RECEIVED AUG 11 2016

OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency

Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		
ND 22351-11264	T/A	C
U Liberty 200-14 SWD		

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: EOG Resources, Inc.

Street Address: 600 17th Street, Suite 1000N | Phone Number: (303) 572-9000

City: Denver | State: CO | ZIP CODE: 80202

III. Operator Name and Address

Owner Name: EOG Resources, Inc.

Street Address: 600 17th Street, Suite 1000N | Phone Number: (303) 527-9000

City: Denver | State: CO | ZIP CODE: 80202

IV. Commercial Facility

[ ] Yes
[x] No

V. Ownership

[x] Private
[ ] Federal
[ ] Other

VI. Legal Contact

[x] Owner
[ ] Operator

VII. SIC Codes

213112/1389

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

[ ] A. Operating — Date Started mo day year:

[x] B. Modification/Conversion

[ ] C. Proposed

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

[x] A. Individual [ ] B. Area

Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)

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)
II	D		

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

XII. Indian Lands (Mark 'x')

[x] Yes
[ ] No

Latitude Deg	Min	Sec	Longitude Deg	Min	Sec	Township and Range Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
47	53	32.9	102	16	47	14	151	N	SE	550	S	275	E

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

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

XIV. Certification

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

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
Mary A. Maestas, Senior Regulatory Assistant	(303) 824-5526
C. Signature: Mary A. Maestas	D. Date Signed: 08/05/2016

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

EOG Resources, Inc.

Revised: 5/11/2016

Pad Name: Liberty 14 SESE 1

Liberty 200-14 SWD

SE1/4SE1/4, Section 14
Township 151 North
Range 91 West
5th Principal Meridian
Mountrail County
North Dakota

Liberty 3-14H – SWD Conversion Application

Lithologic Description

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 5077' is bounded by the Swift Shale 5077'-5150'. The shallowest injection depth 4702' is bounded by the Mowry shale from 4323'-4702. The frac gradient of the uppermost bounding shale is estimated at 0.70 psi/ft.

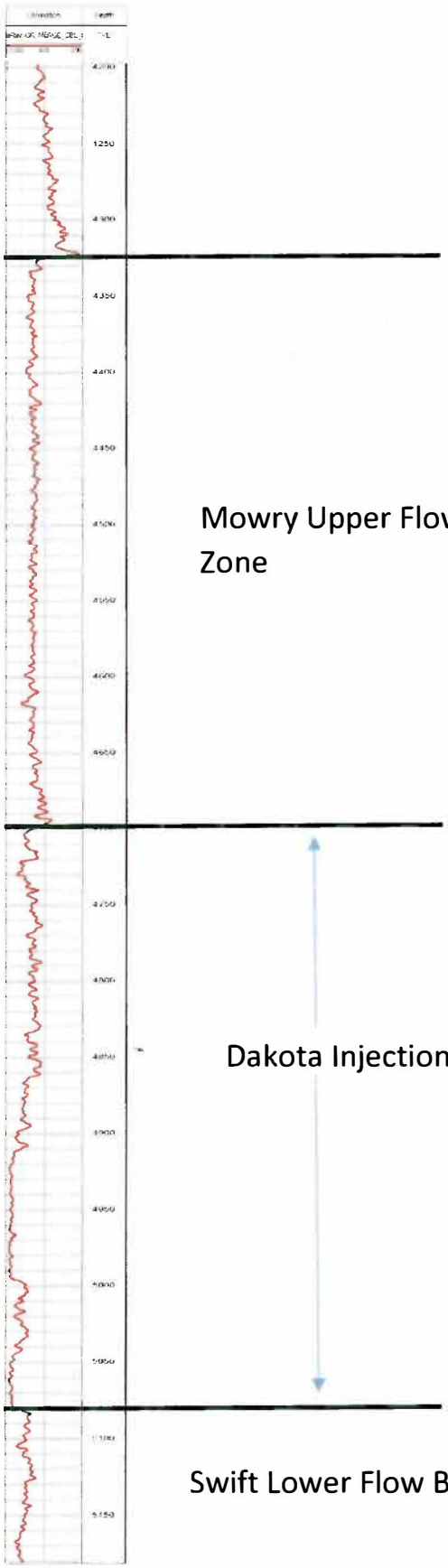
The Fox Hills/Hell Creek formation is the regional fresh water aquifer with a base at 1740' which is well above the point of injection. Figure 1 shows the Dakota formation annotated well log for the Liberty 3-14H including the proposed perforation intervals.

Brief Description of the Proposed Injection Program.

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.

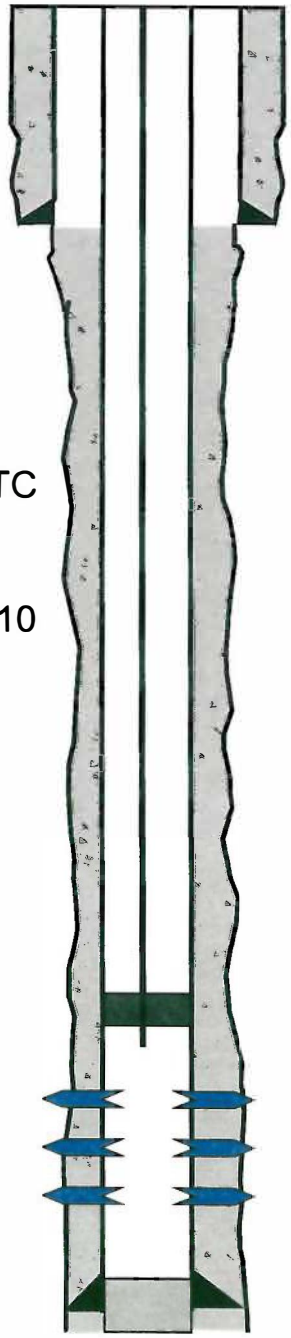
Water will be transported to a tank battery approximately 100 ft. from the well. Skim oil will be transferred to the skim oil tank and the oil bound with water will be moved to the bad oil tank. Water will then settle in three tanks before entering the suction tank. From the suction tank, water will be filtered to 200 microns before injection into the disposal well. A schematic illustrating the flow is attached.


Mowry Upper Flow Barrier Zone
Dakota Injection Zone
Swift Lower Flow Barrier Zone

Liberty 200-14 SWD

550' FSL & 275' FEL (SESE)
Sec. 14, T151N, R91W
Montrail County, ND

7/1/16
Proposed Well Bore
Dakota SWD



9-5/8" 36ppf J-55 STC
set ~ =1,905'
w/ 400+ 305 sx
cmt @ surf on 7/24/10

8 ¾" Hole

Weatherford Arrow 1X Injection Packer set at ~4,651' (~50 feet from uppermost perforation) on 4.5-inch 11.6 ppf J-55 LT&C internally coated tubing

7" 26 & 32 ppf HCP-110 LTC
casing set ~ 10,067' MD
w/ 145 + 555 sx. Cement top estimated 2,350' on 8/31/2010

Estimated Dakota SWD Perforations: 4,701' to 5,077'

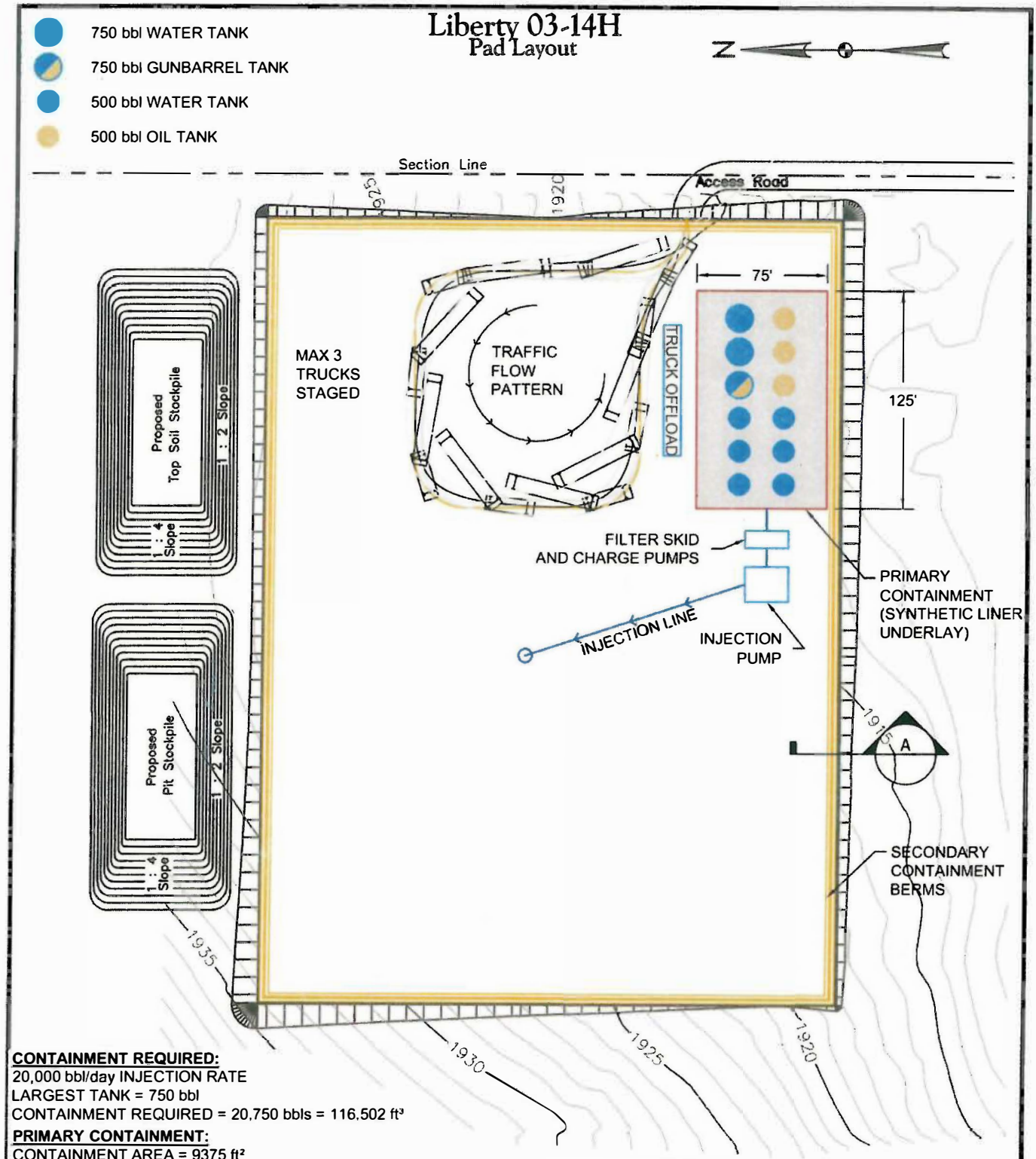
Well Name:	Liberty 3-14H	1/6/2011
Trent Reese		eog resources

Ground Elevation	1921
KB Nabors 161	27
RKB Elevation	1948

Prognosis Formation Tops

Name	Vertical Subsea	TVD-RKB
Pierre Shale	208	1740
Greenhorn	-2002	3950
Mowry	-2376	4324
Dakota Sand	-2754	4702
Base Dakota	-3129	5077
Piper Lime	-3797	5745

Liberty 03-14H
Pad Layout

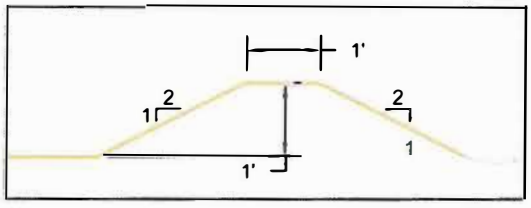


CONTAINMENT REQUIRED:
20,000 bbl/day INJECTION RATE
LARGEST TANK = 750 bbl
CONTAINMENT REQUIRED = 20,750 bbls = 116,502 ft³

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

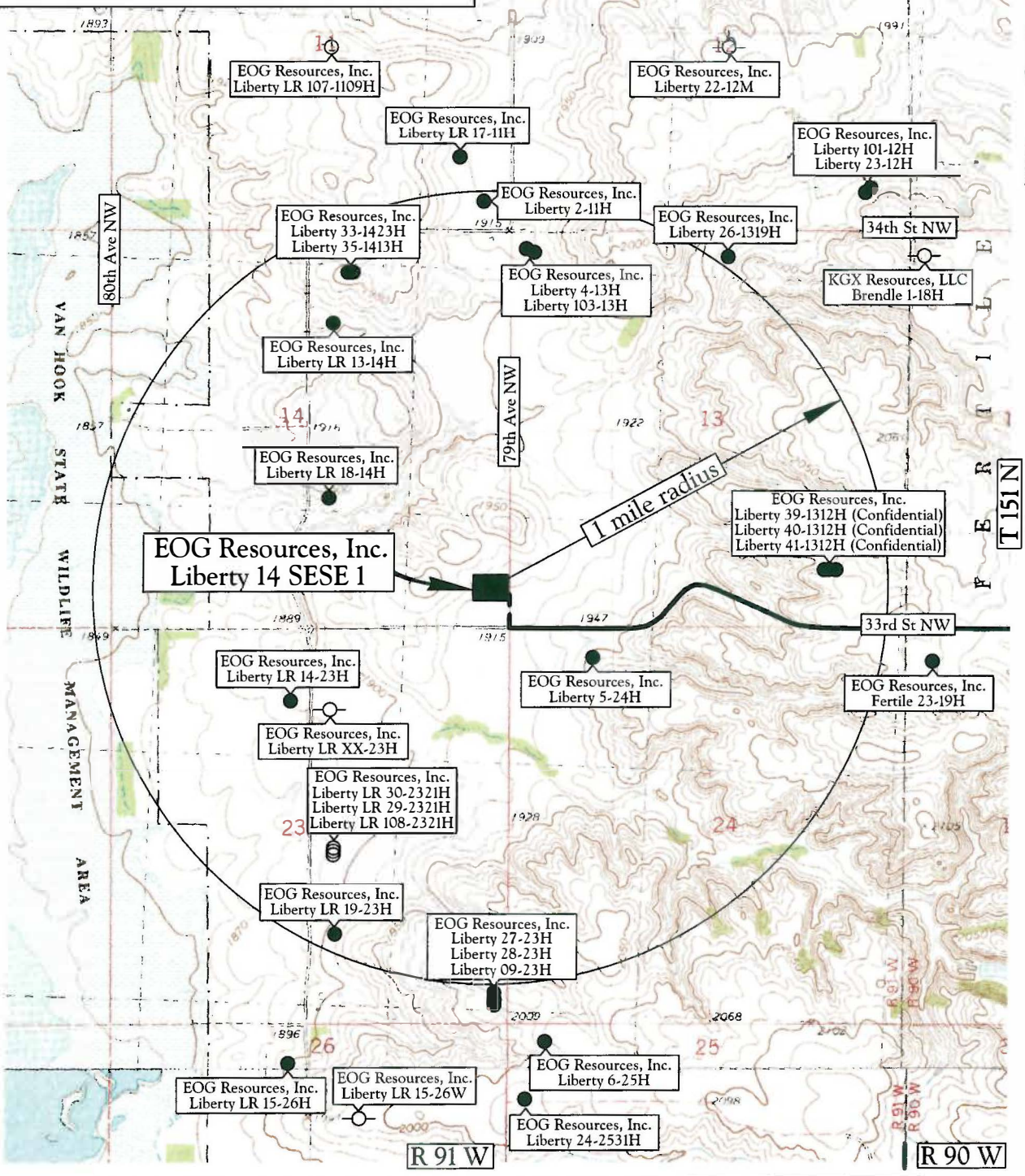
SECONDARY CONTAINMENT (PERIMETER BERMS):
PAD AREA = 147,520 ft²
PROPOSED BERM HEIGHT = 1 ft
CONTAINMENT = 147,520 ft3 = 26,275 bbls

TOTAL PLANNED CONTAINMENT:
PRIMARY VOLUME = 2,505 bbls
SECONDARY VOLUME = 26,275 bbls
TOTAL CONTAINMENT VOLUME = 28,780 bbls



A BERM SECTION

EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "C"
One Mile Radius Map

Legend

Existing Roads

Proposed Roads

Scale 1"=2000'

Revised: 5/11/2016

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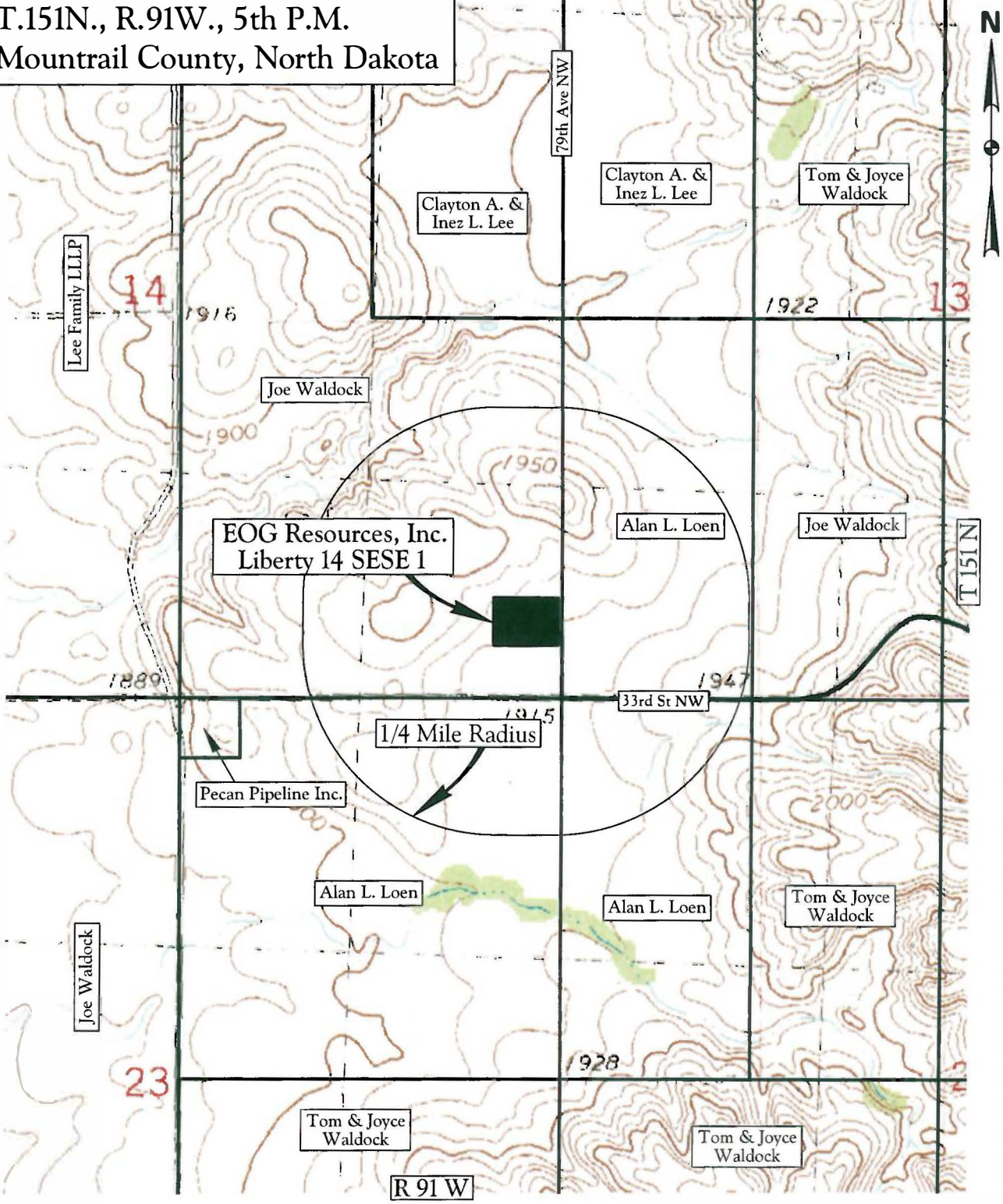
EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "E"
1/4 Mile Radius Map

Legend
Existing Roads
Proposed Roads

Scale 1"=1000'
Revised: 5/11/2016

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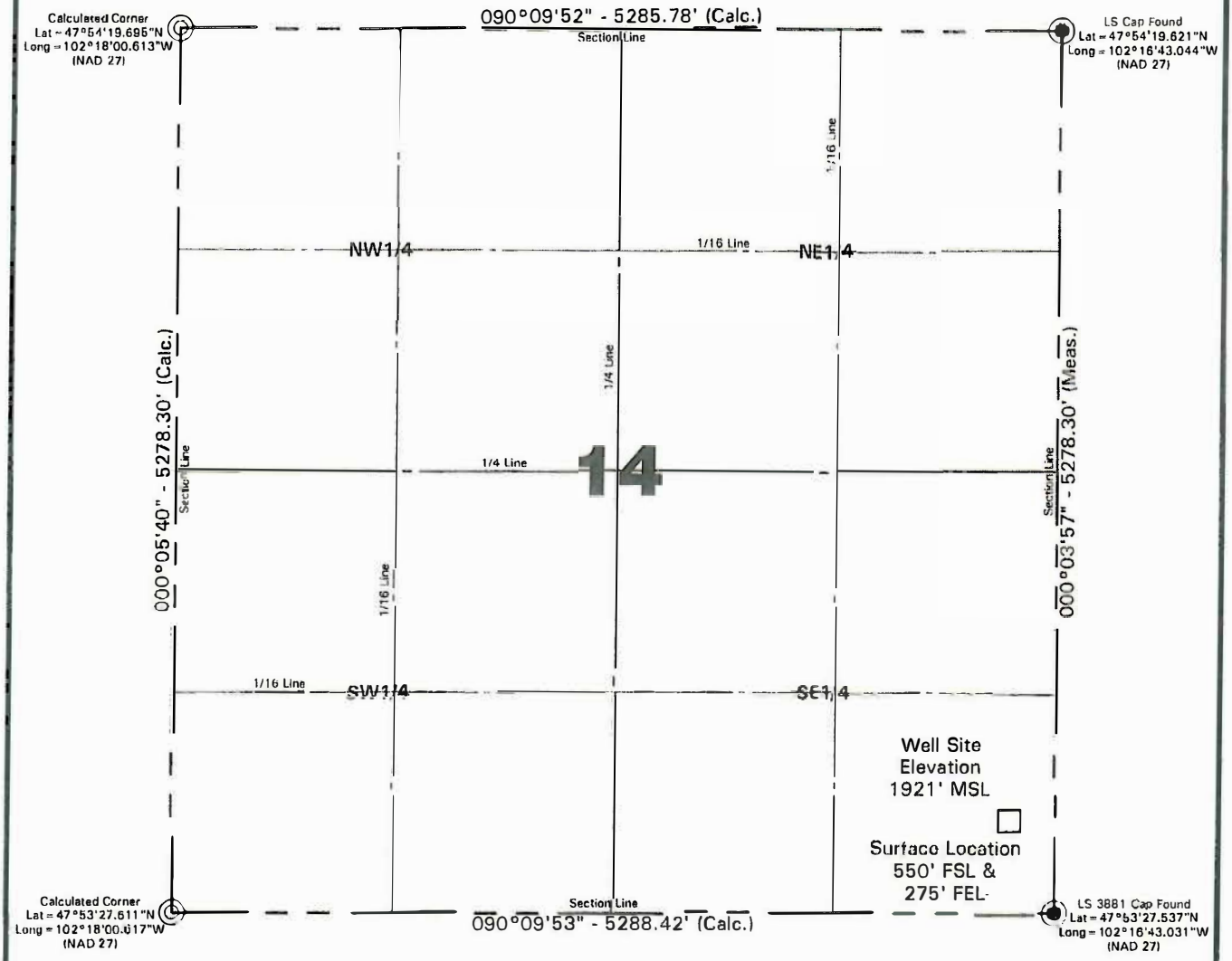
WELL LOCATION PLAT

EOG Resources, Inc.
600 Seventeenth Street, Suite 1100 N Denver, Colorado 80202-1100

Liberty 200-14 SWD

550 feet from the south line and 275 feet from the east line (surface location)
Section 14, T. 151 N., R. 91 W., 5th P.M.
Mountrail County, North Dakota
NAD 83 Latitude 47°53'33.013" North; Longitude 102°16'48.692" West (surface location)
NAD 83 Latitude 47.892504° North; Longitude 102.280192° West (decimal degrees surface location)
NAD 27 Latitude 47°53'32.970" North; Longitude 102°16'47.069" West (surface location)
NAD 27 Latitude 47.892492° North; Longitude 102.279741° West (decimal degrees surface location)
(Derived from OPUS Solution NAD-83(CORS96) Converted to NAD-27)



I, Gregg Orvik, Professional Land Surveyor, N.D. No. 3881, do hereby certify that the survey plat shown hereon was made by me, or under my direction, from notes made in the field, and the same is true and correct to the best of my knowledge and belief.

N

GREGG ORVIK
REGISTERED
LAND
SURVEYOR
LS. -3881
NORTH DAKOTA
5-18-16

NOTE:
All corners described on this plat were found in the field as shown hereon. Distances to all others are calculated. All azimuths are based on the east line of Section 14, being on an azimuth of 000°03'57". The well location shown hereon is not an as-built location.

Confidentiality Notice: The information contained on this plat is legally privileged and confidential information intended only for the use of recipients. If you are not the intended recipients, you are hereby notified that any use, dissemination, distribution or copying of this information is strictly prohibited.

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 1000'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Well Location	5/11/2016	7716126	-

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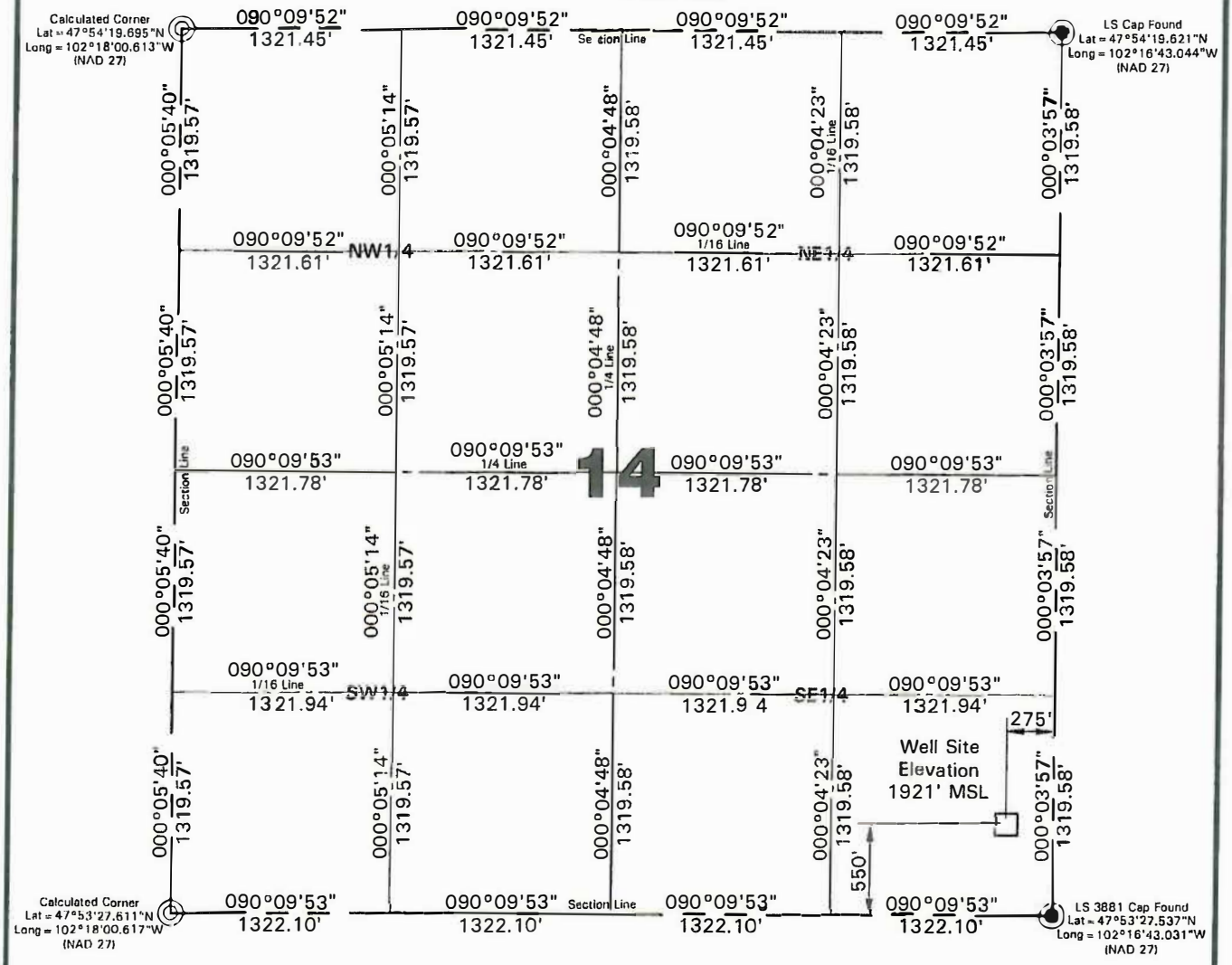
SECTION BREAKDOWN

EOG Resources, Inc.
600 Seventeenth Street, Suite 1100 N Denver, Colorado 80202-1100

Liberty 200-14 SWD

550 feet from the south line and 275 feet from the east line (surface location)
Section 14, T. 151 N., R. 91 W., 5th P.M.
Mountrail County, North Dakota



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N

Scale 1"=1000'

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GREGG ORVIK
REGISTERED LAND SURVEYOR
LS. -3881
NORTH DAKOTA

Gregg Orvik — 2/1/2010
Surveyed By N.D.P.L.S. # 3881 — Date

Vertical Control Datum Used
North American Vertical Datum 1988 (NAVD 88)

Based on elevation derived from OPUS Solution on GPS*BRENDLE (iron rebar) Located a distance of 6657.63' on an azimuth of 038°53'06" from the NE corner of Section 14 T.151N., R.91W., 5th P.M. being at 1967.38' Elevation MSL.

Project No. 7716126

Book Minot OW#21 Pg. 41-42 Staking

Professional Consulting Engineers and Surveyors
Registered in
North Dakota, South Dakota
Montana, Wyoming & Minnesota
Tele-Fax No. 855-288-8055
Bus. Phone No. 701-839-3383
P.O. Box 250
2900 10th Street SW, Suite A
Minot, North Dakota 58702-0250
Certificate of Authorization #C-061

Revised: 5/11/2016

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EOG Resources, Inc.
Liberty 14 SESE 1
Section 14, T 151 N, R 91 W, 5th P.M.
Mountrail County, North Dakota

Well Site Elevation 1920.5' MSL

Well Pad Elevation 1920.7' MSL

Excavation	**13,520 C.Y.**
Embankment	**8,015 C.Y.**
Plus Shrinkage (+30%)	**2,405 C.Y.**
	10,420 C.Y.
Stockpile Topsoil (6")	**2,975 C.Y.**
Road Embankment & Stockpile from Pad	**125 C.Y.**
Disturbed Area From Pad	**3.69 Acres**
Disturbed Area From Road	**0.72 Acres**
Total Disturbed Area	**4.41 Acres**

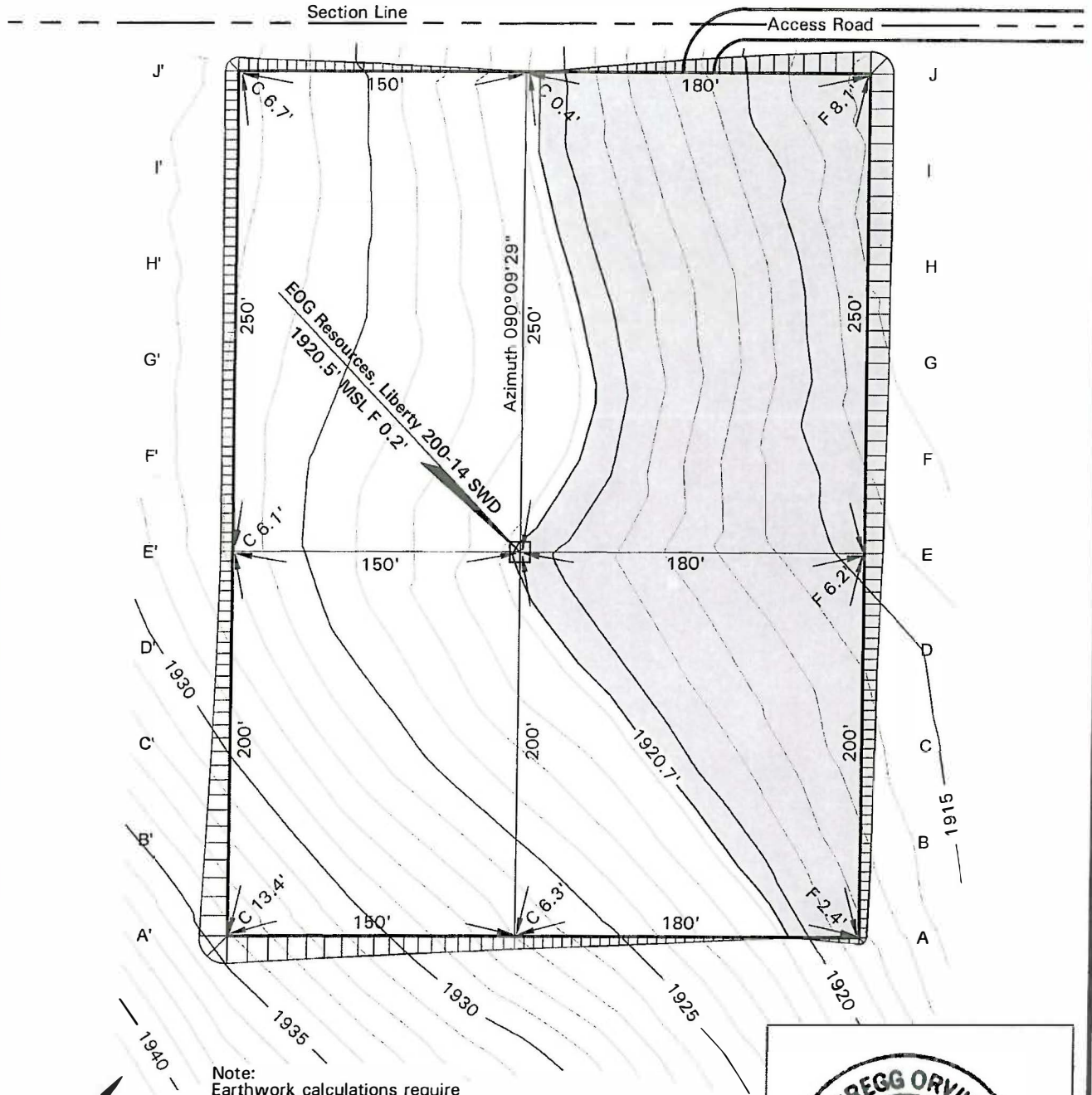
NOTE:
All cut end slopes are designed at 1:1 slopes &
All fill end slopes are designed at 1 1/2:1 slopes

Liberty 200-14 SWD
Well Site Location

550' FSL
275' FEL

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	None	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Quantities	5/11/2016	7716126	-

Liberty 14 SESE 1
Pad Layout



Prevailing Wind Direction

Note:
Earthwork calculations require a fill @ the location stakes for balance. All fill is to be compacted to a minimum of 95% of the Maximum Dry Density obtained by AASHTO Method t-99.

SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.

GREGG ORVIK
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5-18-16

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Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 80'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Pad Layout	5/11/2016	7716126	-

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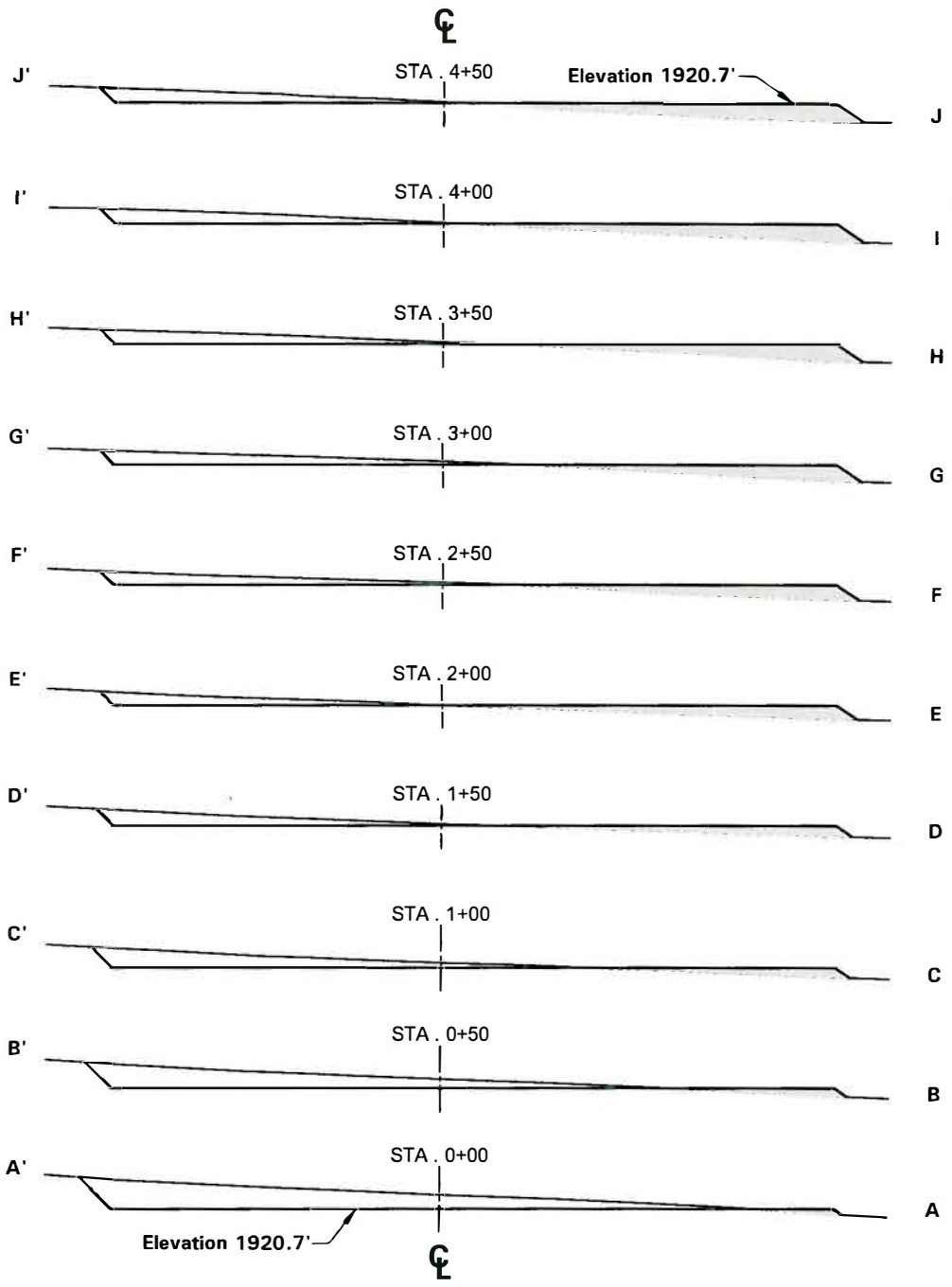
Liberty 14 SESE 1
Cross Sections



PAD CONSTRUCTION DATA						
Topsoil Removal @ 6":	2,975 C.Y.	Embankment	8,015 C.Y.	Road Disturbed Area:	31,350 S.F.	0.72 Acres
Cut/Fill Slope:	1:1, 1 1/2:1	Plus Compaction (30%)	2,405 C.Y.	Pad Disturbed Area:	160,596 S.F.	3.69 Acres
Pad Excavation:	13,520 C.Y.	Total Fill:	10,420 C.Y.	Total Disturbed Area:	191,946 S.F.	4.41 Acres
Total Cut:	16,495 C.Y.	Pad Spoil:	3,100 C.Y.			

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 80'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Cross Sections	5/11/2016	7716126	-

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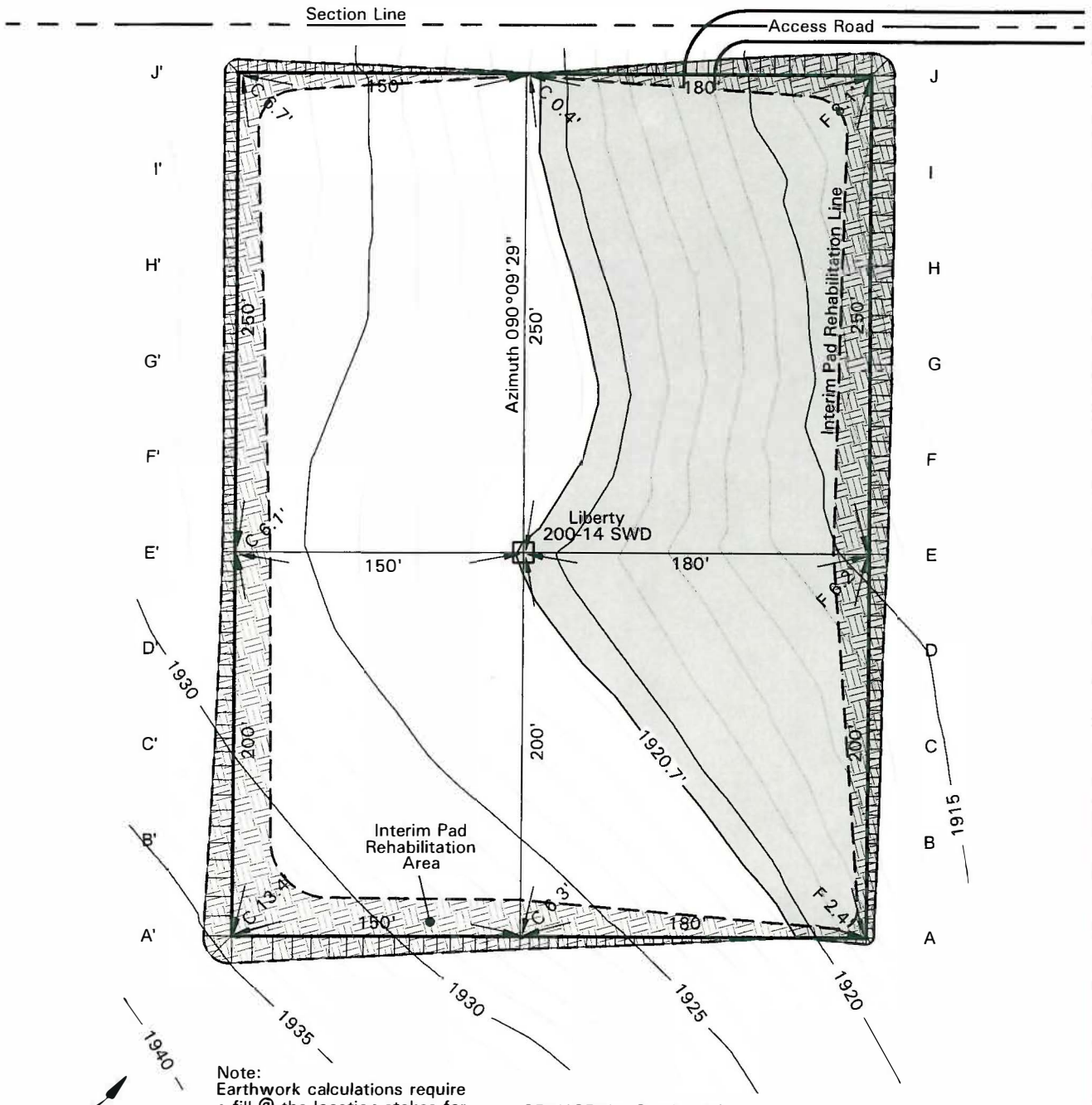
Liberty 14 SESE 1
Production Layout



Note:
Earthwork calculations require a fill @ the location stakes for balance. All fill is to be compacted to a minimum of 95% of the Maximum Dry Density obtained by AASHTO Method t-99.

Prevailing Wind Direction

SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 80'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Prod Layout	5/11/2016	7716126	-

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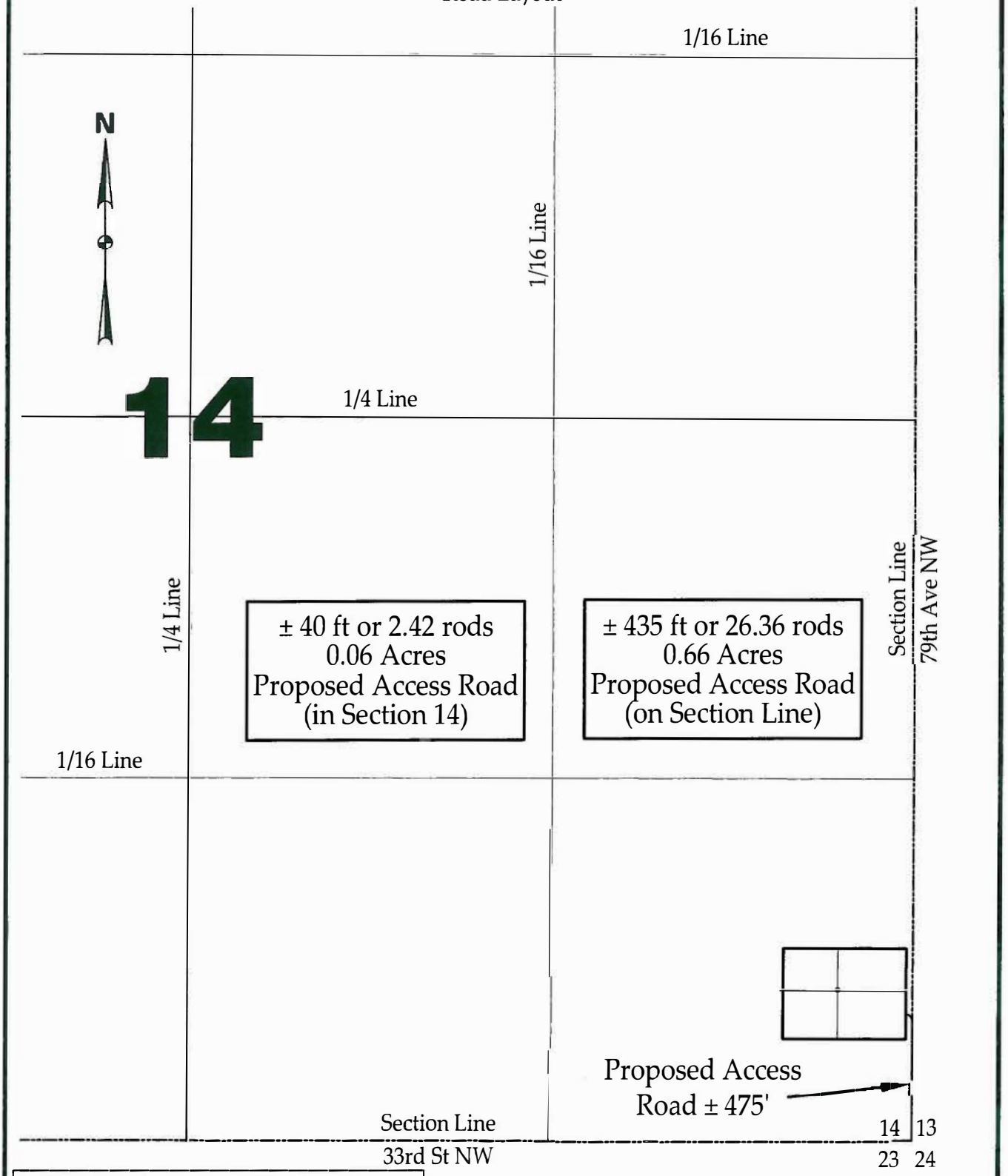
Liberty 14 SESE 1
Road Layout



Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 500'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Road Layout	5/11/2016	7716126	-

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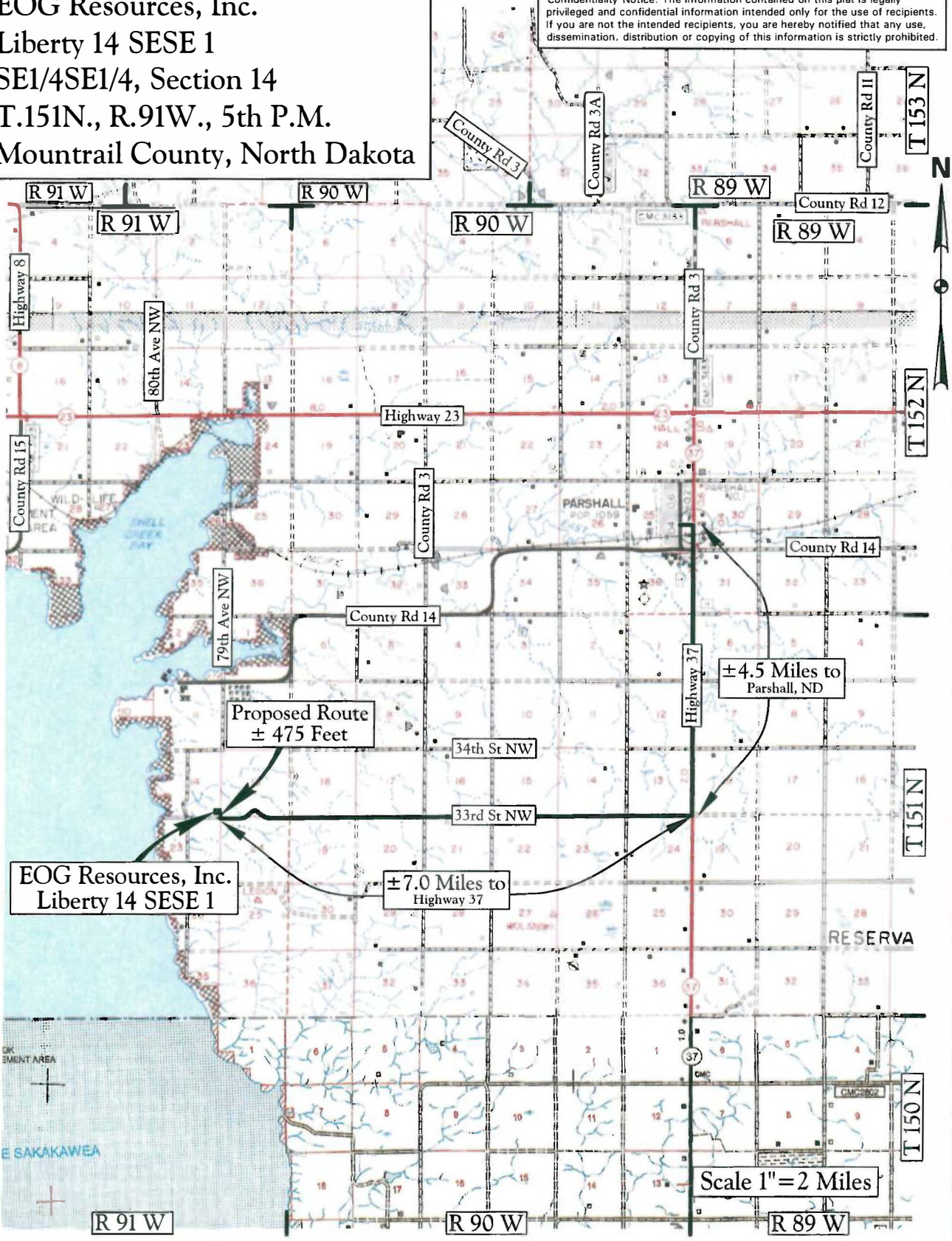
EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "A"
County Access Route

Legend

Existing Roads ——————

Proposed Roads — — — — —

Revised: 5/11/2016

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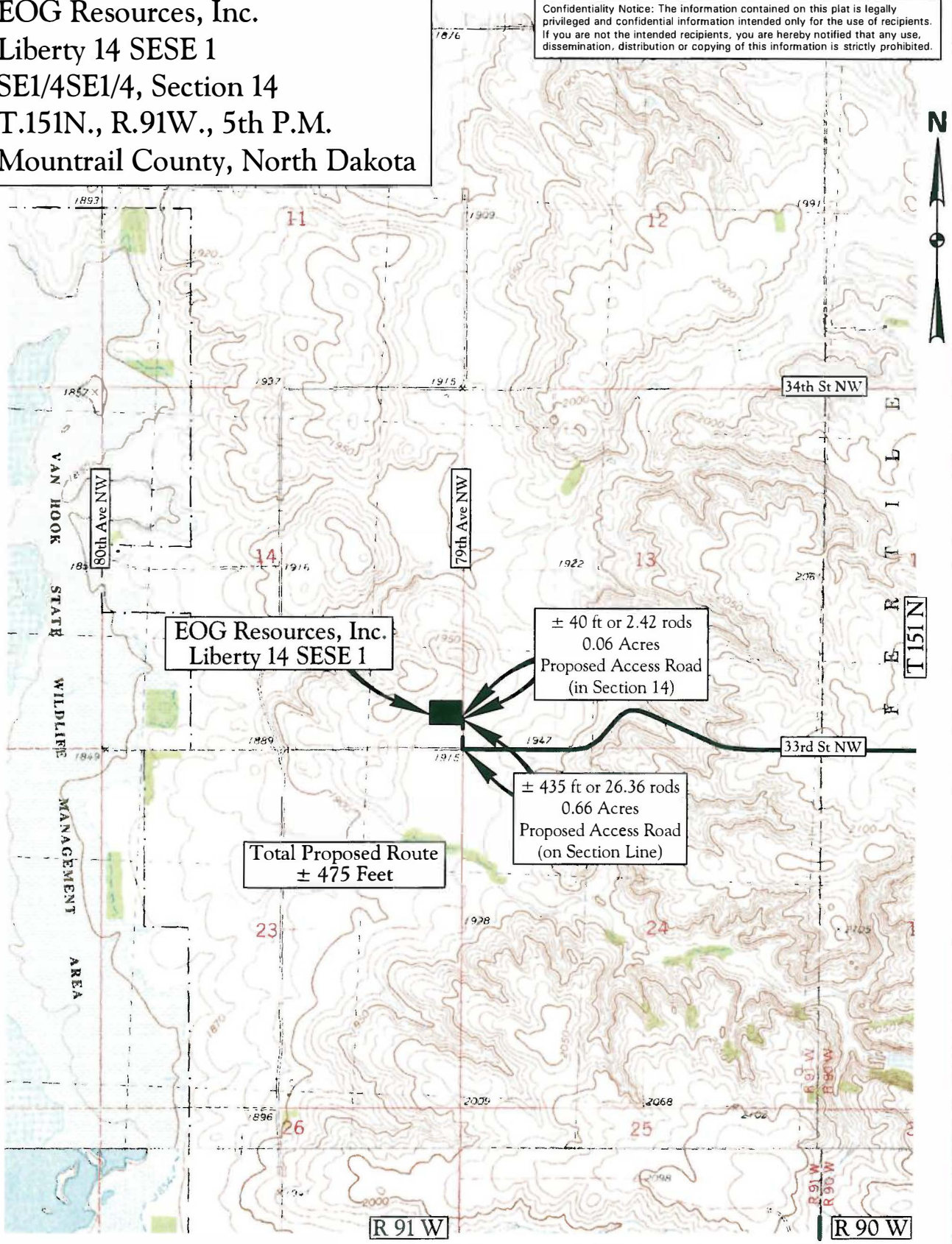
EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "B"
Quad Access Route

Legend
Existing Roads
Proposed Roads

Scale 1"=2000'
Revised: 5/11/2016

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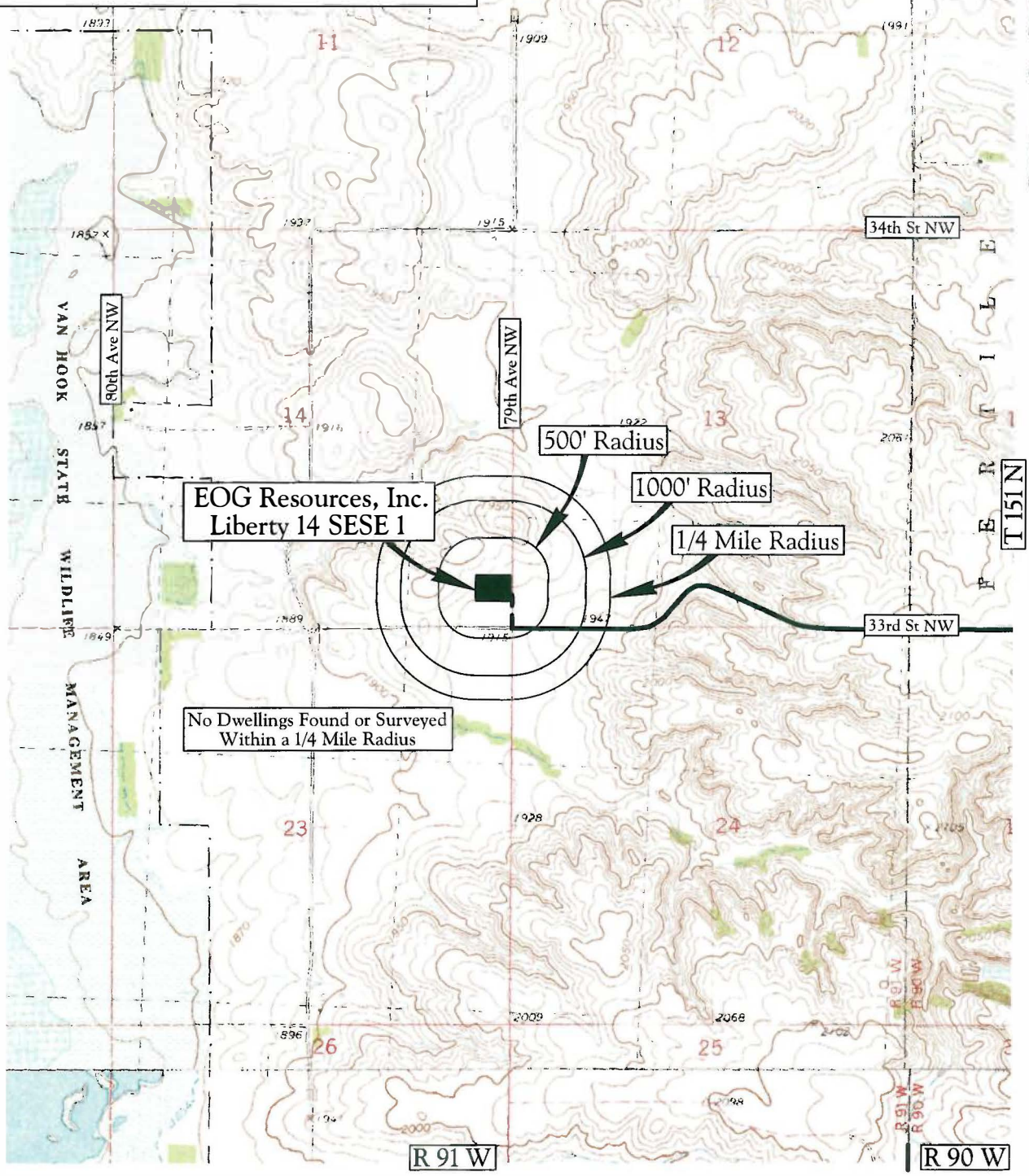
EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "C.1"
Dwellings Map

Legend
Existing Roads
Proposed Roads

Scale 1"=2000'

Revised: 5/11/2016

KLJ

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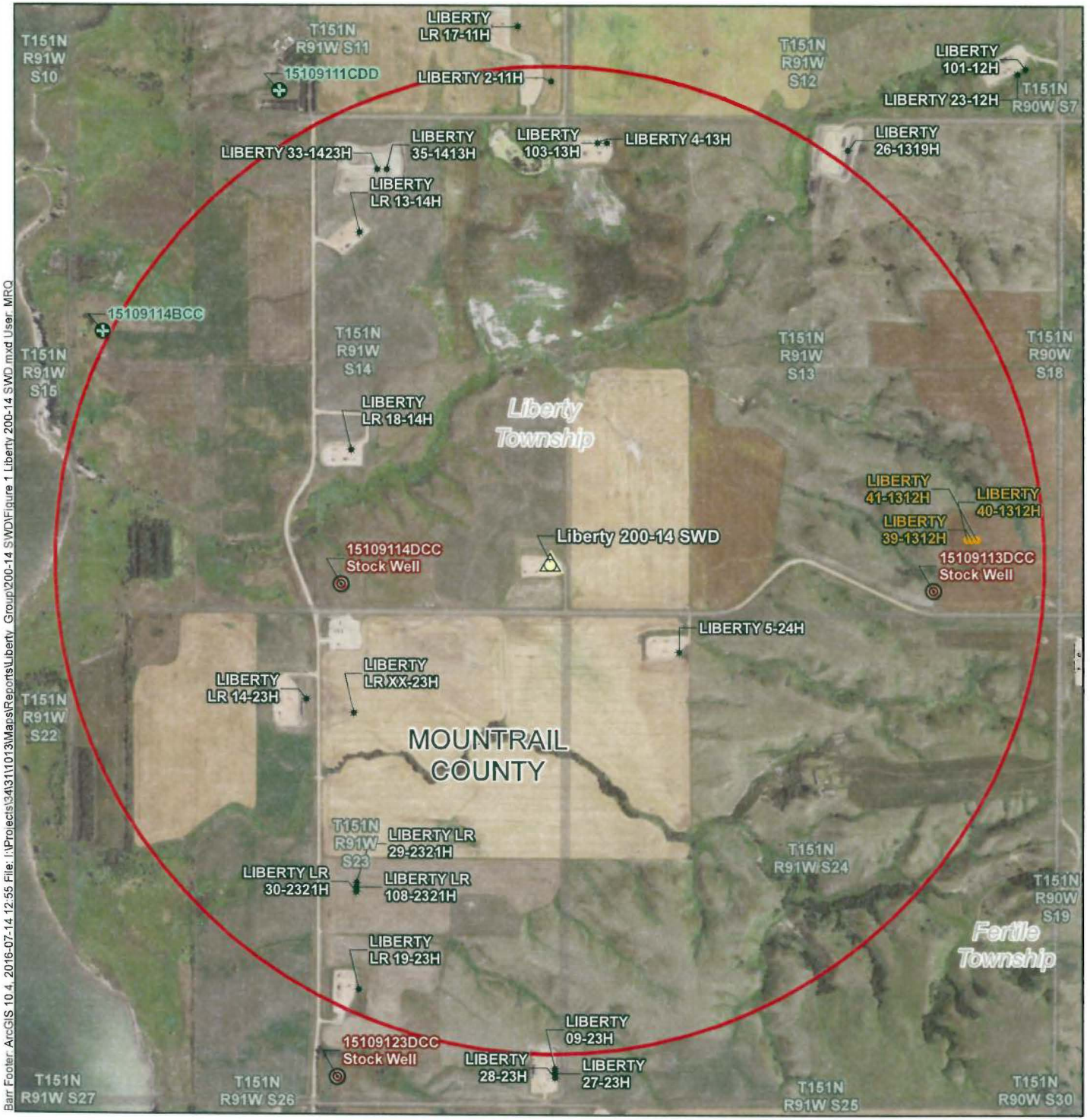
Liberty 200-14 SWD Source Wells

FERTILE 52-3332H	LIBERTY 9-23H	PARSHALL 37-0806H	PARSHALL 151-1608H	VAN HOOK 24-1415H
FERTILE 50-0509H	LIBERTY 8-01H	PARSHALL 146-0806H	PARSHALL 38-1608H	VAN HOOK 23-2526H
FERTILE 53-3024H	LIBERTY 101-12H	PARSHALL 36-0806H	PARSHALL 39-1608H	VAN HOOK 130-2526H
FERTILE 51-0410H	LIBERTY 4-13H	PARSHALL 57-0806H	PARSHALL 147-1608H	VAN HOOK 19-2523H
FERTILE 46-1608H	LIBERTY LR 13-14H	PARSHALL 56-0806H	PARSHALL 58-1608H	VAN HOOK 17-23H
FERTILE 49-3024H	LIBERTY LR 18-14H	PARSHALL 152-0806H	PARSHALL 46-1004H	VAN HOOK 16-35H
FERTILE 47-0712H	LIBERTY LR 17-11H	PARSHALL 154-1721H	PARSHALL 45-1004H	VAN HOOK 4-36H
FERTILE 42-3231H	LIBERTY 3-14H	PARSHALL 99-1721H	PARSHALL 44-1004H	VAN HOOK 6-14H
FERTILE 37-07H	LIBERTY 100-26H	PARSHALL 62-15H	PARSHALL 40-1509H	VAN HOOK 5-11H
FERTILE 101-04H	LIBERTY LR 20-26H	PARSHALL 61-15H	PARSHALL 77-22H	VAN HOOK 1-13H
FERTILE 34-31H	LIBERTY 27-23H	PARSHALL 64-16H	PARSHALL 66-14H	VAN HOOK 15-15H
FERTILE 18-30H	LIBERTY 28-23H	PARSHALL 63-16H	PARSHALL 65-14H	VAN HOOK 8-36H
FERTILE 32-33H	LIBERTY 35-1413H	PARSHALL 16-32H	PARSHALL 51-1114H	VAN HOOK 3-25H
FERTILE 30-28H	LIBERTY 33-1423H	PARSHALL 15-31H	PARSHALL 47-2226H	VAN HOOK 20-0107H
FERTILE 23-19H	LIBERTY LR 14-23H	PARSHALL 10-29H	PARSHALL 49-2226H	VAN HOOK 127-0107H
FERTILE 19-29H	LIBERTY 10-36H	PARSHALL 19-35H	PARSHALL 89-3029H	VAN HOOK 11-02H
FERTILE 13-18H	LIBERTY 2-11H	PARSHALL 9-30H	PARSHALL 88-3029H	VAN HOOK 2-24H
FERTILE 16-20H	LIBERTY LR 16-36H	PARSHALL 12-27H	PARSHALL 23-3029H	VAN HOOK 13-35H
FERTILE 14-17H	LIBERTY 24-2531H	PARSHALL 11-28H	PARSHALL 34-0509H	VAN HOOK 32-1202H
FERTILE 11-10H	LIBERTY 26-1319H	PARSHALL 20-03H	PARSHALL 22-3032H	VAN HOOK 33-1218H
FERTILE 10-09H	LIBERTY 25-0107H	PARSHALL 13-26H	PARSHALL 43-2117H	VAN HOOK 126-2523H
FERTILE 9-08H	LIBERTY LR 21-36H	PARSHALL 8-24H	PARSHALL 42-2117H	VAN HOOK 29-1113H
FERTILE 7-06H	LIBERTY 5-24H	PARSHALL 7-23H	PARSHALL 53-1014H	VAN HOOK 102-02H
FERTILE 5-04H	LIBERTY 103-13H	PARSHALL 6-22H	PARSHALL 54-1014H	VAN HOOK 100-15H
FERTILE 4-03H	LIBERTY 106-0107H	PARSHALL 4-20H	PARSHALL 50-1114H	VAN HOOK 7-23H
FERTILE 6-05H	LIBERTY LR 12-11H	PARSHALL 3-19H	PARSHALL 90-3029H	VAN HOOK 34-1319H
FERTILE 17-21H	LIBERTY LR 19-23H	PARSHALL 2-36H	PARSHALL 32-0225H	VAN HOOK 132-1319H
FERTILE 38-20H	LIBERTY 6-25H	PARSHALL 1-36H	PARSHALL 93-2827H	VAN HOOK 25-1319H
FERTILE 48-0905H	LIBERTY LR 15-26H	PARSHALL 18-34H	PARSHALL 92-28H	VAN HOOK 104-1218H
FERTILE 61-0410H	LIBERTY 23-12H	PARSHALL 91-28H	PARSHALL 67-2117H	VAN HOOK 30-1113H
FERTILE 60-0410H	LIBERTY 102-01H	PARSHALL 83-2827H	PARSHALL 79-21H	VAN HOOK 134-1319H
FERTILE 41-3328H		PARSHALL 75-2127H	PARSHALL 80-21H	VAN HOOK 31-1202H
FERTILE 40-1718H		PARSHALL 73-2127H	PARSHALL 74-2127H	VAN HOOK 107-1411H
FERTILE 2-01H		PARSHALL 35-0509H	PARSHALL 72-2127H	VAN HOOK 131-1415H
FERTILE 62-0410H		PARSHALL 25-3032H	PARSHALL 60-1509H	
FERTILE 54-20H		PARSHALL 100-22H	PARSHALL 41-1509H	
FERTILE 43-2821H		PARSHALL 17-33H	PARSHALL 55-1014H	
FERTILE 35-32H		PARSHALL 5-21H	PARSHALL 76-22H	
FERTILE 45-29H		PARSHALL 82-2827H	PARSHALL 52-1114H	
		PARSHALL 84-2827H	PARSHALL 48-2226H	
		PARSHALL 59-1608H	PARSHALL 26-3029H	
			PARSHALL 81-27H	



EOG SWD Location

1 Mile Corridor

Sampled Well

Driller's Log Wells

(Source: NDSWC, May 2016)

Domestic Well

NDIC Oil & Gas Wells

(Source: NDIC-DMR, May 2016)

Confidential

Oil & Gas

0 1,500 3,000

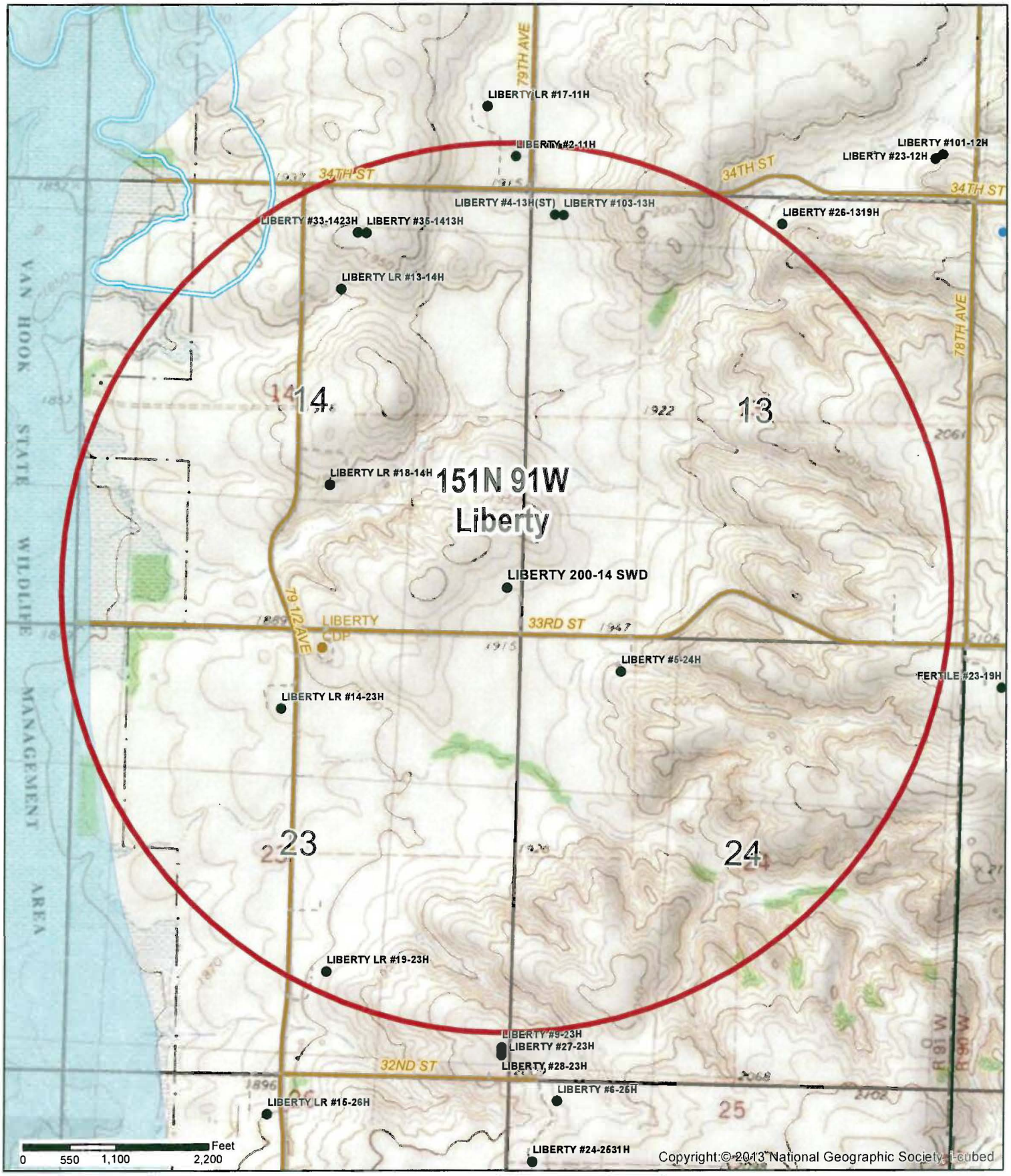
Feet

BARR

Figure 1

Liberty 200-14 SWD
Mountrail County, ND
EOG Resources

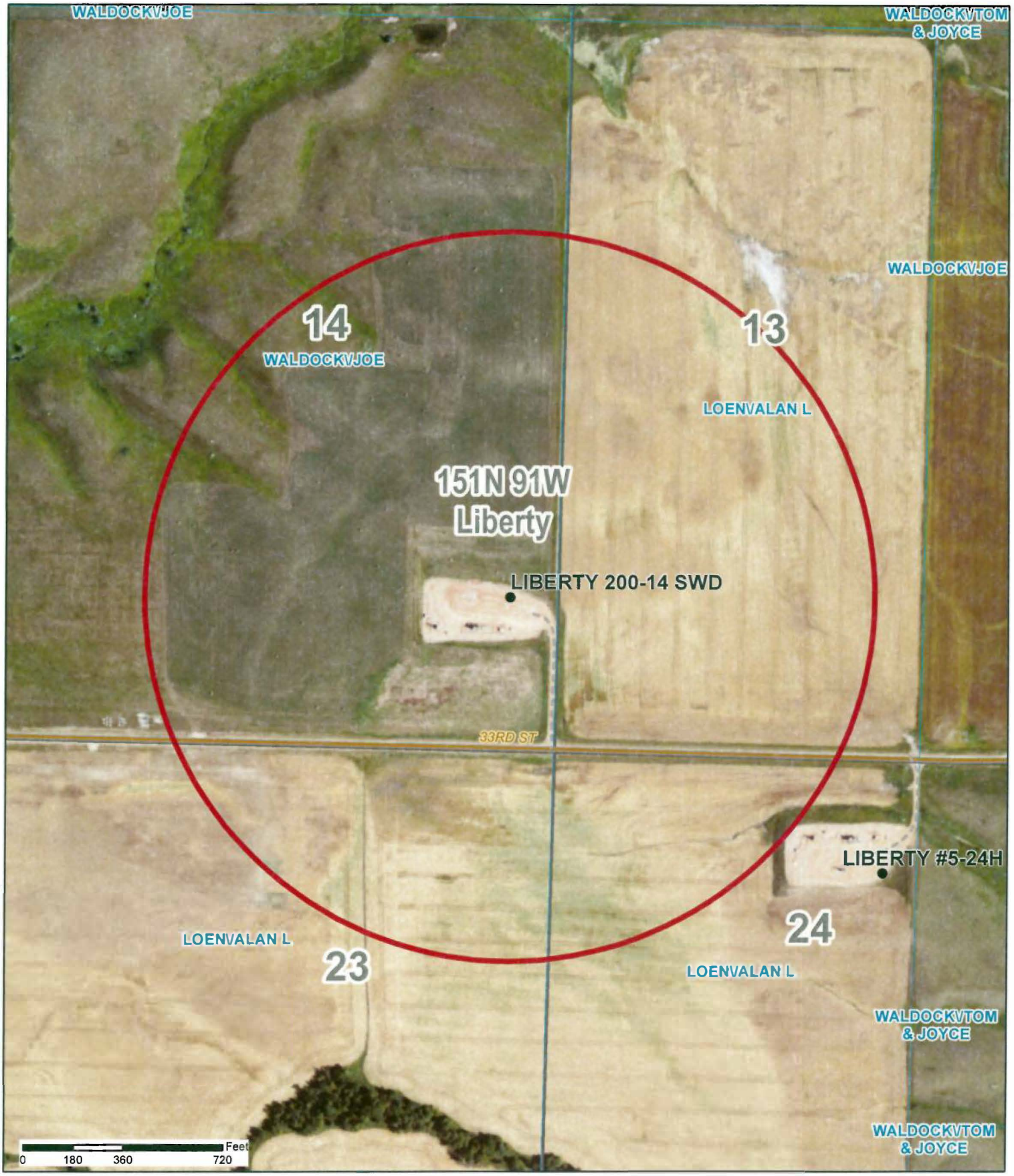
Barr Footer: ArcGIS 10.4, 2016-07-14 12:55 File: I:\Projects\34\31\11013\Mapsl\Reports\Liberty Group\200-14 SWD\Figure 1 Liberty 200-14 SWD.mxd User: MRQ



LIBERTY 200-14 SWD

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

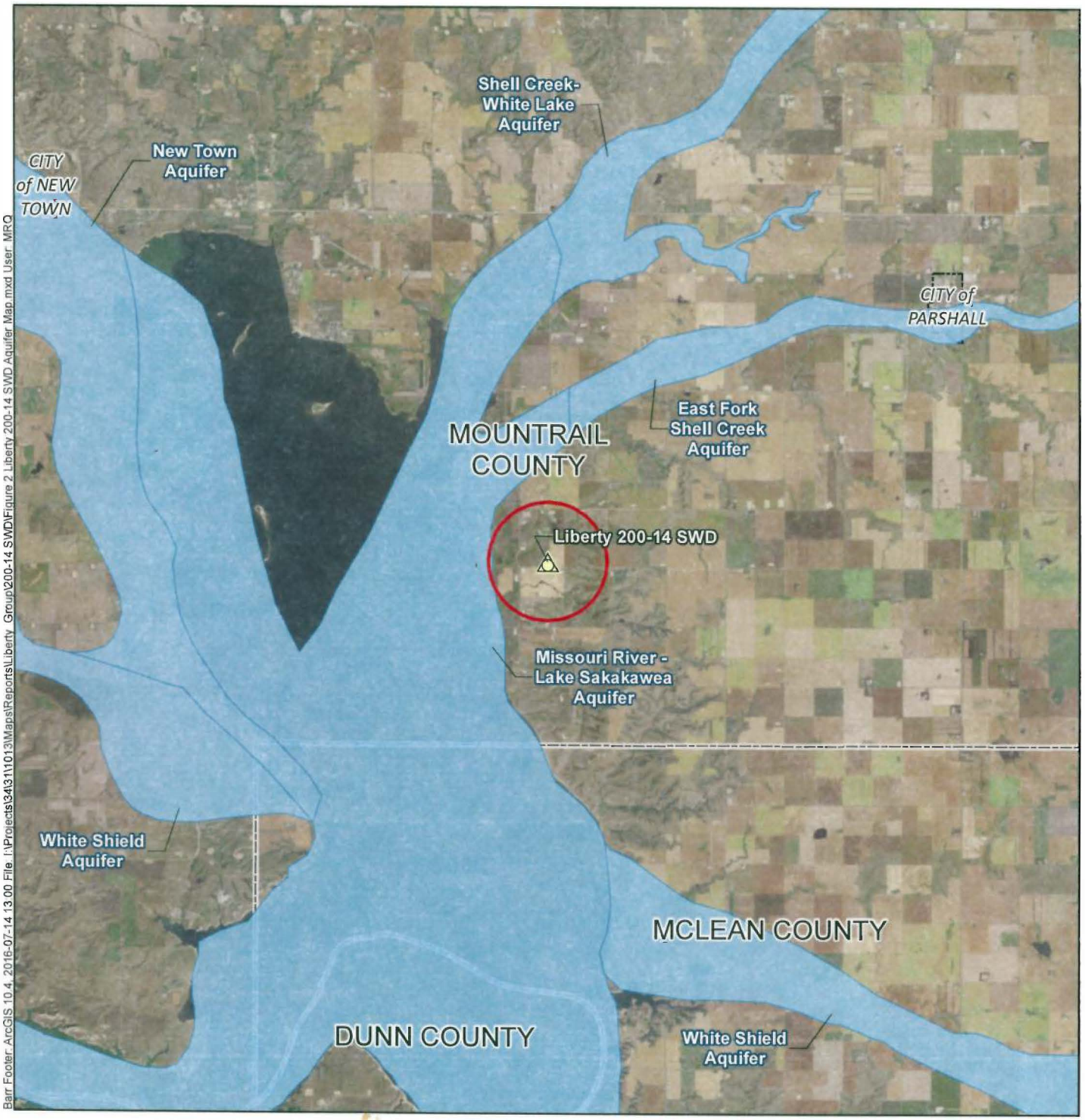
eog resources



LIBERTY 200-14 SWD

- EOG Drilled Well
- Platted EOG Access Roads
- EOG Facility
- 1/4 Mile Buffer
- Mountrail County Parcels
- Aquifer Surficial - ND GIS HUB
- WHPA - Community
- WHPA - Non Community
- Water Data Sites - ND GIS HUB
- Other Operator Wells - NDIC
- County Roads - ND GIS HUB

eog resources



EOG SWD Location

1 Mile Corridor

Major Glacial-Drift Aquifer

0 2 4

Miles

BARR

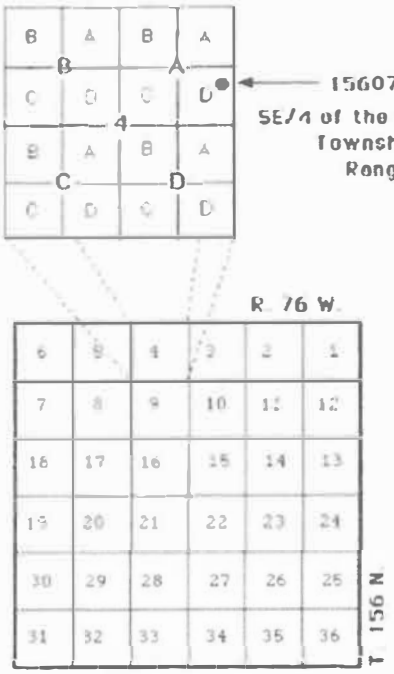
Figure 2

Liberty 200-14 SWD
Shallow Aquifer Map
Mountrail County, ND
EOG Resources

Barr Footer ArcGIS 10.4 2016-07-14 13:00 File: I:\Projects\34\31\1013\Maps\Reports\Liberty Group\200-14 SWD\Figure 2 Liberty 200-14 SWD Aquifer Map.mxd User: MRO

State Water Commission

Location Format Definition



The description used to denote a location is based upon the federal system of rectangular surveys of public land. The first three digits (Cols 1-3) identify the township north of an established baseline, and the second three digits (Cols 4-6) identify the range west of the Fifth Principal Meridian. The numbers located in columns 7 and 8 identify the section within the designated township and range in which the site is located. The letters A, B, C, and D designate, respectively, the northeast, northwest, southwest, and southeast quarter section (160 acre tract), quarter-quarter section (40 acre tract), and quarter-quarter-quarter (10 acre tract). Therefore, a site identified as 15607604AAD would be located in the SE1/4 NE1/4 NE1/4 Section 4, Township 156 North, Range 76 West. Consecutive terminal numbers are added if more than one site is located in a given 10 acre tract, i.e., 15607404ACB1 and 15607604ACB2.

If you have any questions regarding the data retrieval system or the associated data, please contact Chris Bader at cbader@state.nd.us

Close

Liberty 200-14 SWD

Permitting Info

Average Injection Rate	12,000 bbl/day
Average Injection Pressure	800 psi
Max Injection Rate	20,000 bbl/day
Max Injection Pressure	1,487 psi
Annular Fluid	Fresh water w/ Biocide & Corrosion Inhibitor
Dakota Testing	Step rate test will determine max injection pressure

Source Well Water Samples

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www.mvtl.com

Amended 20Jun16 (Analytes added)

Marta Nelson
Barr Engineering Company
4300 MarketPointe Drive, Suite 200
Minneapolis MN 55435

field labeling error - well id is Liberty 200-14 SWD

Report Date: 18 Dec 15
Lab Number: 15-W5135
Work Order #:82-3574
Account #: 013200
Date Sampled: 3 Dec 15 10:40
Date Received: 4 Dec 15 13:25
Sampled By: Client

Project Name: Liberty 2321H - EOG Resources

PO #: 34311913.07 200 002

Sample Description: 151-091-14DCC

Temp at Receipt: 7.1C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
EPA DRO Extraction					9 Dec 15	KKG
Metal Digestion				EPA 200.2	4 Dec 15	ML
pH	* 8.3	units	N/A	SM4500 H+ B	4 Dec 15 17:00	ML
Specific Conductance	3200	umhos/cm	N/A	SM2510-B	4 Dec 15 17:00	ML
Total Alkalinity	1430	mg/l CaCO3	20	SM2320-B	4 Dec 15 17:00	ML
Bicarbonate	1430	mg/l CaCO3	20	SM2320-B	4 Dec 15 17:00	ML
Carbonate	< 20	mg/l CaCO3	20	SM2320-B	4 Dec 15 17:00	ML
Tot Dis Solids(Summation)	2000	mg/l	12.5	SM1030-F	11 Dec 15 9:18	Calculated
Sodium Chloride	0.003	%	NA			Calculated
Benzene	< 1	ppb	1.0	8021/5030	10 Dec 15	ARJ
Toluene	< 1	ppb	1.0	8021/5030	10 Dec 15	ARJ
Ethyl Benzene	< 1	ppb	1.0	8021/5030	10 Dec 15	ARJ
Xylenes (Total)	< 3	ppb	3.0	8021/5030	10 Dec 15	ARJ
Naphthalene	< 1	ppb	1.0	8021/5030	10 Dec 15	ARJ
GRO (TPH)	< 0.2	mg/L	0.200	8015B/OA1	10 Dec 15	ARJ
DRO (TEH)	< 0.22 !	mg/L	0.20	8015B/OA2	11 Dec 15	TMP
Methane	6.7	ug/L	3.0	MOD 8015B	9 Dec 15	ARJ
Ethane	< 3	ug/L	3.00	MOD 8015B	9 Dec 15	ARJ
Propane	< 3	ug/L	3.00	MOD 8015B	9 Dec 15	ARJ
Bromide	0.186	mg/l	0.100	EPA 300.0	11 Dec 15 10:43	RB
Fluoride	2.33	mg/l	0.10	SM4500-F-C	4 Dec 15 17:00	ML
Sulfate	316	mg/l	5.00	ASTM D516-07	11 Dec 15 9:18	EMS
Chloride	16.7	mg/l	1.0	SM4500-Cl-E	10 Dec 15 9:53	EMS
Nitrate-Nitrite as N	< 0.1	mg/l	0.10	EPA 353.2	9 Dec 15 9:57	EMS
Phosphorus as P - Total	0.45	mg/l	0.10	EPA 365.1	8 Dec 15 11:37	EMS
Calcium - Total	2.7	mg/l	1.0	6010	9 Dec 15 11:52	SZ
Magnesium - Total	1.6	mg/l	1.0	6010	9 Dec 15 11:52	SZ
Sodium - Total	805	mg/l	1.0	6010	9 Dec 15 11:52	SZ
Potassium - Total	3.2	mg/l	1.0	6010	9 Dec 15 11:52	SZ
Barium - Total	< 0.1	mg/l	0.10	6010	14 Dec 15 13:27	SZ
Chromium - Total	< 0.05	mg/l	0.05	6010	14 Dec 15 13:27	SZ
Iron - Total	< 0.1	mg/l	0.10	6010	14 Dec 15 13:27	SZ
Manganese - Total	< 0.05	mg/l	0.05	6010	14 Dec 15 13:27	SZ
Strontium - Total	0.13	mg/l	0.10	6010	14 Dec 15 13:27	SZ
Boron - Total	0.17	mg/l	0.10	6010	17 Dec 15 13:25	KMD
Selenium - Total	< 0.002	mg/l	0.0020	6020	16 Dec 15 17:30	KMD

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix
# = Due to concentration of other analytes
! = Due to sample quantity
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 6 Jul 16
Lab Number: 16-W2090
Work Order #:82-1740
Account #: 013200
Date Sampled: 16 Jun 16 14:25
Date Received: 20 Jun 16 8:00
Sampled By: Client

Marta Nelson
Barr Engineering Company
4300 MarketPointe Drive, Suite 200
Minneapolis MN 55435

field labeling error - well id is Liberty 200-14 SWD

Project Name: EOG Resources-Liberty 200 SWD
Sample Description: 151-091-14DCC
Sample Site: 34311013.13

Temp at Receipt: 4.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH	* 8.2	units	N/A	SM4500 H+ B	20 Jun 16 15:00	ML
Conductivity (EC)	3285	umhos/cm	N/A	SM2510-B	20 Jun 16 15:00	ML
Specific Gravity	1.0014	at 60/60F	NA	ASTM D1298	22 Jun 16 16:41	RAG
Total Sulfides	See Attached Report		1.0	SM4500-S-F	23 Jun 16 9:37	
Hydrogen Sulfide	See Attached Report		1.00	Calculated	23 Jun 16 9:37	

* Holding time exceeded

Approved by: Claudette K Carroll CC 6JUL16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

Stacy Zander, Energy Laboratory Supervisor, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 29 Jun 2016
Lab Number: 16-A28059
Work Order #: 82-1740
Account #: 013200
Sample Matrix: WASTEWATER
Date Sampled: 16 Jun 2016 14:25
Date Received: 21 Jun 2016

BARR ENGINEERING CO
4300 MARKETPOINTE DR STE 200
MINNEAPOLIS MN 55435

Sample Description: 151-091-14DCC 34311013.13
W2090

Temp at Receipt: 3.4 C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Specific Conductance	3285	umhos/cm	0.1	SM 2510 B-97	21 Jun 16	CAT
pH	8.2	units	1.0	SM 4500 H+B-96	21 Jun 16	CAT
Sulfide, Total	< 1	mg/L	1	SM 4500 S2 F-97	23 Jun 16 9:37	TWB
Hydrogen Sulfide	< 1	mg/L	1	4500S	23 Jun 16 10:00	TWB

RL = Reporting Limit
Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response
CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-1740
Client: Barr Engineering Company
MVTL Laboratory Identifications: 16-W2090
Project Identification: EOG Resources – Liberty 200 SWD
Page 1 of 1

field labeling error - well id is Liberty 200-14 SWD

Barr Identif cation	MVTL Laboratory #
151-091-14DCC	16-W2090

I. RECEIPT

- All samples were received at the laboratory on 20 Jun 2016 at 0800.
- Samples were collected and hand delivered by Barr personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 4.6°C.
- All samples were properly preserved.
- Total and hydrogen sulfide analyses were analyzed at the MVTL New Ulm, MN location. Samples for these analyses were sent to the New Ulm, MN location via courier.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- Per telephone conversation on 20 Jun 2016 with Marta Nelson at Barr Engineering, only parameters not analyzed on sample 15-W5135 (151-091-14DCC; 201582-3574) were analyzed on this sample.

II. HOLDING TIMES

- With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

III. METHODS

- Approved methodology was followed for all sample analyses.

IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Cantu **DATE:** 6/24/16
MVTL Bismarck Laboratory Manager

MVTL

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MEMBER
ACIL

Quality Control Report

Lab ID: 16-W2090 **Project:** EOG Resources-Liberty 200 SWD **Work Order:** 201682-1740

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Conductivity (EC) umhos/cm	-	-	-	-	-	-	-	-	-	3285	3290	-	0.2	20	-	-	-
pH units	-	-	-	-	-	-	-	-	-	8.2	8.2	-	0.0	20	-	-	-

Approved by: C. Gantt
6 JUL 16

Chain of Custody

BARR
4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

82-1740
W2090

field labeling error - well id is Liberty 200-14 SWD

COC 1 of 1

Project Number: 34311013.13

Project Name: EOG Resources - Liberty 200 SWD

Sample Origination State ND (use two letter postal state abbreviation)

COC Number: № 45101

Project Manager: JLS4

Project QC Contact: MSH

Sampled by: AMK2

Laboratory: MVTL

Number of Containers/Preservative — Water: VOCs (HCl) #1; SVOCs (unpreserved) #2; Dissolved Metals (HNO_3); Total Metals (HNO_3); General (unpreserved) #3; Diesel Range Organics (HCl); Nutrients (H_2SO_4) #4. Soil: VOCs (tared MeOH) #1; GRO, BTEX (tared MeOH) #1; DRO (tared unpreserved); Metals (unpreserved); SVOCs (unpreserved) #2; % Solids (plastic vial, unpres.)

	Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix: Water	Matrix: Soil	Type: Grab	Type: Comp.	Type: QC	Analyses	Total Number Of Containers
1.	151-091-14 DCC	N/A	—		06/16/2016	14:25	X		X			See UIC Program on Table 1.	4
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

* Compare UIC Program on Table 1 to MVTL 12/18/15 report. Only do analyses to complete list. Contact Marta Nelson w/ questions.

Per telephone call w/ Marta @ Barr, Resistivity, NaCl & Cr added to original report. Other parameters listed on UIC table and not analyzed on previous report are sulfide and spec. H_2S. Run this sample for these parameters.

Cr 20 Jun 16

Common Parameter/Container - Preservation Key

#1 - Volatile Organics = BTEX, GRO, TPH, 8260 Full List
#2 - Semivolatile Organics = PAHs, PCP, Dioxins, 8270 Full List, Herbicide/Pesticide/PCBs
#3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate
#4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

Relinquished By:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	(Y) N	6/17/16	1845	C. Jackson 4.6°C 7M558	20 Jun 16	0800
Relinquished By:	On Ice? Y N	Date	Time	Received by:	Date	Time

Samples Shipped VIA: ☐ Air Freight ☐ Federal Express ☐ Sampler ☒ Other: In person

Air Bill Number: Tom Waldock

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

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CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-1739
Client: Barr Engineering Company
field labeling error - well id is Liberty 200-14 SWD
MVTL Laboratory Identifications: 16-W2089
Project Identification: EOG Resources – Liberty 200 SWD
Page 1 of 1

Barr Identification	MVTL Laboratory #
151-091-13DCC	16-W2089

I. RECEIPT

- All samples were received at the laboratory on 20 Jun 2016 at 0800.
- Samples were collected and hand delivered by Barr personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 5.7°C.
- All samples were properly preserved.
- Total and hydrogen sulfide analyses were analyzed at the MVTL New Ulm, MN location. Samples for these analyses were sent to the New Ulm, MN location via courier.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

II. HOLDING TIMES

- With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

III. METHODS

- Approved methodology was followed for all sample analyses.

IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Cantu **DATE:** 6 JUL 16
MVTL Bismarck Laboratory Manager

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Report Date: 6 Jul 16
Lab Number: 16-W2089
Work Order #:82-1739
Account #: 013200
Date Sampled: 16 Jun 16 15:05
Date Received: 20 Jun 16 8:00
Sampled By: Client

Marta Nelson
Barr Engineering Company
4300 MarketPointe Drive, Suite 200
Minneapolis MN 55435

field labeling error - well id is Liberty 200-14 SWD

Project Name: EOG Resources-Liberty 200 SWD
Sample Description: 151-091-13DCC
Sample Site: 34311013.13

Temp at Receipt: 5.7C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	20 Jun 16	ML
pH	* 8.2	units	N/A	SM4500 H+ B	20 Jun 16 15:00	ML
Conductivity (EC)	3250	umhos/cm	N/A	SM2510-B	20 Jun 16 15:00	ML
Total Alkalinity	1710	mg/l CaCO3	20	SM2320-B	20 Jun 16 15:00	ML
Bicarbonate	1710	mg/l CaCO3	20	SM2320-B	20 Jun 16 15:00	ML
Carbonate	< 20	mg/l CaCO3	20	SM2320-B	20 Jun 16 15:00	ML
Tot Dis Solids(Summation)	2040	mg/l	12.5	SM1030-F	29 Jun 16 10:51	Calculated
Sodium Chloride	124	mg/l	NA			Calculated
Specific Gravity	1.0014	at 60/60F	NA	ASTM D1298	22 Jun 16 16:41	RAG
Sulfate	93.0	mg/l	5.00	ASTM D516-07	29 Jun 16 10:51	EMS
Chloride	74.9	mg/l	1.0	SM4500-Cl-E	23 Jun 16 15:39	EMS
Nitrate-Nitrite as N	< 0.1	mg/l	0.10	EPA 353.2	22 Jun 16 14:52	EMS
Phosphorus as P - Total	0.46	mg/l	0.10	EPA 365.1	21 Jun 16 9:17	EMS
Total Sulfides	See Attached Report		1.0	SM4500-S-F	23 Jun 16 9:37	
Hydrogen Sulfide	See Attached Report		1.00	Calculated	23 Jun 16 9:37	
Calcium - Total	< 5 @	mg/l	1.0	6010	27 Jun 16 10:22	SZ
Magnesium - Total	< 5 @	mg/l	1.0	6010	27 Jun 16 10:22	SZ
Sodium - Total	850	mg/l	1.0	6010	27 Jun 16 10:22	SZ
Potassium - Total	< 5 @	mg/l	1.0	6010	27 Jun 16 10:22	SZ
Barium - Total	0.19	mg/l	0.10	6010	21 Jun 16 13:30	SZ
Iron - Total	< 0.1	mg/l	0.10	6010	21 Jun 16 13:30	SZ
Chromium - Total	< 0.002	mg/l	0.0020	6020	28 Jun 16 9:40	KMD
Resistivity @25 C	0.325	ohms/m	0.100	Calculated	20 Jun 16 15:00	ML

* Holding time exceeded

Approved by: Claudette K Carroll CC 6 JUL 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

Stacy Zander, Energy Laboratory Supervisor, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix
! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND 00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

Report Date: 29 Jun 2016
Lab Number: 16-A28058
Work Order #: 82-1739
Account #: 013200
Sample Matrix: WASTEWATER
Date Sampled: 16 Jun 2016 15:05
Date Received: 21 Jun 2016

BARR ENGINEERING CO
4300 MARKETPOINTE DR STE 200
MINNEAPOLIS MN 55435

Sample Description: 151-091-13DCC 34311013.13
W2089

Temp at Receipt: 3.4 C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Specific Conductance	3250	umhos/cm	0.1	SM 2510 B-97	21 Jun 16	CAT
pH	8.2	units	1.0	SM 4500 H+B-96	21 Jun 16	CAT
Sulfide, Total	< 1	mg/L	1	SM 4500 S2 F-97	23 Jun 16 9:37	TWB
Hydrogen Sulfide	< 1	mg/L	1	4500S	23 Jun 16 10:00	TWB

RL = Reporting Limit
Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response
CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

MVTL

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1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER
ACIL

Quality Control Report

Lab ID: 16-W2089 **Project:** EOG Resources-Liberty 200 SWD **Work Order:** 201682-1739

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Barium - Total mg/l	0.40	112	80-120	0.400 0.400	16W2059q 16W2089q	< 0.1 0.19	0.42 0.61	105 105	75-125 75-125	0.42 0.61	0.42 0.61	105 105	0.0 0.0	20 20	- - -	- - -	< 0.1 < 0.1 < 0.1
Calcium - Total mg/l	20.0	110	80-120	500	16W2089q	< 5	500	100	75-125	500	505	101	1.0	20	- -	- -	< 1 < 1
Chloride mg/l	30.0	93	80-120	30.0	16-W2022	22.9	56.7	113	80-120	56.7	53.6	102	5.6	20	- -	- -	< 1 < 1
Chromium - Total mg/l	0.1000	106	80-120	0.400 0.400	16M1560q 16W2089q	0.0054 < 0.002	0.4112 0.4128	101 103	75-125 75-125	0.4128	0.3920	98	5.2	20	- -	- -	< 0.002
Conductivity (EC) umhos/cm	-	-	-	-	-	-	-	-	-	3285	3290	-	0.2	20	-	-	-
Iron - Total mg/l	0.40	108	80-120	0.400 0.400	16W2059q 16W2089q	0.67 < 0.1	1.04 0.46	92 115	75-125 75-125	1.04 0.46	1.03 0.46	90 115	1.0 0.0	20 20	- - -	- - -	< 0.1 < 0.1 < 0.1
Magnesium - Total mg/l	20.0	106	80-120	500	16W2089q	< 5	494	99	75-125	494	495	99	0.2	20	- -	- -	< 1 < 1
Nitrate-Nitrite as N mg/l	0.50	96	90-110	1.00 1.00	16-W2028 16-W2101	< 0.1 < 0.1	1.01 1.02	101 102	90-110 90-110	1.01 1.02	0.99 1.01	99 101	2.0 1.0	20 20	- -	- -	< 0.1 < 0.1
pH units	-	-	-	-	-	-	-	-	-	8.2	8.2	-	0.0	20	-	-	-
Phosphorus as P - Total mg/l	0.50	96	90-110	1.00	16-D2468	1.20	2.18	98	90-110	2.18	2.20	100	0.9	20	-	-	< 0.1
Potassium - Total mg/l	10.0	102	80-120	100	16W2089q	< 5	99.0	99	75-125	99.0	99.5	100	0.5	20	- -	- -	< 1 < 1
Sodium - Total mg/l	20.0	100	80-120	500	16W2089q	850	1300	90	75-125	1300	1320	94	1.5	20	- -	- -	< 1 < 1
Sulfate mg/l	100	103	90-110	200	16-W2024	70.2	284	107	80-120	284	299	114	5.1	20	-	-	< 5
Total Alkalinity mg/l CaCO3	410 410	95 94	90-110 90-110	410	16-W2089	1710	2084	91	80-120	2084	2078	90	0.3	20	93	80-120	< 20 < 20

Chain of Custody

BARR

4700 West 77th Street
Minneapolis, MN 55435-4803
(952) 832-2600

82-1739
W2089

field labeling error - well id is Liberty 200-14 SWD

Project Number: 34311013.13

Project Name: EOG Resources - Liberty 200 SWD

Sample Origination State N D (use two letter postal state abbreviation)

COC Number: № 45102

COC 1 of 1

Project Manager: JLS4

Project QC Contact: MSH

Sampled by: AMK2

Laboratory: MVTL

Number of Containers/Preservative

Location	Start Depth	Stop Depth	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix: Water	Matrix: Soil		Type: Grab	Type: Comp.	Type: QC	Water: VOCs (HCl) #1	Water: SVOCs (unpreserved) #2	Water: Dissolved Metals (HNO3)	Water: Total Metals (HNO3)	Water: General (unpreserved) #3	Water: Diesel Range Organics (HCl)	Water: Nutrients (H2SO4) #4			Soil: VOCs (tared MeOH) #1	Soil: GRO, BTEX (tared MeOH) #1	Soil: DRO (tared unpreserved)	Soil: Metals (unpreserved)	Soil: SVOCs (unpreserved) #2	Soil: % Solids (plastic vial, unpres.)			Total Number Of Containers	
1. 151-091-13 DCC	N/A	—	—	06/16/2016	15:05	X			X			See UIC Program List on Table 1.																	4	Standard Turn-Around Time.
2.																														
3.																														
4.																														
5.																														
6.																														
7.																														
8.																														
9.																														
10.																														

Common Parameter/Container - Preservation Key

#1 - Volatile Organics = BTEX, GRO, TPH, 8260 Full List
#2 - Semivolatile Organics = PAHs, PCP, Dioxins, 8270 Full List, Herbicide/Pesticide/PCBs
#3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate
#4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

Relinquished By:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	(Y) N	6/17/16	18:45	C. Jackson 5.7°C TM588	20Jun16	0800
Relinquished By:	On Ice? Y N	Date	Time	Received by:	Date	Time

Samples Shipped VIA: ☐ Air Freight ☐ Federal Express ☐ Sampler ☒ Other: in person/fridge

Air Bill Number: Tom Waldock

Distribution: White-Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

H:RLGISTDFORMS\Chain Of Custody Form 2009 RLG Rev. 09101109

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:	14102006
Project ID:	EOG-ND CWA	Report Date:	11/7/2014

Lab Sample ID:	14102006-03		Date	Time
Customer Sample ID:	VANHOOK 6-14H	Collection:	10/9/2014	
Matrix:	Aqueous	Received:	10/20/2014	10:50 AM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	280.0	mg/L	2		SM 2320 B	11/4/2014 4:00:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	11/4/2014 4:00:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	11/4/2014 4:00:00 PM	GW
Total Alkalinity	280.0	mg/L	2		SM 2320 B	11/4/2014 4:00:00 PM	GW
Barium	5.26	mg/L	5		EPA 200.7	10/29/2014 11:17:44 AM	RG
Bromide	ND	mg/L	1000		EPA 300.0	10/27/2014 10:22:00 AM	TMC
Calcium	8800	mg/L	500		EPA 200.7	10/29/2014 9:50:12 AM	RG
Calcium (meq/L)	439	meq/L	0		EPA 200.7	10/29/2014 9:50:12 AM	RG
Calcium as CaCO3	22000	mg/L	2.5		EPA 200.7	10/29/2014 9:50:12 AM	RG
Anions	3263	meq/L	-50		Calculation	11/6/2014 4:40:00 PM	JP
Cation/Anion Balance	-10.1	%	-50		Calculation	11/6/2014 4:40:00 PM	JP
Cations	2670	meq/L	-50		Calculation	11/6/2014 4:40:00 PM	JP
Chloride	115100	mg/L	1000		EPA 300.0	10/27/2014 10:22:00 AM	TMC
Chloride as NaCl	189800	mg/L	1.6		EPA 300.0	10/27/2014 10:22:00 AM	TMC
Field Dissolved CO2	30.0	mg/L			CO2 Analyzer	10/9/2014	FT
Field pH - Strip	6	s.u.	1		EPA 150.1	10/9/2014	FT
Ionic Strength	3.2	mol/L	0		Calculation	11/6/2014 4:40:00 PM	JP
Iron	9.97	mg/L	5		EPA 200.7	10/29/2014 11:17:44 AM	RG
Magnesium	880	mg/L	5		EPA 200.7	10/29/2014 11:17:44 AM	RG
Magnesium (meq/L)	72.3	meq/L	0		EPA 200.7	10/29/2014 11:17:44 AM	RG
Manganese	6.32	mg/L	5		EPA 200.7	10/29/2014 11:17:44 AM	RG
pH	5.25	s.u.	0.01		EPA 150.1	11/4/2014 2:41:00 PM	GW
Phosphorus	ND	mg/L	5		EPA 200.7	10/29/2014 11:17:44 AM	RG
Potassium	2800	mg/L	500		EPA 200.7	10/29/2014 9:50:12 AM	RG

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:	14102006
Project ID:	EOG-ND CWA	Report Date:	11/7/2014

Potassium (meq/L)	70.6	meq/L	0	EPA 200.7	10/29/2014 9:50:12 AM	RG
Resistivity, 25C	0.03	ohms m	0.01	SM 2510 B	11/3/2014 10:12:00 AM	GW
Sodium	48000	mg/L	500	EPA 200.7	10/29/2014 9:50:12 AM	RG
Sodium (meq/L)	2080	meq/L	0	EPA 200.7	10/29/2014 9:50:12 AM	RG
Specific Gravity	1.139	g/cc	0.001	ASTM D 1429-03	11/3/2014 3:02:00 PM	GW
Strontium	508	mg/L	5	EPA 200.7	10/29/2014 11:17:44 AM	RG
Sulfate	548.0	mg/L	200	EPA 375.4	10/24/2014 2:00:00 PM	JP
Temperature (Thermometric)	21.4	°C	0.1	N/A	11/7/2014 9:30:00 AM	AC
Total Dissolved Solids (TDS)	176300	mg/L	5	Calculation	11/6/2014 4:40:00 PM	JP
Total Solids (TS)	207400	mg/L	1	SM 2540 B	10/29/2014 4:45:00 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:	14030705
Project ID:	EOG-ND CWA	Report Date:	3/14/2014

Lab Sample ID:	14030705-02		Date	Time
Customer Sample ID:	VAN HOOK 7-23H	Collection:	3/2/2014	
Matrix:	Aqueous	Received:	3/7/2014	11:11 AM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	500.00	mg/L	2		SM 2320 B	3/11/2014 2:35:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	3/11/2014 2:35:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	3/11/2014 2:35:00 PM	GW
Total Alkalinity	500.0	mg/L	2		SM 2320 B	3/11/2014 2:35:00 PM	GW
Barium	9.43	mg/L	5		EPA 200.7	3/10/2014 2:30:37 PM	CV
Bromide	ND	mg/L	1000		EPA 300.0	3/11/2014 4:08:00 PM	TMC
Calcium	10000	mg/L	500		EPA 200.7	3/10/2014 12:30:27 PM	CV
Calcium (meq/L)	499	meq/L	0		EPA 200.7	3/10/2014 12:30:27 PM	CV
Calcium as CaCO3	25000	mg/L	2.5		EPA 200.7	3/10/2014 12:30:27 PM	CV
Anions	5700.39	meq/L	-50		Calculation	3/14/2014 11:15:00 AM	AC
Cation/Anion Balance	-21.89	%	-50		Calculation	3/14/2014 11:15:00 AM	AC
Cations	3652.81	meq/L	-50		Calculation	3/14/2014 11:15:00 AM	AC
Chloride	200000	mg/L	10000		EPA 300.0	3/11/2014 3:56:00 PM	TMC
Chloride as NaCl	332000.00	mg/L	1.6		EPA 300.0	3/11/2014 3:56:00 PM	TMC
Field Dissolved CO2	51.0	mg/L			CO2 Analyzer	3/2/2014	FT
Field pH	6.5	s.u.	0.1		EPA 150.1	3/2/2014	FT
Ionic Strength	5.010	mol/L	0		Calculation	3/14/2014 11:15:00 AM	AC
Iron	100	mg/L	5		EPA 200.7	3/10/2014 2:30:37 PM	CV
Magnesium	1500	mg/L	500		EPA 200.7	3/10/2014 12:30:27 PM	CV
Magnesium (meq/L)	126	meq/L	0		EPA 200.7	3/10/2014 12:30:27 PM	CV
pH	5.89	s.u.	0.01		EPA 150.1	3/10/2014 1:24:00 PM	GW
Potassium	3400	mg/L	500		EPA 200.7	3/10/2014 12:30:27 PM	CV
Potassium (meq/L)	87.5	meq/L	0		EPA 200.7	3/10/2014 12:30:27 PM	CV
Resistivity, 25C	0.03	ohms m	0.01		SM 2510 B	3/10/2014 8:54:00 AM	GW

Definitions:

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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:	14030705
Project ID:	EOG-ND CWA	Report Date:	3/14/2014

Sodium	68000	mg/L	500	EPA 200.7	3/10/2014 12:30:27 PM	CV
Sodium (meq/L)	2940	meq/L	0	EPA 200.7	3/10/2014 12:30:27 PM	CV
Specific Gravity	1.127	g/cc	0.001	ASTM D 1429-03	3/10/2014 1:39:00 PM	KB
Strontium	461.00	mg/L	5	EPA 200.7	3/10/2014 2:30:37 PM	CV
Sulfate	460	mg/L	10	EPA 375.4	3/10/2014 10:16:00 AM	TMC
Temperature (Thermometric)	14.2	°C	0.1	N/A	3/14/2014 11:15:00 AM	AC
Total Dissolved Solids (TDS)	290000	mg/L	5	Calculation	3/14/2014 11:15:00 AM	AC
Total Solids (TS)	260000	mg/L	1	SM 2540 B	3/14/2014 8:45:00 AM	KF

Definitions:

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M-Matrix Effect
D-Diluted out of recovery limits
L-Analyzed by a contract laboratory

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PRECISION ANALYSIS

Gas Measurement • Emissions Testing
Laboratory • Sample Collection
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Laboratory Analytical Report

Customer Name:	EOG Resources- Williston Basin	Order ID:	14021402
Project ID:	EOG-ND CWA	Report Date:	2/24/2014

			Date	Time
Lab Sample ID:	14021402-04			
Customer Sample ID:	Liberty LR 18-14H	Collection:	2/3/2014	
Matrix:	Aqueous	Received:	2/14/2014	10:30 AM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	130.00	mg/L	2		SM 2320 B	2/21/2014 2:26:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/21/2014 2:26:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/21/2014 2:26:00 PM	GW
Total Alkalinity	130.0	mg/L	2		SM 2320 B	2/21/2014 2:26:00 PM	GW
Barium	5.94	mg/L	5		EPA 200.7	2/18/2014 1:41:13 PM	CV
Bromide	ND	mg/L	1000		EPA 300.0	2/17/2014 12:41:00 PM	TMC
Calcium	17000	mg/L	500		EPA 200.7	2/18/2014 11:21:54 AM	CV
Calcium (meq/L)	853	meq/L	0		EPA 200.7	2/18/2014 11:21:54 AM	CV
Calcium as CaCO3	43000	mg/L	2.5		EPA 200.7	2/18/2014 11:21:54 AM	CV
Anions	20455.28	meq/L	-50		Calculation	2/24/2014 1:37:00 PM	AC
Cation/Anion Balance	< -50.00	%	-50		Calculation	2/24/2014 1:37:00 PM	AC
Cations	4505.40	meq/L	-50		Calculation	2/24/2014 1:37:00 PM	AC
Chloride	730000	mg/L	10000		EPA 300.0	2/17/2014 11:39:00 AM	TMC
Chloride as NaCl	1200000.00	mg/L	1.6		EPA 300.0	2/17/2014 11:39:00 AM	TMC
Field Dissolved CO2	34.000	mg/L			CO2 Analyzer	2/3/2014	FT
Field pH	6.0	s.u.	0.1		EPA 150.1	2/3/2014	FT
Ionic Strength	13.000	mol/L	0		Calculation	2/24/2014 1:37:00 PM	AC
Iron	90	mg/L	5		EPA 200.7	2/18/2014 1:41:13 PM	CV
Magnesium	2000	mg/L	500		EPA 200.7	2/18/2014 11:21:54 AM	CV
Magnesium (meq/L)	162	meq/L	0		EPA 200.7	2/18/2014 11:21:54 AM	CV
pH	5.63	s.u.	0.01		EPA 150.1	2/17/2014 3:54:00 PM	GW
Potassium	4500	mg/L	500		EPA 200.7	2/18/2014 11:21:54 AM	CV
Potassium (meq/L)	115	meq/L	0		EPA 200.7	2/18/2014 11:21:54 AM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	2/17/2014 2:25:00 PM	GW

Definitions:

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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:	14021402
Project ID:	EOG-ND CWA	Report Date:	2/24/2014

Sodium	78000	mg/L	500	EPA 200.7	2/18/2014 11:21:54 AM	CV
Sodium (meq/L)	3380	meq/L	0	EPA 200.7	2/18/2014 11:21:54 AM	CV
Specific Gravity	1.188	g/cc	0.001	ASTM D 1429-03	2/19/2014 10:13:00 AM	KB
Strontium	940.00	mg/L	500	EPA 200.7	2/18/2014 11:21:54 AM	CV
Sulfate	49	mg/L	1	EPA 300.0	2/17/2014 7:18:00 AM	TMC
Temperature (Thermometric)	18.6	°C	0.1	N/A	2/24/2014 1:37:00 PM	AC
Total Dissolved Solids (TDS)	830000	mg/L	5	Calculation	2/24/2014 1:37:00 PM	AC
Total Solids (TS)	360000	mg/L	1	SM 2540 B	2/20/2014 9:19:00 AM	KF

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
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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:	14021402
Project ID:	EOG-ND CWA	Report Date:	2/24/2014

Lab Sample ID:	14021402-01		Date	Time
Customer Sample ID:	Liberty LR 13 -14H	Collection:	2/3/2014	
Matrix:	Aqueous	Received:	2/14/2014	10:30 AM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	300.00	mg/L	2		SM 2320 B	2/21/2014 2:26:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/21/2014 2:26:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/21/2014 2:26:00 PM	GW
Total Alkalinity	300.0	mg/L	2		SM 2320 B	2/21/2014 2:26:00 PM	GW
Barium	5.37	mg/L	5		EPA 200.7	2/18/2014 1:24:42 PM	CV
Bromide	ND	mg/L	1000		EPA 300.0	2/17/2014 10:40:00 AM	TMC
Calcium	16000	mg/L	500		EPA 200.7	2/18/2014 11:05:24 AM	CV
Calcium (meq/L)	788	meq/L	0		EPA 200.7	2/18/2014 11:05:24 AM	CV
Calcium as CaCO3	40000	mg/L	2.5		EPA 200.7	2/18/2014 11:05:24 AM	CV
Anions	13600.41	meq/L	-50		Calculation	2/24/2014 1:37:00 PM	AC
Cation/Anion Balance	< -50.00	%	-50		Calculation	2/24/2014 1:37:00 PM	AC
Cations	4296.75	meq/L	-50		Calculation	2/24/2014 1:37:00 PM	AC
Chloride	480000	mg/L	10000		EPA 300.0	2/17/2014 10:28:00 AM	TMC
Chloride as NaCl	794000.00	mg/L	1.6		EPA 300.0	2/17/2014 10:28:00 AM	TMC
Field Dissolved CO2	39.0000	mg/L	1.0		CO2 Analyzer	2/3/2014	FT
Field pH	6.0	s.u.	0.1		EPA 150.1	2/3/2014	FT
Ionic Strength	9.440	mol/L	0		Calculation	2/24/2014 1:37:00 PM	AC
Iron	90	mg/L	5		EPA 200.7	2/18/2014 1:24:42 PM	CV
Magnesium	1700	mg/L	500		EPA 200.7	2/18/2014 11:05:24 AM	CV
Magnesium (meq/L)	136	meq/L	0		EPA 200.7	2/18/2014 11:05:24 AM	CV
pH	5.19	s.u.	0.01		EPA 150.1	2/17/2014 3:54:00 PM	GW
Potassium	4100	mg/L	500		EPA 200.7	2/18/2014 11:05:24 AM	CV
Potassium (meq/L)	106	meq/L	0		EPA 200.7	2/18/2014 11:05:24 AM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	2/17/2014 2:25:00 PM	GW

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
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Laboratory Analytical Report

Customer Name: EOG Resources- Williston Basin
Order ID: 14021402
Project ID: EOG-ND CWA
Report Date: 2/24/2014

Sodium	75000	mg/L	500	EPA 200.7	2/18/2014 11:05:24 AM	CV
Sodium (meq/L)	3270	meq/L	0	EPA 200.7	2/18/2014 11:05:24 AM	CV
Specific Gravity	1.189	g/cc	0.001	ASTM D 1429-03	2/19/2014 10:13:00 AM	KB
Strontium	896.00	mg/L	500	EPA 200.7	2/18/2014 11:05:24 AM	CV
Sulfate	260	mg/L	10	EPA 300.0	2/17/2014 7:32:00 AM	TMC
Temperature (Thermometric)	18.6	°C	0.1	N/A	2/24/2014 1:37:00 PM	AC
Total Dissolved Solids (TDS)	580000	mg/L	5	Calculation	2/24/2014 1:37:00 PM	AC
Total Solids (TS)	350000	mg/L	1	SM 2540 B	2/20/2014 9:19:00 AM	KF

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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:	14022117
Project ID:	EOG-ND CWA	Report Date:	3/3/2014

Lab Sample ID:	14022117-03		Date	Time
Customer Sample ID:	LIBERTY 102-01H	Collection:	2/17/2014	
Matrix:	Aqueous	Received:	2/21/2014	2:45 PM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	250.00	mg/L	2		SM 2320 B	2/28/2014 9:09:00 AM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/28/2014 9:09:00 AM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/28/2014 9:09:00 AM	GW
Total Alkalinity	250.0	mg/L	2		SM 2320 B	2/28/2014 9:09:00 AM	GW
Barium	5.29	mg/L	5		EPA 200.7	2/26/2014 10:57:34 PM	CV
Bromide	ND	mg/L	1000		EPA 300.0	2/26/2014 12:53:00 PM	TMC
Calcium	15000	mg/L	500		EPA 200.7	2/26/2014 7:08:07 PM	CV
Calcium (meq/L)	744	meq/L	0		EPA 200.7	2/26/2014 7:08:07 PM	CV
Calcium as CaCO3	37000	mg/L	2.5		EPA 200.7	2/26/2014 7:08:07 PM	CV
Anions	5188.75	meq/L	-50		Calculation	3/3/2014 2:00:00 PM	AC
Cation/Anion Balance	-13.88	%	-50		Calculation	3/3/2014 2:00:00 PM	AC
Cations	3923.59	meq/L	-50		Calculation	3/3/2014 2:00:00 PM	AC
Chloride	180000	mg/L	10000		EPA 300.0	2/26/2014 12:41:00 PM	TMC
Chloride as NaCl	303000.00	mg/L	1.6		EPA 300.0	2/26/2014 12:41:00 PM	TMC
Field Dissolved CO2	36.0	mg/L			CO2 Analyzer	2/17/2014	FT
Field pH	6.0	s.u.	0.1		EPA 150.1	2/17/2014	FT
Ionic Strength	5.010	mol/L	0		Calculation	3/3/2014 2:00:00 PM	AC
Iron	70	mg/L	5		EPA 200.7	2/26/2014 10:57:34 PM	CV
Magnesium	1300	mg/L	500		EPA 200.7	2/26/2014 7:08:07 PM	CV
Magnesium (meq/L)	109	meq/L	0		EPA 200.7	2/26/2014 7:08:07 PM	CV
pH	5.53	s.u.	0.01		EPA 150.1	2/25/2014 4:06:00 PM	GW
Potassium	3900	mg/L	500		EPA 200.7	2/26/2014 7:08:07 PM	CV
Potassium (meq/L)	99.7	meq/L	0		EPA 200.7	2/26/2014 7:08:07 PM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	2/24/2014 3:41:00 PM	GW

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: 14022117
Project ID: EOG-ND CWA
Report Date: 3/3/2014

Sodium	68000	mg/L	500	EPA 200.7	2/26/2014 7:08:07 PM	CV
Sodium (meq/L)	2970	meq/L	0	EPA 200.7	2/26/2014 7:08:07 PM	CV
Specific Gravity	1.188	g/cc	0.001	ASTM D 1429-03	2/26/2014 1:08:00 PM	GW
Strontium	654.00	mg/L	5	EPA 200.7	2/26/2014 10:57:34 PM	CV
Sulfate	300	mg/L	10	EPA EPA 375.4	2/25/2014 3:05:00 PM	TMC
Temperature (Thermometric)	12.2	°C	0.1	N/A	3/3/2014 2:00:00 PM	AC
Total Dissolved Solids (TDS)	270000	mg/L	5	Calculation	3/3/2014 2:00:00 PM	AC
Total Solids (TS)	390000	mg/L	1	SM 2540 B	2/25/2014 11:02:00 AM	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:	14022113
Project ID:	EOG-ND CWA	Report Date:	3/3/2014

			Date	Time
Lab Sample ID:	14022113-04			
Customer Sample ID:	FERTILE 101-04H	Collection:	2/16/2014	
Matrix:	Aqueous	Received:	2/21/2014	1:30 PM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	310.00	mg/L	2		SM 2320 B	2/26/2014 3:03:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/26/2014 3:03:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/26/2014 3:03:00 PM	GW
Total Alkalinity	310.0	mg/L	2		SM 2320 B	2/26/2014 3:03:00 PM	GW
Barium	5.65	mg/L	5		EPA 200.7	2/26/2014 8:52:13 PM	CV
Bromide	ND	mg/L	1000		EPA 300.0	2/25/2014 3:56:00 PM	TMC
Calcium	14000	mg/L	500		EPA 200.7	2/26/2014 5:02:45 PM	CV
Calcium (meq/L)	699	meq/L	0		EPA 200.7	2/26/2014 5:02:45 PM	CV
Calcium as CaCO3	35000	mg/L	2.5		EPA 200.7	2/26/2014 5:02:45 PM	CV
Anions	13063.19	meq/L	-50		Calculation	2/28/2014 11:15:00 AM	AC
Cation/Anion Balance	< -50.00	%	-50		Calculation	2/28/2014 11:15:00 AM	AC
Cations	4179.17	meq/L	-50		Calculation	2/28/2014 11:15:00 AM	AC
Chloride	460000	mg/L	10000		EPA 300.0	2/25/2014 3:44:00 PM	TMC
Chloride as NaCl	763000.00	mg/L	1.6		EPA 300.0	2/25/2014 3:44:00 PM	TMC
Field Dissolved CO2	18.0	mg/L			CO2 Analyzer	2/16/2014	FT
Field pH	6.0	s.u.	0.1		EPA 150.1	2/16/2014	FT
Ionic Strength	9.060	mol/L	0		Calculation	2/28/2014 11:15:00 AM	AC
Iron	60	mg/L	5		EPA 200.7	2/26/2014 8:52:13 PM	CV
Magnesium	1400	mg/L	500		EPA 200.7	2/26/2014 5:02:45 PM	CV
Magnesium (meq/L)	118	meq/L	0		EPA 200.7	2/26/2014 5:02:45 PM	CV
pH	5.76	s.u.	0.01		EPA 150.1	2/25/2014 1:15:00 PM	GW
Potassium	3900	mg/L	500		EPA 200.7	2/26/2014 5:02:45 PM	CV
Potassium (meq/L)	99.7	meq/L	0		EPA 200.7	2/26/2014 5:02:45 PM	CV
Resistivity, 25C	0.02	ohms m	0.01		SM 2510 B	2/25/2014 12:17:00 PM	GW

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: 14022113
Project ID: EOG-ND CWA
Report Date: 3/3/2014

Sodium	75000	mg/L	500	EPA 200.7	2/26/2014 5:02:45 PM	CV
Sodium (meq/L)	3260	meq/L	0	EPA 200.7	2/26/2014 5:02:45 PM	CV
Specific Gravity	1.180	g/cc	0.001	ASTM D 1429-03	2/25/2014 1:26:00 PM	GW
Strontium	796.00	mg/L	5	EPA 200.7	2/26/2014 8:52:13 PM	CV
Sulfate	370	mg/L	10	EPA 375.4	2/25/2014 7:53:00 AM	TMC
Temperature (Thermometric)	16.4	°C	0.1	N/A	2/28/2014 11:15:00 AM	AC
Total Dissolved Solids (TDS)	560000	mg/L	5	Calculation	2/28/2014 11:15:00 AM	AC
Total Solids (TS)	310000	mg/L	1	SM 2540 B	2/25/2014 3:36:00 PM	KF

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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:	14022008
Project ID:	EOG-ND CWA	Report Date:	2/28/2014

			Date	Time
Lab Sample ID:	14022008-01			
Customer Sample ID:	FERTILE 52-3332H	Collection:	2/12/2014	
Matrix:	Aqueous	Received:	2/20/2014	11:25 AM
Notes:				

Analyses	Result	Units	RL	Qual.	Method	Analysis Date/Time	Analyst
Alkalinity, Bicarbonate (HCO3)	800.00	mg/L	2		SM 2320 B	2/27/2014 1:52:00 PM	GW
Alkalinity, Carbonate (CO3)	ND	mg/L	2		SM 2320 B	2/27/2014 1:52:00 PM	GW
Alkalinity, Hydroxide (OH)	ND	mg/L	2		SM 2320 B	2/27/2014 1:52:00 PM	GW
Total Alkalinity	800.0	mg/L	2		SM 2320 B	2/27/2014 1:52:00 PM	GW
Barium	6.12	mg/L	5		EPA 200.7	2/25/2014 8:53:55 PM	CV
Bromide	ND	mg/L	1000		EPA 300.0	2/24/2014 2:23:00 PM	TMC
Calcium	13000	mg/L	500		EPA 200.7	2/25/2014 5:09:58 PM	CV
Calcium (meq/L)	644	meq/L	0		EPA 200.7	2/25/2014 5:09:58 PM	CV
Calcium as CaCO3	32000	mg/L	2.5		EPA 200.7	2/25/2014 5:09:58 PM	CV
Anions	5825.16	meq/L	-50		Calculation	2/28/2014 4:25:00 PM	AC
Cation/Anion Balance	-16.01	%	-50		Calculation	2/28/2014 4:25:00 PM	AC
Cations	4217.31	meq/L	-50		Calculation	2/28/2014 4:25:00 PM	AC
Chloride	210000	mg/L	10000		EPA 300.0	2/24/2014 2:11:00 PM	TMC
Chloride as NaCl	339000.00	mg/L	1.6		EPA 300.0	2/24/2014 2:11:00 PM	TMC
Field Dissolved CO2	24.0	mg/L			CO2 Analyzer	2/12/2014	FT
Field pH	6.0	s.u.	0.1		EPA 150.1	2/12/2014	FT
Ionic Strength	5.430	mol/L	0		Calculation	2/28/2014 4:25:00 PM	AC
Iron	20	mg/L	5		EPA 200.7	2/25/2014 8:53:55 PM	CV
Magnesium	1600	mg/L	500		EPA 200.7	2/25/2014 5:09:58 PM	CV
Magnesium (meq/L)	128	meq/L	0		EPA 200.7	2/25/2014 5:09:58 PM	CV
pH	5.99	s.u.	0.01		EPA 150.1	2/24/2014 12:19:00 PM	KB
Potassium	3200	mg/L	500		EPA 200.7	2/25/2014 5:09:58 PM	CV
Potassium (meq/L)	82.9	meq/L	0		EPA 200.7	2/25/2014 5:09:58 PM	CV
Resistivity, 25C	0.03	ohms m	0.01		SM 2510 B	2/24/2014 9:40:00 AM	KB

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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: 14022008
Project ID: EOG-ND CWA
Report Date: 2/28/2014

Sodium	77000	mg/L	500	EPA 200.7	2/25/2014 5:09:58 PM	CV
Sodium (meq/L)	3360	meq/L	0	EPA 200.7	2/25/2014 5:09:58 PM	CV
Specific Gravity	1.167	g/cc	0.001	ASTM D 1429-03	2/26/2014 3:13:00 PM	GW
Strontium	557.00	mg/L	5	EPA 200.7	2/25/2014 8:53:55 PM	CV
Sulfate	420	mg/L	10	EPA 375.4	2/24/2014 9:30:00 AM	TMC
Temperature (Thermometric)	16.4	°C	0.1	N/A	2/28/2014 4:25:00 PM	AC
Total Dissolved Solids (TDS)	300000	mg/L	5	Calculation	2/28/2014 4:25:00 PM	AC
Total Solids (TS)	420000	mg/L	1	SM 2540 B	2/25/2014 10:16:00 AM	KF

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M-Matrix Effect
D-Diluted out of recovery limits
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OMB No. 2040-0042 Approval Expires 12/31/2018

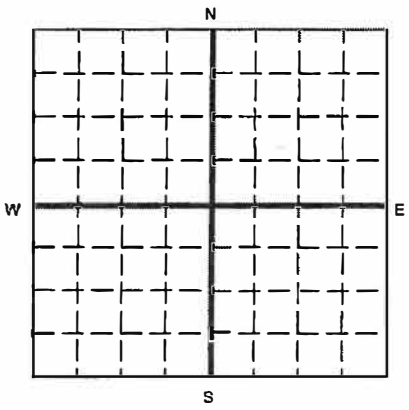
EPA

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
Liberty 200-14SWD	EOG Resources, Inc. 600 17th Street, Ste 1000N, Denver, CO 80202

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
North Dakota	Mountrail	19210

Surface Location Description

S 1/4 of E 1/4 of S 1/4 of E 1/4 of Section 14 Township 151 Range 91

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

Surface Location 550 ft. frm (N/S) S Line of quarter section
and 275 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION

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

Number of Wells ____

Lease Name

WELL ACTIVITY

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

Well Number 200-14SWD

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		1905	13-1/2
7	26,32		10067	8-3/4
4-1/2	11.6		5252	6

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] 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	5200'						
Sacks of Cement To Be Used (each plug)	485						
Slurry Volume To Be Pumped (cu. ft.)	611						
Calculated Top of Plug (ft.)	2183						
Measured Top of Plug (if tagged ft.)	2183						
Slurry Wt. (Lb./Gal.)	15.8						
Type Cement or Other Material (Class III)	ClassG						

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

From	To	From	To
10067	14264		

Estimated Cost to Plug Wells

$60,000

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Mary A. Maestas, Sr. Regulatory Assistant	Mary A. Maestas	08/19/2016

EPA Form 7520-14 (Rev. 12-11)

EOG's Liberty 200-14 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

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***

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 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.

eog resources

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)

eog resources

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.

GIBSONS

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July 15th, 2016

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Liberty 200-14 SWD, Mountrail County ND

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WISCO Inc. – ***GIBSON PRODUCTION SERVICES***

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Sincerely,

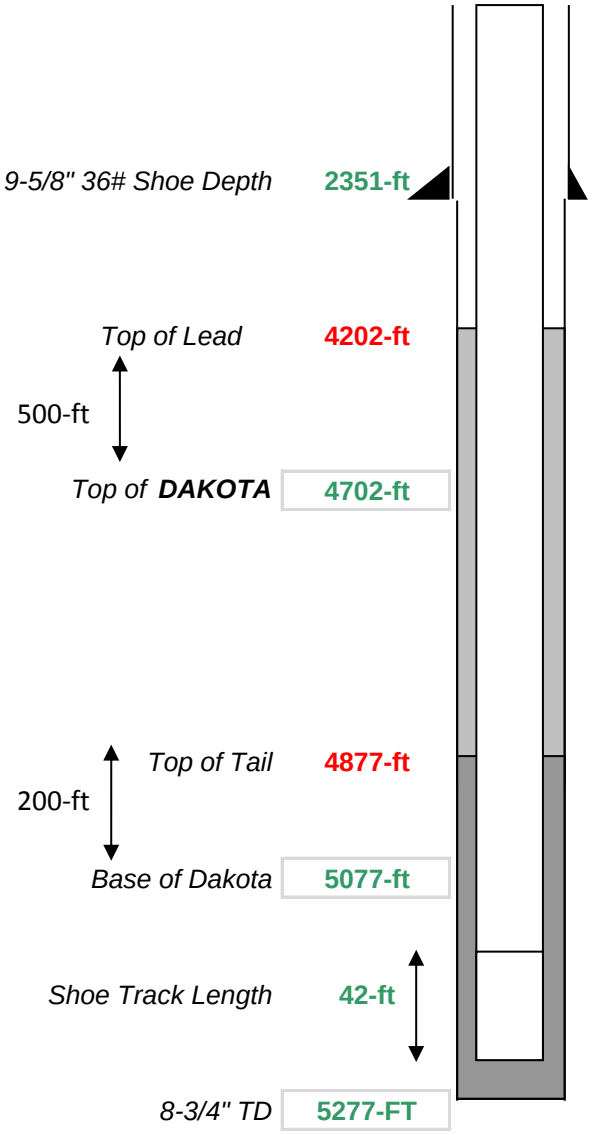
Aubrey M. Van Dyke
Operations Engineer
MBI Energy Services
(701) 842-7783
avandyke@mobasin.com

EOG's Liberty 200-14 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

0

7" Intermediate Casing & Cementing



EOG Resources, Inc.

Revised: 5/5/2017

Pad Name: Liberty 14 SESE 1

Liberty 200-14 SWD &
Liberty 3-14H

SE1/4SE1/4, Section 14
Township 151 North
Range 91 West
5th Principal Meridian
Mountrail County
North Dakota

KLJ

WELL LOCATION PLAT

EOG Resources, Inc.
600 Seventeenth Street, Suite 1100 N Denver, Colorado 80202-1100

Liberty 3-14H

550 feet from the south line and 275 feet from the east line (surface location)
500 feet from the north line and 2100 feet from the east line (bottom location)
Section 14, T. 151 N., R. 91 W., 5th P.M.
Mountrail County, North Dakota

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NAD 83 Latitude 47.892504° North; Longitude 102.280192° West (decimal degrees surface location)
NAD 27 Latitude 47°53'32.970" North; Longitude 102°16'47.069" West (surface location)
NAD 27 Latitude 47.892492° North; Longitude 102.279741° West (decimal degrees surface location)
NAD 83 Latitude 47°54'14.762" North; Longitude 102°17'15.484" West (bottom location)
NAD 83 Latitude 47.904101° North; Longitude 102.287634° West (decimal degrees bottom location)
NAD 27 Latitude 47°54'14.718" North; Longitude 102°17'13.859" West (bottom location)
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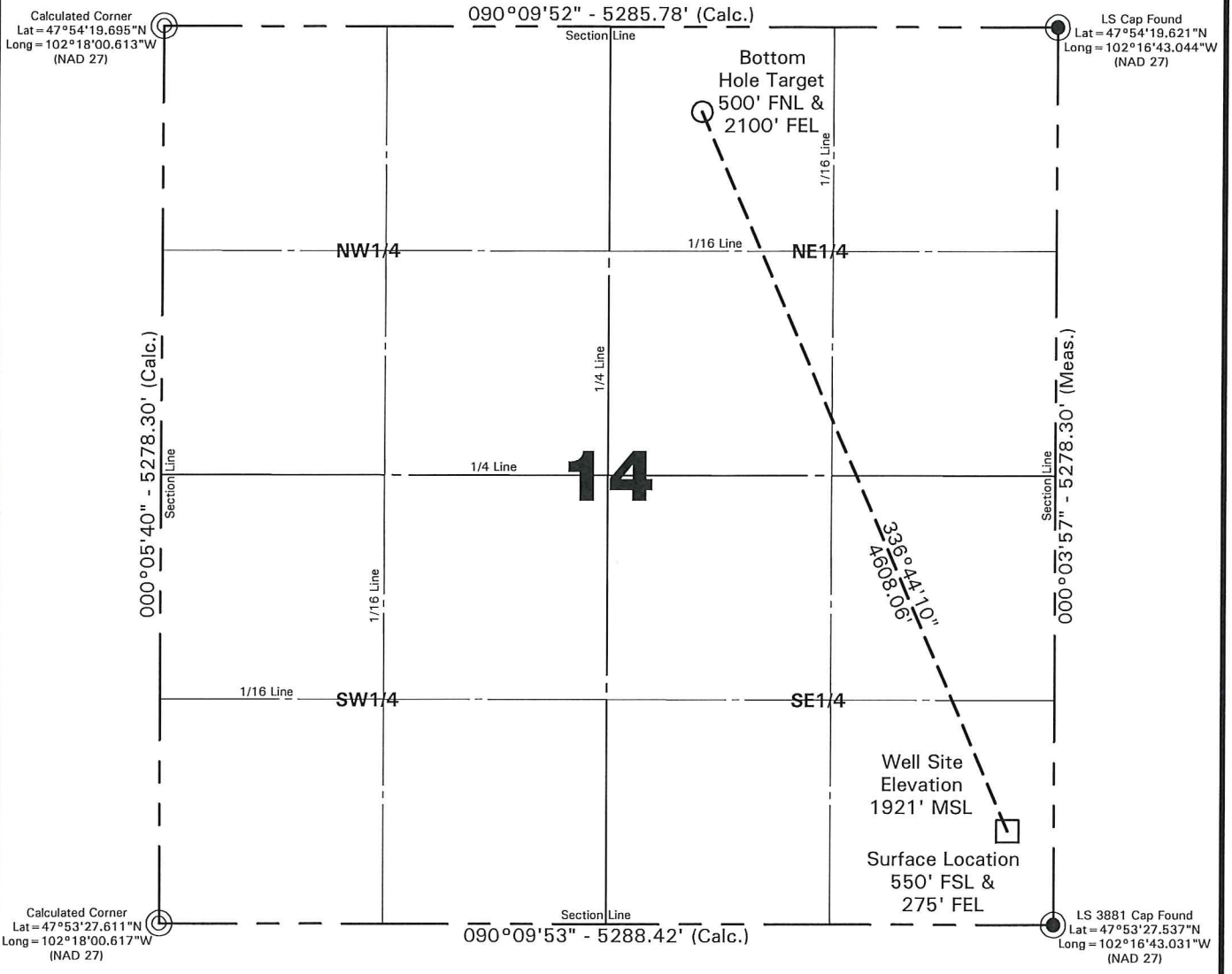

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N

I, Gregg Orvik, Professional Land Surveyor, N.D. No. 3881, do hereby certify that the survey plat shown hereon was made by me, or under my direction, from notes made in the field, and the same is true and correct to the best of my knowledge and belief.

GREGG ORVIK
REGISTERED
LAND
SURVEYOR
LS. -3881
NORTH DAKOTA
5-9-17

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 1000'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Well Location	5/5/2017	7716126	-

KLJ

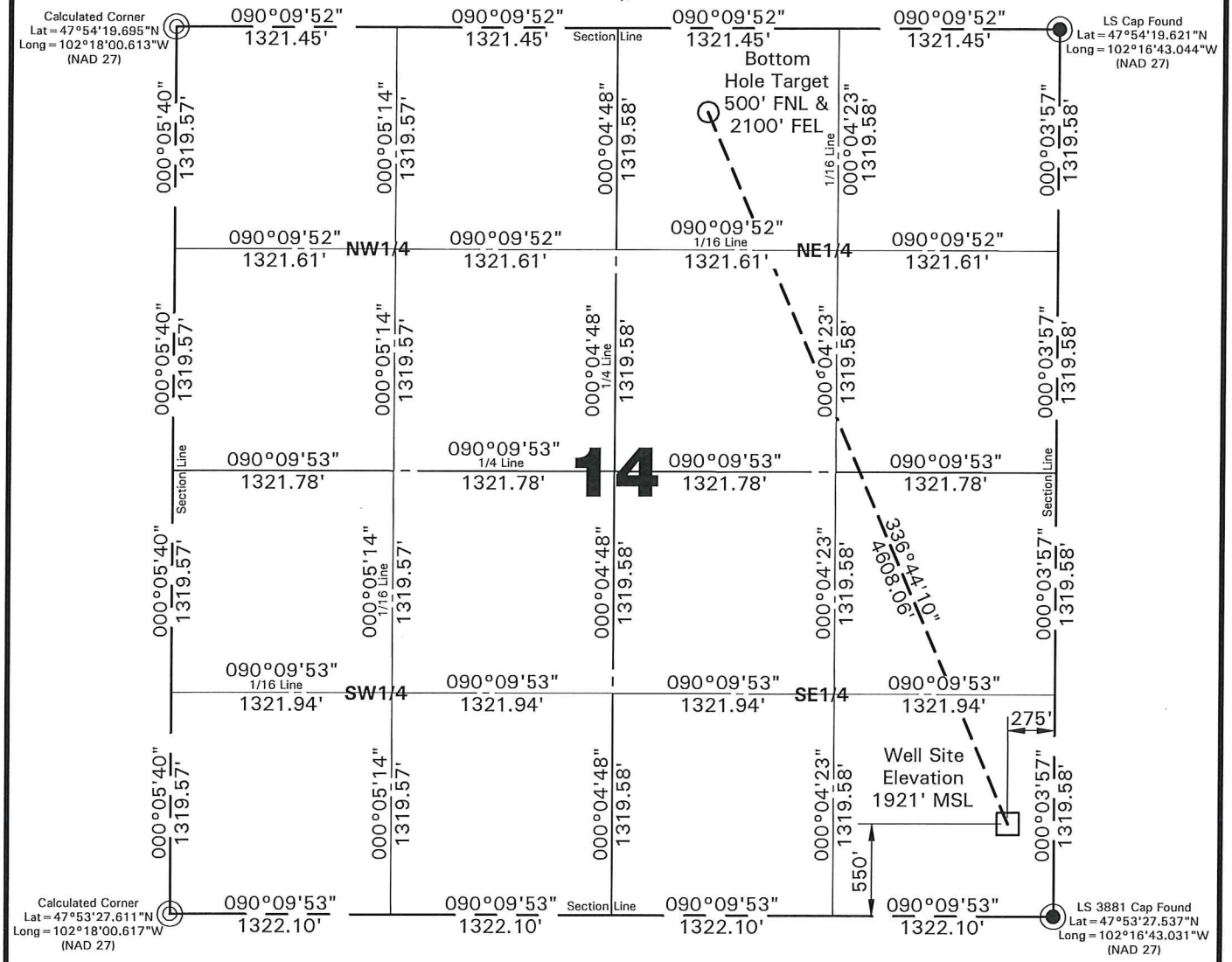
May 8, 2017 - 2:21 PM - P:\Oil\EOG\7716126 Liberty 14 SESE 1\CADD\7716126BAS01-H1.dwg

SECTION BREAKDOWN

EOG Resources, Inc.
600 Seventeenth Street, Suite 1100 N Denver, Colorado 80202-1100

Liberty 3-14H

550 feet from the south line and 275 feet from the east line (surface location)
500 feet from the north line and 2100 feet from the east line (bottom location)
Section 14, T. 151 N., R. 91 W., 5th P.M.
Mountrail County, North Dakota



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GREGG ORVIK
REGISTERED LAND SURVEYOR
LS. -3881
NORTH DAKOTA
5/05/17

Gregg Orvik — 2/1/2010
Surveyed By N.D.P.L.S. # 3881 — Date

Vertical Control Datum Used
North American Vertical Datum 1988 (NAVD 88)

Based on elevation derived from OPUS Solution on GPS*BRENDLE (iron rebar) Located a distance of 6657.63' on an azimuth of 038°53'06" from the NE corner of Section 14 T.151N., R.91W., 5th P.M. being at 1967.38' Elevation MSL.

Project No. 7716126

Book Minot OW#21 Pg. 41-42 Staking

Professional Consulting Engineers and Surveyors
Registered in
North Dakota, South Dakota
Montana, Wyoming & Minnesota
Tele-Fax No. 855-288-8055
Bus. Phone No. 701-839-3383
P.O. Box 250
2900 10th Street SW, Suite A
Minot, North Dakota 58702-0250
Certificate of Authorization #C-061

Revised: 5/5/2017

KLJ

WELL LOCATION PLAT

EOG Resources, Inc.
600 Seventeenth Street, Suite 1100 N Denver, Colorado 80202-1100
Liberty 200-14 SWD
550 feet from the south line and 325 feet from the east line (surface location)
Section 14, T. 151 N., R. 91 W., 5th P.M.
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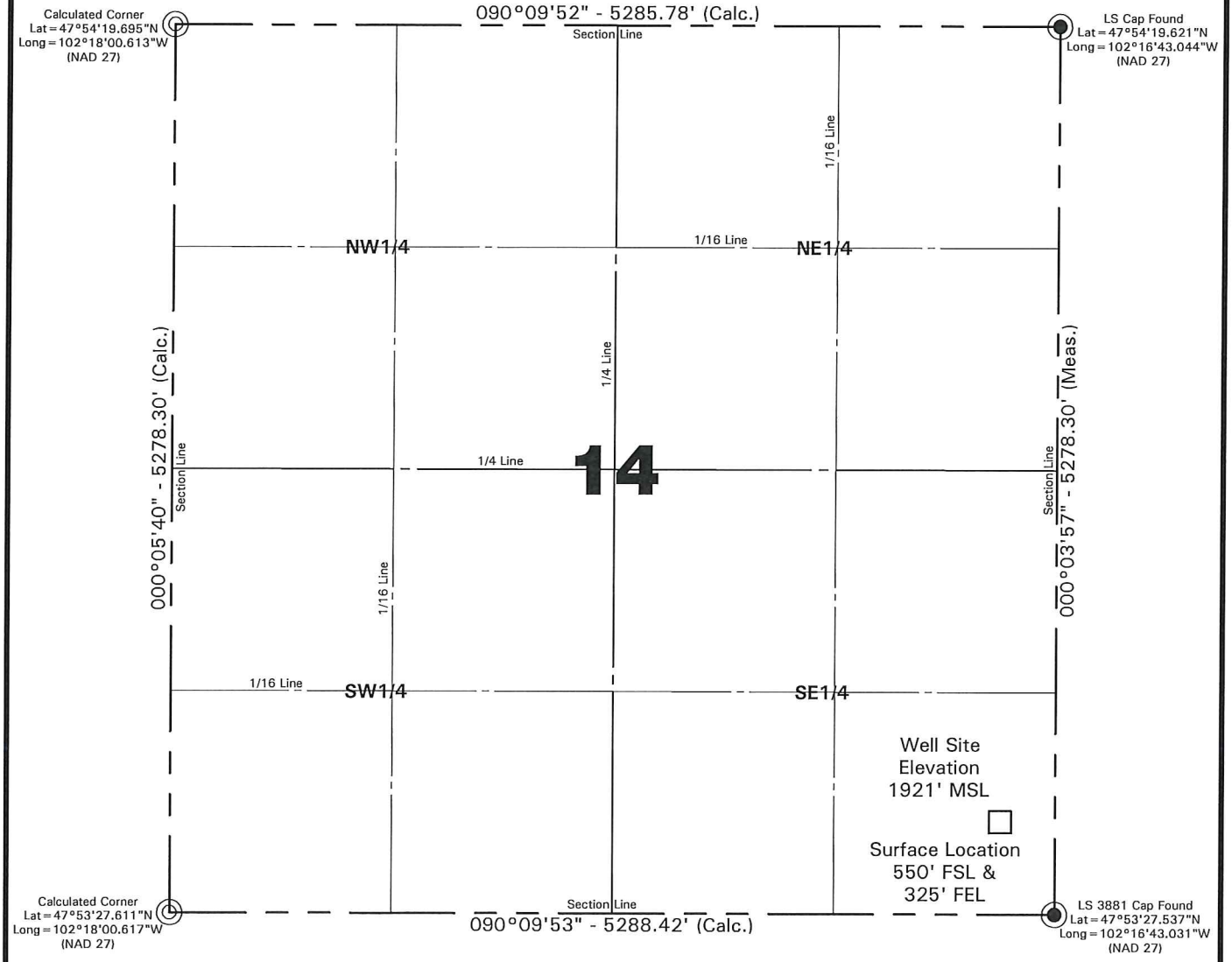

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Computed & Drawn By	Surveyed By	Approved By	Scale	Date
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Minot OW#21	Well Location	5/5/2017	7716126	-

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May 8, 2017 - 2:22 PM - P:\Oil\EOG\7716126 Liberty 14 SESE 1\CADD\7716126BAS01-H2.dwg

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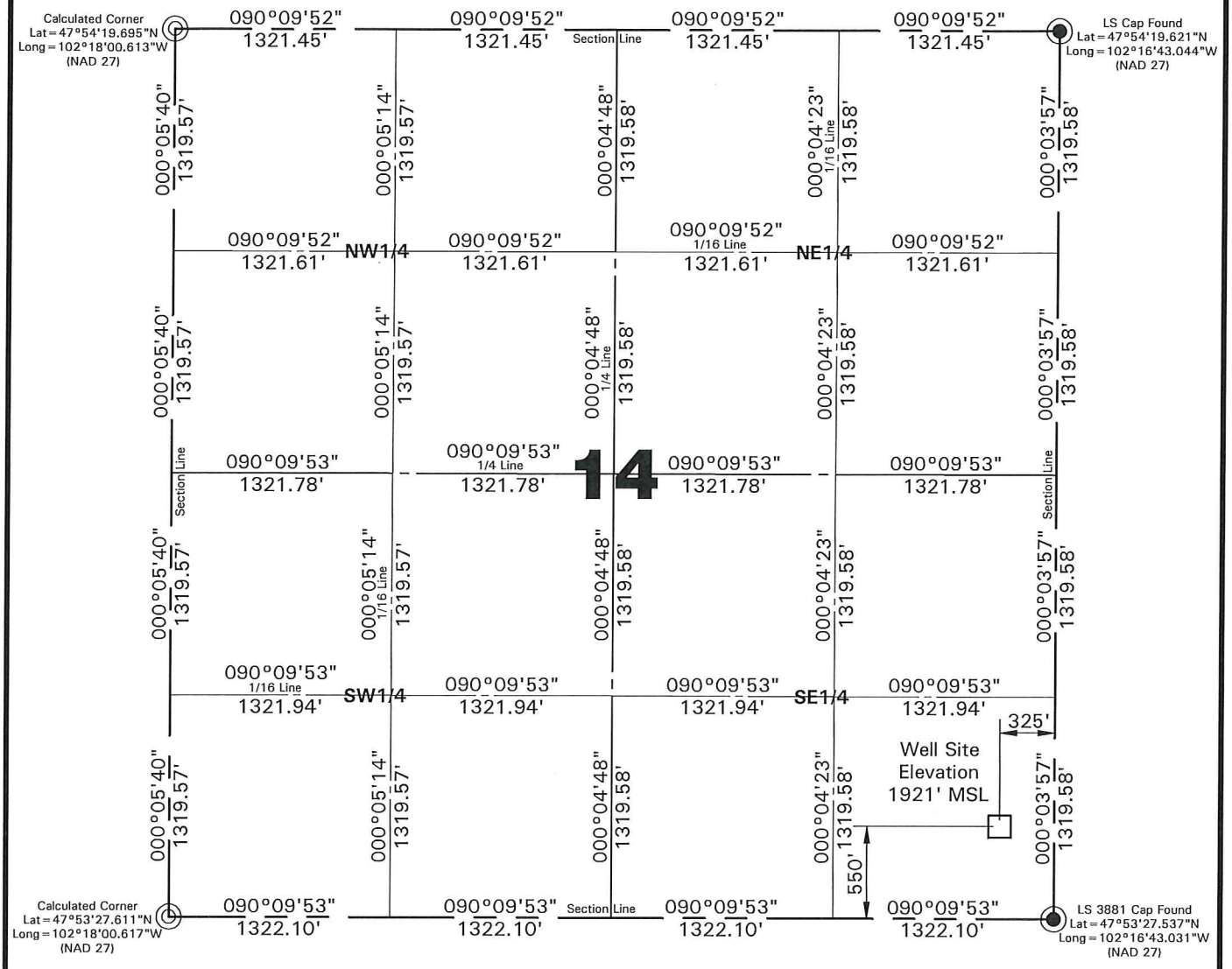

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P.O. Box 250
2900 10th Street SW, Suite A
Minot, North Dakota 58702-0250
Certificate of Authorization #C-061

Revised: 5/5/2017

KLJ

EOG Resources, Inc.
Liberty 14 SESE 1
Section 14, T 151 N, R 91 W, 5th P.M.
Mountrail County, North Dakota

Liberty 200-14 SWD Well Site Elevation 1921.4' MSL
Liberty 3-14H Well Site Elevation 1920.5' MSL

Well Pad Elevation 1920.7' MSL

Excavation	**13,520 C.Y.**
Embankment	**8,015 C.Y.**
Plus Shrinkage (+30%)	**2,405 C.Y.**
	10,420 C.Y.
Stockpile Topsoil (6")	**2,975 C.Y.**
Road Embankment & Stockpile from Pad	**125 C.Y.**
Disturbed Area From Pad	**3.69 Acres**
Disturbed Area From Road	**0.72 Acres**
Total Disturbed Area	**4.41 Acres**

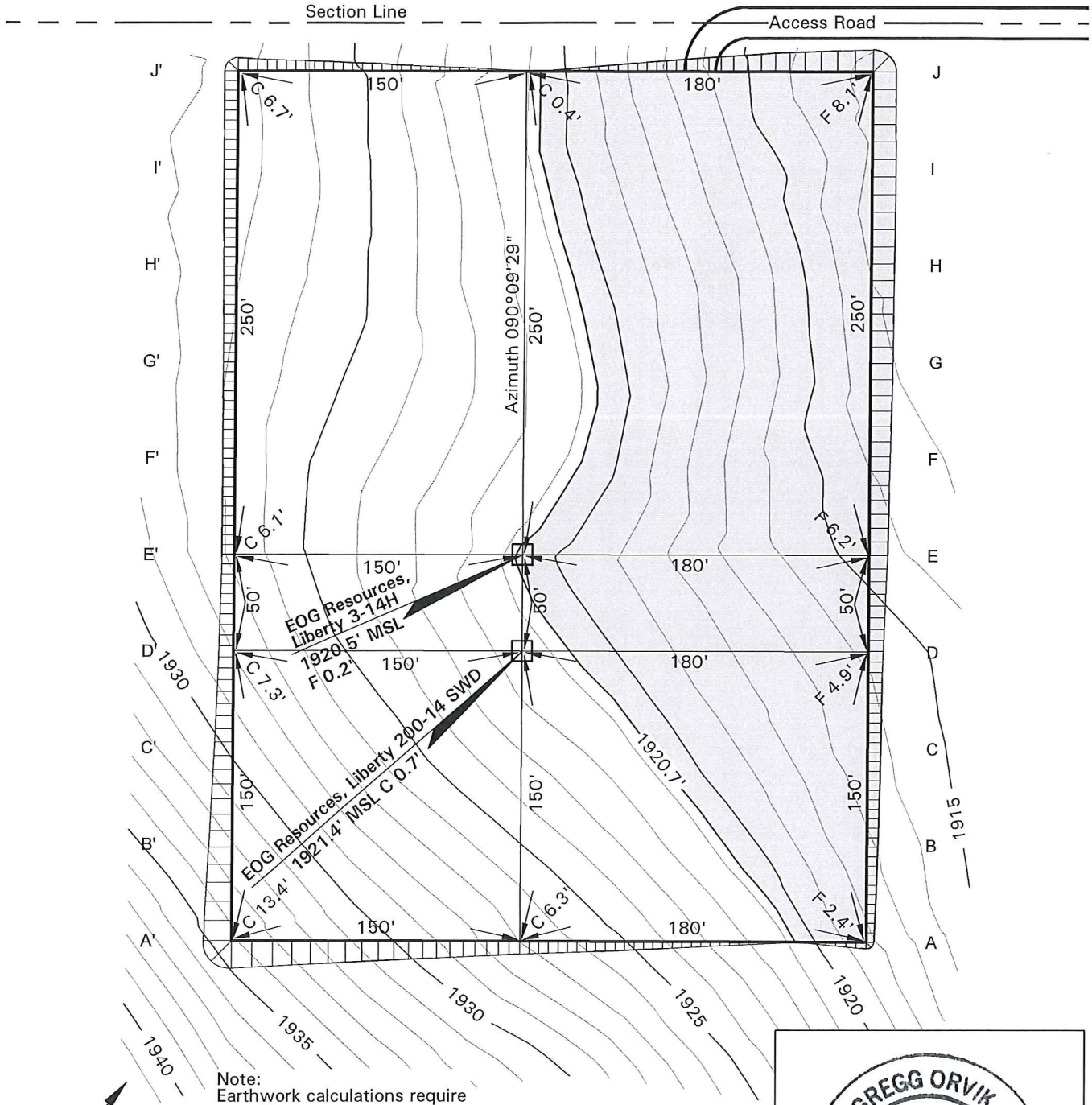
NOTE:
All cut end slopes are designed at 1:1 slopes &
All fill end slopes are designed at 1 1/2:1 slopes

Liberty 200-14 SWD Well Site Location	Liberty 3-14H Well Site Location
550' FSL	550' FSL
325' FEL	275' FEL

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	None	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Quantities	5/5/2017	7716126	-

KLJ

Liberty 14 SESE 1
Pad Layout



Note:
Earthwork calculations require a fill @ the location stakes for balance. All fill is to be compacted to a minimum of 95% of the Maximum Dry Density obtained by AASHTO Method t-99.

Prevailing Wind Direction

SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.

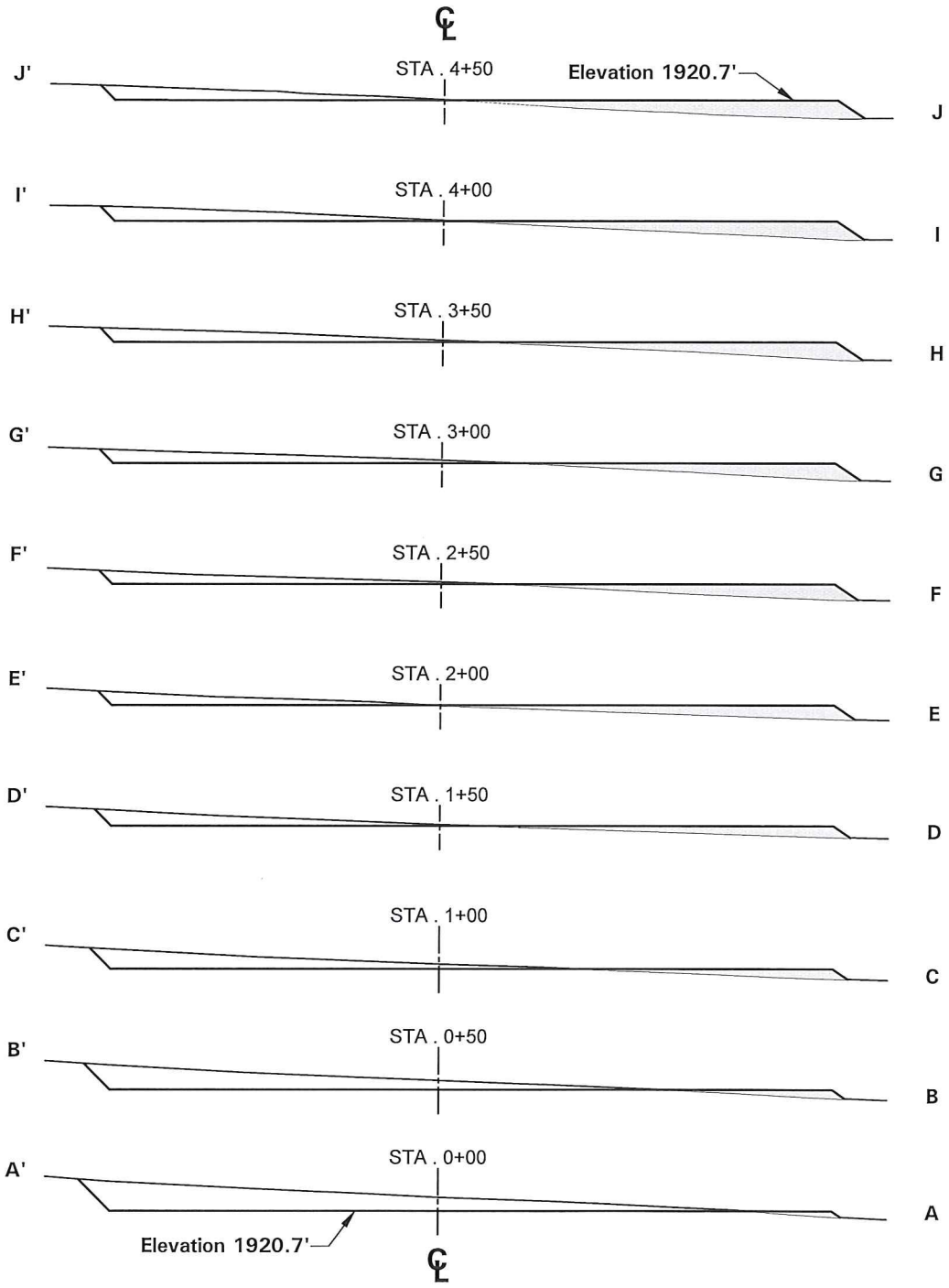
GREGG ORVIK
REGISTERED LAND SURVEYOR
LS. -3881
NORTH DAKOTA

I, Gregg Orvik, Professional Land Surveyor, N.D. No. 3881, do hereby certify that the survey plat shown hereon was made by me, or under my direction, from notes made in the field, and the same is true and correct to the best of my knowledge and belief.

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 80'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Pad Layout	5/5/2017	7716126	-

KLJ

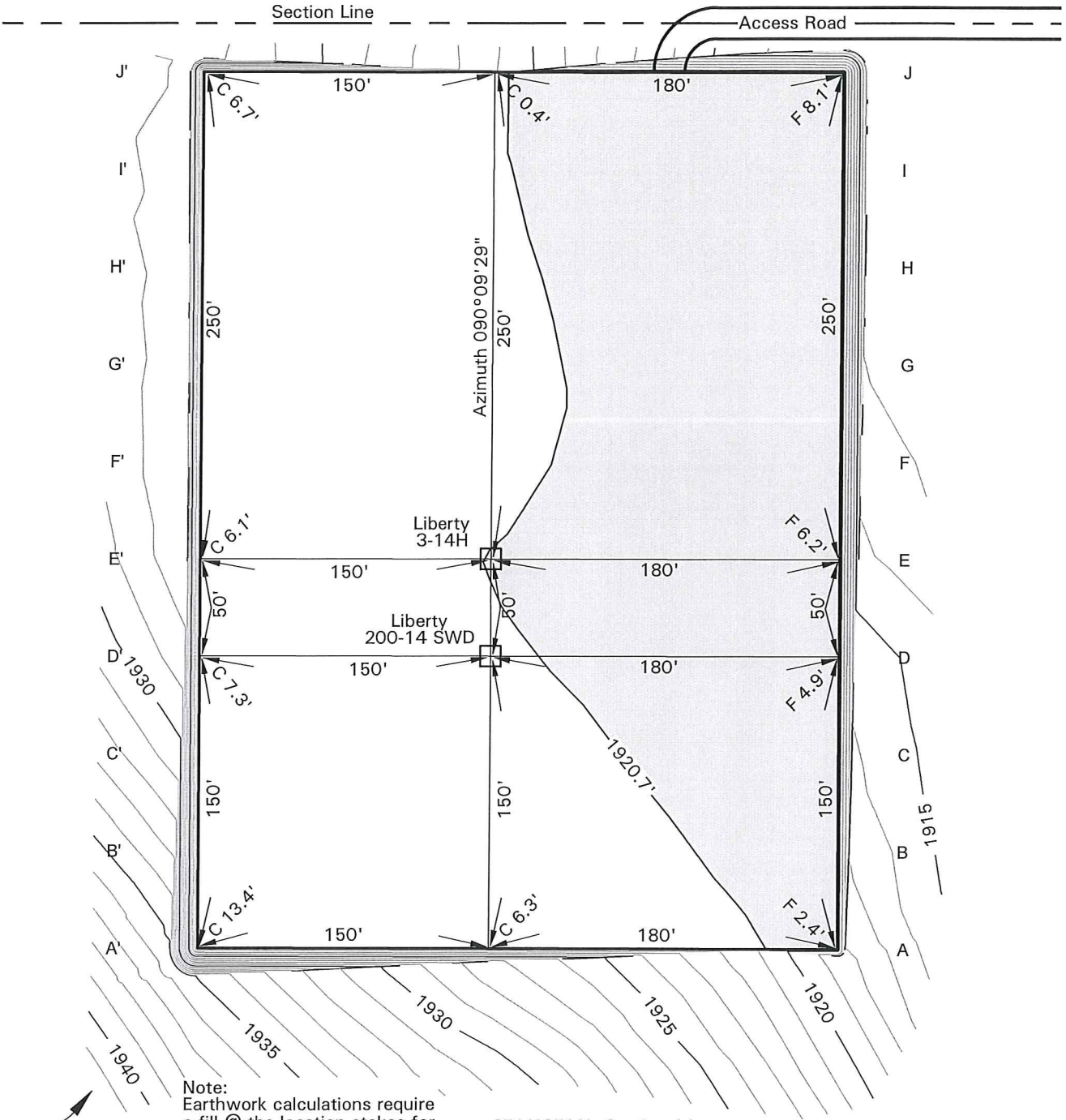
Liberty 14 SESE 1
Cross Sections



PAD CONSTRUCTION DATA						
Topsoil Removal @ 6":	2,975 C.Y.	Embankment	8,015 C.Y.	Road Disturbed Area:	31,350 S.F.	0.72 Acres
Cut/Fill Slope:	1:1, 1 1/2:1	Plus Compaction (30%)	2,405 C.Y.	Pad Disturbed Area:	160,596 S.F.	3.69 Acres
Pad Excavation:	13,520 C.Y.	Total Fill:	10,420 C.Y.	Total Disturbed Area:	191,946 S.F.	4.41 Acres
Total Cut:	16,495 C.Y.	Pad Spoil:	3,100 C.Y.			

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 80'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Cross Sections	5/5/2017	7716126	-

Liberty 14 SESE 1
Production Layout



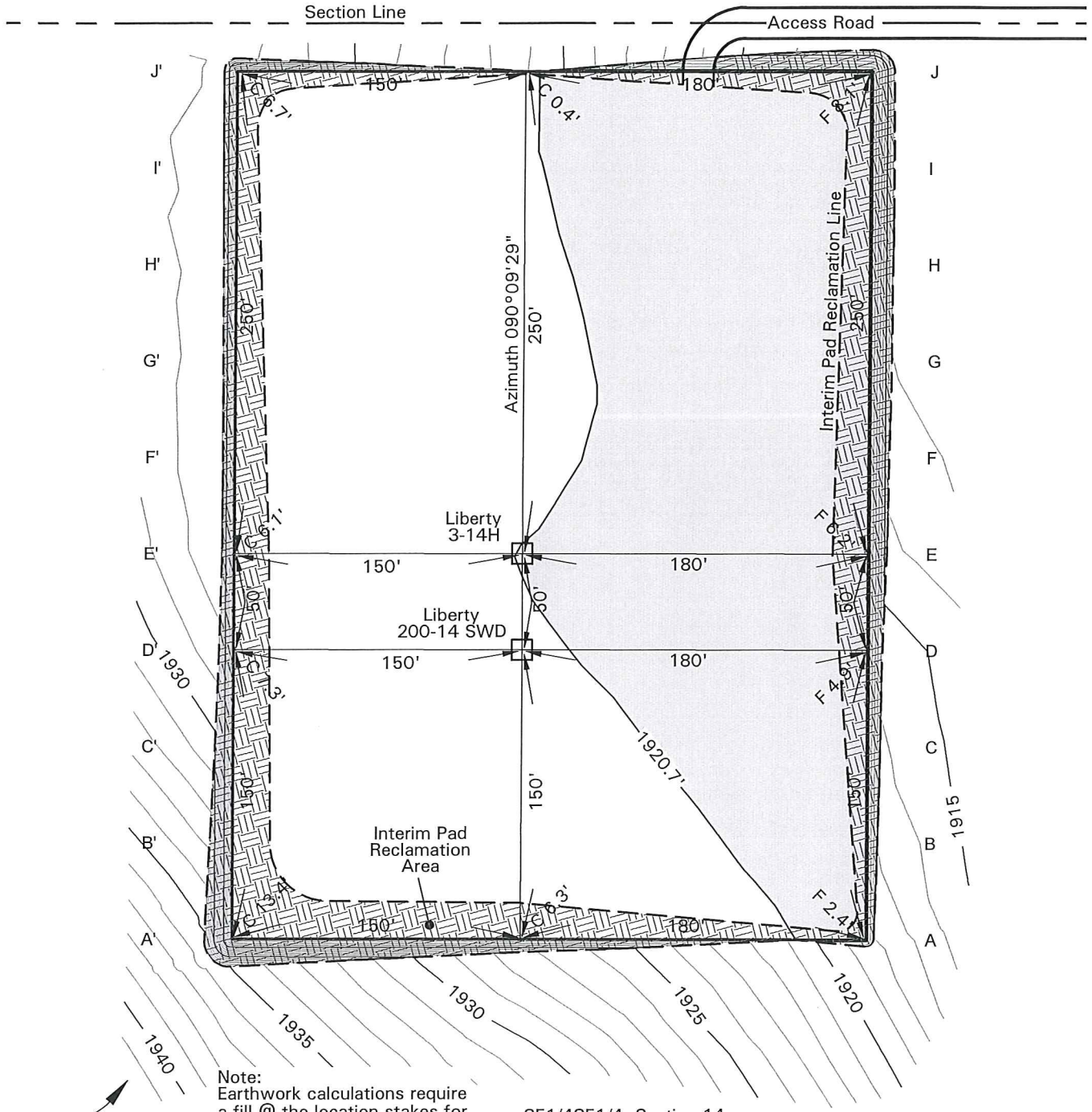
Prevailing Wind Direction

Note:
Earthwork calculations require a fill @ the location stakes for balance. All fill is to be compacted to a minimum of 95% of the Maximum Dry Density obtained by AASHTO Method t-99.

SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 80'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Prod Layout	5/5/2017	7716126	-

Liberty 14 SESE 1
Interim Reclamation Layout



Note:
Earthwork calculations require a fill @ the location stakes for balance. All fill is to be compacted to a minimum of 95% of the Maximum Dry Density obtained by AASHTO Method t-99.

Prevailing Wind Direction

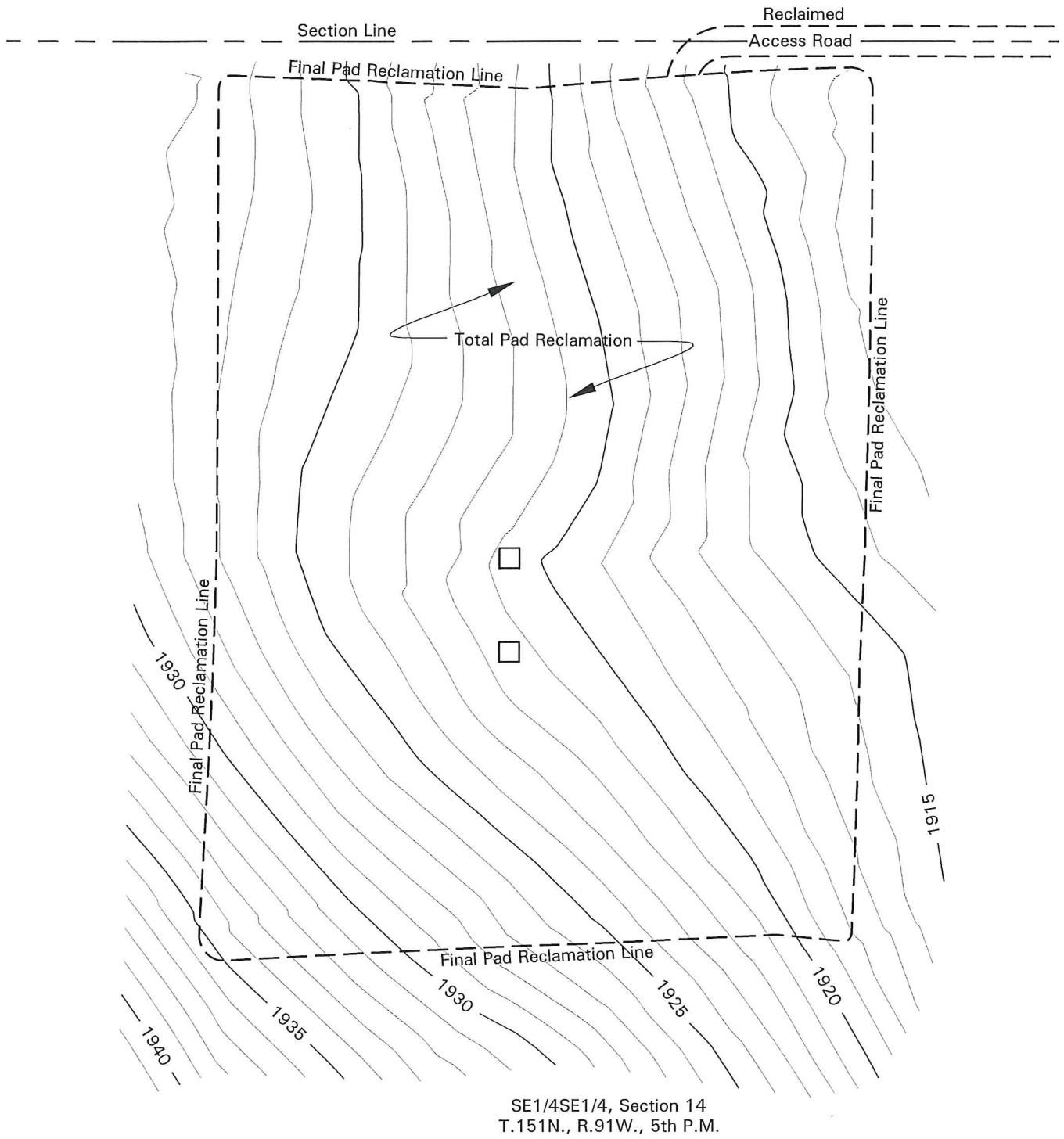
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.

Interim Reclamation Area	
Reclaimed Area	0.73 Acres
Production Pad Area	2.96 Acres
Total Disturbed Area	3.69 Acres

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 80'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Interim Layout	5/5/2017	7716126	-

KLJ

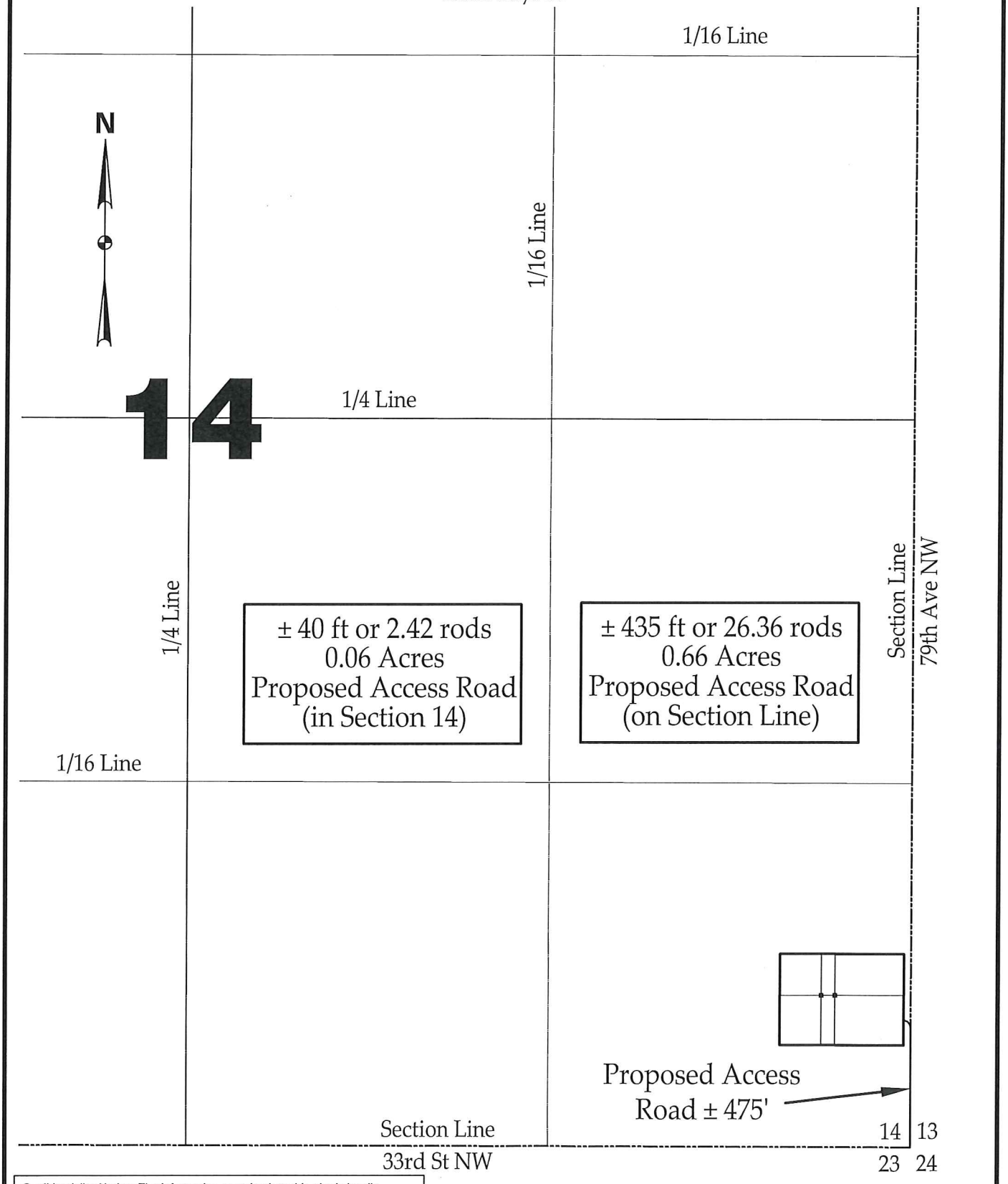
Liberty 14 SESE 1
Final Reclamation Layout



SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.

Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 80'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Reclam Layout	5/5/2017	7716126	-

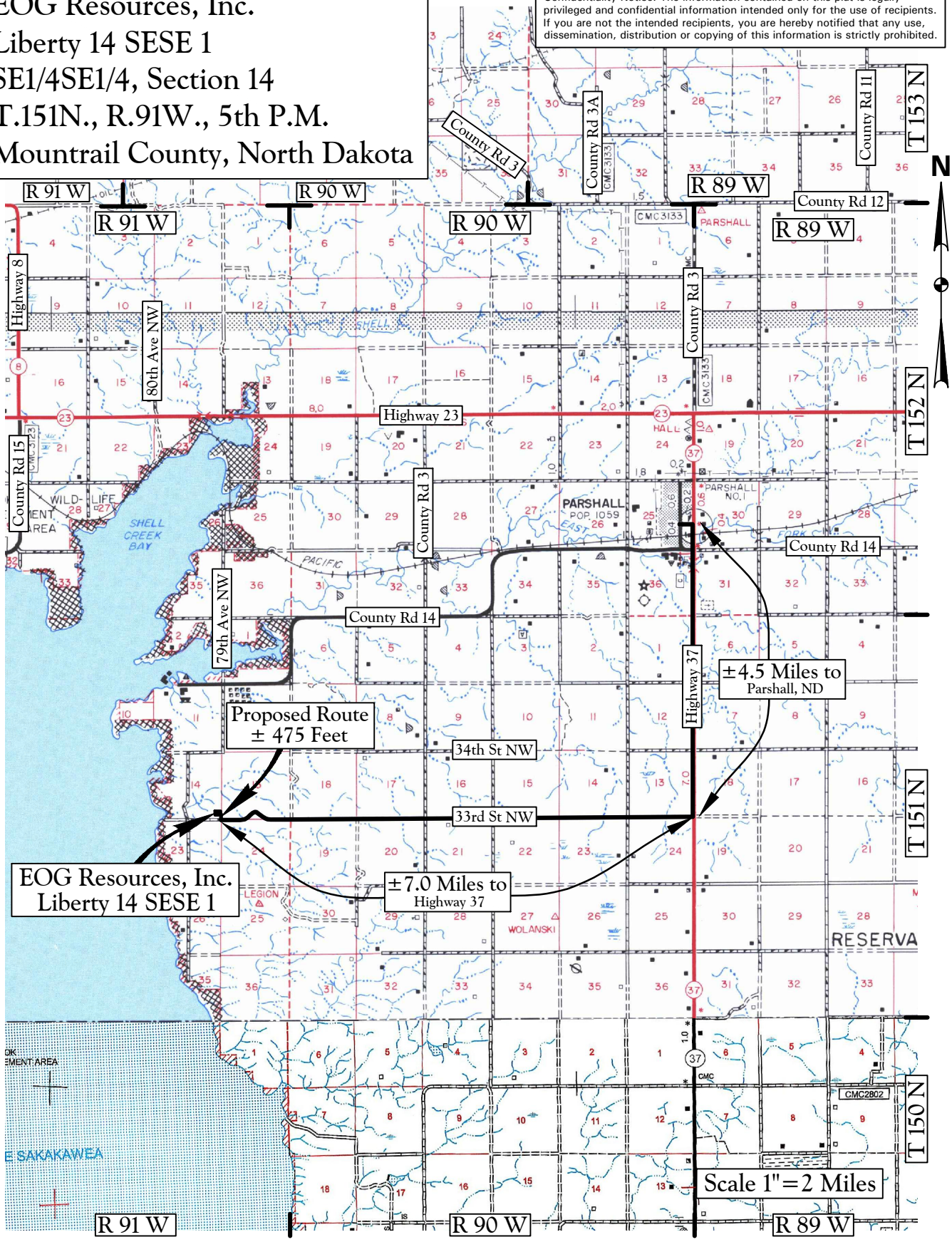
Liberty 14 SESE 1
Road Layout



Computed & Drawn By	Surveyed By	Approved By	Scale	Date
M.K./C.W.	G. Orvik	G. Orvik	1" = 500'	5/11/2010
Field Book	**Material**	**Revised**	**Project No.**	**Drawing No.**
Minot OW#21	Road Layout	5/5/2017	7716126	-

KLJ

EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



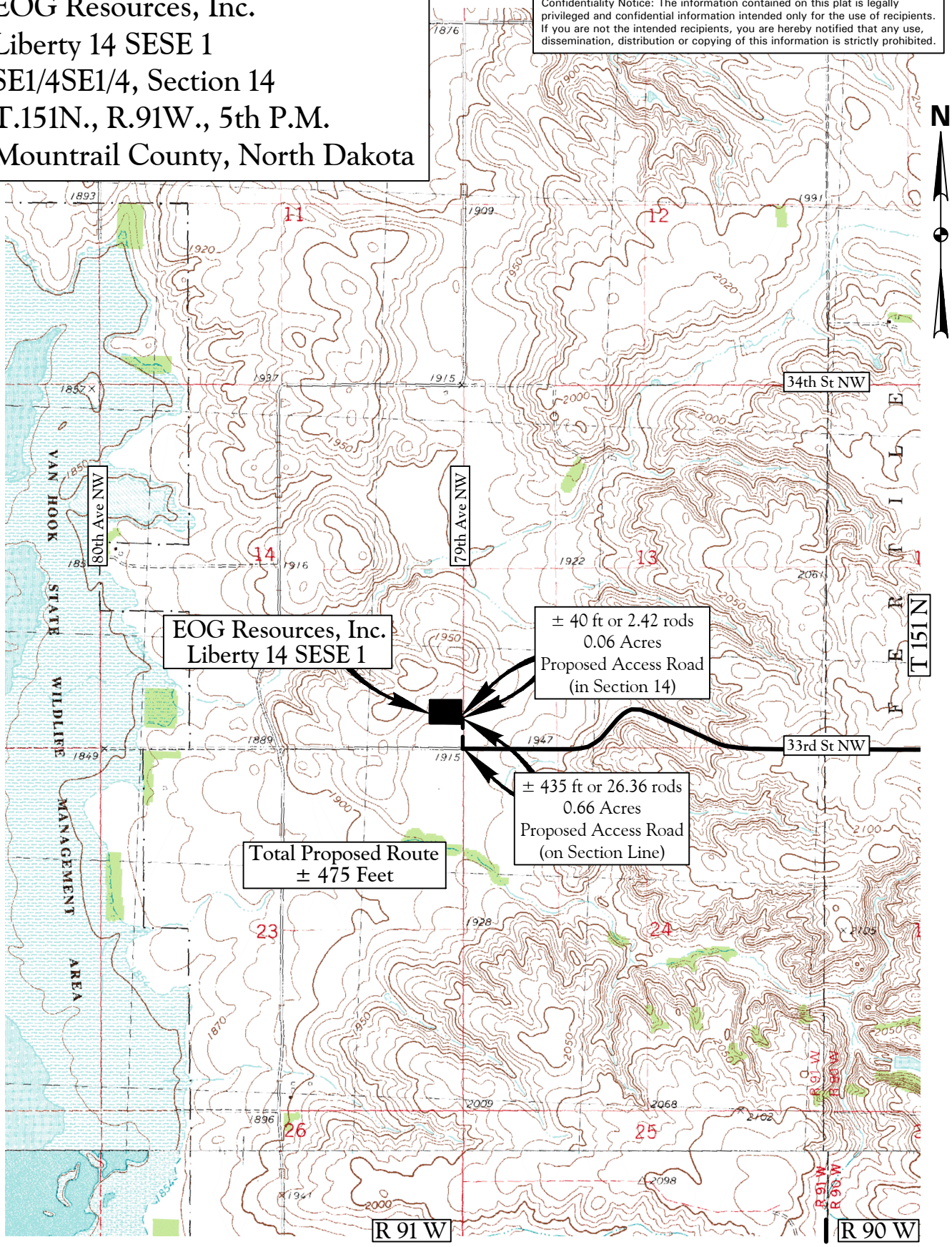
Map "A"
County Access Route

Legend
Existing Roads
Proposed Roads

Revised: 5/11/2016

KLJ

EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "B"
Quad Access Route

Legend
Existing Roads
Proposed Roads

Scale 1"=2000'

Revised: 5/11/2016

KLJ

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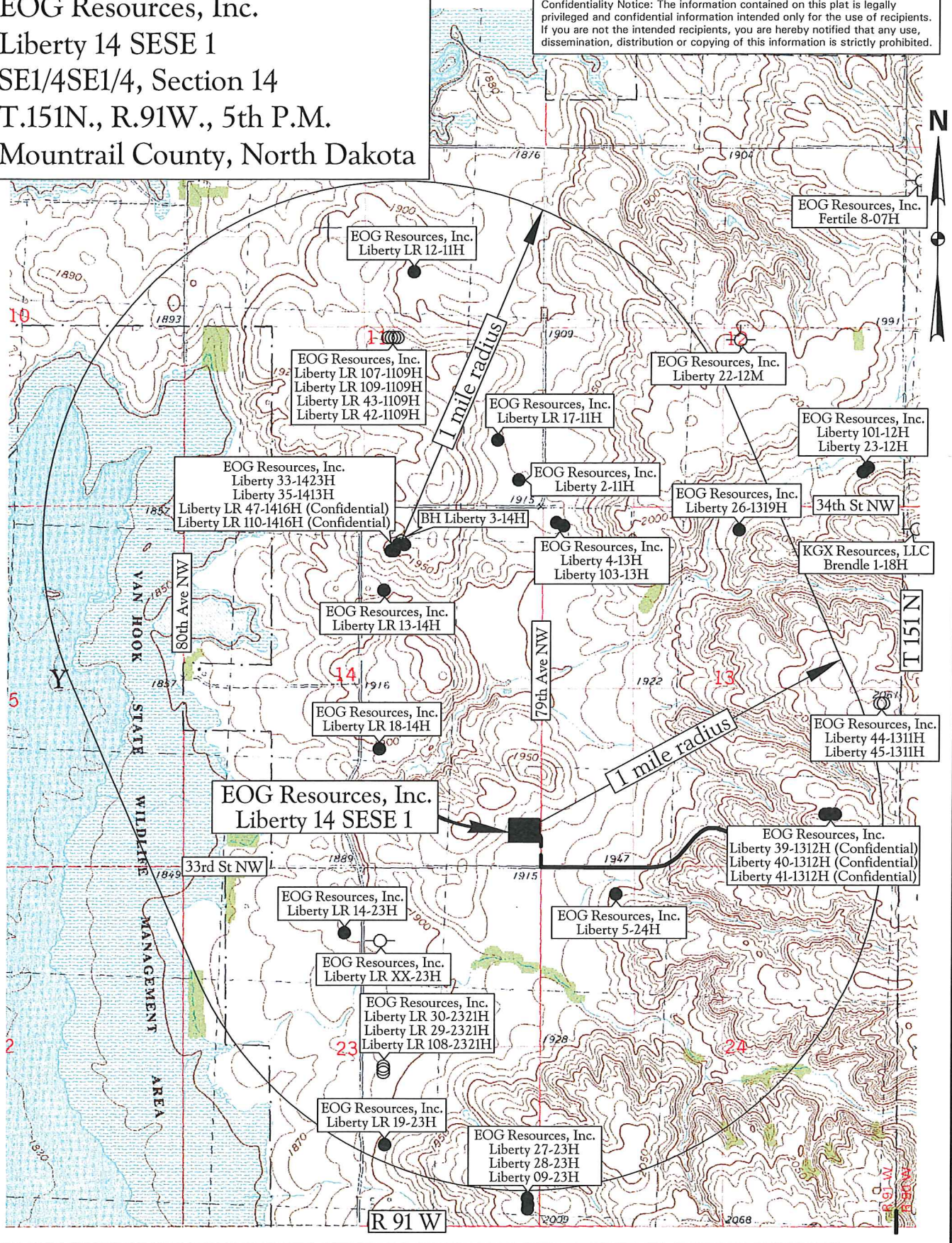
EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "C"
One Mile Radius Map

Legend
Existing Roads
Proposed Roads

Scale 1"=2000'

Revised: 5/5/2017

KLJ

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Legend

wells

STATUS, WELL_TYPE

- A, AGD
- A, AI
- A, CBM
- A, DF
- A, DFP
- A, GASC
- A, GASD
- A, GASN
- A, OG
- A, SWD
- A, WI
- A, WS
- A,AI
- AB, AI
- AB, DF
- AB, DFP
- AB, GASC
- AB, GASD
- AB, GI
- AB, OG
- AB, SWD
- AB, WI
- AB, WS
- Confidential, Confidential
- DRL, AI
- DRL, GASC
- DRL, GASD
- DRL, OG
- DRL, SWD
- DRL, WI
- DRY, GASC
- DRY, GASD
- DRY, OG
- DRY, ST
- EXP, GASD
- EXP, OG
- EXP, SWD
- EXP, WS
- IA, AI
- IA, CBM
- IA, DF
- IA, DFP
- IA, GASC
- IA, GASD
- IA, OG
- IA, SWD
- IA, WI
- IA, WS
- IA,AI
- LOC, GASC
- LOC, GASD
- LOC, OG
- LOC, SWD
- LOC, WI
- PA, DF
- PA, GASC
- PA, GASD
- PA, GS
- PA, OG
- PA, SWD
- PA, WI
- PA, WS
- PNC, GASD
- PNC, OG
- PNC, SWD
- TA, AI
- TA, GASC
- TA, GASD
- TA, OG
- TA, SWD
- TA, WI
- TA, WS
- TAO, GI
- TAO, OG
- TAO, WI

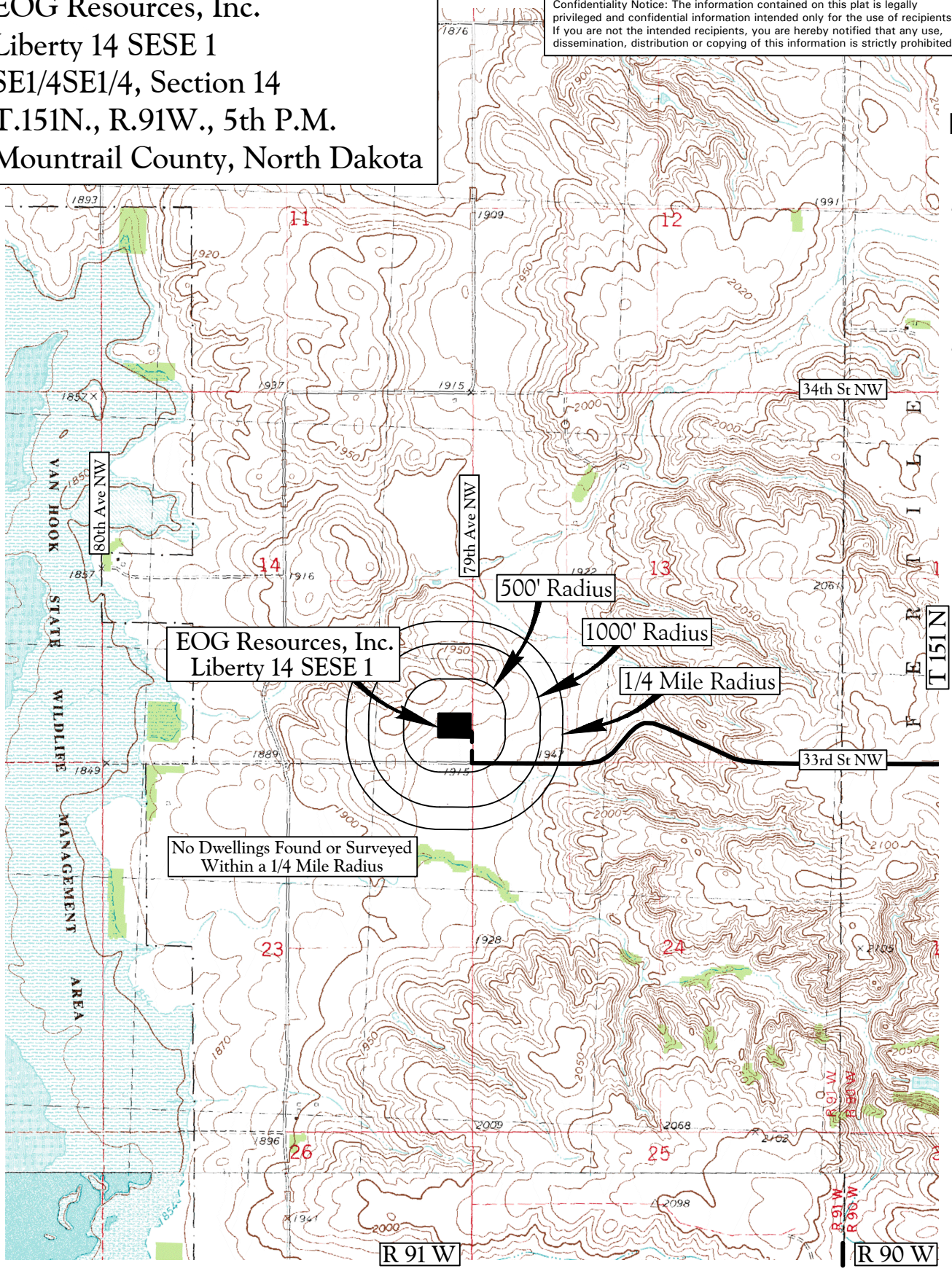
A = Active, AB = Abandoned, DRL = Drilling, Dry = Dry, EXP = Expired, IA = Inactive, LOC = Location, PA = Producer Abandoned, PNC = Permit Now Cancelled
TA = Temporarily Abandoned, TAO = Temporarily Abandoned Observation.

AGD = Acid Gas Disposal, AI = Air Injection, DF = Dump Flood, DFP = Dump Flood Producing, GASN = Nitrogen Gas Well, GASC = Gas Condensate, GASD = Gas Dry, GI = Gas Injection, GS = Gas Storage, OG = Oil or Gas Well, SWD = Salt Water Disposal, WI = Water Injection, WS = Water Supply, ST = Strat Test

Exhibit "D"
GIS Well Symbols

Prepared by N.D.I.C. Oil and Gas Division

EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "C.1"
Dwellings Map

Legend
Existing Roads
Proposed Roads

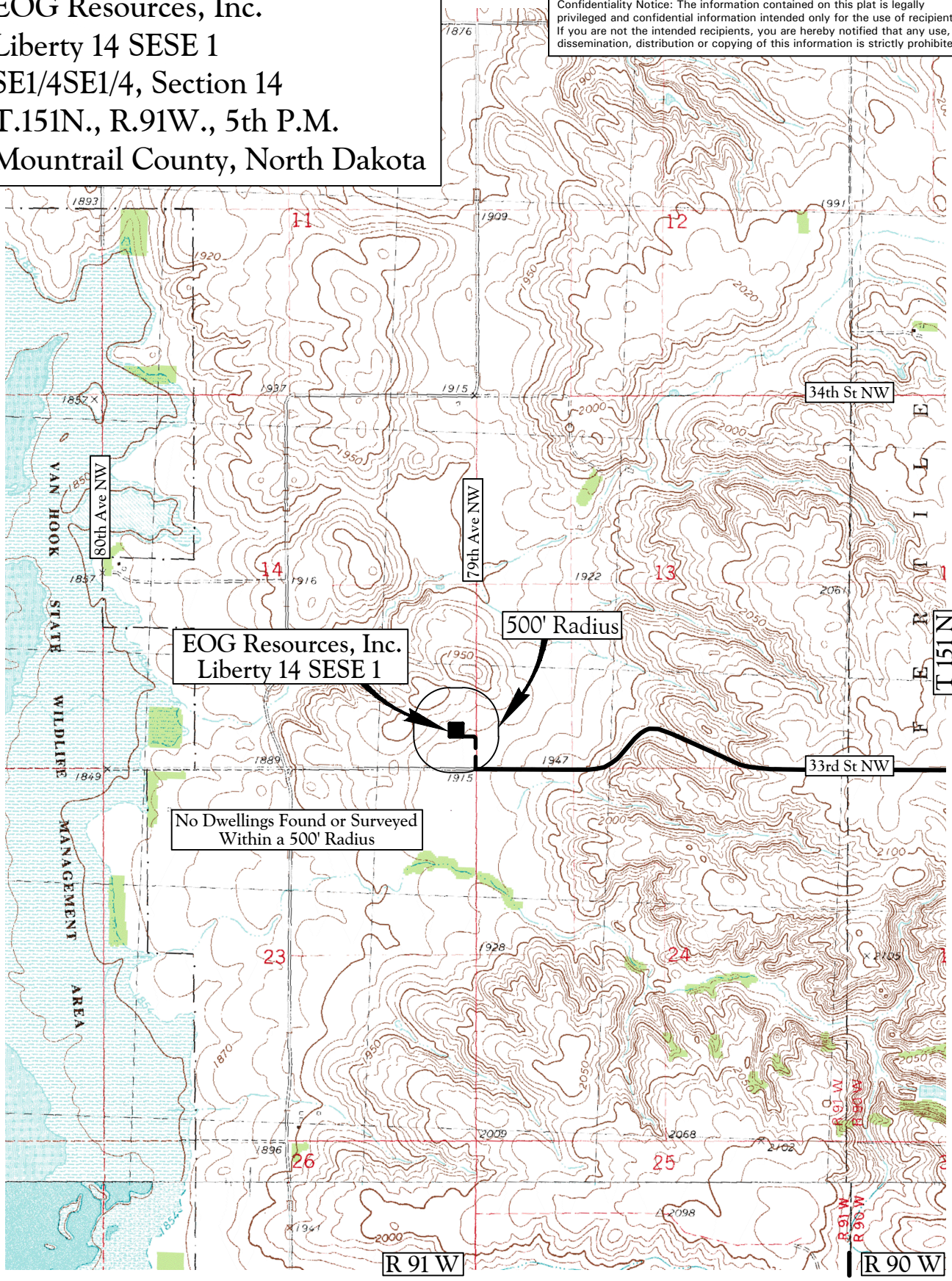
Scale 1"=2000'

Revised: 5/11/2016

KLJ

May 17, 2016 - 10:42 AM - P:\Oil\EOG\7716126 Liberty 14 SESE 1\CADD\7716126LOC01.dwg

EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "C.2"
Dwellings Map

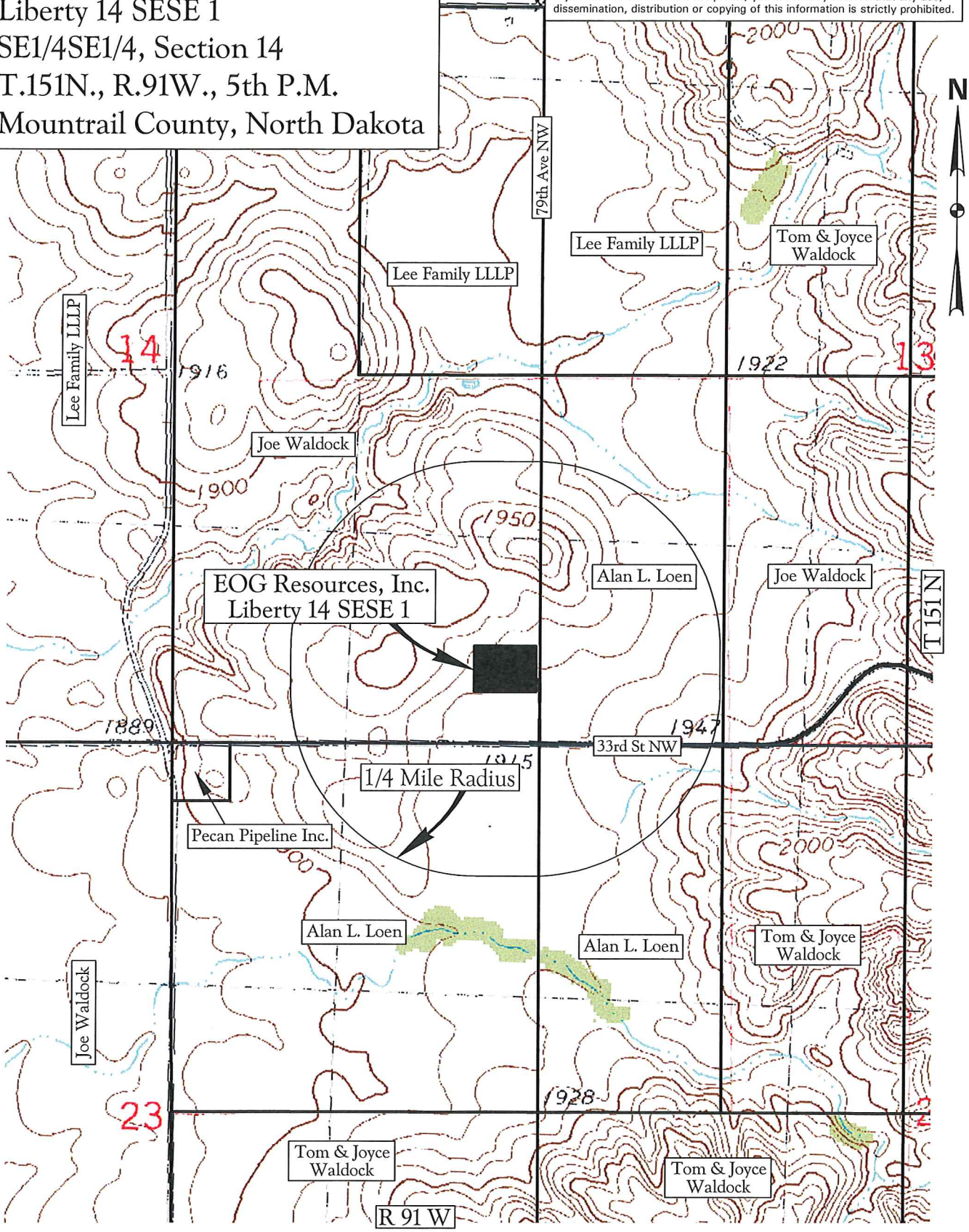
Legend
Existing Roads
Proposed Roads

Scale 1"=2000'

KLJ

May 20, 2016 - 8:49 AM - P:\Oil\EOG\7716126 Liberty 14 SESE 1\CADD\7716126LOC01.dwg

EOG Resources, Inc.
Liberty 14 SESE 1
SE1/4SE1/4, Section 14
T.151N., R.91W., 5th P.M.
Mountrail County, North Dakota



Map "E"
1/4 Mile Radius Map

Legend
Existing Roads
Proposed Roads

Scale 1"=1000'

Revised: 5/5/2017

KLJ

May 8, 2017 - 2:27 PM - P:\Oil\EOG\7716126 Liberty 14 SESE 1\CADD\7716126LOC01.dwg

Liberty 200-14SWD

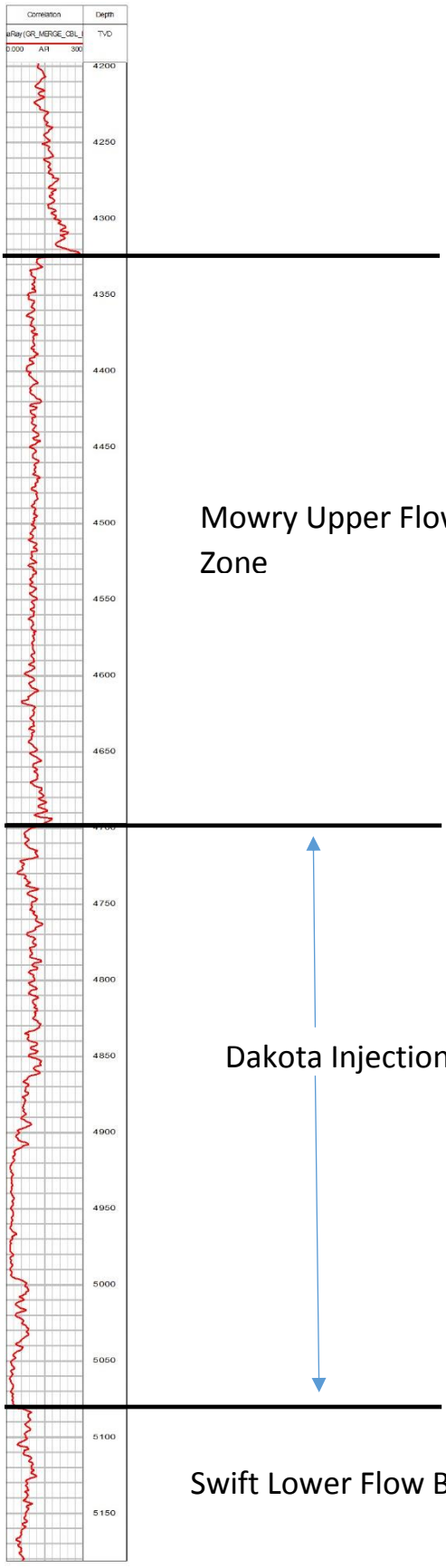
Lithologic Description

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 5077' is bounded by the Swift Shale 5077'-5150'. The shallowest injection depth 4702' is bounded by the Mowry shale from 4323'-4702. The frac gradient of the uppermost bounding shale is estimated at 0.70 psi/ft.

The Fox Hills/Hell Creek formation is the regional fresh water aquifer with a base at 1740' which is well above the point of injection. Figure 1 shows the Dakota formation annotated well log for the Liberty 3-14H including the proposed perforation intervals.

Geological Reference:
Bluemle, John P., Anderson, Sidney B., Andrew, John A., Fischer, David W., & LeFever, Julie A. "North Dakota Stratigraphic Column." North Dakota Geological Survey, MS-66. 1986. https://www.dmr.nd.gov/ndgs/documents/Publication_List/pdf/MiscSeries/MS-66.pdf (June 1, 2017)



Mowry Upper Flow Barrier Zone

Dakota Injection Zone

Swift Lower Flow Barrier Zone

0

9-5/8" Surface Casing & Cementing