D	Class II		1

XI. Location of Well(s) or Approximate Center of Field or Project

Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
47	54	24.1	102	45	13.7	7	151	94	SE	463	S	854	E

XII. Indian Lands (Mark 'x')

[x] Yes
[ ] No

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 possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
Cally Wescoat	(303) 262-9973
	D. Date Signed: 8/8/2016

EPA Form 7520-6 (Rev. 12-11)

EPA: Appendix

EPA Underground Injection Control (UIC) Permit Application

- (UIC) Permit Form 7520-6
  - Class II, Type "D"
    - A: Area of Review Method
    - B: Maps of Well/Area and Area of Review
    - C: Corrective Action Plan and Well Data
    - E: Names and Depth of USDW's (Class II)
    - G: Geological Data on Injection and Confining Zones (Class II)
    - H: Operating Data
    - M: Construction Details
    - Q: Plugging and Abandonment Plan
    - R: Necessary Resources
    - I: Formation Testing Program
    - K: Injection Procedure
    - O: Plans for Well Failure
    - U: Description of Business
    - Area of Potential Impact
    - Plats

Area of Review Method

The Area of Review was determined, based on a fixed radius of ¼-mile around the wellbore.

See attached map.

CLARKS CREEK 200-07 SWD
1/4 - Mile AOR

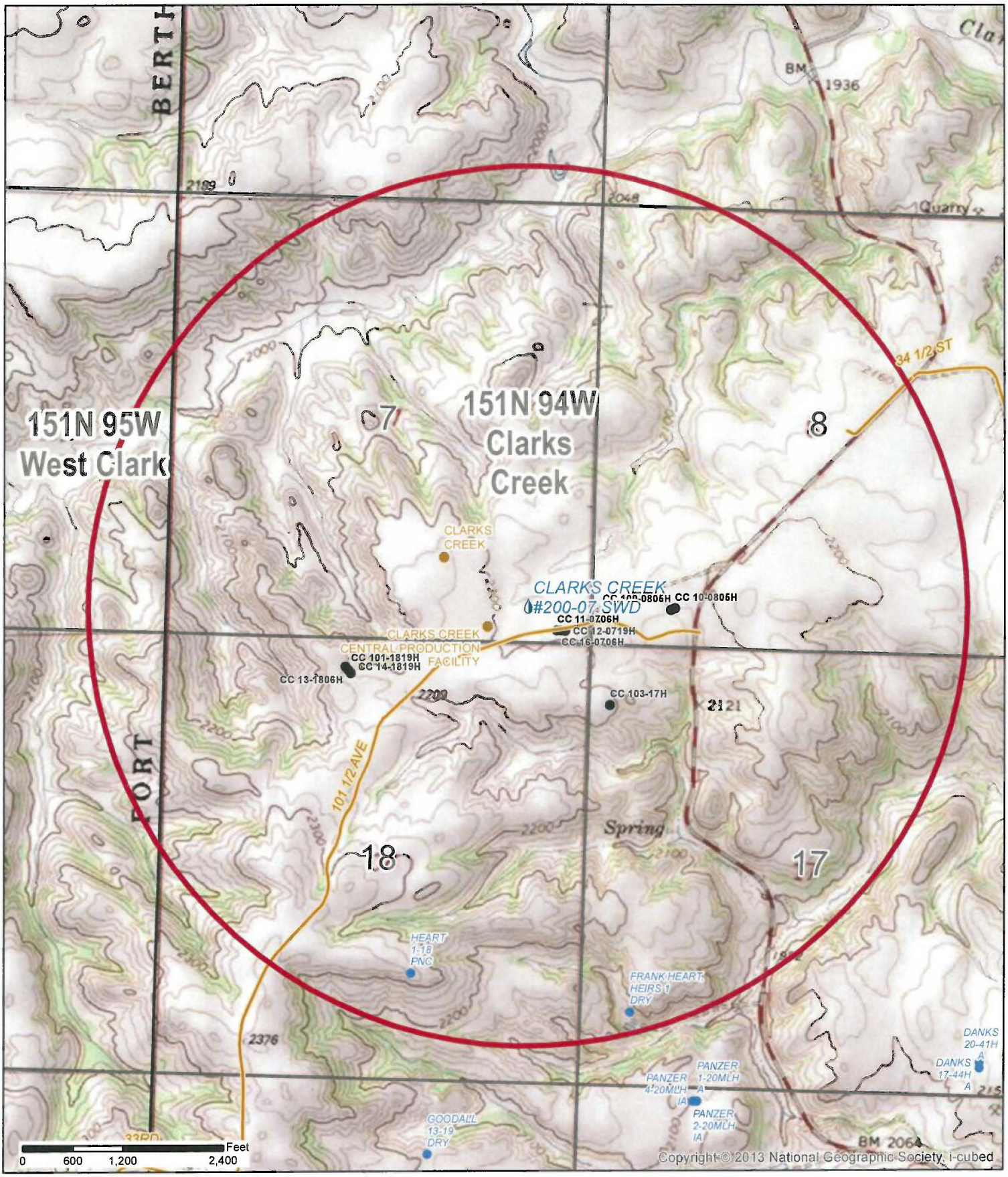
eog resources

MAP: X:\GIS\Regulatory\SWD_Exhibits\SWD_ExhibitAOR.mxd

Area of Review Method

The Area of Review was determined, based on a fixed radius of 1-mile around the wellbore.

See attached map.



- Facility
- 1 Mile Buffer
- Aquifer Surficial - ND GIS HUB
- WHPA - Community
- WHPA - Non Community
- Water Data Sites - ND GIS HUB
- County Roads - ND GIS HUB
- SWD
- EOG Drilled Well
- Other Operator Wells - NDIC

CLARKS CREEK 200-07 SWD

1-Mile AOR

eog resources

MAP: X:\GIS\Regulatory\SWD_Exhibits\SWD_ExhibitTOPO.mxd

Clarks Creek 200-07SWD

Corrective Action Plan and Well Data

Clarks Creek 200-07SWD

Corrective Action Plan and Well Data

The Clarks Creek 11-0706H lateral penetrates the ¼ mile AOR, but is completed in the Bakken/Three Forks which is over 5300 feet deeper than the proposed injection zone of the Clarks Creek 200-07SWD. The vertical section of the Clarks Creek 11-0706H wellbore is cemented from the intermediate casing point to 3,708 feet with 825 sacks of cement. The well encounters the Mowry confining zone from 4560'- 4935' MD and the Swift from 5339'- 5816' MD. The calculated top of cement is at 3,708' feet which is above the top of the Dakota. As the Bakken/Three Forks and Dakota formations are separated by 5,300 feet, no corrective action is needed.

The Clarks Creek 12-0719H lateral penetrates the ¼ mile AOR, but is completed in the Bakken/Three Forks which is over 5,400 feet deeper than the proposed injection zone of the Clarks Creek 200-07SWD. The vertical section of the Clarks Creek 12-0719H wellbore is cemented from the intermediate casing point to 3,800 feet with 798 sacks of cement. The well encounters the Mowry confining zone from 4567'- 4951'MD and the Swift from 5377'- 5821' MD. The calculated top of cement is at 3,800 feet which is above the top of the Dakota. As the Bakken/Three Forks and Dakota formations are separated by 5,400 feet, no corrective action is needed.

The Clarks Creek 16-0706H lateral penetrates the ¼ mile AOR, but is completed in the Bakken/Three Forks which is over 5,250 feet deeper than the proposed injection zone of the Clarks Creek 200-07SWD. The vertical section of the Clarks Creek 16-0706H wellbore is cemented from the intermediate casing point to 3,950 feet with 650 sacks of cement. The well encounters the Mowry confining zone from 4567'- 4938' and the Swift from 5352'- 5822' MD. The calculated top of cement is at 3,950 feet which is above the top of the Dakota.

As the Bakken/Three Forks and Dakota formations are separated by 5,250 feet, no corrective action is needed.

After review, there are no wells within the ¼-mile AOR that needed corrective action

Corrective Action Plan and Well Data

See additional details:

- We do not expect the wells within the AOR to be influenced by pressure from the injection well.
- See attached: Completion reports for each well within ¼-mile AOR
- Cement Bond Logs emailed to Jason Deardorff at Deardorff.Jason@epa.gov

Clarks Creek 200-07SWD

Completion Reports for Wells within AOR

- Clarks Creek 11-0706H
- Clarks Creek 12-0719H
- Clarks Creek 16-0706H

WELL COMPLETION OR RECOMPLETION REPORT - FORM 6

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 2468 (04-2010)

REVISED

Well File No.
20890

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Designate Type of Completion
☑ Oil Well ☐ EOR Well ☐ Recompletion ☐ Deepened Well ☐ Added Horizontal Leg ☐ Extended Horizontal Leg
☐ Gas Well ☐ SWD Well ☐ Water Supply Well ☐ Other:

Well Name and Number		Spacing Unit Description
Clarks Creek 11-0706H		**Sec. 6, 7, 18 & 19, T1551N- R94W**
Operator: **EOG Resources, Inc.**	Telephone Number: **(303) 262-9973**	Field: **Clarks Creek**
Address: **600 17th Street, Suite 1000N**		Pool: **Bakken**
City: **Denver** / State: **CO**	Zip Code: **80202**	Permit Type: ☐ Wildcat ☑ Development ☐ Extension

LOCATION OF WELL

At Surface	Qtr-Qtr	Section	Township	Range	County
173 F S L 505 F E L	**SESE**	**7**	**151 N**	**94 W**	**McKenzie**

Spud Date	Date TD Reached	Drilling Contractor and Rig Number	KB Elevation (Ft)	Graded Elevation (Ft)
September 8, 2011	**December 3, 2011**	**True #28**	**2221**	**2194**

Type of Electric and Other Logs Run (See Instructions)
CCL/CBL; GR/MWD

CASING & TUBULARS RECORD (Report all strings set in well)

Well Bore	String Type	String Size (Inch)	Top Set (MD Ft)	Depth Set (MD Ft)	Hole Size (Inch)	Weight (Lbs/Ft)	Anchor Set (MD Ft)	Packer Set (MD Ft)	Sacks Cement	Top of Cement
Surface Hole	Surface	9-5/8	0	1817	13-1/2	36			740	0
Vertical Hole	Intermediate	7-0	0	11013	8-3/4	26, 32			825	3708
Lateral1	Production	4-1/2	10083	20669	6	11.6		10083		

PERFORATION & OPEN HOLE INTERVALS

Well Bore	Well Bore TD Drillers Depth (MD Ft)	Completion Type	Open Hole/Perforated Interval (MD,Ft) Top	Bottom	Kick-off Point (MD Ft)	Top of Casing Window (MD Ft)	Date Perf'd or Drilled	Date Isolated	Isolation Method	Sacks Cement
Lateral1	20679	Perforations	11070	20469	10101		12/31/2011			

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft)	Name of Zone (If Different from Pool Name)
Perforated from 11,070' MD to 20,469' MD	

Date Well Completed (SEE INSTRUCTIONS)	Producing Method	Pumping-Size & Type of Pump	Well Status (Producing or Shut-In)
March 11, 2012	**Flowing**		**Producing**

Date of Test	Hours Tested	Choke Size	Production for Test	Oil (Bbls)	Gas (MCF)	Water (Bbls)	Oil Gravity-API (Corr.)	Disposition of Gas
03/30/2012	**24**	**12 /64**		**600**	**900**	**150**	**42.0 °**	**Flared**

Flowing Tubing Pressure (PSI)	Flowing Casing Pressure (PSI)	Calculated 24-Hour Rate	Oil (Bbls)	Gas (MCF)	Water (Bbls)	Gas-Oil Ratio
	1650		**600**	**900**	**150**	**1400**

GEOLOGICAL MARKERS

Formation	MD (Ft)	TVD (Ft)
Pierre Shale		1656
Greenhorn		4177
Dakota Sandstone		4993
Base Dakota		5332
Piper Lime		6155
Dunham Salt		6329
Spearfish		6378
Minnelusa		7568
Kibbey Lime		8037
Charles		8368
Base Last Salt		8998
Mission Canyon		9160
Lodgepole		9802
3rd Shale Marker		10613
False Bakken		10633
Scallion		10637
Upper Bakken		10652
Middle Bakken Shale		10668
Lower Bakken		10713
Three Forks		10745

PLUG BACK INFORMATION

Well Bore	Type of Plug	Top (Ft)	Bottom (Ft)	Sacks Cement

CORES CUT

Top (Ft)	Bottom (Ft)	Formation	Top (Ft)	Bottom (Ft)	Formation

Drill Stem Test

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								

Well Specific Stimulations

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units
01/06/2012	Bakken	11070	20469	22	2704086	Gallons

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)
Sand Frac		4052313	8540	38.3

Details
Treated fracture with 2,704,086 gallons of water, crosslink and linear gel; 333,281 lbs of 100 mesh and 3,719,032 lbs of 20/40 sand.

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

ADDITIONAL INFORMATION AND/OR LIST OF ATTACHMENTS

Revised: Perforation interval, casing depth and total fluid.

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Email Address Cally_Wescoat@eogresources.com		Date 8/2/2016
Signature	Printed Name Cally Wescoat	Title Sr. Regulatory Assistant	

WELL COMPLETION OR RECOMPLETION REPORT - FORM 6

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 2468 (04-2010)

REVISED

Well File No.
20891

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Designate Type of Completion
☑ Oil Well ☐ EOR Well ☐ Recompletion ☐ Deepened Well ☐ Added Horizontal Leg ☐ Extended Horizontal Leg
☐ Gas Well ☐ SWD Well ☐ Water Supply Well ☐ Other:

Well Name and Number			Spacing Unit Description
Clarks Creek 12-0719H			**Sections 6, 7, 18, 19, T151N, R94W**
Operator: **EOG Resources, Inc.**		Telephone Number: **(303) 824-5410**	Field: **Clarks Creek**
Address: **600 17th Street, Suite 1000N**			Pool: **Bakken**
City: **Denver**	State: **CO**	Zip Code: **80202**	Permit Type: ☐ Wildcat ☑ Development ☐ Extension

LOCATION OF WELL

At Surface	Qtr-Qtr	Section	Township	Range	County
173 F S L 405 F E L	**SESE**	**7**	**151 N**	**94 W**	**McKenzie**

Spud Date	Date TD Reached	Drilling Contractor and Rig Number	KB Elevation (Ft)	Graded Elevation (Ft)
June 6, 2011	**July 22, 2011**	**True #33**	**2227**	**2194**

Type of Electric and Other Logs Run (See Instructions)
CCL/CBL/GR, MWD/GR

CASING & TUBULARS RECORD (Report all strings set in well)

Well Bore	String Type	String Size (Inch)	Top Set (MD Ft)	Depth Set (MD Ft)	Hole Size (Inch)	Weight (Lbs/Ft)	Anchor Set (MD Ft)	Packer Set (MD Ft)	Sacks Cement	Top of Cement
Surface Hole	**Surface**	**9-5/8"**	**0**	**1835**	**13-1/2"**	**36**			**740**	**0**
Vertical Hole	**Intermediate**	**7-0"**	**0**	**11034**	**8-3/4"**	**26, 32**			**798**	**4552**
Lateral1	**Liner**	**4-1/2"**	**10078**	**20322**	**6**	**11.6**		**10078**		

PERFORATION & OPEN HOLE INTERVALS

Well Bore	Well Bore TD Drillers Depth (MD Ft)	Completion Type	Open Hole/Perforated Interval (MD,Ft) Top	Bottom	Kick-off Point (MD Ft)	Top of Casing Window (MD Ft)	Date Perf'd or Drilled	Date Isolated	Isolation Method	Sacks Cement
Lateral1	**20342**	**Perforations**	**11120**	**20323**	**10107**		**08/01/2011**			

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft)							Name of Zone (If Different from Pool Name)	
Perforated from 11,120'MD to 20,323' MD							**Bakken**	
Date Well Completed (SEE INSTRUCTIONS)	Producing Method	Pumping-Size & Type of Pump					Well Status (Producing or Shut-In)	
August 9, 2011	**Flowing**						**Producing**	
Date of Test	Hours Tested	Choke Size	Production for Test	Oil (Bbls)	Gas (MCF)	Water (Bbls)	Oil Gravity-API (Corr.)	Disposition of Gas
08/13/2011	**24**	**14 /64**		**603**	**596**	**501**	**42.0 °**	**Flared**
Flowing Tubing Pressure (PSI)	Flowing Casing Pressure (PSI)	Calculated 24-Hour Rate	Oil (Bbls)	Gas (MCF)	Water (Bbls)	Gas-Oil Ratio		
	3200		**603**	**596**	**501**	**988**		

GEOLOGICAL MARKERS

Formation	MD (Ft)	TVD (Ft)
Pierre Shale		1637
Greenhorn		4110
Dakota Sand		5052
Base Dakota		5366
Piper Lime		6087
Dunham Salt		6343
Spearfish		6361
Minnelusa		6607
Kibbey Lime		8161
Charles		8286
Base Last Salt		8939
Mission Canyon		9134
Lodgepole		9753
False Bakken		10592
Scallion		10595
Upper Bakken Shale		10608
Middle Bakken		10624
Lower Bakken Shale		10666
Three Forks		10693

PLUG BACK INFORMATION

Well Bore	Type of Plug	Top (Ft)	Bottom (Ft)	Sacks Cement

CORES CUT

Top (Ft)	Bottom (Ft)	Formation	Top (Ft)	Bottom (Ft)	Formation

Drill Stem Test

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Well Specific Stimulations

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units
08/09/2011	Bakken	11120	20323	24	2829204	Gallons

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)
Sand Frac	N/A	3560553	8801	35.3

Details
Treated fracture with 2,829,204 gallons of crosslink, linear gel and water; 88,488 lbs of 100 mesh sand, 3,472,065 lbs of 20/40 sand.

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

ADDITIONAL INFORMATION AND/OR LIST OF ATTACHMENTS

Revised: Perforation interval and well specific stimulation information.

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Email Address cally_wescoat@eogresources.com		Date 8/2/16
Signature	Printed Name Cally Wescoat	Title Sr. Regulatory Assistant	

WELL COMPLETION OR RECOMPLETION REPORT - FORM 6

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 2468 (04-2010)

REVISED

Well File No. **20892**

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Designate Type of Completion
☑ Oil Well ☐ EOR Well ☐ Recompletion ☐ Deepened Well ☐ Added Horizontal Leg ☐ Extended Horizontal Leg
☐ Gas Well ☐ SWD Well ☐ Water Supply Well ☐ Other:

Well Name and Number	Spacing Unit Description
Clarks Creek 16-0706H	**Sec. 6, 7, 18 & 19 T151N, R94W**

Operator	Telephone Number	Field
EOG Resources, Inc.	**(303) 262-9973**	**Clarks Creek**

Address	Pool
600 17th Street, Suite 1000N	**Bakken**

City	State	Zip Code	Permit Type
Denver	**CO**	**80202**	☐ Wildcat ☑ Development ☐ Extension

LOCATION OF WELL

At Surface	Qtr-Qtr	Section	Township	Range	County
173 F S L 455 F E L	**SESE**	**7**	**151 N**	**94 W**	**mcKenzie**

Spud Date	Date TD Reached	Drilling Contractor and Rig Number	KB Elevation (Ft)	Graded Elevation (Ft)
September 6, 2011	**November 23, 2011**	**True #28**	**2221**	**2194**

Type of Electric and Other Logs Run (See Instructions)
CCI/CBL; GR/MWD

CASING & TUBULARS RECORD (Report all strings set in well)

Well Bore	String Type	String Size (Inch)	Top Set (MD Ft)	Depth Set (MD Ft)	Hole Size (Inch)	Weight (Lbs/Ft)	Anchor Set (MD Ft)	Packer Set (MD Ft)	Sacks Cement	Top of Cement
Surface Hole	**Surface**	**9-5/8**	**0**	**1822**	**13-1/2**	**36**			**740**	**0**
Vertical Hole	**Intermediate**	**7-0**	**0**	**10979**	**8-3/4**	**26, 32**			**650**	
Lateral1	**Production**	**4-1/2**	**10101**	**18314**	**6**	**11.6**		**10117**	**440**	

PERFORATION & OPEN HOLE INTERVALS

Well Bore	Well Bore TD Drillers Depth (MD Ft)	Completion Type	Open Hole/Perforated Interval (MD,Ft) Top	Bottom	Kick-off Point (MD Ft)	Top of Casing Window (MD Ft)	Date Perf'd or Drilled	Date Isolated	Isolation Method	Sacks Cement
Lateral1	**18660**	**Perforations**	**10979**	**18660**	**10247**					
Sidetrack1	**17368**		**17118**	**17368**	**17128**					
Sidetrack2	**18748**		**16764**	**18748**	**16839**					
Sidetrack3	**18264**	**Perforations**	**13549**	**18251**	**13549**		**01/06/2012**			

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft)	Name of Zone (If Different from Pool Name)
Perforated from 11, 026' MD to 18, 251' MD	

Date Well Completed (SEE INSTRUCTIONS)	Producing Method	Pumping-Size & Type of Pump	Well Status (Producing or Shut-In)
March 12, 2012	**Flowing**		**Producing**

Date of Test	Hours Tested	Choke Size	Production for Test	Oil (Bbls)	Gas (MCF)	Water (Bbls)	Oil Gravity-API (Corr.)	Disposition of Gas
03/22/2012	**24**	**20 /64**		**13582**	**1944**	**443**	**42.0 °**	**Flared**

Flowing Tubing Pressure (PSI)	Flowing Casing Pressure (PSI)	Calculated 24-Hour Rate	Oil (Bbls)	Gas (MCF)	Water (Bbls)	Gas-Oil Ratio
	2400		**1352**	**1944**	**1437**	**1437**

GEOLOGICAL MARKERS

Formation	MD (Ft)	TVD (Ft)
Pierre Shale		1624
Greenhorn		4150
Dakota Sandstone		4959
Base Dakota		5295
Piper Lime		6107
Dunham Salt		6334
Spearfish		6390
Minnelusa		7268
Kibbey Lime		8201
Charles		8346
Base Last Salt		8944
Mission Canyon		9156
Lodgepole		9782
3rd Shale Marker		10573
False Bakken		70592
Scallion		10600
Upper Bakken		10611
Middle Bakken Shale		10629

PLUG BACK INFORMATION

Well Bore	Type of Plug	Top (Ft)	Bottom (Ft)	Sacks Cement

CORES CUT

Top (Ft)	Bottom (Ft)	Formation	Top (Ft)	Bottom (Ft)	Formation

Drill Stem Test

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (°F)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)

Drill Pipe Recovery

Sample Chamber Recovery

Well Specific Stimulations

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units
01/06/2012	Bakken	11026	18251	31	2648982	Gallons

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)
Sand Frac	7.5	3636917	8762	32.3

Details
Treated fracture with 2,648,982 gallons of crosslink, liner gel and water; 467,304 lbs of 100 mesh and 3,169,613 lbs of 20/40.

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

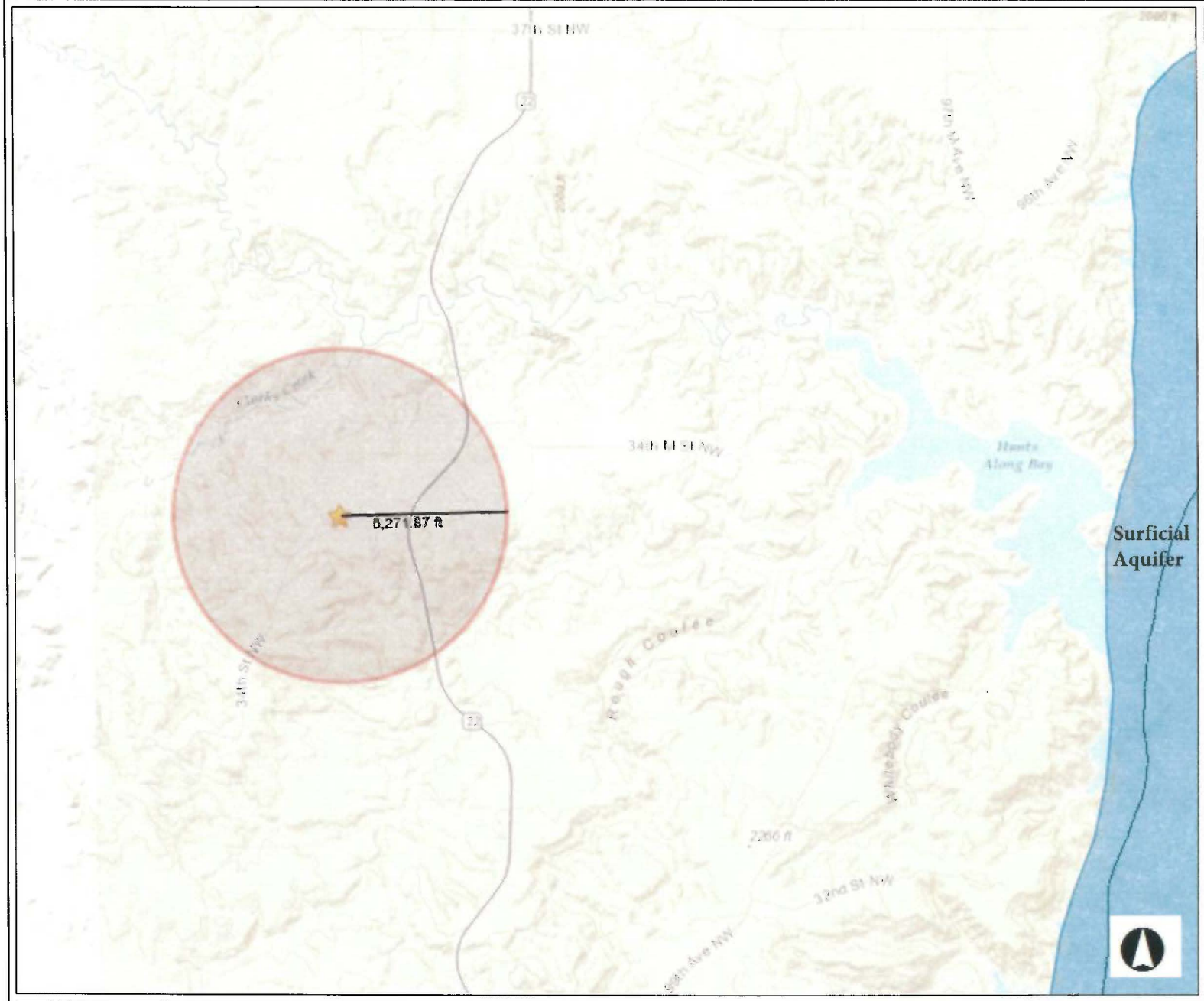
ADDITIONAL INFORMATION AND/OR LIST OF ATTACHMENTS

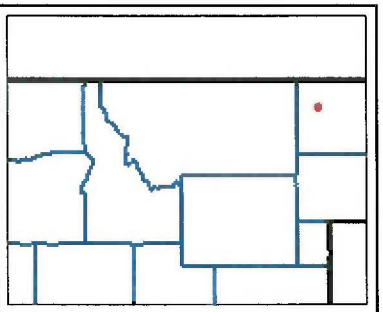
REVISED Casing data and added tops.

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Email Address **Cally_Wescoat@eogresources.com**		Date 8/2/16
Signature	Printed Name **Cally Wescoat**	Title **Sr. Regulatory Assistant**	

Names and Depth of USDW's (Class II)

No surficial water sources were found within a one mile radius. See attached map.





Legend

- 1 Mile Buffer around wellbore

13,333.3 0 6,666.67 13,333.3 Feet

1: 80,000

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Date: 7/13/2016

eog resources

DENVER DIVISION

Surficial Aquifer _1-Mile Radius)

Author: CW

Clarks Creek 200-07SWD

eog resources

Geological Data on Injection and Confining Zones (Class II)

Geological Data on Injection and Confining Zones (Class II)

Dakota Formation – The proposed injection zone is Cretaceous-age Dakota Formation, know to the State of North Dakota as a salt-water bearing, non-potable aquifer. The sedimentary formation is comprised of coarse to fine sands inter-bedded with silt-stones and shale barriers. The depositional environment is thought to be deltaic. This formation is commonly used for disposal in the State of North Dakota.

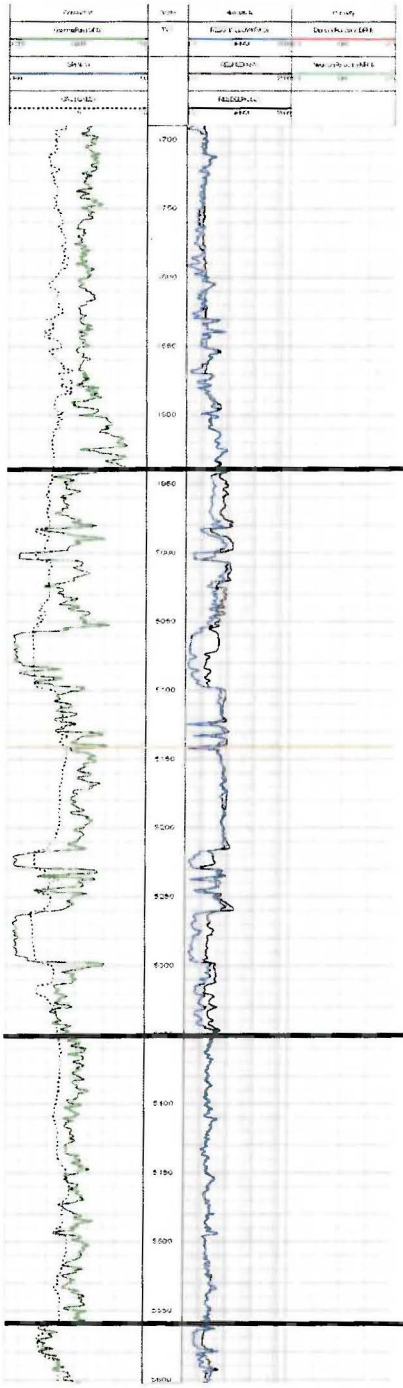
The proposed injection intervals are confined by substantial shale barriers. The deepest injection depth 5347' is bounded by the Swift Shale 5347-5557'. The shallowest injection depth 4934' is bounded by the Mowry shale from 4566'-4934. The frac gradient of the uppermost bounding shale is estimated at 0.7 psi/ft with a fracture pressure of 3,196 psi

The Fox Hills/Hell Creek formation is the regional fresh water aquifer with a base at 1616' which is well above the point of injection. The following figure shows a type log of the Dakota formation in the area.

Clarks Creek 200-07SWD

Lithological Log

GOODAL 13-19
33053016390000
TD=9550.00
TWP: 151 N - Range: 94 W - Sec: 19



Mowry Upper Flow Barrier Zone

Dakota Injection Zone

Swift Lower Flow Barrier Zone

Clarks Creek 200-07SWD

Operating Data

Clarks Creek 200-07SWD

Operating Data

This facility and well will handle and dispose into the Dakota Formation. Produced water and drilling fluid used in the development of EOG Resources, Inc.'s North Dakota oil and gas operations.

While it's anticipated the facility may dispose on average of 12,000 barrels of water daily at a pressure of 800 psi, the facility may handle up to 20,000 barrels daily at 1,487 psi at the peak of the field production. Pump type is to be determined.

Water will be transported to a tank battery approximately 100 ft. from the well. Skim oil will be transferred to the skim oil tank and the oil bound with water will be moved to the bad oil tank. Water will then settle in three tanks before entering the suction tank. From the suction tank, water will be filtered to 200 microns before injection into the disposal well. A site schematic is provided in the "Plans for Well Failure" section of the permit.

Clarks Creek 200-07SWD

Analysis of Injection Water

Bear Den 5-31H
Bear Den 8-1621H
Clarks Creek 13-1806H
Clarks Creek 100-0805H
Horse Camp 102-16H
Mandaree 1-10H
Riverview 1-32H
Riverview 100-3031H

PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14012401
Project ID:	Williston Basin CWA	Report Date:	2/4/2014

Lab Sample ID:	14012401-10		Date	Time
Customer Sample ID:	Bear Den 5-31H (ACID)	Collection:	1/21/2014	
Matrix:	Aqueous	Received:	1/24/2014	10:30 AM
Notes:	Preserved Sample. Alkalinity cannot be determined.			

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)		mg/L	2		SM 2320 B	1/31/2014 12:37:00 PM	GW
Alkalinity, Carbonate (CO3)		mg/L	2		SM 2320 B	1/31/2014 12:37:00 PM	GW
Alkalinity, Hydroxide (OH)		mg/L	2		SM 2320 B	1/31/2014 12:37:00 PM	GW
Total Alkalinity		mg/L	2		SM 2320 B	1/31/2014 12:37:00 PM	GW
Barium	119.00	mg/L	50		EPA 200.7	1/27/2014 1:26:17 PM	CV
Bromide	7100	mg/L	1000		EPA 300.0	1/30/2014 4:07:00 PM	TMC
Calcium	11000	mg/L	500		EPA 200.7	1/27/2014 12:09:51 PM	CV
Calcium (meq/L)	564	meq/L	0		EPA 200.7	1/27/2014 12:09:51 PM	CV
Calcium as CaCO3	28000	mg/L	2.5		EPA 200.7	1/27/2014 12:09:51 PM	CV
Anions	3239.48	meq/L	-50		Calculation	2/3/2014 10:20:00 AM	AC
Cation/Anion Balance	-7.99	%	-50		Calculation	2/3/2014 10:20:00 AM	AC
Cations	2759.90	meq/L	-50		Calculation	2/3/2014 10:20:00 AM	AC
Chloride	110000	mg/L	10000		EPA 300.0	1/30/2014 3:56:00 PM	TMC
Chloride as NaCl	189000.00	mg/L	1.6		EPA 300.0	1/30/2014 3:56:00 PM	TMC
Ionic Strength	3.340	mol/L	0		Calculation	2/3/2014 10:20:00 AM	AC
Iron	200	mg/L	50		EPA 200.7	1/27/2014 1:26:17 PM	CV
Magnesium	700	mg/L	50		EPA 200.7	1/27/2014 1:26:17 PM	CV
Magnesium (meq/L)	57.3	meq/L	0		EPA 200.7	1/27/2014 1:26:17 PM	CV
pH	0.70	s.u.	0.01		EPA 150.1	1/27/2014 10:16:00 AM	GW
Potassium	4900	mg/L	50		EPA 200.7	1/27/2014 1:26:17 PM	CV
Potassium (meq/L)	125	meq/L	0		EPA 200.7	1/27/2014 1:26:17 PM	CV
Resistivity, 25C	0.03	ohms m	0.01		SM 2510 B	1/30/2014 9:14:00 AM	GW
Sodium	46000	mg/L	500		EPA 200.7	1/27/2014 12:09:51 PM	CV
Sodium (meq/L)	2010	meq/L	0		EPA 200.7	1/27/2014 12:09:51 PM	CV

Definitions:

ND-Not Detected at the reporting limit
RL-Analyte Reporting Limit
H-Holding times for preparation or analysis exceeded
S-Spike Recovery outside accepted recovery limits
J-Analyte detected below quantitation limits
M-Matrix Effect
D-Diluted out of recovery limits
L-Analyzed by a contract laboratory

Documentation will be kept for five (5) years.

PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name: EOG Resources- Williston Basin
Order ID: 14012401
Project ID: Williston Basin CWA
Report Date: 2/4/2014

Specific Gravity	1.125	g/cc	0.001	ASTM D 1429-03	1/27/2014 5:05:00 PM	GW
Strontium	906.00	mg/L	50	EPA 200.7	1/27/2014 1:26:17 PM	CV
Sulfate	190	mg/L	10	Hach 8051	1/29/2014 9:45:00 AM	TMC
Temperature (Thermometric)	4.8	°C	0.1	N/A	2/3/2014 10:20:00 AM	AC
Total Dissolved Solids (TDS)	180000	mg/L	5	Calculation	2/3/2014 10:20:00 AM	AC
Total Solids (TS)	250000	mg/L	1	SM 2540 B	1/30/2014 8:24:00 AM	KF

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PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14013105
Project ID:	EOG-ND CWA	Report Date:	2/10/2014

			Date	Time
Lab Sample ID:	14013105-01			
Customer Sample ID:	Bear Den 8-1621H	Collection:	1/28/2014	
Matrix:	Aqueous	Received:	1/31/2014	11:00 AM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	350.00	mg/L	2		SM 2320 B	2/6/2014 10:12:00 AM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/6/2014 10:12:00 AM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/6/2014 10:12:00 AM	GW
Total Alkalinity	350.0	mg/L	2		SM 2320 B	2/6/2014 10:12:00 AM	GW
Barium	31.30	mg/L	5		EPA 200.7	2/3/2014 12:29:22 PM	CV
Bromide	1400	mg/L	1000		EPA 300.0	2/9/2014 10:29:00 AM	TMC
Calcium	23000	mg/L	500		EPA 200.7	2/3/2014 11:12:56 AM	CV
Calcium (meq/L)	1130	meq/L	0		EPA 200.7	2/3/2014 11:12:56 AM	CV
Calcium as CaCO3	57000	mg/L	2.5		EPA 200.7	2/3/2014 11:12:56 AM	CV
Anions	6914.59	meq/L	-50		Calculation	2/10/2014 11:03:00 AM	AC
Cation/Anion Balance	-12.45	%	-50		Calculation	2/10/2014 11:03:00 AM	AC
Cations	5383.37	meq/L	-50		Calculation	2/10/2014 11:03:00 AM	AC
Chloride	240000	mg/L	10000		EPA 300.0	2/9/2014 10:16:00 AM	TMC
Chloride as NaCl	404000.00	mg/L	1.6		EPA 300.0	2/9/2014 10:16:00 AM	TMC
Ionic Strength	6.820	mol/L	0		Calculation	2/10/2014 11:03:00 AM	AC
Iron	100	mg/L	5		EPA 200.7	2/3/2014 12:29:22 PM	CV
Magnesium	1300	mg/L	500		EPA 200.7	2/3/2014 11:12:56 AM	CV
Magnesium (meq/L)	110	meq/L	0		EPA 200.7	2/3/2014 11:12:56 AM	CV
pH	5.36	s.u.	0.01		EPA 150.1	2/4/2014 3:36:00 PM	GW
Potassium	8800	mg/L	500		EPA 200.7	2/3/2014 11:12:56 AM	CV
Potassium (meq/L)	226	meq/L	0		EPA 200.7	2/3/2014 11:12:56 AM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	2/5/2014 8:41:00 AM	GW
Sodium	90000	mg/L	500		EPA 200.7	2/3/2014 11:12:56 AM	CV
Sodium (meq/L)	3910	meq/L	0		EPA 200.7	2/3/2014 11:12:56 AM	CV

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J-Analyte detected below quantitation limits
M-Matrix Effect
D-Diluted out of recovery limits
L-Analyzed by a contract laboratory

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PRECISION ANALYSIS

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Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14013105
Project ID:	EOG-ND CWA	Report Date:	2/10/2014

Specific Gravity	1.203	g/cc	0.001	ASTM D 1429-03	2/4/2014 5:13:00 PM	GW
Strontium	1810.00	mg/L	500	EPA 200.7	2/3/2014 11:12:56 AM	CV
Sulfate	63	mg/L	1	Hach 8051	2/6/2014 3:01:00 PM	TMC
Temperature (Thermometric)	5.4	°C	0.1	N/A	2/10/2014 11:03:00 AM	AC
Total Dissolved Solids (TDS)	370000	mg/L	5	Calculation	2/10/2014 11:03:00 AM	AC
Total Solids (TS)	370000	mg/L	1	SM 2540 B	2/7/2014 4:00:00 PM	KF

Definitions:

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J-Analyte detected below quantitation limits
M-Matrix Effect
D-Diluted out of recovery limits
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PRECISION ANALYSIS

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Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14020406
Project ID:	EOG-ND CWA	Report Date:	2/13/2014

			Date	Time
Lab Sample ID:	14020406-03			
Customer Sample ID:	Clarks Creek 13-1806H	Collection:	1/29/2014	
Matrix:	Aqueous	Received:	2/4/2014	9:10 AM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	210.00	mg/L	2		SM 2320 B	2/13/2014 2:09:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/13/2014 2:09:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/13/2014 2:09:00 PM	GW
Total Alkalinity	210.0	mg/L	2		SM 2320 B	2/13/2014 2:09:00 PM	GW
Barium	32.90	mg/L	5		EPA 200.7	2/5/2014 1:16:22 PM	CV
Bromide	1500	mg/L	1000		EPA 300.0	2/11/2014 4:27:00 PM	TMC
Calcium	22000	mg/L	500		EPA 200.7	2/5/2014 11:43:49 AM	CV
Calcium (meq/L)	1080	meq/L	0		EPA 200.7	2/5/2014 11:43:49 AM	CV
Calcium as CaCO3	54000	mg/L	2.5		EPA 200.7	2/5/2014 11:43:49 AM	CV
Anions	8645.91	meq/L	-50		Calculation	2/13/2014 4:23:00 PM	AC
Cation/Anion Balance	-26.12	%	-50		Calculation	2/13/2014 4:23:00 PM	AC
Cations	5064.36	meq/L	-50		Calculation	2/13/2014 4:23:00 PM	AC
Chloride	310000	mg/L	10000		EPA 300.0	2/11/2014 4:14:00 PM	TMC
Chloride as NaCl	505000.00	mg/L	1.6		EPA 300.0	2/11/2014 4:14:00 PM	TMC
Ionic Strength	7.480	mol/L	0		Calculation	2/13/2014 4:23:00 PM	AC
Iron	300	mg/L	5		EPA 200.7	2/5/2014 1:16:22 PM	CV
Magnesium	820	mg/L	500		EPA 200.7	2/5/2014 11:43:49 AM	CV
Magnesium (meq/L)	67.7	meq/L	0		EPA 200.7	2/5/2014 11:43:49 AM	CV
pH	5.27	s.u.	0.01		EPA 150.1	2/10/2014 2:16:00 PM	GW
Potassium	8300	mg/L	500		EPA 200.7	2/5/2014 11:43:49 AM	CV
Potassium (meq/L)	213	meq/L	0		EPA 200.7	2/5/2014 11:43:49 AM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	2/11/2014 8:33:00 AM	GW
Sodium	85000	mg/L	500		EPA 200.7	2/5/2014 11:43:49 AM	CV
Sodium (meq/L)	3710	meq/L	0		EPA 200.7	2/5/2014 11:43:49 AM	CV

Definitions:

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Documentation will be kept for five (5) years.

PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name: EOG Resources- Williston Basin
Order ID: 14020406
Project ID: EOG-ND CWA
Report Date: 2/13/2014

Specific Gravity	1.208	g/cc	0.001	ASTM D 1429-03	2/11/2014 9:12:00 AM	GW
Strontium	1550.00	mg/L	500	EPA 200.7	2/5/2014 11:43:49 AM	CV
Sulfate	77	mg/L	1	Hach 8051	2/11/2014 9:59:00 AM	TMC
Temperature (Thermometric)	8.4	°C	0.1	N/A	2/13/2014 4:23:00 PM	AC
Total Dissolved Solids (TDS)	420000	mg/L	5	Calculation	2/13/2014 4:23:00 PM	AC
Total Solids (TS)	390000	mg/L	1	SM 2540 B	2/11/2014 10:10:00 AM	KF

Definitions:

ND-Not Detected at the reporting limit
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S-Spike Recovery outside accepted recovery limits
J-Analyte detected below quantitation limits
M-Matrix Effect
D-Diluted out of recovery limits
L-Analyzed by a contract laboratory

Documentation will be kept for five (5) years.

PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14013111
Project ID:	EOG-Williston Basin CWA	Report Date:	2/10/2014

Lab Sample ID:	14013111-07		Date	Time
Customer Sample ID:	Clarks Creek 100-0805H	Collection:	1/27/2014	
Matrix:	Aqueous	Received:	1/31/2014	3:36 PM

Notes:

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	300.00	mg/L	2		SM 2320 B	2/7/2014 12:08:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/7/2014 12:08:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/7/2014 12:08:00 PM	GW
Total Alkalinity	300.0	mg/L	2		SM 2320 B	2/7/2014 12:08:00 PM	GW
Barium	41.60	mg/L	5		EPA 200.7	2/3/2014 8:09:25 PM	CV
Bromide	1200	mg/L	1000		EPA 300.0	2/9/2014 10:48:00 PM	TMC
Calcium	26000	mg/L	500		EPA 200.7	2/3/2014 5:19:52 PM	CV
Calcium (meq/L)	1280	meq/L	0		EPA 200.7	2/3/2014 5:19:52 PM	CV
Calcium as CaCO3	64000	mg/L	2.5		EPA 200.7	2/3/2014 5:19:52 PM	CV
Anions	6446.38	meq/L	-50		Calculation	2/10/2014 11:20:00 AM	AC
Cation/Anion Balance	-11.24	%	-50		Calculation	2/10/2014 11:20:00 AM	AC
Cations	5144.04	meq/L	-50		Calculation	2/10/2014 11:20:00 AM	AC
Chloride	230000	mg/L	10000		EPA 300.0	2/9/2014 10:35:00 PM	TMC
Chloride as NaCl	376000.00	mg/L	1.6		EPA 300.0	2/9/2014 10:35:00 PM	TMC
Ionic Strength	6.520	mol/L	0		Calculation	2/10/2014 11:20:00 AM	AC
Iron	300	mg/L	5		EPA 200.7	2/3/2014 8:09:25 PM	CV
Magnesium	880	mg/L	500		EPA 200.7	2/3/2014 5:19:52 PM	CV
Magnesium (meq/L)	72.2	meq/L	0		EPA 200.7	2/3/2014 5:19:52 PM	CV
pH	5.43	s.u.	0.01		EPA 150.1	2/6/2014 2:36:00 PM	GW
Potassium	9400	mg/L	500		EPA 200.7	2/3/2014 5:19:52 PM	CV
Potassium (meq/L)	241	meq/L	0		EPA 200.7	2/3/2014 5:19:52 PM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	2/5/2014 1:51:00 PM	GW
Sodium	82000	mg/L	500		EPA 200.7	2/3/2014 5:19:52 PM	CV
Sodium (meq/L)	3550	meq/L	0		EPA 200.7	2/3/2014 5:19:52 PM	CV

Definitions:

ND-Not Detected at the reporting limit
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H-Holding times for preparation or analysis exceeded
S-Spike Recovery outside accepted recovery limits
J-Analyte detected below quantitation limits
M-Matrix Effect
D-Diluted out of recovery limits
L-Analyzed by a contract laboratory

Documentation will be kept for five (5) years.

PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14013111
Project ID:	EOG-Williston Basin CWA	Report Date:	2/10/2014

Specific Gravity	1.216	g/cc	0.001	ASTM D 1429-03	2/5/2014 1:53:00 PM	GW
Strontium	1670.00	mg/L	500	EPA 200.7	2/3/2014 5:19:52 PM	CV
Sulfate	49	mg/L	1	Hach 8051	2/6/2014 3:47:00 PM	TMC
Temperature (Thermometric)	7.8	°C	0.1	N/A	2/10/2014 11:20:00 AM	AC
Total Dissolved Solids (TDS)	350000	mg/L	5	Calculation	2/10/2014 11:20:00 AM	AC
Total Solids (TS)	450000	mg/L	1	SM 2540 B	2/7/2014 2:21:00 PM	KF

Definitions:

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Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14012403
Project ID:	Williston Basin CWA	Report Date:	2/4/2014

Lab Sample ID:	14012403-02		Date	Time
Customer Sample ID:	Horse Camp 102-16H	Collection:	1/21/2014	
Matrix:	Aqueous	Received:	1/24/2014	1:00 PM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	310.00	mg/L	2		SM 2320 B	1/31/2014 4:39:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	1/31/2014 4:39:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	1/31/2014 4:39:00 PM	GW
Total Alkalinity	310.0	mg/L	2		SM 2320 B	1/31/2014 4:39:00 PM	GW
Barium	50.40	mg/L	50		EPA 200.7	1/27/2014 10:16:00 PM	CV
Bromide	ND	mg/L	10000		EPA 300.0	1/31/2014 4:36:00 PM	TMC
Calcium	33000	mg/L	500		EPA 200.7	1/27/2014 6:42:38 PM	CV
Calcium (meq/L)	1660	meq/L	0		EPA 200.7	1/27/2014 6:42:38 PM	CV
Calcium as CaCO3	83000	mg/L	2.5		EPA 200.7	1/27/2014 6:42:38 PM	CV
Anions	9065.26	meq/L	-50		Calculation	2/3/2014 1:39:00 PM	AC
Cation/Anion Balance	-24.36	%	-50		Calculation	2/3/2014 1:39:00 PM	AC
Cations	5514.26	meq/L	-50		Calculation	2/3/2014 1:39:00 PM	AC
Chloride	320000	mg/L	10000		EPA 300.0	1/31/2014 4:36:00 PM	TMC
Chloride as NaCl	530000.00	mg/L	1.6		EPA 300.0	1/31/2014 4:36:00 PM	TMC
Ionic Strength	8.260	mol/L	0		Calculation	2/3/2014 1:39:00 PM	AC
Iron	200	mg/L	50		EPA 200.7	1/27/2014 10:16:00 PM	CV
Magnesium	2000	mg/L	50		EPA 200.7	1/27/2014 10:16:00 PM	CV
Magnesium (meq/L)	163	meq/L	0		EPA 200.7	1/27/2014 10:16:00 PM	CV
pH	5.54	s.u.	0.01		EPA 150.1	1/27/2014 11:58:00 AM	GW
Potassium	8900	mg/L	500		EPA 200.7	1/27/2014 6:42:38 PM	CV
Potassium (meq/L)	228	meq/L	0		EPA 200.7	1/27/2014 6:42:38 PM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	1/30/2014 3:03:00 PM	GW
Sodium	80000	mg/L	500		EPA 200.7	1/27/2014 6:42:38 PM	CV
Sodium (meq/L)	3470	meq/L	0		EPA 200.7	1/27/2014 6:42:38 PM	CV

Definitions:

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Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14012403
Project ID:	Williston Basin CWA	Report Date:	2/4/2014

Specific Gravity	1.219	g/cc	0.001	ASTM D 1429-03	1/28/2014 3:06:00 PM	GW
Strontium	2060.00	mg/L	50	EPA 200.7	1/27/2014 10:16:00 PM	CV
Sulfate	ND	mg/L	1	Hach 8051	1/31/2014 10:18:00 AM	TMC
Temperature (Thermometric)	11.2	°C	0.1	N/A	2/3/2014 1:39:00 PM	AC
Total Dissolved Solids (TDS)	450000	mg/L	5	Calculation	2/3/2014 1:39:00 PM	AC
Total Solids (TS)	480000	mg/L	1	SM 2540 B	1/31/2014 3:33:00 PM	KF

Definitions:

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PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14012402
Project ID:	Williston Basin CWA	Report Date:	2/4/2014

Lab Sample ID:	14012402-01		Date	Time
Customer Sample ID:	Mandaree 1-10H	Collection:	1/21/2014	
Matrix:	Aqueous	Received:	1/24/2014	12:03 PM

Notes:

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	300.00	mg/L	2		SM 2320 B	1/31/2014 2:29:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	1/31/2014 2:29:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	1/31/2014 2:29:00 PM	GW
Total Alkalinity	300.0	mg/L	2		SM 2320 B	1/31/2014 2:29:00 PM	GW
Barium	50.00	mg/L	50		EPA 200.7	1/27/2014 8:21:10 PM	CV
Bromide	1700	mg/L	1000		EPA 300.0	1/31/2014 9:53:00 AM	TMC
Calcium	32000	mg/L	500		EPA 200.7	1/27/2014 4:40:58 PM	CV
Calcium (meq/L)	1580	meq/L	0		EPA 200.7	1/27/2014 4:40:58 PM	CV
Calcium as CaCO3	79000	mg/L	2.5		EPA 200.7	1/27/2014 4:40:58 PM	CV
Anions	9611.95	meq/L	-50		Calculation	2/3/2014 12:15:00 PM	AC
Cation/Anion Balance	-19.51	%	-50		Calculation	2/3/2014 12:15:00 PM	AC
Cations	6473.27	meq/L	-50		Calculation	2/3/2014 12:15:00 PM	AC
Chloride	340000	mg/L	10000		EPA 300.0	1/31/2014 9:42:00 AM	TMC
Chloride as NaCl	562000.00	mg/L	1.6		EPA 300.0	1/31/2014 9:42:00 AM	TMC
Ionic Strength	8.960	mol/L	0		Calculation	2/3/2014 12:15:00 PM	AC
Iron	200	mg/L	50		EPA 200.7	1/27/2014 8:21:10 PM	CV
Magnesium	1600	mg/L	50		EPA 200.7	1/27/2014 8:21:10 PM	CV
Magnesium (meq/L)	135	meq/L	0		EPA 200.7	1/27/2014 8:21:10 PM	CV
pH	5.76	s.u.	0.01		EPA 150.1	1/27/2014 10:42:00 AM	GW
Potassium	11000	mg/L	500		EPA 200.7	1/27/2014 4:40:58 PM	CV
Potassium (meq/L)	276	meq/L	0		EPA 200.7	1/27/2014 4:40:58 PM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	1/30/2014 11:34:00 AM	GW
Sodium	100000	mg/L	500		EPA 200.7	1/27/2014 4:40:58 PM	CV
Sodium (meq/L)	4480	meq/L	0		EPA 200.7	1/27/2014 4:40:58 PM	CV

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PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14012402
Project ID:	Williston Basin CWA	Report Date:	2/4/2014

Specific Gravity	1.204	g/cc	0.001	ASTM D 1429-03	1/28/2014 2:13:00 PM	GW
Strontium	2170.00	mg/L	50	EPA 200.7	1/27/2014 8:21:10 PM	CV
Sulfate	15	mg/L	10	Hach 8051	1/30/2014 10:09:00 AM	TMC
Temperature (Thermometric)	8.2	°C	0.1	N/A	2/3/2014 12:15:00 PM	AC
Total Dissolved Solids (TDS)	490000	mg/L	5	Calculation	2/3/2014 12:15:00 PM	AC
Total Solids (TS)	410000	mg/L	1	SM 2540 B	1/31/2014 11:43:00 AM	KF

Definitions:

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M-Matrix Effect
D-Diluted out of recovery limits
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PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14020704
Project ID:	EOG-ND CWA	Report Date:	2/17/2014

Lab Sample ID:	14020704-04		Date	Time
Customer Sample ID:	Riverview 1-32H	Collection:	1/31/2014	
Matrix:	Aqueous	Received:	2/7/2014	9:10 AM

Notes:

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	420.00	mg/L	2		SM 2320 B	2/12/2014 3:27:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/12/2014 3:27:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/12/2014 3:27:00 PM	GW
Total Alkalinity	420.0	mg/L	2		SM 2320 B	2/12/2014 3:27:00 PM	GW
Barium	29.80	mg/L	5		EPA 200.7	2/11/2014 2:17:06 PM	CV
Bromide	1200	mg/L	1000		EPA 300.0	2/13/2014 4:24:00 PM	TMC
Calcium	21000	mg/L	500		EPA 200.7	2/11/2014 12:06:02 PM	CV
Calcium (meq/L)	1060	meq/L	0		EPA 200.7	2/11/2014 12:06:02 PM	CV
Calcium as CaCO3	53000	mg/L	2.5		EPA 200.7	2/11/2014 12:06:02 PM	CV
Anions	5934.05	meq/L	-50		Calculation	2/17/2014 2:21:00 PM	AC
Cation/Anion Balance	-10.13	%	-50		Calculation	2/17/2014 2:21:00 PM	AC
Cations	4842.39	meq/L	-50		Calculation	2/17/2014 2:21:00 PM	AC
Chloride	210000	mg/L	10000		EPA 300.0	2/13/2014 4:12:00 PM	TMC
Chloride as NaCl	346000.00	mg/L	1.6		EPA 300.0	2/13/2014 4:12:00 PM	TMC
Ionic Strength	6.030	mol/L	0		Calculation	2/17/2014 2:21:00 PM	AC
Iron	90	mg/L	5		EPA 200.7	2/11/2014 2:17:06 PM	CV
Magnesium	1400	mg/L	500		EPA 200.7	2/11/2014 12:06:02 PM	CV
Magnesium (meq/L)	117	meq/L	0		EPA 200.7	2/11/2014 12:06:02 PM	CV
pH	5.89	s.u.	0.01		EPA 150.1	2/11/2014 9:51:00 AM	GW
Potassium	8200	mg/L	500		EPA 200.7	2/11/2014 12:06:02 PM	CV
Potassium (meq/L)	209	meq/L	0		EPA 200.7	2/11/2014 12:06:02 PM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	2/11/2014 10:12:00 AM	GW
Sodium	79000	mg/L	500		EPA 200.7	2/11/2014 12:06:02 PM	CV
Sodium (meq/L)	3450	meq/L	0		EPA 200.7	2/11/2014 12:06:02 PM	CV

Definitions:

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PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14020704
Project ID:	EOG-ND CWA	Report Date:	2/17/2014

Specific Gravity	1.179	g/cc	0.001	ASTM D 1429-03	2/11/2014 10:41:00 AM	GW
Strontium	1890.00	mg/L	500	EPA 200.7	2/11/2014 12:06:02 PM	CV
Sulfate	73	mg/L	1	Hach 8051	2/13/2014 10:55:00 AM	TMC
Temperature (Thermometric)	6.2	°C	0.1	N/A	2/17/2014 2:21:00 PM	AC
Total Dissolved Solids (TDS)	320000	mg/L	5	Calculation	2/17/2014 2:21:00 PM	AC
Total Solids (TS)	320000	mg/L	1	SM 2540 B	2/12/2014 11:00:00 AM	KF

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PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14111409
Project ID:	EOG-Williston Basin CWA	Report Date:	12/9/2014

			Date	Time
Lab Sample ID:	14111409-01			
Customer Sample ID:	RIVERVIEW 100-3031H	Collection:	11/11/2014	
Matrix:	Aqueous	Received:	11/14/2014	11:45 AM

Notes:

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	130.0	mg/L	2		SM 2320 B	12/3/2014 12:30:00 PM	JS
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	12/3/2014 12:30:00 PM	JS
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	12/3/2014 12:30:00 PM	JS
Total Alkalinity	130.0	mg/L	2		SM 2320 B	12/3/2014 12:30:00 PM	JS
Barium	34.3	mg/L	5		EPA 200.7	11/26/2014 12:17:17 PM	RG
Bromide	1482	mg/L	1000		EPA 300.0	11/24/2014 4:08:00 PM	TMC
Calcium	22000	mg/L	500		EPA 200.7	11/26/2014 10:44:19 AM	RG
Calcium (meq/L)	1090	meq/L	0		EPA 200.7	11/26/2014 10:44:19 AM	RG
Calcium as CaCO3	55000	mg/L	2.5		EPA 200.7	11/26/2014 10:44:19 AM	RG
Anions	5203	meq/L	-50		Calculation	12/5/2014 10:50:00 AM	JP
Cation/Anion Balance	-6.5	%	-50		Calculation	12/5/2014 10:50:00 AM	JP
Cations	4570	meq/L	-50		Calculation	12/5/2014 10:50:00 AM	JP
Chloride	184300	mg/L	10000		EPA 300.0	11/24/2014 3:56:00 PM	TMC
Chloride as NaCl	303800	mg/L	1.6		EPA 300.0	11/24/2014 3:56:00 PM	TMC
Field Dissolved CO2	38.0	mg/L			CO2 Analyzer	11/11/2014	FT
Field pH - Strip	5	s.u.	1		EPA 150.1	11/11/2014	FT
Ionic Strength	5.5	mol/L	0		Calculation	12/5/2014 10:50:00 AM	JP
Iron	177	mg/L	5		EPA 200.7	11/26/2014 12:17:17 PM	RG
Magnesium	1300	mg/L	500		EPA 200.7	11/26/2014 10:44:19 AM	RG
Magnesium (meq/L)	109	meq/L	0		EPA 200.7	11/26/2014 10:44:19 AM	RG
Manganese	17.3	mg/L	5		EPA 200.7	11/26/2014 12:17:17 PM	RG
pH	4.92	s.u.	0.01		EPA 150.1	12/1/2014 3:46:00 PM	JS
Phosphorus	ND	mg/L	5		EPA 200.7	11/26/2014 12:17:17 PM	RG
Potassium	8400	mg/L	500		EPA 200.7	11/26/2014 10:44:19 AM	RG

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PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
Phone: (307)-856-0866 • Toll Free: (866)-985-0866

Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14111409
Project ID:	EOG-Williston Basin CWA	Report Date:	12/9/2014

Potassium (meq/L)	214	meq/L	0	EPA 200.7	11/26/2014 10:44:19 AM	RG
Resistivity, 25C	0.02	ohms m	0.01	SM 2510 B	12/3/2014 9:45:00 AM	JS
Sodium	73000	mg/L	500	EPA 200.7	11/26/2014 10:44:19 AM	RG
Sodium (meq/L)	3160	meq/L	0	EPA 200.7	11/26/2014 10:44:19 AM	RG
Specific Gravity	1.219	g/cc	0.001	ASTM D 1429-03	12/3/2014 2:45:00 PM	JS
Strontium	1890	mg/L	500	EPA 200.7	11/26/2014 10:44:19 AM	RG
Sulfate	165.0	mg/L	20	EPA 375.4	11/24/2014 9:05:00 AM	TMC
Temperature (Thermometric)	0.6	°C	0.1	N/A	12/9/2014 7:39:00 AM	AC
Total Dissolved Solids (TDS)	288900	mg/L	5	Calculation	12/5/2014 10:50:00 AM	JP
Total Solids (TS)	339300	mg/L	1	SM 2540 B	12/1/2014 10:10:00 AM	GW

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Clarks Creek 200-07SWD

eog resources

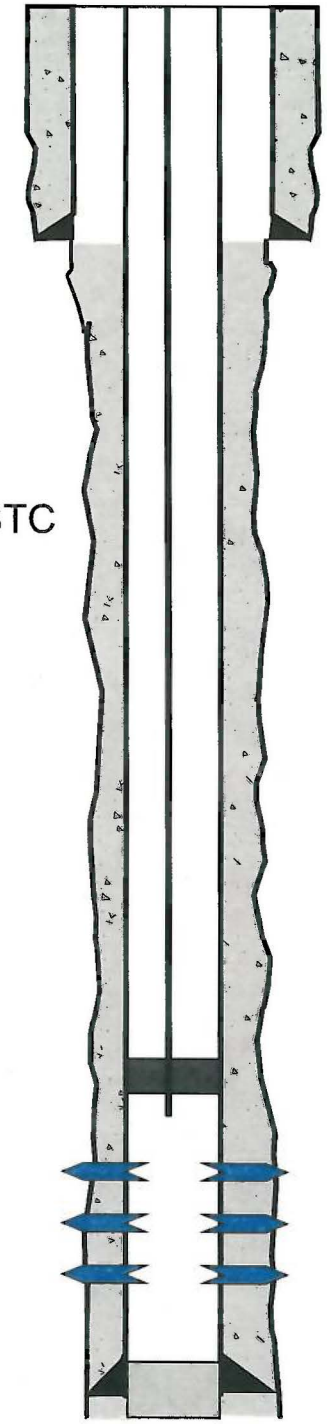
Construction Details:

16" Conductor set
80' @ surface

13 1/2" Hole

9-5/8" 36ppf J-55 STC
set ~ =1,766'
w/ 349+ 270 sx
cmt @ surf

8 ¾" Hole



6/29/16
Proposed Well Bore
Dakota SWD

Clarks Creek 200-07 SWD
463' FSL & 854' FEL (SESE)
Sec. 7, T151N, R94W
McKenzie County, ND

Weatherford Arrow 1X Injection Packer set at ~4,884'
(~50 feet from uppermost perforation) on 4.5-inch 11.6 ppf J-55 LT&C internally coated tubing

7" 26 ppf HCP-110 LTC
casing set ~ 5,647' MD
w/ 51 + 99 sx. Cement top estimated 500' above Dakota

Estimated Dakota SWD Perforations: 4,934' to 5,346'
Actual perforations will be determined by open hole logs when drilled

Name	Vertical Subsea	TVD-RKB
Pierre Shale	601	1616'
Greenhorn	-1920	4137'
Dakota SS	-2717	4934'
Base Dakota	-3130	5347'
TD	-3380	5597'

ETD ~ 5,647'

Clarks Creek 200-07SWD

Plugging and Abandonment Plan

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

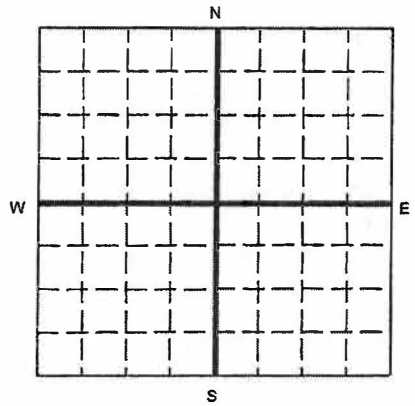
EPA

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
Clarks Creek 200-07SWD	EOG Resources, Inc. 600 17th Street, Suite 1000N, Denver, CO 80202

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
North Dakota	McKenzie	

Surface Location Description

SE 1/4 of SE 1/4 of ___ 1/4 of ___ 1/4 of Section 7 Township 151 Range 94

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ___ ft. frm (N/S) S Line of quarter section

and ___ ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION

- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name

WELL ACTIVITY

- [ ] CLASS I
- [x] CLASS II
  - [x] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number 1

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
9-5/8	36		1766'	13-1/2
7	26		5647'	8-3/4

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [ ] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	7						
Depth to Bottom of Tubing or Drill Pipe (ft	5647						
Sacks of Cement To Be Used (each plug)	485						
Slurry Volume To Be Pumped (cu. ft.)	611						
Calculated Top of Plug (ft.)	2630						
Measured Top of Plug (if tagged ft.)	2630						
Slurry Wt. (Lb./Gal.)	15.8						
Type Cement or Other Material (Class III)	Class G						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To

Estimated Cost to Plug Wells

$72,127.00 (highest bid)

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)

	SI	Date Signed
		8/16/16

eog resources

P&A PROCEDURE

1. MIRUSU, pump, and tanks. Receive ~6,000' of 2-7/8" PH-6 workstring.
2. Set two 400 bbl frac tanks. Fill with ~9.8 ppg treated manufactured salt water (TMSW).
3. Fill wellbore, tubing and casing, with TMSW (kill weight fluid). NU and test BOP.
4. Unseat Arrowset 1X production packer and allow pressure to equalize between tubing and casing. POOH and lay down packer BHA & 4-1/2" coated tubing.
5. RIH with open ended work string to below bottom perf and try to establish circulation. If able, circulate well clean with TMSW.
6. With tubing tail at bottom perf, mix and equalize 611 cubic ft (485 sxs) class G cement plug (~3,017' linear foot plug), ETOC at 2,630'. Displace with 4.5 bbls TMSW.
7. Lay down excess tubing and land hanger with tubing above cement plug. Reverse circulate well clean. Stand back 10 joints and SDFN. Tag plug in the morning to confirm >100' of cement above injection intervals. If needed, set additional cement plugs.
8. Set 50' linear top job in the 7" casing and the surface casing annulus. Cut off wellhead three feet below grade and return location to original condition.
9. RDMO.

Clarks Creek 200-07SWD

eog resources

Plugging and Abandonment Plan

1. MIRUSU, pump, and tanks. Receive ~6,000' of 2-7/8" PH-6 workstring.

2. Set two 400 bbl frac tanks. Fill with ~9.8 ppg treated manufactured salt water (TMSW).

3. Fill wellbore, tubing and casing, with TMSW (kill weight fluid). NU and test BOP.

4. Unseat Arrowset 1X production packer and allow pressure to equalize between tubing and casing. POOH and lay down packer BHA & 4-1/2" coated tubing.

5. RIH with open ended work string to below bottom perf and try to establish circulation. If able, circulate well clean with TMSW.

6. With tubing tail at bottom perf, mix and equalize and 18 bbl cement plug (~500 linear foot plug), ETOC above top perf. Displace with 4.5 bbls TMSW.

7. Lay down excess tubing and land hanger with tubing above cement plug. Reverse circulate well clean. Stand back 10 joints and SDFN. Tag plug in the morning to confirm >100' of cement above injection intervals. If needed, set additional cement plugs.

8. Set 50' linear top job in the 7" casing and the surface casing annulus. Cut off wellhead three feet below grade and return location to original condition.

9. RDMO.

Clarks Creek 200-07SWD

Plugging and Abandonment Proposals

- Gibson Production Services
- Fortis Energy Services
- MBI Energy Services

SLICKLINE SERVICE
AJAX SALES & SERVICE
PUMPING UNIT SPECIALISTS
BOP & EQUIPMENT RENTALS
TRUCKING & CRANE SERVICE
SKID HOUSE & TANK RENTALS
NEW & USED OIL FIELD EQUIPMENT
WELL SERVICING RIGS - PLUG & ABANDONMENTS
MANUFACTURERS REPRESENTATIVES

July 15th, 2016

EOG Resources Inc.
Clarks Creek 200-7 SWD, McKenzie County ND
Liberty 200-14 SWD, Mountrail County ND

In regards to your request for pricing to perform plug and abandon service on the above mentioned wells, WISCO Inc. can provide the necessary service rig and crews, cementing equipment & materials to perform the P&A services in accordance with a North Dakota State approved plug & abandonment procedure.

It is the understanding of WISCO Inc. that tubing presently in the well is to be used for plugging & abandonment purposes. In addition to the proposed P&A pricing, EOG Resources Inc. will then be required to provide all additional tubing, all Vac-Truck or Hot Oil Services if necessary, all the required fresh and salt water, cleaning of the utilized 400 barrel upright tanks along with the proper disposal of all excess liquids. In the event we encounter and maintain a measurable amount of Hydrogen Sulfide Gas, all necessary H2S safety equipment, safety personnel and additional H2S Wireline charges will be the responsibility of EOG Resources Inc.

In the event of unforeseen problems or difficulties such as stuck rods or tubing, collapsed or parted casing, water flows, blow outs, etc., or any procedural changes requested by EOG Resources Inc. or the State of North Dakota Oil and Gas Division will result in additional charges being billed to EOG Resources Inc. in accordance with our most current pricing & rate schedule.

The P&A pricing shall remain effective for a period of no less than ninety days from the date of this proposal and the estimated amount below is to be remitted in full to WISCO Inc., in US Funds, upon successful completion of P&A operations.

Clarks Creek 200-7 SWD ——————————————— $46,870.00 USD
Liberty 200-14 SWD ——————————————— $48,710.00 USD
(400 bbl Tank Cleaning, Liquids and Liquid Waste Disposal are NOT included in WISCO pricing)

This estimated pricing DOES NOT include any clean up or restoration of the location. In addition, WISCO Inc. no longer manages used surface equipment or used tubular goods, therefore all of the surface equipment and tubing that is recovered from the wellbore will be left on location and in the control of EOG Resources Inc. WISCO Inc. can provide contact information for interested parties of used equipment if desired.

Upon formal request, WISCO may provide pricing & service for trucking and transportation of tubulars, pumping units & equipment, pumping unit teardown specialists along with crane & trucking transportation service.

Respectfully,

Scott Clark
Well Servicing Supervisor
WISCO Inc. – ***GIBSON PRODUCTION SERVICES***

Fortis Energy Service's
EOG's Clarks Creek 200-7 Well P&A

ITEM	ESTIMATED PRICE
Workover Rig	$13,500.00
BOP Rental	$1,500.00
Casing Scraper	$2,300.00
Wireline / Perf.	$12,500.00
Cast Iron Cement Retainer	$2,200.00
Rental Work String	$6,000.00
Cement / Pump Truck	$13,000.00
Welder	$3,000.00
Permits	$500.00
Misc. / Consumables	$1,200.00
	$55,700.00

MBI
Energy Services Inc.

Plug & Abandonment Proposal

EOG Resources, Inc.

Liberty 200-14 SWD
Clarks Creek 200-07 SWD

McKenzie County, ND

Prepared for:
Dan Johnson
July 19, 2016

Submitted By:

Aubrey Van Dyke
MBI Energy Services
(701) 842-7783
avandyke@mobasin.com

Mr. Johnson,

MBI Energy Services is submitting our estimated plug and abandonment proposal for the Liberty 200-14 SWD and the Clarks Creek 200-07 SWD to EOG Resources, as summarized below and detailed in the attached pricing and documentation for the well servicing operations. Because there were no procedures provided, assumptions were made to estimate the scope of work, including tools, quantities, depths, etc. Should the NDIC approve any P&A work to these wells, this proposal will need to be modified to reflect.

Scope of Work:
Plug and abandon the Liberty 200-14 SWD and Clarks Creek 200-07 SWD wellbores.

Bid Inclusions for each well:

- 485 sxs 15.8 ppg Class G cement – 35% silica as required
- 3 – 7" CICR for each well
- 280 BBLs Freshwater
- 3 – Surface Wireline Perfs
- Wellhead removal with excavation / backfill
- Cut & Cap Wellhead with marker

Standard Equipment:

- 500 Series Service Rig w/4 man crew & supervisor
- Rod & Tubing handling equipment including power tongs (casing excluded)
- 5k Double BOP w/ accumulator trailer (TIW valve included)
- Cementing Equipment / Services
- 3 – 400 BBL upright tank
- Associated lines, connections, and hoses to hook up equipment
- Mobilization/demobilization of equipment – with standard rig move permits (frost law permits excluded)
- Backhoe and welder

Exclusions:

- Production water and production water transportation
- Disposal transportation and disposal fees
- Reclamation to location or lease roads
- Excavation beyond digging out/backfilling the well head
- Pumping unit or tank battery removal or relocation
- Salvage credits for tubing, rods, location equipment, etc.
- Hot oiling / heating freshwater
- Hydro-testing
- Work string
- Bit & Scraper run
- H2S Safety Equipment
- 40' Engineered base beam

Conditions:
Well complications, including but not limited to, water flow, stuck tubing or rods, fishing, casing leaks, extra squeezes, paraffin, stuck anchor/packers, blow outs, etc., or any procedure changes incurred by the customer, State, and/or BLM that require additional time and services from MBI Energy Services, beyond the provided scope of work, will be billed additionally in accordance with the attached pricing and/or current MBI service rates.

Hydro-Testing any tubing will be billed directly to the customer. Any time associated with Hydro-testing will be billed additionally at the hourly rig rate specified in the attached Plug and Abandonment Schedule. EOG will be responsible for the condition, including the installation and testing, of each anchor on location prior to commencing operations.

EOG Resources will be responsible for providing all production water required as well as disposal fees and transportation for any associated fluids. Additional tankage needed, beyond our standard tankage listed above, can be provided by MBI Energy Services at an additional cost. EOG Resources will be responsible for cleaning all tankage utilized in the proposed operations.

This bid includes up to three (3) days of cementing/pumping services. Any additional days of cementing required beyond the number included will be billed back to the customer at cost. Any cement pumped beyond the amount listed in the customer provided procedures will be charged at $40/sack. Requests for additional services, provided by a 3rd party, will be billed back at cost plus 10%. Additionally, all tubing required (including a suitable work string) will be supplied by the customer.

Extreme weather conditions (cold, wind, snow, etc.) that limit the timeliness and/or progress of our operations will be billed in addition to the proposed prices. Additionally, in severely cold temperatures, MBI may add a rig heater, which will be billed back to the customer.

Proposal:
MBI Energy Services proposes the above scope of work, to be completed on the Liberty 200-14 SWD & Clarks Creek 200-07 SWD:

Well	County	State	Price
Liberty 200-14 SWD	McKenzie	ND	$ 74,663
Clarks Creek 200-07 SWD	McKenzie	ND	$ 72,127
		Total	$ 146,790

Thank you for allowing MBI Energy Services the opportunity to bid plugging operations for EOG Resources, and please let me know if there are any questions.

Sincerely,

Aubrey M. Van Dyke
Operations Engineer
MBI Energy Services
(701) 842-7783
avandyke@mobasin.com

Clarks Creek 200-07SWD

Necessary Resources

Clarks Creek 200-07SWD

Formation Testing Program

Clarks Creek 200-07SWD

eog resources

Formation Test Program

STEP RATE TEST PROCEDURE

1. Shut well in 48 hours prior to step rate test.
2. Have well tester shoot fluid level after 48 hour shut in to determine BHP. Send data to EOG Engineer.
3. Review CBL for cement top.
4. MIRU workover rig, ND wellhead and NU and test BOPs
5. RIH w/ the following equipment:
    a. 4.5 " LTC, 11.6#, N-80, internally coated casing.
    b. X/O -4.5", LTC X 3.5", EUE 8RD, NICKEL PLATED
    c. ARROSET PACKER DRESSED FOR 7" 32#, NICKEL PLATED
    d. 6' – 3.5" NICKEL PLATED PUP WITH A MINUMUM OF 10 SQUARE INCHES OF HOLES OR SLOTS
    e. 12' - 3.5" NICKEL PLATED PUPS
    f. 3.5" EUE XN PROFILE NIPPLE ID 2.666"
    g. THIS CONFIGURATION WILL ALLOW WISCO PRESSURE RECORDER 1-1/4" x 12' WITH NO-GO ON BOTTOM (2.75") TO BE SET ON THE XN PROFILE AND THEN RETRIEVED AFTER THE JOB.
6. Set packer at 4,601' or within 100' of top perf (4,701').
7. ND BOP and NU 7" 5K Frac valves.
8. Perform MIT test on casing, tubing annulus per NDIC guidelines.
9. MIRU pump truck capable of small ½ BPM rates as well as enough trucks to reach 21 BPM, NU and test frac valves. Move in 9 - 500 bbl frac tanks with treated fresh water.
10. Notes:
    a. Injection flow rates should be measured with a calibrated turbine flowmeter
    b. Record 1 second data for injection pressure, rate, tubing casing annulus pressure and surface casing pressure.
    c. Friction must be correlated for each different flow rate.
    d. We must record and plot all surface pressures for all pump-ins. The step-rate test will take approximately 10 hours. The EPA guidelines for the test are also attached for reference.
    e. Measure and record specific gravity of water to be injected.

f. Max surface pressure is 4500 psi (90% of 5K wellhead)

Step Rate Test

(Exact lower rates will be very hard but get as close as possible)

Percentage of Max Rate	Pump Rate (bbl/min)	Time (hours)	Volume TFW (bbl)
5%	1.0	1	63
10%	2.1	1	188
20%	4.2	1	438
40%	8.3	1	938
50%	10.4	1	1563
60%	12.5	1	2313
70%	14.6	1	3188
80%	16.7	1	4188
90%	18.8	1	5313
100%	20.8	1	6563
	Totals =>	**10**	**24750**

**Record ISIP

**Notify NDIC and EPA of upcoming annulus test.

11. If the formation fracturing pressure is observed during test (point where the pressure/rate graph has a change in slope) continue the test for a minimum of 2 additional rate steps. Then stop test and measure ISIP. (please refer to step 10 of the EPA Step Rate Test Guidelines)

12. If fracturing pressure is observed, leave surface gauges hooked up to wellhead to observe leakoff and formation closure.

13. Rig up slickline truck and retrieve downhole pressure bomb.

14. Download pressure bomb data and send to EOG Engineer along with the surface data.

15. Place well on injection with NDIC/EPA approval.

Additional Logging:

Cased Hole Log: 7" Casing: CBL/GR (TD to Surface)

- Log will be submitted after the well has been drilled.

A total dissolved solids (TDS) sample will be conducted after the well is drilled, but before injection is authorized. If the TDS content of injection zone fluid is found to be less than 10,000 mg/L, this meets the definition of an Underground Source of Drinking Water then EOG would need to request an Aquifer Exemption before injection could occur.

Clarks Creek 200-07SWD

Plan for Well Failures

Clarks Creek 200-07SWD

Plans for Well Failure

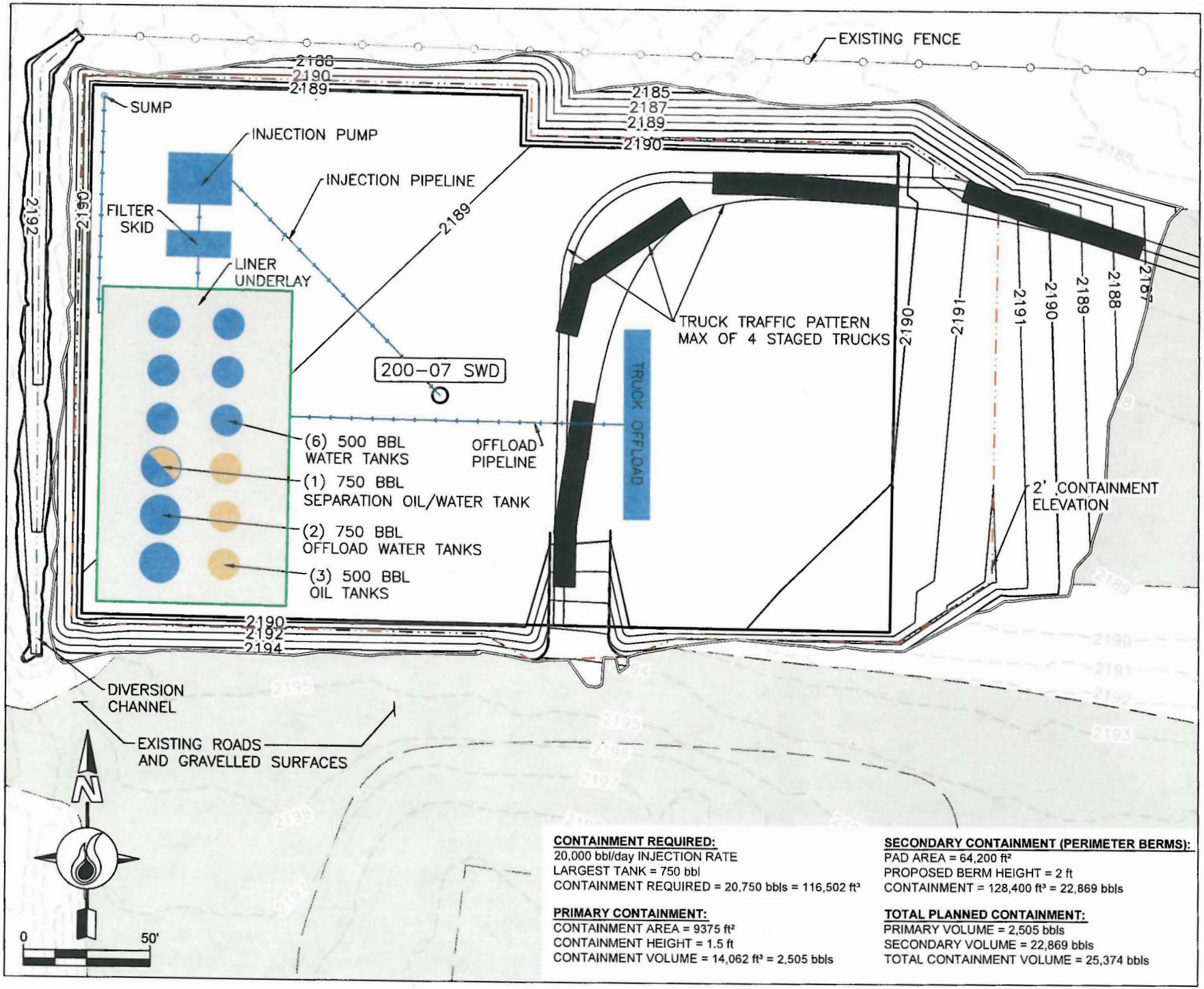
The Clarks Creek 200-07SWD would be tied into our SCADA and leak detection system. The system is monitored 24/7 by our command center. In the event of a power failure, valves would fail closed. The primary valves are actuated and can be controlled remotely from the control center.

Primary Containment:
Containment Area = 9375 ft^2
Containment Height = 1.5 ft
Containment Volume = 14,062 ft^3 = 2,505 bbls

Secondary Containment:
Pad Area = 64,200 ft^2
Proposed Berm Height = 2 ft
Containment = 128,400 ft^3 = 22,869 bbls

Total Planned Containment:
Primary Containment =2,505 bbls
Secondary Containment = 22,869 bbls
Total Containment Volume = 25,374 bbls

See Containment Map.



CONTAINMENT REQUIRED:
20,000 bbl/day INJECTION RATE
LARGEST TANK = 750 bbl
CONTAINMENT REQUIRED = 20,750 bbls = 116,502 ft³

PRIMARY CONTAINMENT:
CONTAINMENT AREA = 9375 ft²
CONTAINMENT HEIGHT = 1.5 ft
CONTAINMENT VOLUME = 14,062 ft³ = 2,505 bbls

SECONDARY CONTAINMENT (PERIMETER BERMS):
PAD AREA = 64,200 ft²
PROPOSED BERM HEIGHT = 2 ft
CONTAINMENT = 128,400 ft³ = 22,869 bbls

TOTAL PLANNED CONTAINMENT:
PRIMARY VOLUME = 2,505 bbls
SECONDARY VOLUME = 22,869 bbls
TOTAL CONTAINMENT VOLUME = 25,374 bbls

PRODUCTION FACILITY LAYOUT
CLARKS CREEK 200-07 SWD
MCKENZIE COUNTY, ND
DWG. NO. C-4
SHEET NO. 7 OF 12

eog resources
600 17TH STREET
SUITE 1000N
DENVER, COLORADO

DRAWN BY BAH
CHK'D BY BAH
DATE 1/22/2016
FILE C-1_PAD LAYOUT_GC200-07SWD_REV1

Attention: If this scale bar does not measure 1" then drawing is not original scale.

NO.	DATE	ISSUE/REVISION	APP
A	6/7/2016	FOR REVIEW	BAH

Clarks Creek 200-07SWD

eog resources

Description of Business

Clarks Creek 200-07SWD

Description of Business

Our future drilling and completing plans will be in the Antelope Extension – Fort Berthold Reservation. Having a disposal will help eliminate truck traffic and road maintenance. The well will be located in a central location that will allow EOG to utilize existing infrastructure.

Clarks Creek 200-07SWD

Area of Potential Effects (APE)

Clarks Creek 200-07SWD well site – shape file submitted through email.

SWCA Report:

Contact: TBD

Clarks Creek 200-07SWD

eog resources

Plats:

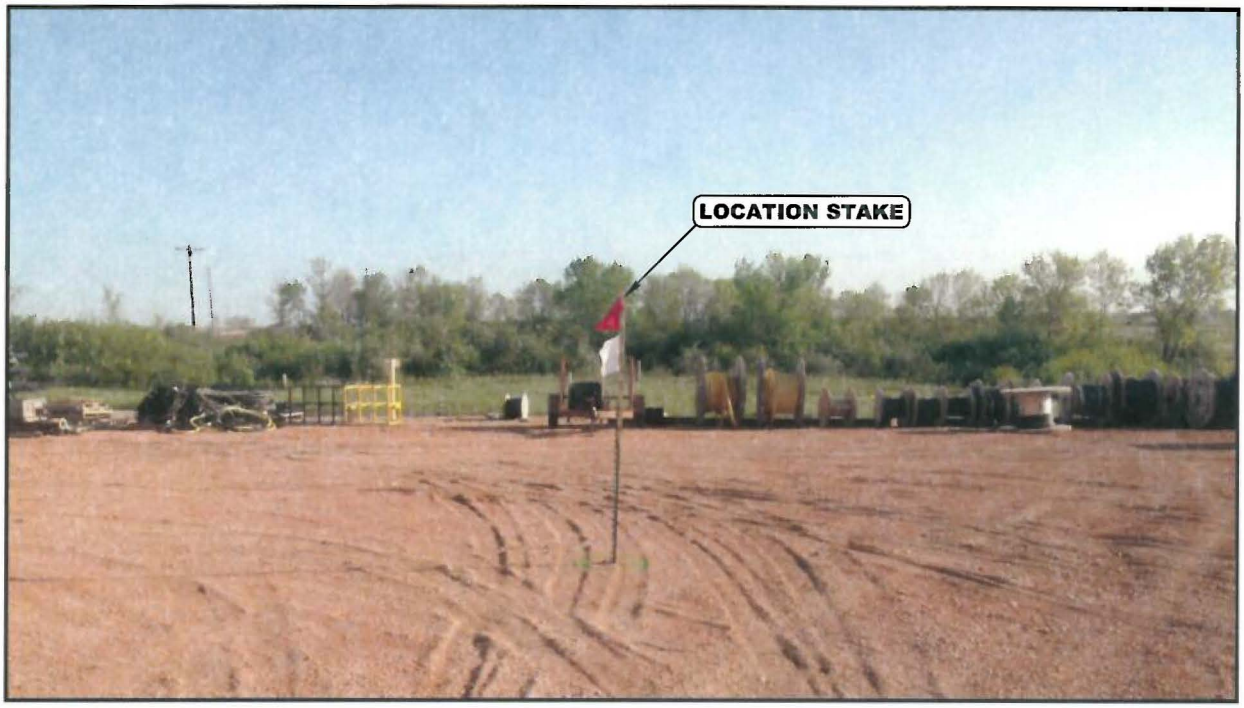


PHOTO: VIEW OF LOCATION STAKE

CAMERA ANGLE: NORTHERLY

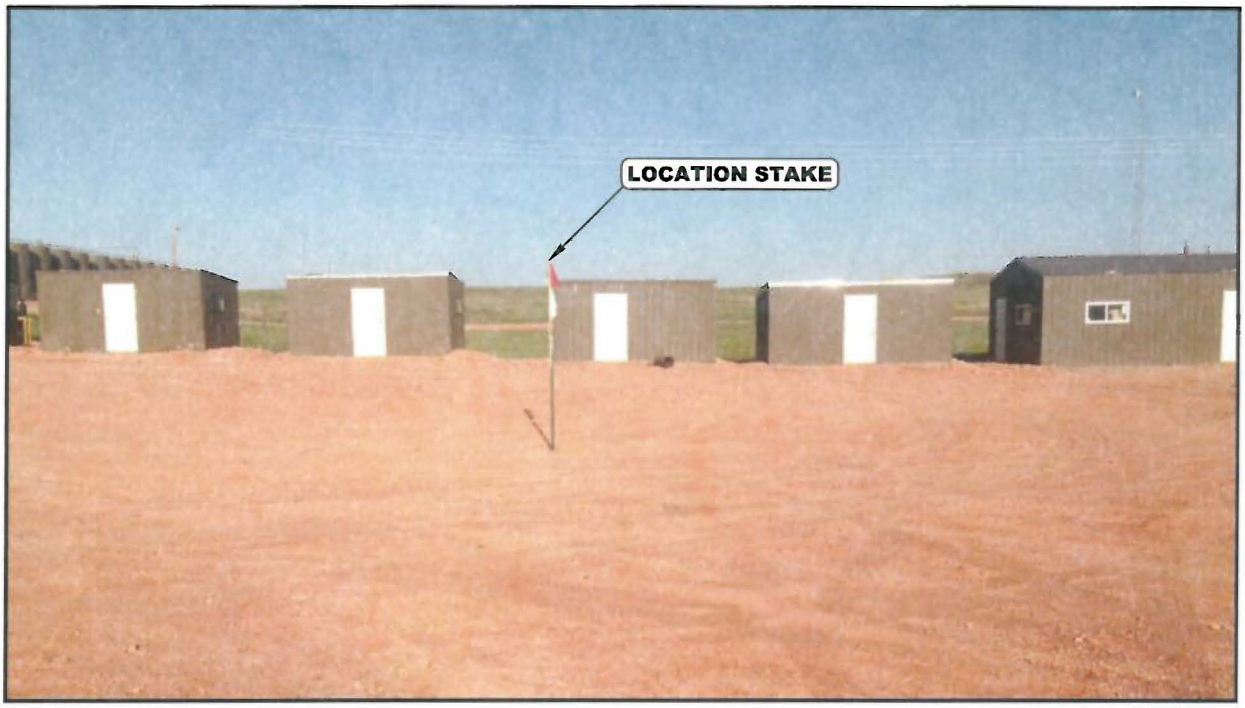


PHOTO: VIEW OF LOCATION STAKE

CAMERA ANGLE: WESTERLY

REV: 1 05-18-16 J.M.C. (WELL MOVE)

EOG RESOURCES, INC.

CLARKS CREEK 200-07 SWD
463' FSL 854' FEL
SE 1/4 SE 1/4, SECTION 7, T151N, R94W, 5th P.M.
McKENZIE COUNTY, NORTH DAKOTA

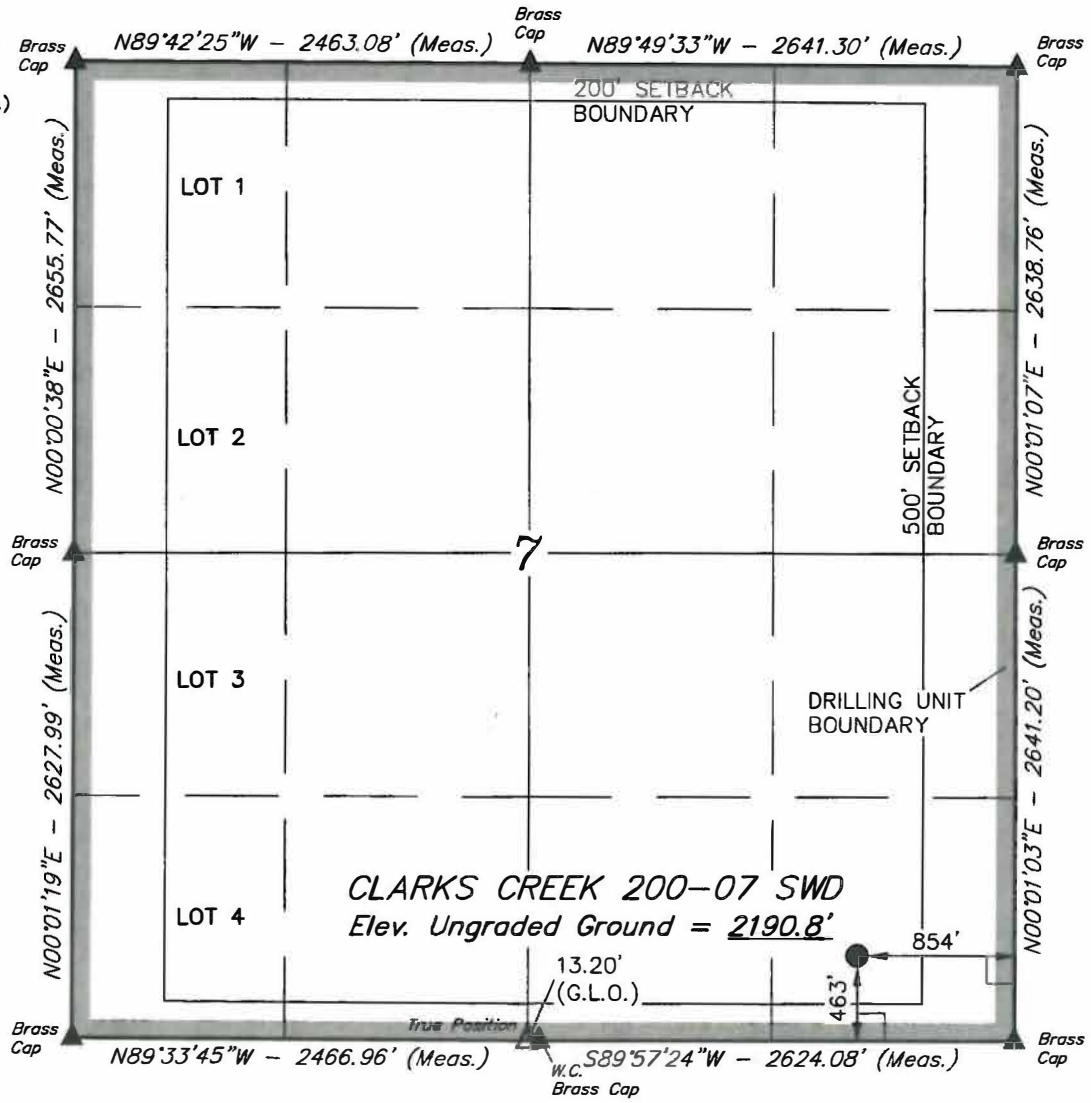
UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

TAKEN BY	M.C., A.G.	05-11-16	
DRAWN BY	J.M.C.	05-11-16	
LOCATION PHOTOS			PHOTO 1

T151N, R94W, 5th P.M.

LEGEND:

- = 90° SYMBOL
- ● = PROPOSED WELLHEAD.
- ▲ = SECTION CORNERS LOCATED. (NAD 83)
- △ = SECTION CORNERS RE-ESTABLISHED. (Not Set on Ground.) (NAD 83)



CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR
DEANE L. [REDACTED]
DATE 05-18-16
NORTH DAKOTA

1000' 500' 0' 1000'

NAD 83 (SURFACE LOCATION)
LATITUDE = 47°54'24.12" (47.906700)
LONGITUDE = 102°45'13.72" (102.753811)
NAD 27 (SURFACE LOCATION)
LATITUDE = 47°54'24.06" (47.906683)
LONGITUDE = 102°45'12.04" (102.753344)

REV: 1 05-18-16 J.M.C. (WELL MOVE)

BASIS OF BEARINGS

BASIS OF BEARINGS IS A G.P.S. OBSERVATION

VERTICAL CONTROL DATUM: NAVD88

UINTAH ENGINEERING & LAND SURVEYING

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

N
TRUE NORTH

EOG RESOURCES, INC.

CLARKS CREEK 200-07 SWD
SE 1/4 SE 1/4, SECTION 7, T151N, R94W, 5th P.M.
McKENZIE COUNTY, NORTH DAKOTA

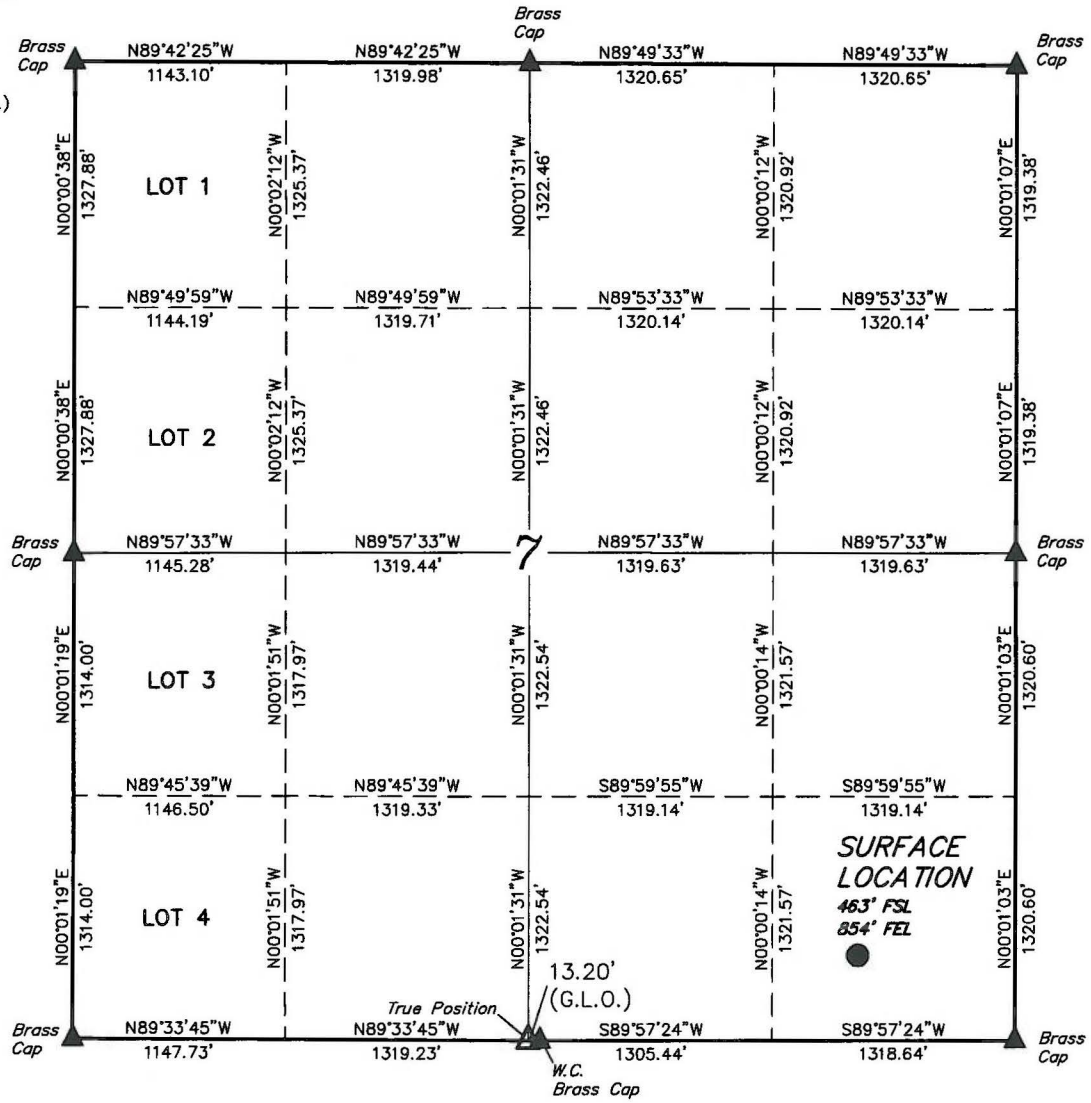
SURVEYED BY	M.C., A.G.	05-11-16	SCALE
DRAWN BY	J.M.C.	05-11-16	1" = 1000'

WELL LOCATION PLAT

T151N, R94W, 5th P.M.

LEGEND:

- = 90° SYMBOL
- = PROPOSED WELLHEAD.
- = SECTION CORNERS LOCATED. (NAD 83)
- = SECTION CORNERS RE-ESTABLISHED. (Not Set on Ground.) (NAD 83)



CERTIFICATE

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[REDACTED]

STATE OF NORTH DAKOTA

1000' 500' 0' 1000'

NAD 83 (SURFACE LOCATION)
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REV: 1 05-18-16 J.M.C. (WELL MOVE)

BASIS OF BEARINGS

BASIS OF BEARINGS IS A G.P.S. OBSERVATION

VERTICAL CONTROL DATUM: NAVD88

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

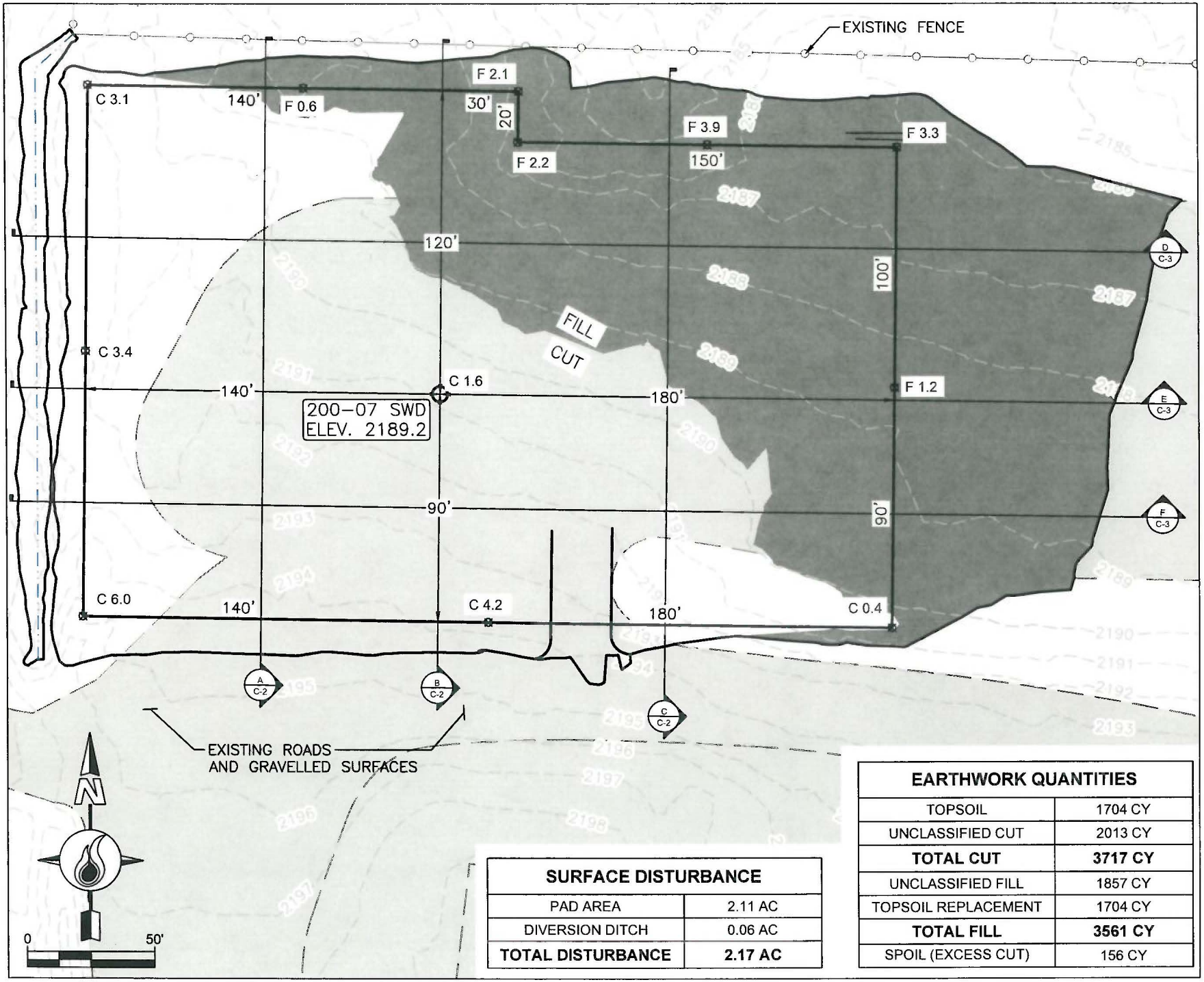
N TRUE NORTH

EOG RESOURCES, INC.

CLARKS CREEK 200-07 SWD
SE 1/4 SE 1/4, SECTION 7, T151N, R94W, 5th P.M.
McKENZIE COUNTY, NORTH DAKOTA

SURVEYED BY	M.C., A.G.	05-11-16	SCALE
DRAWN BY	J.M.C.	05-11-16	1" = 1000'

SECTION BREAKDOWN



SURFACE DISTURBANCE	
PAD AREA	2.11 AC
DIVERSION DITCH	0.06 AC
TOTAL DISTURBANCE	**2.17 AC**

EARTHWORK QUANTITIES	
TOPSOIL	1704 CY
UNCLASSIFIED CUT	2013 CY
TOTAL CUT	**3717 CY**
UNCLASSIFIED FILL	1857 CY
TOPSOIL REPLACEMENT	1704 CY
TOTAL FILL	**3561 CY**
SPOIL (EXCESS CUT)	156 CY

DWG. NO. C-1

SHEET NO. 4 OF 12

WELL PAD LAYOUT
CLARKS CREEK
200-07 SWD

SEC 7, T151N, R94W
MCKENZIE COUNTY, ND

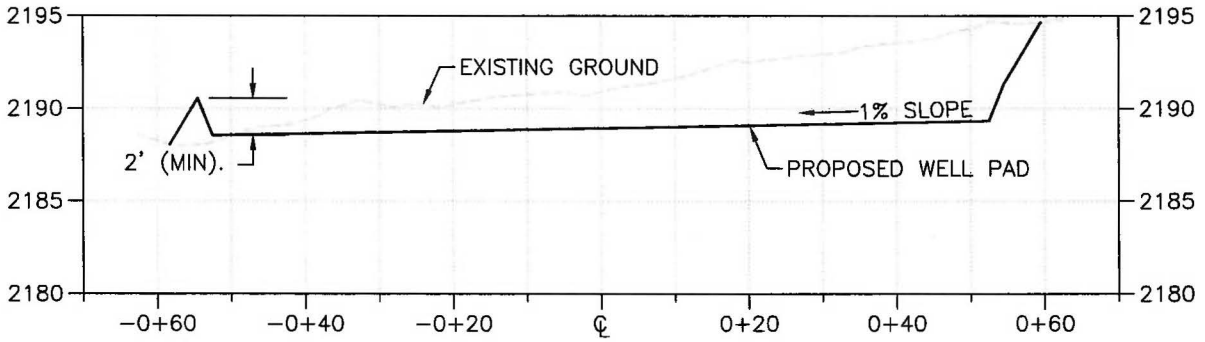
eog resources

600 17TH STREET
SUITE 1000N
DENVER, COLORADO

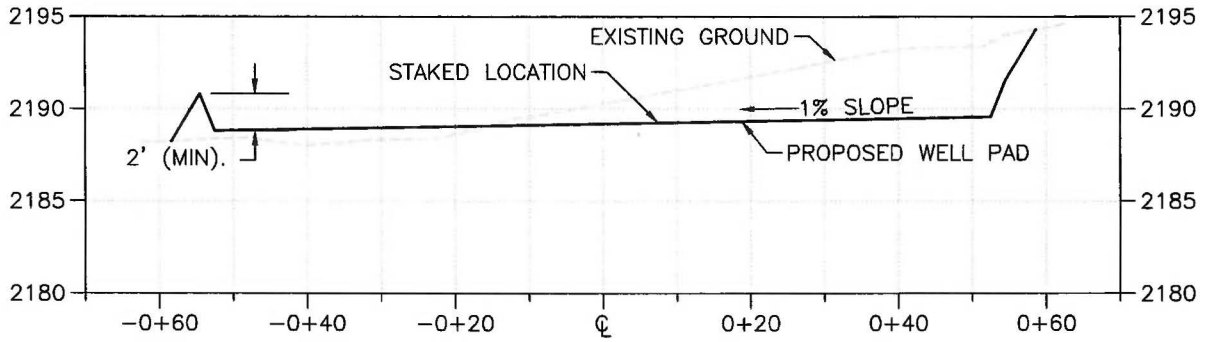
DRAWN BY: BAH
CHK'D BY BAH
DATE 1/22/2016
FILE: C-1_PAD LAYOUT_CC200-07SWD_REV1

Attention:
1"
0
If this scale bar does not measure 1" then drawing is not original scale.

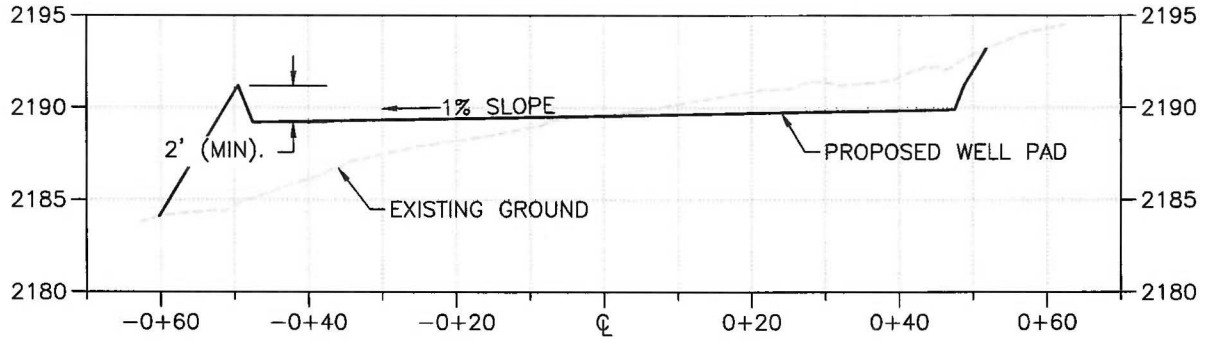
NO.	DATE	ISSUE/REVISION	APP
A	6/7/2016	FOR REVIEW	BAH



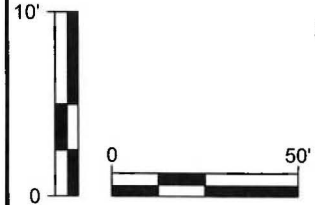
A CROSS SECTION
Scale H: 1"=50' V: 1"=10'



B CROSS SECTION
Scale H: 1"=50' V: 1"=10'



C CROSS SECTION
Scale H: 1"=50' V: 1"=10'



DWG. NO. C-2
SHEET NO. 5 OF 12

EARTHWORK X-SEC
CLARKS CREEK
200-07 SWD

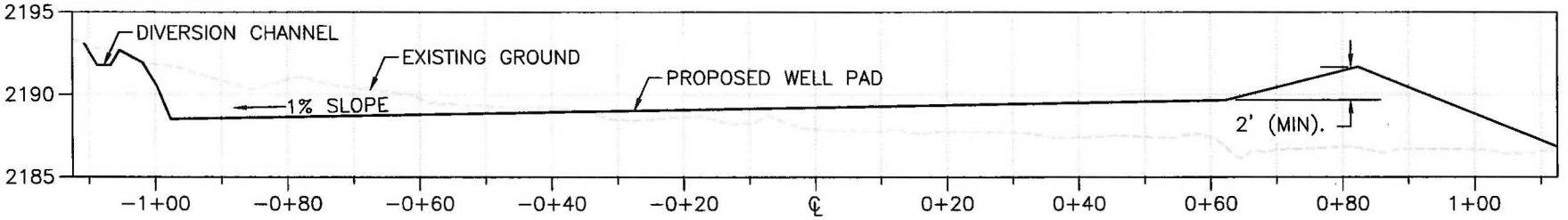
SEC 7, T151N, R94W
MCKENZIE COUNTY, ND

eog resources
600 17TH STREET
SUITE 1000N
DENVER, COLORADO

DRAWN BY: BAH
CHK'D BY: BAH
DATE: 1/22/2016
FILE: 5_PAD LAYOUT_CC200-07SWD_REV1

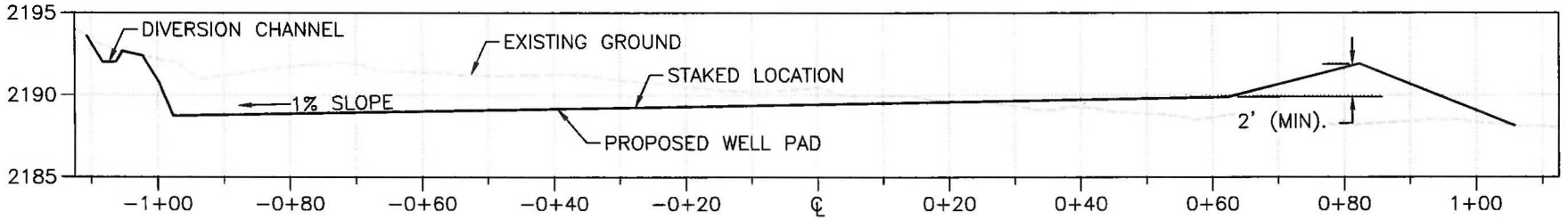
Attention:
If this scale bar does not measure 1" then drawing is not original scale.

NO.	DATE		
A	6/7/2016	FOR REVIEW	BAH
		ISSUE/REVISION	APP



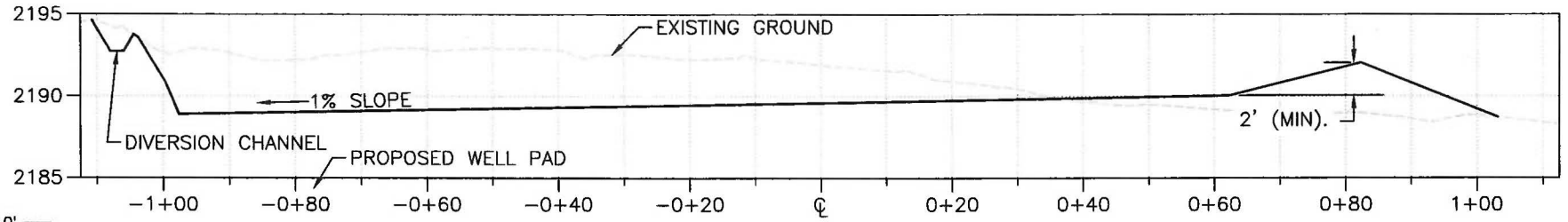
D CROSS SECTION

Scale H: 1"=50' V: 1"=10'



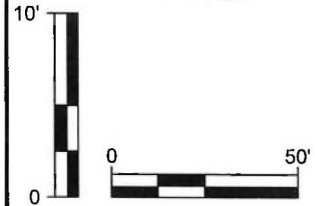
E CROSS SECTION

Scale H: 1"=50' V: 1"=10'



F CROSS SECTION

Scale H: 1"=50' V: 1"=10'



DWG. NO. C-3

SHEET NO. 6 OF 12

EARTHWORK X-SEC
CLARKS CREEK
200-07 SWD

SEC 7, T151N, R94W
MCKENZIE COUNTY, ND

eog resources

600 17TH STREET
SUITE 1000N
DENVER, COLORADO

DRAWN BY: BAH

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DATE: 1/22/2016

FILE: L_PAD_LAYOUT_CC200-07SWD_REV1

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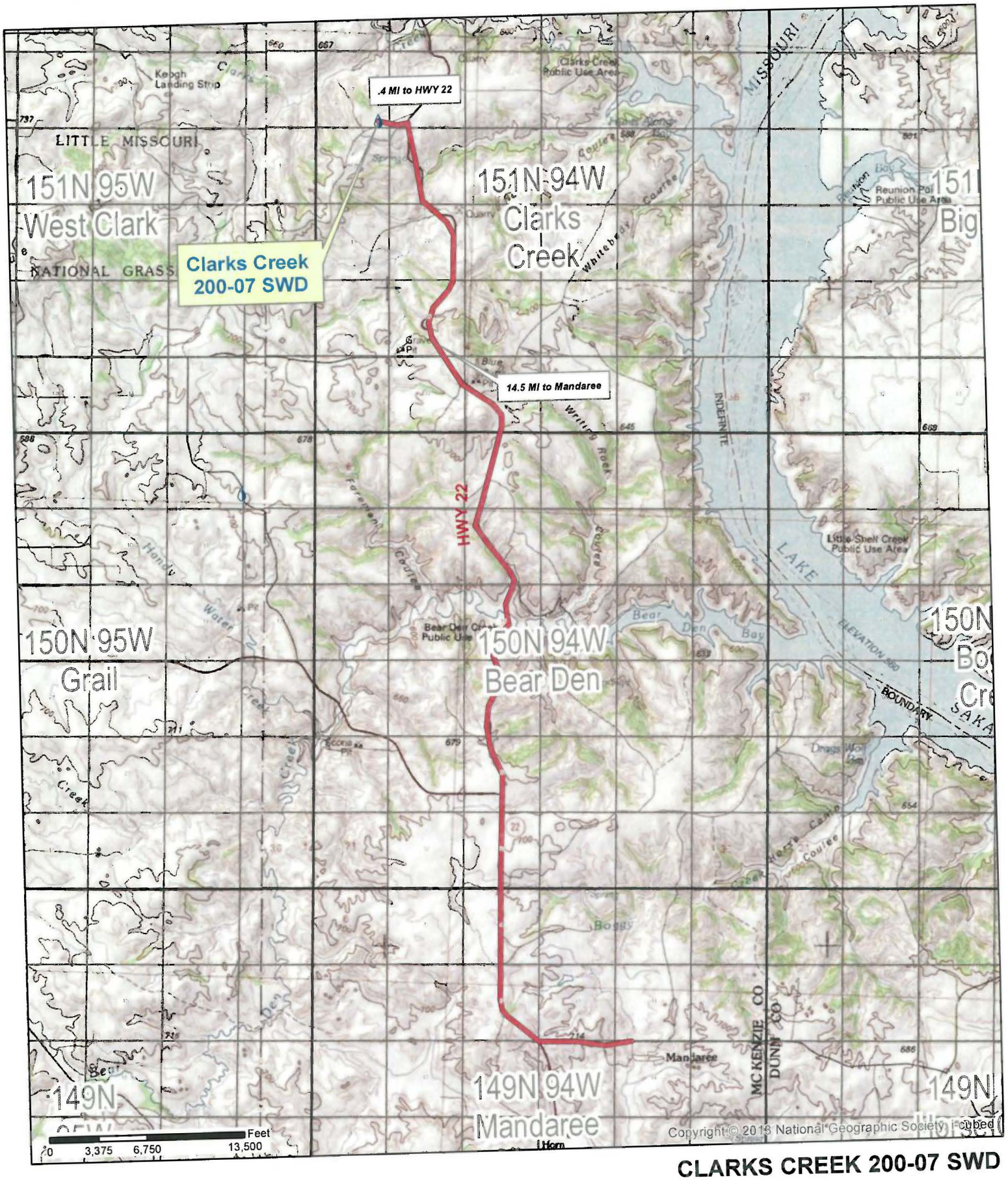

CLARKS CREEK 200-07 SWD
Access Map

SWD

Route to Mandaree - 14.9 MI +/-

eog resources

MAP: X:\GIS\Regulatory\SWD_Exhibits\SWD_ExhibitTOPO.mxd

Well Class and Type Codes

Class I Wells used to inject waste below the deepest underground source of drinking water.

Type **"I"** Nonhazardous industrial disposal well
"M" Nonhazardous municipal disposal well
"W" Hazardous waste disposal well injecting below USDWs
"X" Other Class I wells (not included in Type "I," "M," or "W")

Class II Oil and gas production and storage related injection wells.

Type **"D"** Produced fluid disposal well
"R" Enhanced recovery well
"H" Hydrocarbon storage well (excluding natural gas)
"X" Other Class II wells (not included in Type "D," "R," or "H")

Class III Special process injection wells.

Type **"G"** Solution mining well
"S" Sulfur mining well by Frasch process
"U" Uranium mining well (excluding solution mining of conventional mines)
"X" Other Class III wells (not included in Type "G," "S," or "U")

Other Classes Wells not included in classes above.
Class V wells which may be permitted under §144.12.
Wells not currently classified as Class I, II, III, or V.

Attachments to Permit Application

Class	Attachments
I new well	A, B, C, D, F, H – S, U
existing	A, B, C, D, F, H – U
II new well	A, B, C, E, G, H, M, Q, R; optional – I, J, K, O, P, U
existing	A, E, G, H, M, Q, R, – U; optional – J, K, O, P, Q
III new well	A, B, C, D, F, H, I, J, K, M – S, U
existing	A, B, C, D, F, H, J, K, M – U
Other Classes	To be specified by the permitting authority

INSTRUCTIONS - Underground Injection Control (UIC) Permit Application

Paperwork Reduction Act: The public reporting and record keeping burden for this collection of information is estimated to average 224 hours for a Class I hazardous well application, 110 hours for a Class I non-hazardous well application, 67 hours for a Class II well application, and 132 hours for a Class III well application. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, DC 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

This form must be completed by all owners or operators of Class I, II, and III injection wells and others who may be directed to apply for permit by the Director.

I. **EPA I.D. NUMBER** - Fill in your EPA Identification Number. If you do not have a number, leave blank.

II. **OWNER NAME AND ADDRESS** - Name of well, well field or company and address.

III. **OPERATOR NAME AND ADDRESS** - Name and address of operator of well or well field.

IV. **COMMERCIAL FACILITY** - Mark the appropriate box to indicate the type of facility.

V. **OWNERSHIP** - Mark the appropriate box to indicate the type of ownership.

VI. **LEGAL CONTACT** - Mark the appropriate box.

VII. **SIC CODES** - List at least one and no more than four Standard Industrial Classification (SIC) Codes that best describe the nature of the business in order of priority.

VIII. **WELL STATUS** - Mark Box A if the well(s) were operating as injection wells on the effective date of the UIC Program for the State. Mark Box B if wells(s) existed on the effective date of the UIC Program for the State but were not utilized for injection. Box C should be marked if the application is for an underground injection project not constructed or not completed by the effective date of the UIC Program for the State.

IX. **TYPE OF PERMIT** - Mark "Individual" or "Area" to indicate the type of permit desired. Note that area permits are at the discretion of the Director and that wells covered by an area permit must be at one site, under the control of one person and do not inject hazardous waste. If an area permit is requested the number of wells to be included in the permit must be specified and the wells described and identified by location. If the area has a commonly used name, such as the "Jay Field," submit the name in the space provided. In the case of a project or field which crosses State lines, it may be possible to consider an area permit if EPA has jurisdiction in both States. Each such case will be considered individually, if the owner/operator elects to seek an area permit.

X. **CLASS AND TYPE OF WELL** - Enter in these two positions the Class and type of injection well for which a permit is requested. Use the most pertinent code selected from the list on the reverse side of the application. When selecting type X please explain in the space provided.

XI. **LOCATION OF WELL** - Enter the latitude and longitude of the existing or proposed well expressed in degrees, minutes, and seconds or the location by township, and range, and section, as required by 40 CFR Part 146. If an area permit is being requested, give the latitude and longitude of the approximate center of the area.

XII. **INDIAN LANDS** - Place an "X" in the box if any part of the facility is located on Indian lands.

XIII. **ATTACHMENTS** - Note that information requirements vary depending on the injection well class and status. Attachments for Class I, II, III are described on pages 4 and 5 of this document and listed by Class on page 2. Place EPA ID number in the upper right hand corner of each page of the Attachments.

XIV. **CERTIFICATION** - All permit applications (except Class II) must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, and by a principal executive or ranking elected official for a public agency. For Class II, the person described above should sign, or a representative duly authorized in writing.

INSTRUCTIONS - Attachments

Attachments to be submitted with permit application for Class I, II, III and other wells.

A. **AREA OF REVIEW METHODS** - Give the methods and, if appropriate, the calculations used to determine the size of the area of review (fixed radius or equation). The area of review shall be a fixed radius of 1/4 mile from the well bore unless the use of an equation is approved in advance by the Director.

B. **MAPS OF WELL/AREA AND AREA OF REVIEW** - Submit a topographic map, extending one mile beyond the property boundaries, showing the injection well(s) or project area for which a permit is sought and the applicable area of review. The map must show all intake and discharge structures and all hazardous waste treatment, storage, or disposal facilities. If the application is for an area permit, the map should show the distribution manifold (if applicable) applying injection fluid to all wells in the area, including all system monitoring points. Within the area of review, the map must show the following:

Class I

The number, or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, and other pertinent surface features, including residences and roads, and faults, if known or suspected. In addition, the map must identify those wells, springs, other surface water bodies, and drinking water wells located within one quarter mile of the facility property boundary. Only information of public record is required to be included in this map;

Class II

In addition to requirements for Class I, include pertinent information known to the applicant. This requirement does not apply to existing Class II wells;

Class III

In addition to requirements for Class I, include public water systems and pertinent information known to the applicant.

C. **CORRECTIVE ACTION PLAN AND WELL DATA** - Submit a tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review, including those on the map required in B, which penetrate the proposed injection zone. Such data shall include the following:

Class I

A description of each well's types, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require. In the case of new injection wells, include the corrective action proposed to be taken by the applicant under 40 CFR 144.55.

Class II

In addition to requirement for Class I, in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review which penetrate formations affected by the increase in pressure. This requirement does not apply to existing Class II wells.

Class III

In addition to requirements for Class I, the corrective action proposed under 40 CFR 144.55 for all Class III wells.

D. **MAPS AND CROSS SECTION OF USDWs** - Submit maps and cross sections indicating the vertical limits of all underground sources of drinking water within the area of review (both vertical and lateral limits for Class I), their position relative to the injection formation and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection. (Does not apply to Class II wells.)

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.

F. **MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA** - Submit maps and cross sections detailing the geologic structure of the local area (including the lithology of injection and confining intervals) and generalized maps and cross sections illustrating the regional geologic setting. (Does not apply to Class II wells.)

G. **GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (Class II)** - For Class II wells, submit appropriate geological data on the injection zone and confining zones including lithologic description, geological name, thickness, depth and fracture pressure.

H. **OPERATING DATA** - Submit the following proposed operating data for each well (including all those to be covered by area permits): (1) average and maximum daily rate and volume of the fluids to be injected; (2) average and maximum injection pressure; (3) nature of annulus fluid; (4) for Class I wells, source and analysis of the chemical, physical, radiological and biological characteristics, including density and corrosiveness, of injection fluids; (5) for Class II wells, source and analysis of the physical and chemical characteristics of the injection fluid; (6) for Class III wells, a qualitative analysis and ranges in concentrations of all constituents of injected fluids. If the information is proprietary, maximum concentrations only may be submitted, but all records must be retained.

I. **FORMATION TESTING PROGRAM** - Describe the proposed formation testing program For Class I wells the program must be designed to obtain data on fluid pressure, temperature, fracture pressure, other physical, chemical, and radiological characteristics of the injection matrix and physical and chemical characteristics of the formation fluids.

For Class II wells the testing program must be designed to obtain data on fluid pressure, estimated fracture pressure, physical and chemical characteristics of the injection zone. (Does not apply to existing Class II wells or projects.)

For Class III wells the testing must be designed to obtain data on fluid pressure, fracture pressure, and physical and chemical characteristics of the formation fluids if the formation is naturally water bearing. Only fracture pressure is required if the program formation is not water bearing. (Does not apply to existing Class III wells or projects.)

J. **STIMULATION PROGRAM** - Outline any proposed stimulation program.

K. **INJECTION PROCEDURES** - Describe the proposed injection procedures including pump, surge, tank, etc.

L. **CONSTRUCTION PROCEDURES** - Discuss the construction procedures (according to §146.12 for Class I, §146.22 for Class II, and §146.32 for Class III) to be utilized. This should include details of the casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring program, and proposed annulus fluid. (Request and submission of justifying data must be made to use an alternative to packer for Class I.)

M. **CONSTRUCTION DETAILS** - Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well.

N. **CHANGES IN INJECTED FLUID** - Discuss expected changes in pressure, native fluid displacement, and direction of movement of injection fluid. (Class III wells only.)

O. **PLANS FOR WELL FAILURES** - Outline contingency plans (proposed plans, if any, for Class II) to cope with all shut-ins or wells failures, so as to prevent migration of fluids into any USDW.

P. **MONITORING PROGRAM** - Discuss the planned monitoring program. This should be thorough, including maps showing the number and location of monitoring wells as appropriate and discussion of monitoring devices, sampling frequency, and parameters measured. If a manifold monitoring program is utilized, pursuant to §146.23(b)(5), describe the program and compare it to individual well monitoring.

Q. **PLUGGING AND ABANDONMENT PLAN** - Submit a plan for plugging and abandonment of the well including: (1) describe the type, number, and placement (including the elevation of the top and bottom) of plugs to be used; (2) describe the type, grade, and quantity of cement to be used; and (3) describe the method to be used to place plugs, including the method used to place the well in a state of static equilibrium prior to placement of the plugs. Also for a Class III well that underlies or is in an exempted aquifer, demonstrate adequate protection of USDWs. Submit this information on EPA Form 7520-14, Plugging and Abandonment Plan.

R. **NECESSARY RESOURCES** - Submit evidence such as a surety bond or financial statement to verify that the resources necessary to close, plug or abandon the well are available.

S. **AQUIFER EXEMPTIONS** - If an aquifer exemption is requested, submit data necessary to demonstrate that the aquifer meets the following criteria: (1) does not serve as a source of drinking water; (2) cannot now and will not in the future serve as a source of drinking water; and (3) the TDS content of the ground water is more than 3,000 and less than 10,000 mg/l and is not reasonably expected to supply a public water system. Data to demonstrate that the aquifer is expected to be mineral or hydrocarbon production, such as general description of the mining zone, analysis of the amenability of the mining zone to the proposed method, and time table for proposed development must also be included. For additional information on aquifer exemptions, see 40 CFR Sections 144.7 and 146.04.

T. **EXISTING EPA PERMITS** - List program and permit number of any existing EPA permits, for example, NPDES, PSD, RCRA, etc.

U. **DESCRIPTION OF BUSINESS** - Give a brief description of the nature of the business.