



AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE – FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA

OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5698 (03-2000)

Well File No.

28190

Received

NOV 12 2019

TH

ND Oil & Gas Division

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL.

Well Name and Number LEWIS FEDERAL 5300 21-31 6B	Qtr-Qtr LOT2	Section 153	Township 100	Range 0	County McKenzie
Operator Oasis Petroleum North America LLC	Telephone Number (281) 404-9573		Field BAKER		
Address 1001 Fannin, Suite 1500	City Houston			State TX	Zip Code 77002

Name of First Purchaser Oasis Petroleum Marketing LLC	Telephone Number (281) 404-9627	% Purchased 100%	Date Effective August 14, 2019
Principal Place of Business 1001 Fannin, Suite 1500	City Houston	State TX	Zip Code 77002
Field Address	City	State	Zip Code
Names of Transporter Hiland Crude, LLC	Telephone Number (918) 588-5000	% Transported 95%	Date Effective August 14, 2019
Address 8811 South Yale Avenue, Suite 200	City Tulsa	State OK	Zip Code 74137

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective August 14, 2019
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective August 14, 2019
Other Transporters Transporting From This Lease Power Energy Logistics, LLC	% Transported 5%	Date Effective August 14, 2019
Other Transporters Transporting From This Lease	% Transported	Date Effective August 14, 2019
Comments		

I hereby swear or affirm that all transporters of Bakken Petroleum System oil, listed above implement or adhere to a tariff specification as stringent as the Commission's VPCR₄ requirement. 13.7 VPCR₄ Tariff Specification DAPL Tariff Authority

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.		Date November 5, 2019
Signature 	Printed Name Claudia Arguelles	Title Contracts Administrator

Above Signature Witnessed By:

Signature 	Printed Name Kenzie Buchanan	Witness Title Scheduler
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FOR STATE USE ONLY

Date Approved NOV 15 2019	NDIC CTB NO 28190
By 	
Title Oil & Gas Production Analyst	



WELL COMPLETION OR RECOMPLETION REPORT - FORM 6E

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

RECEIVED

SEP 17 2019

Well File No.
28190

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Designate Type of Completion						
<input checked="" type="checkbox"/> Oil Well	<input type="checkbox"/> EOR Well	<input type="checkbox"/> Recompletion	<input type="checkbox"/> Deepened Well	<input type="checkbox"/> Added Horizontal Leg	<input type="checkbox"/> Extended Horizontal Leg	
<input type="checkbox"/> Gas Well	<input type="checkbox"/> SWD Well	<input type="checkbox"/> Water Supply Well	<input type="checkbox"/> Other:			
Well Name and Number Lewis Federal 5300 21-31 6B				Spacing Unit Description Sec. 31/32 T153N R100W		
Operator Oasis Petroleum North America		Telephone Number (281) 404-9500		Field Baker		
Address 1001 Fannin, Suite 1500				Pool Bakken		
City Houston	State TX	Zip Code 77002	Permit Type			
				<input type="checkbox"/> Wildcat	<input checked="" type="checkbox"/> Development	<input type="checkbox"/> Extension

LOCATION OF WELL

Type of Electric and Other Logs Run (See Instructions)

MWD/GR from KOP to TD; CBL from int. TD to surface

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

PERFORATION & OPEN HOLE INTERVALS

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft) Lateral 1- 11300' to 20797'					Name of Zone (If Different from Pool Name)		
Date Well Completed (SEE INSTRUCTIONS) August 14, 2019					Producing Method flowing		
Pumping-Size & Type of Pump			Well Status (Producing or Shut-In) producing				
Date of Test 08/14/2019	Hours Tested 24	Choke Size 18 /64	Production for Test	Oil (Bbls) 335	Gas (MCF) 201	Water (Bbls) 572	Oil Gravity-API (Corr.) ° Disposition of Gas Sold
Flowing Tubing Pressure (PSI)		Flowing Casing Pressure (PSI)		Calculated 24-Hour Rate	Oil (Bbls) 335	Gas (MCF) 201	Water (Bbls) 572
		2000					Gas-Oil Ratio 600

GEOLOGICAL MARKERS

PLUG BACK INFORMATION

CORES CUT

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

Drill Stem Test

Well Specific Stimulation

Date Stimulated 07/16/2019	Stimulated Formation Bakken		Top (Ft) 11300	Bottom (Ft) 20797	Stimulation Stages 40	Volume 311394	Volume Units Barrels
Type Treatment Sand Frac	Acid %	Lbs Proppant 6052935			Maximum Treatment Pressure (PSI) 9176	Maximum Treatment Rate (BBLS/Min) 83.0	
Details 100 Mesh: 3573725 40/70 White: 1493970 40/70 CRC: 985240							
Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units
Type Treatment	Acid %	Lbs Proppant			Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)	
Details							
Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units
Type Treatment	Acid %	Lbs Proppant			Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)	
Details							
Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units
Type Treatment	Acid %	Lbs Proppant			Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)	
Details							
Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units
Type Treatment	Acid %	Lbs Proppant			Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)	
Details							

ADDITIONAL INFORMATION AND/OR LIST OF ATTACHMENTS

This report provides frac data.

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Email Address jswenson@oasispetroleum.com	Date 09/11/2019
Signature 	Printed Name Jennifer Swenson	Title Regulatory Specialist

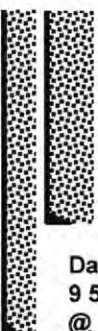
ELEVATION: 2132' GL

**Lewis Federal 5300 21-31 6B
Wellbore Schematic**

FORMATION: Bakken



Surface casing
13 3/8" 54.5# J-55
@ 3329'



Dakota casing
9 5/8" 36# J-55
@ 6121'

Hardline @ 150' FSL
of Sec. 31

Hardline @ 150' FNL
of Sec. 32

- **Completion Details**
- 40 stage PnP, 2 Sleeves
- Slickwater Job
- 6052935 lbs of proppant
- 311394 bbls of fluid

Top of 4 1/2" Liner
@ 10289'

Distance from TD to
Hardline: 8.4'

Deepest Perf: 20797'

KOP @
10327'

Distance from hardline
to 7" EOC 513.7'

7" 32# P-110 BTC/LTC
@ 11214'

4 1/2" 13.5# P-110 BTC
@ 20930'

OASIS PETROLEUM NA LLC

Lewis Federal 5300 21-31 6B

Wellbore: T153N-R100W Sec. 31 & 32

SHL: 2585' FNL & 259' FWL T153N-R100W Sec. 31

McKenzie County, North Dakota



Directional Survey Certification

Operator: Oasis Petroleum North America LLC **Well Name:** Lewis Federal 5300 21-31 6B

API#: 33-053-05845 **Mesa West Job #:** S19062

Well Surface Hole Location (SHL): SESW Sec 31 T153N R100W

Latitude: 48° 01' 54.15" N **Longitude:** 103° 36' 011.18" W **Datum:** NAD83

Field: Baker **County:** McKenzie **State:** North Dakota

Rig Contractor & Rig #: Nabors B21

GL Elevation: 2132 **RKB Height:** 2157

Tie-in Surveys Provided By Mesa West Directional

MWD Report Date: 02/06/2019 **MWD Run Dates:** 2/4/2019-2/6/2019
(mm/dd/yyyy) (mm/dd/yyyy)

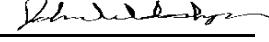
MWD Surveyed from: 147 ft. **to** 3288 ft. MD

Survey Type: D&I MWD **Sensor to Bit Offset:** 37.0

MWD Surveyor Name: James Duncan

"The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by Mesa West Directional. I am authorized and qualified to review the data, calculations and this report and that the report represents a true and correct Directional Survey of this well based on the original data corrected to True North and obtained at the well site. Wellbore coordinates are calculated using the minimum curvature method."

John Woloshyn, Operations Manager
Mesa West Representative Name, Title


Signature

15/02/2019
Date Signed
(dd/mm/yyyy)



**Oasis Petroleum
Baker, McKenzie, North Dakota (NAD 83)
SESW Sec 31 T153N R100W
Lewis Federal 5300 21-31 6B
S19062**

**Mesa West Survey Certification Report
15 February 2019**

Operator	Oasis Petroleum	Local co-ord ref	Well Centered							
Field	Baker, McKenzie, North Dakota (NAD 83)	TVD Reference	RKB							
Facility	SESW Sec 31 T153N R100W	North Reference	TRUE							
Well	Lewis Federal 5300 21-31 6B	Survey Calc Method	Minimum Curvature							
Wellbore	Lewis Federal 5300 21-31 6B									
Field	Baker, McKenzie, North Dakota (NAD 83)									
CRS	NAD83 / North Dakota North (Usft)	Scale Factor	1.000							
Apply Scale Factor	NO	Depth Datum->MSL	2157.00 UsFt							
System Datum	MSL	Map Easting	1209477.20 foot							
Map Northing	391661.91 foot	Longitude	103° 36' 11.18" W							
Latitude	48° 01' 54.48" N									
Grid Convergence	-2.309									
Facility	SESW Sec 31 T153N R100W									
Map Northing	391661.91 foot	Map Easting	1209477.20 foot							
Latitude	48° 01' 54.48" N	Longitude	103° 36' 11.18" W							
Vertical Uncertainty	0.00 UsFt	Horizontal Uncertainty	0.00 UsFt							
Grid Convergence	-2.309									
Well	Lewis Federal 5300 21-31 6B									
Local North	-33.44 UsFt	Local East	-0.00 UsFt							
Map Northing	391628.50 foot	Map Easting	1209475.85 foot							
Latitude	48° 01' 54.15" N	Longitude	103° 36' 11.18" W							
Depth Datum	RKB	Datum Elevation	2157.00 UsFt							
GL Elevation	2132.00 UsFt									
Grid Convergence	-2.309									
Well bore	Lewis Federal 5300 21-31 6B									
Magnetic Model	User defined	Date	6/2/2019							
Total Field (nT)	0.5581	Dip Angle (°)	72.75							
Declination (°)	7.86	VS Azimuth	276.09							
VS Origin	Well	VS Origin EW	0.00 UsFt							
VS Origin NS	0.00 UsFt									
Survey Report										
MD UsFt	Inc °	Azi °	TVD UsFt	TVD SS UsFt	NS UsFt	EW UsFt	VS UsFt	DLS (°/100 UsFt)	BR (°/100 UsFt)	TR (°/100 UsFt)
0.00	0.00	0.00	0.00	-2157.00	0.00	0.00	0.00	0.00	0.00	0.00
12.00	0.00	0.00	12.00	-2145.00	0.00	0.00	0.00	0.00	0.00	0.00
147.00	0.50	123.40	147.00	-2010.00	-0.32	0.49	-0.52	0.37	0.37	91.41
245.00	0.90	114.50	244.99	-1912.01	-0.88	1.55	-1.63	0.42	0.41	-9.08
335.00	1.10	166.70	334.98	-1822.02	-2.01	2.39	-2.59	1.00	0.22	58.00
423.00	0.50	155.60	422.97	-1734.03	-3.18	2.74	-3.07	0.70	-0.68	-12.61
513.00	1.10	195.10	512.96	-1644.04	-4.38	2.68	-3.13	0.87	0.67	43.89
596.00	0.90	169.10	595.95	-1561.05	-5.79	2.60	-3.20	0.59	-0.24	-31.33
691.00	0.70	164.60	690.94	-1466.06	-7.08	2.89	-3.63	0.22	-0.21	-4.74
775.00	0.30	112.10	774.94	-1382.06	-7.65	3.23	-4.03	0.68	-0.48	-62.50
870.00	0.30	278.90	869.94	-1287.06	-7.71	3.22	-4.02	0.63	0.00	175.58
956.00	0.20	303.90	955.94	-1201.06	-7.59	2.87	-3.66	0.17	-0.12	29.07
1045.00	0.70	259.30	1044.93	-1112.07	-7.61	2.21	-3.00	0.65	0.56	-50.11
1120.00	0.90	259.80	1119.93	-1037.07	-7.80	1.18	-2.00	0.27	0.27	0.67
1220.00	1.10	221.60	1219.91	-937.09	-8.65	-0.23	-0.69	0.68	0.20	-38.20
1309.00	0.70	321.10	1308.90	-848.10	-8.87	-1.14	0.20	1.57	-0.45	111.80
1397.00	0.50	325.20	1396.90	-760.10	-8.13	-1.70	0.83	0.23	-0.23	4.66
1485.00	0.30	219.10	1484.90	-672.10	-8.00	-2.06	1.20	0.74	-0.23	-120.57
1575.00	0.50	294.00	1574.90	-582.10	-8.02	-2.57	1.71	0.57	0.22	83.22
1661.00	0.30	268.40	1660.89	-496.11	-7.87	-3.14	2.29	0.31	-0.23	-29.77
1750.00	0.70	251.90	1749.89	-407.11	-8.05	-3.89	3.01	0.47	0.45	-18.54
1839.00	0.50	237.50	1838.89	-318.11	-8.43	-4.73	3.81	0.28	-0.22	-16.18
1916.00	0.50	324.10	1915.88	-241.12	-8.34	-5.21	4.30	0.89	0.00	112.47
2013.00	0.20	32.50	2012.88	-144.12	-7.85	-5.37	4.51	0.48	-0.31	70.52
2103.00	0.20	84.10	2102.88	-54.12	-7.70	-5.13	4.28	0.19	0.00	57.33
2193.00	0.20	96.30	2192.88	35.88	-7.70	-4.82	3.97	0.05	0.00	13.56
2282.00	1.10	98.30	2281.87	124.87	-7.84	-3.82	2.96	1.01	1.01	2.25
2361.00	1.10	304.70	2360.87	203.87	-7.52	-3.69	2.87	2.71	0.00	194.43
2458.00	0.90	306.80	2457.85	300.85	-6.53	-5.07	4.34	0.21	-0.21	2.16
2532.00	0.50	292.80	2531.85	374.85	-6.06	-5.83	5.15	0.58	-0.54	-18.92
2632.00	0.50	342.00	2631.85	474.85	-5.48	-6.37	5.75	0.42	0.00	49.20
2720.00	0.30	336.50	2719.84	562.84	-4.90	-6.58	6.02	0.23	-0.23	-6.25
2809.00	0.90	356.80	2808.84	651.84	-3.99	-6.71	6.25	0.70	0.67	22.81
2883.00	0.50	315.60	2882.83	725.83	-3.18	-6.97	6.59	0.84	-0.54	-55.68
2969.00	0.90	323.80	2968.83	811.83	-2.36	-7.63	7.33	0.48	0.47	9.53
3064.00	0.90	341.90	3063.81	906.81	-1.05	-8.30	8.14	0.30	0.00	19.05
3152.00	0.50	40.60	3151.81	994.81	-0.11	-8.27	8.21	0.87	-0.45	66.70
3227.00	0.50	52.60	3226.81	1069.81	0.34	-7.79	7.78	0.14	0.00	16.00
3270.00	0.70	48.30	3269.80	1112.80	0.63	-7.45	7.47	0.48	0.47	-10.00
3288.00	0.70	48.60	3287.80	1130.80	0.78	-7.28	7.32	0.02	0.00	1.67



7327 West Barton Road
Casper, WY 82604
(307)-472-6621 Fax (307) 472-5439

Survey Certification

Operator	Oasis Petroleum
Well Name & No.	Lewis Federal 5300 21-31 6B
API #	33-053-05845
County & State	McKenzie County, ND
SDI Job #	OP.017787/OP.018393
Rig	Nabors B21
Survey Date	14-March-2019

I, Seth M. Burstad, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 3288 feet to a measured depth of 20940 feet is true and correct as determined from all available records.

Seth Burstad

Signature

15-Apr-2019

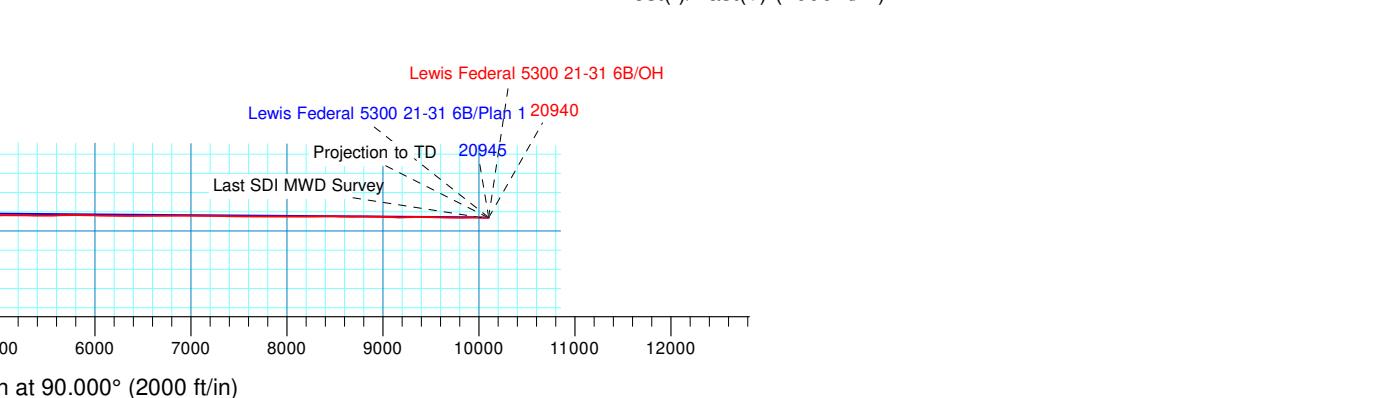
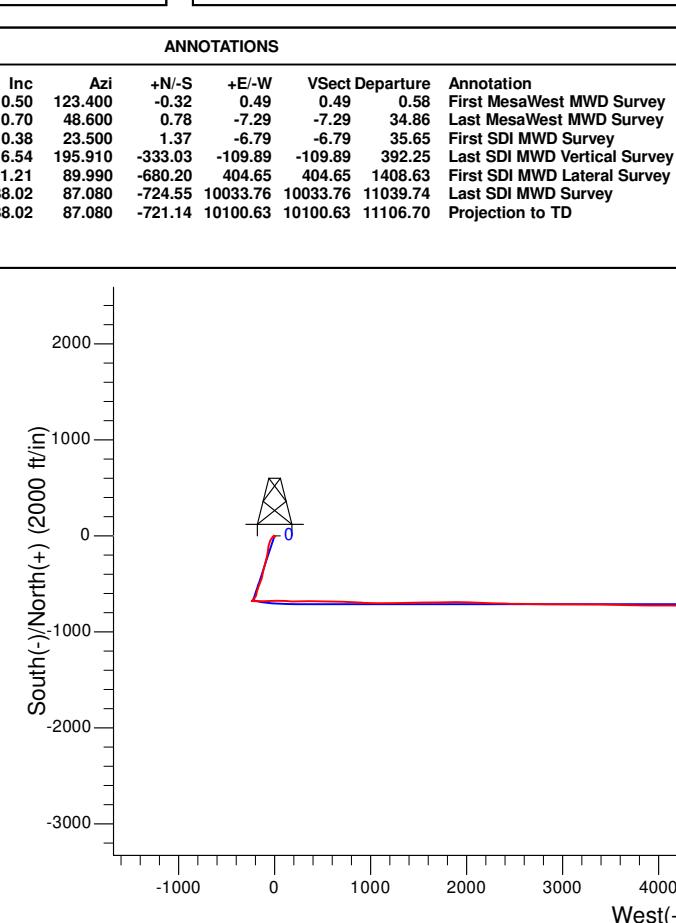
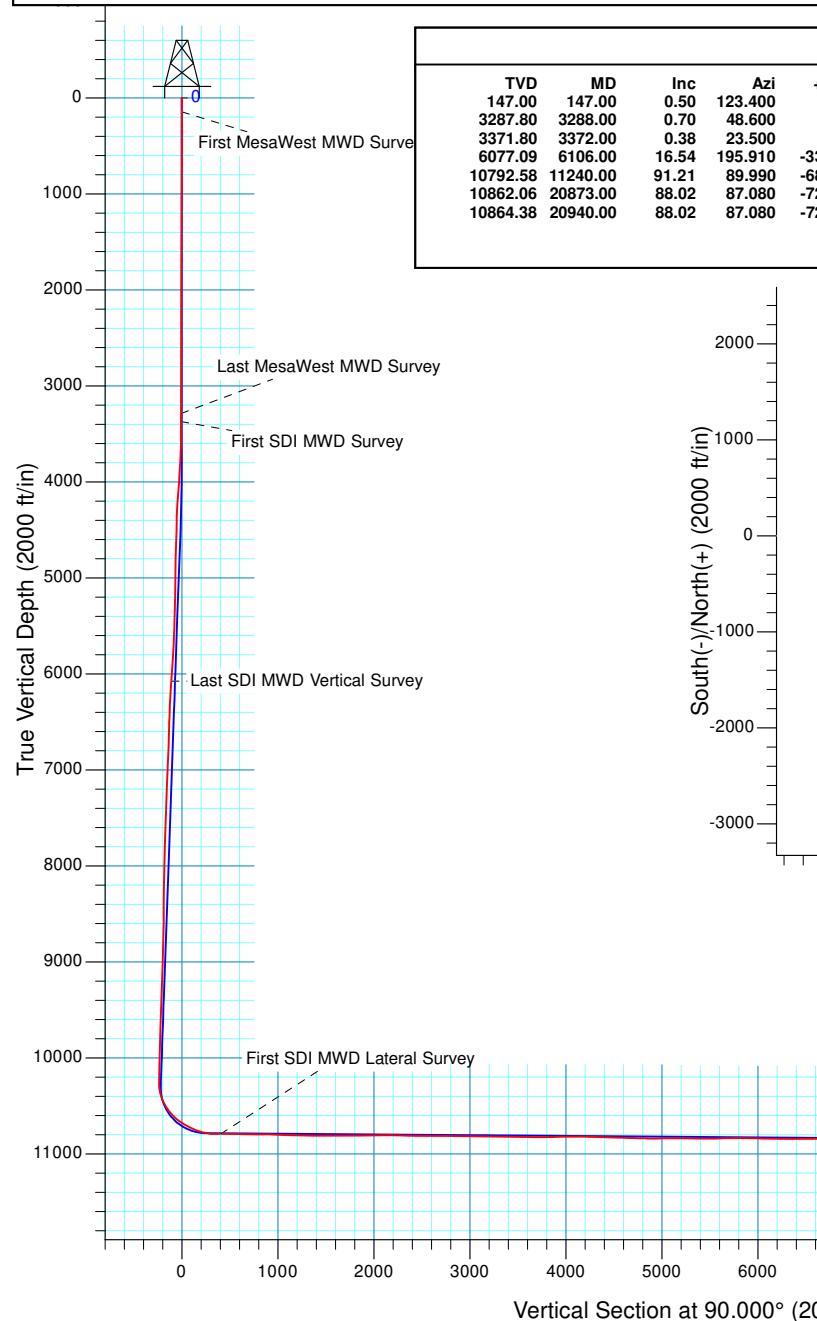
Date

Seth M. Burstad
Rockies Region Well Planner
Scientific Drilling - Rocky Mountain District

WELL DETAILS: Lewis Federal 5300 21-31 6B			
Northing 391628.49	GL 2132' & KB 25' @ 2157.00ft	2132.00	

Design: OH (Lewis Federal 5300 21-31 6B/OH)	
Created By: Seth Burstad	

PROJECT DETAILS: McKenzie County, ND	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	North Dakota Northern Zone
System Datum:	Mean Sea Level
Local North:	True





Oasis Petroleum

McKenzie County, ND
Lewis Federal
Lewis Federal 5300 21-31 6B

OH

Design: OH

Standard Survey Report

14 May, 2019



www.scientificdrilling.com



Company:	Oasis Petroleum	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B						
Project:	McKenzie County, ND	TVD Reference:	GL 2132' & KB 25' @ 2157.00ft						
Site:	Lewis Federal	MD Reference:	GL 2132' & KB 25' @ 2157.00ft						
Well:	Lewis Federal 5300 21-31 6B	North Reference:	True						
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature						
Design:	OH	Database:	Casper District						
Project	McKenzie County, ND								
Map System:	US State Plane 1983	System Datum:	Mean Sea Level						
Geo Datum:	North American Datum 1983								
Map Zone:	North Dakota Northern Zone								
Site	Lewis Federal, Site Center: Lewis Federal 5300 11-31 2B								
Site Position:		Northing:	393,162.02 usft						
From:	Lat/Long	Easting:	1,209,545.85 usft						
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in						
			Latitude: 48° 2' 9.300 N						
			Longitude: 103° 36' 11.060 W						
			Grid Convergence: -2.31 °						
Well	Lewis Federal 5300 21-31 6B, 2585' FNL 259' FWL Sec 31 T153N R100W								
Well Position	+N/S 0.00 ft	Northing:	391,628.49 usft						
	+E/W 0.00 ft	Easting:	1,209,475.85 usft						
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft						
			Latitude: 48° 1' 54.150 N						
			Longitude: 103° 36' 11.180 W						
			Ground Level: 2,132.00 ft						
Wellbore	OH								
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)				
	HDGM	1/30/2019	7.87	72.68	55,759				
Design	OH								
Audit Notes:									
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00				
Vertical Section:		Depth From (TVD) (ft)	+N/S (ft)	+E/W (ft)	Direction (°)				
		0.00	0.00	0.00	90.000				
Survey Program	Date	5/14/2019							
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description					
13.00	3,288.00	Survey #1 - Surface (OH)	OWSG MWD	OWSG MWD - Standard					
3,372.00	11,181.00	Survey #2 - Vertical / Curve (OH)	MWD+HDGM	OWSG MWD + HDGM					
11,240.00	20,940.00	Survey #3 - Lateral (OH)	MWD+HDGM	OWSG MWD + HDGM					
Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,288.00	0.70	48.600	3,287.80	0.78	-7.29	-7.29	0.02	0.00	1.67
Last MesaWest MWD Survey									
3,372.00	0.38	23.500	3,371.80	1.37	-6.79	-6.79	0.47	-0.38	-29.88
First SDI MWD Survey									
3,403.00	0.37	22.050	3,402.80	1.56	-6.71	-6.71	0.04	-0.03	-4.68
3,497.00	0.62	227.560	3,496.80	1.50	-6.97	-6.97	1.03	0.27	-164.35
3,591.00	1.93	216.070	3,590.77	-0.12	-8.28	-8.28	1.41	1.39	-12.22
3,685.00	2.97	220.120	3,684.68	-3.27	-10.78	-10.78	1.12	1.11	4.31

Company:	Oasis Petroleum	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Project:	McKenzie County, ND	TVD Reference:	GL 2132' & KB 25' @ 2157.00ft
Site:	Lewis Federal	MD Reference:	GL 2132' & KB 25' @ 2157.00ft
Well:	Lewis Federal 5300 21-31 6B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
3,780.00	4.51	220.490	3,779.48	-7.99	-14.79	-14.79	1.62	1.62	0.39	
3,875.00	5.26	221.370	3,874.13	-14.10	-20.10	-20.10	0.79	0.79	0.93	
3,969.00	6.03	222.430	3,967.68	-20.97	-26.28	-26.28	0.83	0.82	1.13	
4,063.00	7.29	215.970	4,061.04	-29.45	-33.11	-33.11	1.56	1.34	-6.87	
4,156.00	7.81	213.350	4,153.24	-39.50	-40.05	-40.05	0.67	0.56	-2.82	
4,250.00	7.41	203.940	4,246.41	-50.38	-46.02	-46.02	1.39	-0.43	-10.01	
4,343.00	7.21	196.770	4,338.66	-61.44	-50.14	-50.14	1.00	-0.22	-7.71	
4,437.00	6.87	192.660	4,431.95	-72.58	-53.07	-53.07	0.65	-0.36	-4.37	
4,530.00	6.96	194.920	4,524.27	-83.45	-55.74	-55.74	0.31	0.10	2.43	
4,623.00	6.56	196.330	4,616.63	-93.99	-58.69	-58.69	0.47	-0.43	1.52	
4,717.00	6.35	197.610	4,710.03	-104.10	-61.77	-61.77	0.27	-0.22	1.36	
4,811.00	6.84	188.740	4,803.41	-114.59	-64.19	-64.19	1.20	0.52	-9.44	
4,905.00	6.84	186.210	4,896.74	-125.69	-65.65	-65.65	0.32	0.00	-2.69	
4,998.00	7.20	185.750	4,989.04	-136.99	-66.83	-66.83	0.39	0.39	-0.49	
5,091.00	6.97	188.680	5,081.33	-148.37	-68.27	-68.27	0.46	-0.25	3.15	
5,185.00	7.24	188.340	5,174.61	-159.86	-69.99	-69.99	0.29	0.29	-0.36	
5,278.00	7.45	189.420	5,266.85	-171.61	-71.82	-71.82	0.27	0.23	1.16	
5,371.00	8.18	188.900	5,358.98	-184.10	-73.83	-73.83	0.79	0.78	-0.56	
5,464.00	8.90	190.440	5,450.95	-197.71	-76.16	-76.16	0.81	0.77	1.66	
5,558.00	9.75	192.590	5,543.71	-212.63	-79.21	-79.21	0.98	0.90	2.29	
5,651.00	10.76	192.670	5,635.22	-228.78	-82.83	-82.83	1.09	1.09	0.09	
5,744.00	11.98	193.750	5,726.40	-246.63	-87.03	-87.03	1.33	1.31	1.16	
5,838.00	13.18	194.130	5,818.14	-266.50	-91.97	-91.97	1.28	1.28	0.40	
5,931.00	14.45	194.820	5,908.45	-288.00	-97.52	-97.52	1.38	1.37	0.74	
6,024.00	15.53	195.340	5,998.28	-311.22	-103.79	-103.79	1.17	1.16	0.56	
6,106.00	16.54	195.910	6,077.09	-333.03	-109.89	-109.89	1.25	1.23	0.70	
Last SDI MWD Vertical Survey										
6,206.00	13.84	192.110	6,173.59	-358.42	-116.30	-116.30	2.88	-2.70	-3.80	
6,306.00	12.38	191.440	6,270.98	-380.63	-120.94	-120.94	1.47	-1.46	-0.67	
6,402.00	11.32	191.120	6,364.93	-399.96	-124.80	-124.80	1.11	-1.10	-0.33	
6,495.00	9.90	193.280	6,456.34	-416.70	-128.39	-128.39	1.59	-1.53	2.32	
6,588.00	8.31	191.720	6,548.17	-431.06	-131.60	-131.60	1.73	-1.71	-1.68	
6,682.00	6.99	191.680	6,641.33	-443.31	-134.13	-134.13	1.40	-1.40	-0.04	
6,775.00	6.16	203.290	6,733.72	-453.44	-137.25	-137.25	1.68	-0.89	12.48	
6,869.00	5.70	202.390	6,827.22	-462.38	-141.02	-141.02	0.50	-0.49	-0.96	
6,962.00	6.09	202.890	6,919.72	-471.20	-144.70	-144.70	0.42	0.42	0.54	
7,056.00	6.16	201.150	7,013.19	-480.50	-148.46	-148.46	0.21	0.07	-1.85	
7,150.00	6.40	202.370	7,106.62	-490.05	-152.27	-152.27	0.29	0.26	1.30	
7,244.00	6.40	199.610	7,200.04	-499.83	-156.03	-156.03	0.33	0.00	-2.94	
7,338.00	6.35	200.430	7,293.46	-509.63	-159.60	-159.60	0.11	-0.05	0.87	
7,431.00	6.79	198.300	7,385.85	-519.67	-163.12	-163.12	0.54	0.47	-2.29	
7,524.00	6.70	197.290	7,478.20	-530.07	-166.46	-166.46	0.16	-0.10	-1.09	
7,618.00	5.58	202.210	7,571.66	-539.54	-169.82	-169.82	1.32	-1.19	5.23	
7,711.00	5.17	197.500	7,664.25	-547.72	-172.79	-172.79	0.65	-0.44	-5.06	

Company:	Oasis Petroleum	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Project:	McKenzie County, ND	TVD Reference:	GL 2132' & KB 25' @ 2157.00ft
Site:	Lewis Federal	MD Reference:	GL 2132' & KB 25' @ 2157.00ft
Well:	Lewis Federal 5300 21-31 6B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
7,804.00	4.95	199.820	7,756.89	-555.49	-175.41	-175.41	0.32	-0.24	2.49	
7,898.00	5.24	197.620	7,850.52	-563.40	-178.08	-178.08	0.37	0.31	-2.34	
7,991.00	4.60	198.960	7,943.18	-570.97	-180.58	-180.58	0.70	-0.69	1.44	
8,085.00	4.12	195.300	8,036.90	-577.79	-182.69	-182.69	0.59	-0.51	-3.89	
8,178.00	3.97	194.950	8,129.67	-584.13	-184.41	-184.41	0.16	-0.16	-0.38	
8,272.00	3.58	192.220	8,223.47	-590.14	-185.87	-185.87	0.46	-0.41	-2.90	
8,367.00	3.24	194.330	8,318.30	-595.64	-187.16	-187.16	0.38	-0.36	2.22	
8,460.00	3.03	185.670	8,411.16	-600.63	-188.05	-188.05	0.56	-0.23	-9.31	
8,554.00	3.14	188.070	8,505.02	-605.65	-188.66	-188.66	0.18	0.12	2.55	
8,649.00	2.83	190.410	8,599.90	-610.53	-189.45	-189.45	0.35	-0.33	2.46	
8,742.00	3.27	197.530	8,692.76	-615.32	-190.66	-190.66	0.62	0.47	7.66	
8,835.00	3.81	202.030	8,785.59	-620.72	-192.62	-192.62	0.65	0.58	4.84	
8,930.00	3.63	207.440	8,880.39	-626.31	-195.19	-195.19	0.42	-0.19	5.69	
9,024.00	3.79	207.190	8,974.19	-631.71	-197.98	-197.98	0.17	0.17	-0.27	
9,118.00	3.78	211.100	9,067.98	-637.13	-201.00	-201.00	0.27	-0.01	4.16	
9,211.00	3.59	214.940	9,160.79	-642.14	-204.25	-204.25	0.33	-0.20	4.13	
9,304.00	3.14	217.100	9,253.63	-646.56	-207.46	-207.46	0.50	-0.48	2.32	
9,397.00	3.10	221.660	9,346.49	-650.47	-210.66	-210.66	0.27	-0.04	4.90	
9,491.00	2.92	225.270	9,440.36	-654.06	-214.05	-214.05	0.28	-0.19	3.84	
9,584.00	2.77	225.860	9,533.25	-657.29	-217.35	-217.35	0.16	-0.16	0.63	
9,677.00	2.56	220.200	9,626.15	-660.44	-220.30	-220.30	0.36	-0.23	-6.09	
9,771.00	2.60	222.260	9,720.05	-663.62	-223.09	-223.09	0.11	0.04	2.19	
9,864.00	2.65	221.910	9,812.96	-666.78	-225.95	-225.95	0.06	0.05	-0.38	
9,957.00	2.37	225.280	9,905.87	-669.73	-228.75	-228.75	0.34	-0.30	3.62	
10,051.00	2.11	224.110	9,999.80	-672.34	-231.33	-231.33	0.28	-0.28	-1.24	
10,144.00	1.94	225.380	10,092.74	-674.68	-233.65	-233.65	0.19	-0.18	1.37	
10,239.00	1.77	231.640	10,187.69	-676.72	-235.94	-235.94	0.28	-0.18	6.59	
10,271.00	1.58	227.580	10,219.67	-677.32	-236.65	-236.65	0.70	-0.59	-12.69	
10,334.00	1.76	125.680	10,282.66	-678.47	-236.51	-236.51	4.12	0.29	-161.75	
10,366.00	6.61	99.330	10,314.57	-679.06	-234.29	-234.29	15.92	15.16	-82.34	
10,397.00	10.98	96.530	10,345.19	-679.69	-229.60	-229.60	14.16	14.10	-9.03	
10,429.00	15.39	91.020	10,376.34	-680.11	-222.32	-222.32	14.31	13.78	-17.22	
10,460.00	19.30	89.510	10,405.93	-680.14	-213.08	-213.08	12.70	12.61	-4.87	
10,491.00	22.21	89.400	10,434.91	-680.03	-202.10	-202.10	9.39	9.39	-0.35	
10,523.00	25.70	89.290	10,464.15	-679.88	-189.11	-189.11	10.91	10.91	-0.34	
10,554.00	29.58	90.250	10,491.61	-679.83	-174.73	-174.73	12.60	12.52	3.10	
10,585.00	34.09	91.100	10,517.94	-680.03	-158.38	-158.38	14.62	14.55	2.74	
10,616.00	36.63	93.290	10,543.22	-680.73	-140.46	-140.46	9.16	8.19	7.06	
10,647.00	39.27	90.000	10,567.67	-681.26	-121.41	-121.41	10.73	8.52	-10.61	
10,679.00	41.85	88.530	10,591.97	-680.99	-100.61	-100.61	8.60	8.06	-4.59	
10,710.00	45.02	86.030	10,614.48	-679.96	-79.32	-79.32	11.63	10.23	-8.06	
10,741.00	49.40	85.130	10,635.54	-678.20	-56.65	-56.65	14.29	14.13	-2.90	
10,773.00	53.77	85.590	10,655.42	-676.18	-31.66	-31.66	13.70	13.66	1.44	

Company:	Oasis Petroleum	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Project:	McKenzie County, ND	TVD Reference:	GL 2132' & KB 25' @ 2157.00ft
Site:	Lewis Federal	MD Reference:	GL 2132' & KB 25' @ 2157.00ft
Well:	Lewis Federal 5300 21-31 6B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
10,804.00	58.12	88.130	10,672.77	-674.79	-6.03	-6.03	15.59	14.03	8.19	
10,836.00	59.74	91.880	10,689.29	-674.80	21.37	21.37	11.24	5.06	11.72	
10,867.00	60.31	92.930	10,704.78	-675.92	48.20	48.20	3.46	1.84	3.39	
10,899.00	62.17	93.710	10,720.18	-677.55	76.21	76.21	6.19	5.81	2.44	
10,930.00	66.10	93.550	10,733.70	-679.32	104.04	104.04	12.69	12.68	-0.52	
10,961.00	66.58	93.640	10,746.14	-681.10	132.38	132.38	1.57	1.55	0.29	
10,993.00	68.25	92.480	10,758.43	-682.67	161.88	161.88	6.20	5.22	-3.63	
11,024.00	73.94	90.270	10,768.47	-683.37	191.18	191.18	19.55	18.35	-7.13	
11,056.00	77.30	90.690	10,776.42	-683.63	222.18	222.18	10.58	10.50	1.31	
11,087.00	77.99	90.530	10,783.05	-683.95	252.46	252.46	2.28	2.23	-0.52	
11,118.00	81.06	89.040	10,788.68	-683.83	282.93	282.93	10.97	9.90	-4.81	
11,149.00	86.65	88.520	10,792.00	-683.18	313.74	313.74	18.11	18.03	-1.68	
11,181.00	89.67	86.780	10,793.03	-681.86	345.69	345.69	10.89	9.44	-5.44	
11,240.00	91.21	89.990	10,792.58	-680.20	404.65	404.65	6.03	2.61	5.44	
First SDI MWD Lateral Survey										
11,271.00	91.11	90.330	10,791.95	-680.29	435.65	435.65	1.14	-0.32	1.10	
11,301.00	91.51	89.990	10,791.26	-680.37	465.64	465.64	1.75	1.33	-1.13	
11,332.00	90.64	90.210	10,790.68	-680.43	496.63	496.63	2.89	-2.81	0.71	
11,363.00	88.90	91.230	10,790.81	-680.81	527.63	527.63	6.51	-5.61	3.29	
11,394.00	87.69	92.690	10,791.73	-681.87	558.60	558.60	6.12	-3.90	4.71	
11,424.00	87.58	92.450	10,792.97	-683.22	588.54	588.54	0.88	-0.37	-0.80	
11,486.00	87.62	92.320	10,795.56	-685.80	650.43	650.43	0.22	0.06	-0.21	
11,516.00	88.22	92.420	10,796.65	-687.04	680.39	680.39	2.03	2.00	0.33	
11,609.00	90.77	91.770	10,797.47	-690.44	773.31	773.31	2.83	2.74	-0.70	
11,701.00	90.07	92.460	10,796.80	-693.83	865.25	865.25	1.07	-0.76	0.75	
11,731.00	88.66	92.860	10,797.13	-695.22	895.21	895.21	4.89	-4.70	1.33	
11,762.00	86.99	91.860	10,798.30	-696.50	926.16	926.16	6.28	-5.39	-3.23	
11,793.00	86.89	92.300	10,799.96	-697.62	957.10	957.10	1.45	-0.32	1.42	
11,824.00	87.36	91.220	10,801.51	-698.57	988.04	988.04	3.80	1.52	-3.48	
11,885.00	88.60	90.910	10,803.66	-699.71	1,048.99	1,048.99	2.10	2.03	-0.51	
11,977.00	88.02	90.050	10,806.38	-700.48	1,140.95	1,140.95	1.13	-0.63	-0.93	
12,069.00	89.67	89.390	10,808.23	-700.03	1,232.93	1,232.93	1.93	1.79	-0.72	
12,162.00	89.73	89.670	10,808.72	-699.26	1,325.92	1,325.92	0.31	0.06	0.30	
12,253.00	89.36	88.420	10,809.44	-697.75	1,416.90	1,416.90	1.43	-0.41	-1.37	
12,314.00	89.23	88.470	10,810.19	-696.09	1,477.88	1,477.88	0.23	-0.21	0.08	
12,345.00	89.40	87.890	10,810.56	-695.11	1,508.86	1,508.86	1.95	0.55	-1.87	
12,440.00	90.23	89.790	10,810.87	-693.18	1,603.83	1,603.83	2.18	0.87	2.00	
12,535.00	90.20	89.650	10,810.51	-692.72	1,698.83	1,698.83	0.15	-0.03	-0.15	
12,630.00	90.13	88.750	10,810.24	-691.39	1,793.82	1,793.82	0.95	-0.07	-0.95	
12,723.00	91.04	89.170	10,809.29	-689.71	1,886.80	1,886.80	1.08	0.98	0.45	
12,755.00	91.51	91.230	10,808.58	-689.82	1,918.79	1,918.79	6.60	1.47	6.44	
12,818.00	91.37	92.020	10,807.00	-691.60	1,981.74	1,981.74	1.27	-0.22	1.25	
12,913.00	90.17	91.690	10,805.72	-694.68	2,076.68	2,076.68	1.31	-1.26	-0.35	
13,008.00	88.49	92.280	10,806.83	-697.97	2,171.62	2,171.62	1.87	-1.77	0.62	

Company:	Oasis Petroleum	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Project:	McKenzie County, ND	TVD Reference:	GL 2132' & KB 25' @ 2157.00ft
Site:	Lewis Federal	MD Reference:	GL 2132' & KB 25' @ 2157.00ft
Well:	Lewis Federal 5300 21-31 6B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
13,102.00	89.20	92.230	10,808.72	-701.67	2,265.52	2,265.52	0.76	0.76	-0.05	
13,197.00	88.96	91.790	10,810.25	-705.00	2,360.45	2,360.45	0.53	-0.25	-0.46	
13,291.00	88.06	90.470	10,812.69	-706.85	2,454.40	2,454.40	1.70	-0.96	-1.40	
13,323.00	89.23	90.030	10,813.45	-706.99	2,486.39	2,486.39	3.91	3.66	-1.38	
13,386.00	89.77	90.090	10,814.00	-707.06	2,549.39	2,549.39	0.86	0.86	0.10	
13,480.00	90.47	92.440	10,813.80	-709.13	2,643.36	2,643.36	2.61	0.74	2.50	
13,574.00	88.83	91.390	10,814.38	-712.27	2,737.30	2,737.30	2.07	-1.74	-1.12	
13,668.00	90.43	90.490	10,814.98	-713.81	2,831.28	2,831.28	1.95	1.70	-0.96	
13,763.00	90.17	89.530	10,814.49	-713.83	2,926.28	2,926.28	1.05	-0.27	-1.01	
13,858.00	88.90	89.030	10,815.26	-712.64	3,021.26	3,021.26	1.44	-1.34	-0.53	
13,952.00	88.76	91.530	10,817.18	-713.10	3,115.24	3,115.24	2.66	-0.15	2.66	
14,046.00	88.86	91.300	10,819.13	-715.42	3,209.19	3,209.19	0.27	0.11	-0.24	
14,141.00	89.10	89.880	10,820.82	-716.40	3,304.16	3,304.16	1.52	0.25	-1.49	
14,235.00	88.63	89.550	10,822.68	-715.93	3,398.14	3,398.14	0.61	-0.50	-0.35	
14,330.00	88.96	92.220	10,824.68	-717.39	3,493.10	3,493.10	2.83	0.35	2.81	
14,424.00	88.66	90.670	10,826.63	-719.76	3,587.05	3,587.05	1.68	-0.32	-1.65	
14,455.00	89.87	91.750	10,827.03	-720.42	3,618.04	3,618.04	5.23	3.90	3.48	
14,518.00	90.50	91.420	10,826.83	-722.16	3,681.01	3,681.01	1.13	1.00	-0.52	
14,613.00	91.41	91.020	10,825.24	-724.18	3,775.98	3,775.98	1.05	0.96	-0.42	
14,708.00	90.44	90.510	10,823.71	-725.45	3,870.96	3,870.96	1.15	-1.02	-0.54	
14,803.00	90.67	89.900	10,822.79	-725.79	3,965.95	3,965.95	0.69	0.24	-0.64	
14,897.00	91.00	89.430	10,821.42	-725.24	4,059.94	4,059.94	0.61	0.35	-0.50	
14,960.00	91.77	89.840	10,819.90	-724.84	4,122.92	4,122.92	1.38	1.22	0.65	
14,991.00	90.33	91.210	10,819.33	-725.13	4,153.91	4,153.91	6.41	-4.65	4.42	
15,054.00	89.06	91.210	10,819.67	-726.46	4,216.89	4,216.89	2.02	-2.02	0.00	
15,085.00	89.06	91.360	10,820.17	-727.15	4,247.88	4,247.88	0.48	0.00	0.48	
15,180.00	87.39	91.500	10,823.12	-729.52	4,342.80	4,342.80	1.76	-1.76	0.15	
15,211.00	87.15	91.700	10,824.59	-730.39	4,373.76	4,373.76	1.01	-0.77	0.65	
15,242.00	87.76	90.700	10,825.97	-731.03	4,404.72	4,404.72	3.78	1.97	-3.23	
15,274.00	87.55	90.680	10,827.28	-731.42	4,436.69	4,436.69	0.66	-0.66	-0.06	
15,305.00	87.42	90.150	10,828.64	-731.64	4,467.66	4,467.66	1.76	-0.42	-1.71	
15,336.00	87.82	91.080	10,829.93	-731.98	4,498.63	4,498.63	3.26	1.29	3.00	
15,367.00	88.09	90.590	10,831.03	-732.43	4,529.61	4,529.61	1.80	0.87	-1.58	
15,431.00	87.92	90.760	10,833.26	-733.18	4,593.56	4,593.56	0.38	-0.27	0.27	
15,462.00	88.22	90.300	10,834.30	-733.47	4,624.54	4,624.54	1.77	0.97	-1.48	
15,493.00	88.36	90.250	10,835.23	-733.62	4,655.53	4,655.53	0.48	0.45	-0.16	
15,556.00	88.86	90.240	10,836.76	-733.89	4,718.51	4,718.51	0.79	0.79	-0.02	
15,588.00	89.16	91.090	10,837.31	-734.26	4,750.50	4,750.50	2.82	0.94	2.66	
15,619.00	89.23	90.340	10,837.75	-734.64	4,781.50	4,781.50	2.43	0.23	-2.42	
15,651.00	89.10	91.160	10,838.21	-735.06	4,813.49	4,813.49	2.59	-0.41	2.56	
15,713.00	88.86	89.970	10,839.32	-735.67	4,875.48	4,875.48	1.96	-0.39	-1.92	
15,745.00	90.03	89.720	10,839.63	-735.59	4,907.48	4,907.48	3.74	3.66	-0.78	
15,776.00	90.00	90.260	10,839.62	-735.58	4,938.48	4,938.48	1.74	-0.10	1.74	

Company:	Oasis Petroleum	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Project:	McKenzie County, ND	TVD Reference:	GL 2132' & KB 25' @ 2157.00ft
Site:	Lewis Federal	MD Reference:	GL 2132' & KB 25' @ 2157.00ft
Well:	Lewis Federal 5300 21-31 6B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
15,839.00	91.10	90.420	10,839.01	-735.96	5,001.47	5,001.47	1.76	1.75	0.25	
15,870.00	91.27	91.250	10,838.37	-736.41	5,032.46	5,032.46	2.73	0.55	2.68	
15,934.00	90.60	91.140	10,837.33	-737.74	5,096.44	5,096.44	1.06	-1.05	-0.17	
15,997.00	89.43	90.320	10,837.31	-738.54	5,159.43	5,159.43	2.27	-1.86	-1.30	
16,029.00	89.20	90.530	10,837.69	-738.78	5,191.43	5,191.43	0.97	-0.72	0.66	
16,123.00	89.00	89.660	10,839.17	-738.94	5,285.41	5,285.41	0.95	-0.21	-0.93	
16,217.00	89.50	90.780	10,840.40	-739.30	5,379.40	5,379.40	1.30	0.53	1.19	
16,312.00	90.10	90.660	10,840.73	-740.49	5,474.40	5,474.40	0.64	0.63	-0.13	
16,406.00	90.94	89.080	10,839.88	-740.28	5,568.39	5,568.39	1.90	0.89	-1.68	
16,438.00	91.41	88.800	10,839.22	-739.69	5,600.38	5,600.38	1.71	1.47	-0.88	
16,470.00	92.11	88.310	10,838.24	-738.88	5,632.35	5,632.35	2.67	2.19	-1.53	
16,501.00	92.41	88.630	10,837.02	-738.05	5,663.31	5,663.31	1.41	0.97	1.03	
16,532.00	90.67	89.120	10,836.19	-737.45	5,694.30	5,694.30	5.83	-5.61	1.58	
16,563.00	89.16	89.370	10,836.23	-737.04	5,725.29	5,725.29	4.94	-4.87	0.81	
16,595.00	89.93	89.640	10,836.49	-736.76	5,757.29	5,757.29	2.55	2.41	0.84	
16,626.00	90.60	90.230	10,836.34	-736.72	5,788.29	5,788.29	2.88	2.16	1.90	
16,689.00	89.30	90.170	10,836.40	-736.94	5,851.29	5,851.29	2.07	-2.06	-0.10	
16,784.00	89.20	89.950	10,837.64	-737.04	5,946.28	5,946.28	0.25	-0.11	-0.23	
16,879.00	87.65	89.320	10,840.25	-736.44	6,041.24	6,041.24	1.76	-1.63	-0.66	
16,974.00	88.56	90.080	10,843.39	-735.94	6,136.18	6,136.18	1.25	0.96	0.80	
17,068.00	89.33	88.880	10,845.12	-735.09	6,230.16	6,230.16	1.52	0.82	-1.28	
17,163.00	90.40	88.170	10,845.35	-732.64	6,325.13	6,325.13	1.35	1.13	-0.75	
17,257.00	90.94	88.200	10,844.25	-729.67	6,419.07	6,419.07	0.58	0.57	0.03	
17,351.00	90.67	90.010	10,842.93	-728.20	6,513.05	6,513.05	1.95	-0.29	1.93	
17,446.00	91.24	92.290	10,841.34	-730.11	6,608.01	6,608.01	2.47	0.60	2.40	
17,509.00	87.85	90.070	10,841.84	-731.40	6,670.98	6,670.98	6.43	-5.38	-3.52	
17,541.00	87.92	89.860	10,843.03	-731.38	6,702.96	6,702.96	0.69	0.22	-0.66	
17,636.00	90.54	89.080	10,844.30	-730.50	6,797.94	6,797.94	2.88	2.76	-0.82	
17,730.00	90.67	89.740	10,843.31	-729.54	6,891.93	6,891.93	0.72	0.14	0.70	
17,825.00	90.94	89.360	10,841.97	-728.79	6,986.91	6,986.91	0.49	0.28	-0.40	
17,920.00	89.23	88.560	10,841.83	-727.07	7,081.89	7,081.89	1.99	-1.80	-0.84	
18,014.00	88.53	87.930	10,843.67	-724.19	7,175.83	7,175.83	1.00	-0.74	-0.67	
18,108.00	89.80	89.140	10,845.04	-721.79	7,269.79	7,269.79	1.87	1.35	1.29	
18,203.00	88.16	89.250	10,846.73	-720.45	7,364.76	7,364.76	1.73	-1.73	0.12	
18,298.00	90.23	92.230	10,848.07	-721.68	7,459.73	7,459.73	3.82	2.18	3.14	
18,392.00	89.06	90.910	10,848.65	-724.25	7,553.68	7,553.68	1.88	-1.24	-1.40	
18,486.00	89.20	89.360	10,850.08	-724.47	7,647.67	7,647.67	1.66	0.15	-1.65	
18,581.00	89.83	89.200	10,850.88	-723.28	7,742.66	7,742.66	0.68	0.66	-0.17	
18,675.00	90.57	89.970	10,850.55	-722.60	7,836.66	7,836.66	1.14	0.79	0.82	
18,770.00	90.07	88.670	10,850.02	-721.47	7,931.64	7,931.64	1.47	-0.53	-1.37	
18,864.00	87.49	88.010	10,852.02	-718.75	8,025.58	8,025.58	2.83	-2.74	-0.70	
18,959.00	91.17	89.890	10,853.13	-717.01	8,120.53	8,120.53	4.35	3.87	1.98	
19,053.00	91.00	89.010	10,851.35	-716.11	8,214.51	8,214.51	0.95	-0.18	-0.94	

Company:	Oasis Petroleum	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Project:	McKenzie County, ND	TVD Reference:	GL 2132' & KB 25' @ 2157.00ft
Site:	Lewis Federal	MD Reference:	GL 2132' & KB 25' @ 2157.00ft
Well:	Lewis Federal 5300 21-31 6B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
19,148.00	91.74	89.940	10,849.08	-715.24	8,309.48	8,309.48	1.25	0.78	0.98	
19,243.00	89.03	90.930	10,848.44	-715.96	8,404.46	8,404.46	3.04	-2.85	1.04	
19,338.00	90.23	91.280	10,849.06	-717.79	8,499.44	8,499.44	1.32	1.26	0.37	
19,432.00	88.53	90.940	10,850.08	-719.61	8,593.41	8,593.41	1.84	-1.81	-0.36	
19,527.00	89.46	90.760	10,851.74	-721.02	8,688.39	8,688.39	1.00	0.98	-0.19	
19,622.00	91.58	90.960	10,850.88	-722.45	8,783.37	8,783.37	2.24	2.23	0.21	
19,716.00	88.06	91.960	10,851.17	-724.84	8,877.32	8,877.32	3.89	-3.74	1.06	
19,811.00	88.83	91.490	10,853.75	-727.70	8,972.24	8,972.24	0.95	0.81	-0.49	
19,906.00	87.39	90.410	10,856.89	-729.28	9,067.17	9,067.17	1.89	-1.52	-1.14	
20,000.00	89.60	91.230	10,859.35	-730.62	9,161.12	9,161.12	2.51	2.35	0.87	
20,095.00	92.04	90.680	10,857.99	-732.20	9,256.09	9,256.09	2.63	2.57	-0.58	
20,188.00	90.44	91.290	10,855.98	-733.80	9,349.06	9,349.06	1.84	-1.72	0.66	
20,283.00	88.73	90.380	10,856.67	-735.19	9,444.04	9,444.04	2.04	-1.80	-0.96	
20,377.00	89.56	90.800	10,858.07	-736.15	9,538.02	9,538.02	0.99	0.88	0.45	
20,472.00	88.70	88.680	10,859.52	-735.72	9,633.00	9,633.00	2.41	-0.91	-2.23	
20,566.00	88.70	88.330	10,861.65	-733.27	9,726.95	9,726.95	0.37	0.00	-0.37	
20,660.00	90.91	87.810	10,861.97	-730.11	9,820.89	9,820.89	2.42	2.35	-0.55	
20,755.00	91.14	89.080	10,860.27	-727.53	9,915.83	9,915.83	1.36	0.24	1.34	
20,849.00	87.75	88.430	10,861.18	-725.49	10,009.79	10,009.79	3.67	-3.61	-0.69	
20,873.00	88.02	87.080	10,862.06	-724.55	10,033.76	10,033.76	5.73	1.13	-5.63	
Last SDI MWD Survey										
20,940.00	88.02	87.080	10,864.38	-721.14	10,100.63	10,100.63	0.00	0.00	0.00	
Projection to TD										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			Comment
		+N/S (ft)	+E/W (ft)		
147.00	147.00	-0.32	0.49	First MesaWest MWD Survey	
3,288.00	3,287.80	0.78	-7.29	Last MesaWest MWD Survey	
3,372.00	3,371.80	1.37	-6.79	First SDI MWD Survey	
6,106.00	6,077.09	-333.03	-109.89	Last SDI MWD Vertical Survey	
11,240.00	10,792.58	-680.20	404.65	First SDI MWD Lateral Survey	
20,873.00	10,862.06	-724.55	10,033.76	Last SDI MWD Survey	
20,940.00	10,864.38	-721.14	10,100.63	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2006)

RECEIVED
AUG 27 2019
ND O&G GAS DIVISION
Well File No.
28190

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

<input type="checkbox"/> Notice of Intent	Approximate Start Date	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input checked="" type="checkbox"/> Report of Work Done	Date Work Completed August 14, 2019	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input checked="" type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	<u>Change well status to CONFIDENTIAL</u>

Well Name and Number Lewis Federal 5300 21-31 6B					
Footages	Qtr-Qtr	Section	Township	Range	
2585 F N L	259 F W L	LOT2	31	153 N	100 W
Field Baker	Pool Bakken		County McKenzie		

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

Name of Contractor(s)			
Address	City	State	Zip Code

DETAILS OF WORK

Effective immediately, we request CONFIDENTIAL STATUS for the above referenced well.

Date of First Production August 14, 2019.

off confidential 2/14/20

Company Oasis Petroleum North America LLC	Telephone Number 713-770- 6570	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature <i>Jasmine Crawford</i>	Printed Name Jasmine Crawford	
Title Regulatory Specialist	Date August 19, 2019	
Email Address jcrawford@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>8/27/19</i>	
By <i>Julianne Oakley</i>	
Title Petroleum Resource Specialist	

Industrial Commission of North Dakota
Oil and Gas Division

Well or Facility No
28190

Verbal Approval To Purchase and Transport Oil Tight Hole No

OPERATOR

Operator OASIS PETROLEUM NORTH AMERICA LL	Representative Mike Haase	Rep Phone (701) 570-6752
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WELL INFORMATION

Well Name LEWIS FEDERAL 5300 21-31 6B	Inspector Richard Dunn
Well Location QQ Sec Twp Rng	County MCKENZIE
LOT2 31 153 N 100 W	Field BAKER
Footages 2585 Feet From the N Line	Pool BAKKEN
259 Feet From the W Line	
Date of First Production Through Permanent Wellhead	8/14/2019 This Is The First Sales

PURCHASER / TRANSPORTER

Purchaser OASIS PETROLEUM MARKETING LLC	Transporter HILAND CRUDE, LLC
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TANK BATTERY

Single Well Tank Battery Number : 128190-01

SALES INFORMATION This Is The First Sales

ESTIMATED BARRELS TO BE SOLD	ACTUAL BARRELS SOLD	DATE
15000	BBLS	8/14/2019
	BBLS	

DETAILS

Must also forward Forms 6 & 8 to State prior to reaching 15000 Bbl estimate or no later than required time frame for submitting those forms.

Start Date	8/14/2019
Date Approved	8/22/2019
Approved By	Richard Dunn



Oasis Petroleum North America LLC

Lewis Federal 5300 21-31 6B

2,585' FNL & 259' FWL

Lot 2 Section 31, T153N, R100W

Baker Field / Middle Bakken

McKenzie County, North Dakota

BOTTOM HOLE LOCATION:

721.14' south & 10,100.63' east of surface or approx.

1,973.86' FSL & 176.08' FEL; NE SE Section 32, T153N, R100W

Prepared for:

John O'Donnell
Oasis Petroleum North America LLC
1001 Fannin Suite 1500
Houston, TX 77002

Prepared by:

Dillon Johnson, Michelle Baker
PO Box 80507; Billings, MT 59108
(406) 259-4124
geology@sunburstconsulting.com
www.sunburstconsulting.com

Oasis Petroleum North America, LLC.

Lewis Federal 5300 21-31 6B

Well Evaluation



Figure 1. Nabors drilling rig #B21 at the Oasis Petroleum NA, LLC. Lewis Federal 5300 21-31 6B; May 2019, McKenzie County, North Dakota (All photos by Dillon Johnson unless noted otherwise).

Introduction

The Oasis Petroleum NA, LLC. Lewis Federal 5300 21-31 6B is in Baker Field of the Williston Basin [Lot 2 Section 31, T153N, R101W]. The subject well lies approximately 8 miles south of the town of Williston, in McKenzie County, North Dakota (**Figure 1**). The Lewis Federal 5300 21-31 6B is the second of two wells to be drilled on the Lewis Federal 5300 21-31 pad. This pad is set up as a 1,280 acre laydown spacing unit, with 500' N/S and 100' E/W drilling setbacks. The subject well is permitted to drill east from the surface location in section 31 into section 32. The well consists of a single Middle Bakken Member lateral, targeting a silty sandstone facies, with intent to intersect porosity and fracture trends enhancing reservoir quality.

Engineering Operations Overview

The 13 3/8" surface casing for the subject well was preset at a depth of 3,328' prior to Nabors B21 arrival. Nabors B21 reentered the subject well on April 6, 2019. Due to the presence of several saltwater disposal wells in the immediate area the decision was made to set a 9 5/8" isolation casing string through the Inyan Kara and into the Swift. The 9 5/8" casing was then set to a depth of 6,145'. The remainder of the vertical hole was completed with two 8 3/4" assemblies. The first vertical assembly drilled to a depth of 8,516' before being replaced due to low ROP, the second vertical assembly drilled to a depth of 10,327' (KOP). The curve assembly consisted of a Reed TKC56 PDC bit (#4), attached to a 2.38° NOV mud motor and Scientific Drilling MWD tools drilled to a depth of 11,240' (casing point). The curve was successfully landed at 11,240' MD and 10,793' TVD, approximately 17' below the Upper Bakken Shale on May 9, 2019. Seven inch diameter 32# P-110 intermediate casing was then set to 11,215' MD. The lateral assembly consisted of a 6" Reed TKC53 PDC (#5) bit, attached to a 1.5° Discovery mud motor, and Scientific drilling MWD tools. The Lewis Federal 5300 21-31 6B reached a total depth of 20,940' on May 13, 2019.

Offset Control

Offset well data can be found in the ‘Control Data’ section appended to this report. Offset wells were essential in providing control, making it possible to develop a prognosis of formation tops and curve landing target depth. The three primary offsets were, The *Oasis Petroleum North America, LLC Lewis Federal 5300 21-31 5B*, the *Oasis Petroleum North America, LLC, Lewis Federal 5300 31-31H*, and the *Oasis Petroleum North America, LLC, Lewis Federal 5300 11-31 4BR*. By referencing the gamma signature of these offsets and using formation thicknesses, a model was formed for the target interval pinpointing a strategic landing. Formation thicknesses expressed by gamma ray signatures in these offset wells were compared to gamma data collected during drilling operations in to successfully land the curve.

Geology

Sample evaluation began in the Otter Formation at 8,230’ measured depth (MD). Lagged samples were caught by Sunburst personnel in 30’ intervals through the vertical and curve, and 50’ intervals in the lateral. Rock samples were evaluated under wet and dry conditions using a stereo zoom binocular microscope for the identification of lithology including the presence of porosity and oil. Only observed prospective intervals are described here, but detailed lithological descriptions for all formations are provided in the ‘Lithology’ appendix.

The **Mission Canyon Formation** [Mississippian, Madison Group] was logged at 9,515' MD, 9,465' TVD (-7,308' MSL). The Mission Canyon Formation is described as light gray, cream, tan, and light brown gray in color. Samples are predominately microcrystalline and are a firm to friable mudstone. The limestone has an earthy, rarely crystalline texture. Also noted in several samples were trace fossil fragments. The limestone is argillaceous in part throughout this interval. In certain areas possible intercrystalline porosity was noted but there was no significant oil staining observed in samples. Throughout the Mission Canyon gas shows are promising, with an average background gasses ~110u with several connection gasses exceeding 200u.

Figure 2. Wet sample cuttings of limestone from the Mission Canyon.



The Bakken Formation

The Upper Bakken Shale Member [Mississippian] was recorded at 10,995' MD, 10,759' TVD (-8,602' MSL). Entry into this member is characterized by high gamma counts (>300 API), elevated background gas and increased rates of penetration. While drilling through the Upper Bakken Shale gas a background gas of 1000u was observed, as well as a gas show exceeding 1700u. The distinct black shale is carbonaceous and *petroliferous*, as well as, hard and platy. Minerals including disseminated/nodular pyrite and trace calcite fracture fill was observed.

The Middle Bakken Member [Mississippian-Devonian] was entered at 11,553' MD, 10,776' TVD (-8,619' MSL). Samples in the Middle Bakken are predominantly a light brown gray, light to medium gray, light brown, and off white in color, silty sandstone. The silty sandstone is fine to very fine grained, and firm. The Middle Bakken typically contained sub-round to sub-angular grains. Samples are smooth, moderately sorted and poorly cemented by calcite. Rare to trace quantities of disseminated and nodular pyrite is present as was *trace to fair intergranular porosity*. Trace to rare *light-medium brown, spotty oil stain* was visible in many of these samples. While drilling the Middle Bakken background gasses ranged from ~600 to 3000 units while several shows exceeded 3600u.



Figure 3. Wet sample cuttings of silty sandstone from the Middle Bakken.

Geosteering

Structure maps provided by Oasis Petroleum projected that the structure would have an overall down dip averaging 89.50°. Below are the two nearest offset wells to the Lewis Federal 5300 21-31 6B. The Lewis Federal 5300 21-31 (**Figure 4**), drilling west to east, ~0.15 miles north of the subject well, and the Lewis Federal 5300 31-31H (**Figure 5**), drilling west to east, ~0.15 miles south of the subject well. Although the nearby offsets all had an overall dip rate of 89.50°, the structure near a vertical section of 3,500' varied considerably. The Lewis Federal 5300 31-31H has a very consistent downward dip rate of ~89.50 throughout the course of the lateral. While the Lewis Federal 5300 21-31 5B has a constant downward dip rate until ~3,500' vertical section, where the structure abruptly dips down at a steep >2° for several hundred feet before flattening, reversing to ~1.2° up dip for several hundred feet, then returning to dip rate more similar to that of regional structure. In total the synclinal structure observed on the Lewis Federal 5300 21-31 5B lasted for ~3,200'. Anticipating that the structure could be similar to that observed on the Lewis Federal 5300 21-31 5B the steering team made a conscious effort to maintain a position low in the target interval, prior to reaching the syncline structure. Maintaining a position low in zone would allow for the steep dip rate to be identified in a timely manner.



Figure 4. Cross-sectional profile of the Lewis Federal 5300 21-31 5B displaying stratigraphic position and gamma values.



Figure 5. Cross-sectional profile of the Lewis Federal 5300 31-31H displaying stratigraphic position and gamma values (Provided by John O'Donnell, Oasis Petroleum).

The 18' target interval for the subject well is 9' below the Upper Bakken Shale and 9' above the Lower Bakken Shale. Prior to drilling out of the 7" casing it was determined that the C marker near the center of target and the featureless D marker in the lower portion of the Middle Bakken were to be the primary steering guides throughout the course of the lateral (**Figure 6**). As was intended the assembly was steered to maintain a position low in the target interval for the first half of the lateral. While doing so the anticipated steep (1.20°) up dip was observed in time to avoid any potential proximity to the Upper Bakken Shale. Although the steep dip rate was present, the structure was not as extreme as that observed on the Lewis Federal 5300 21-31 5B or Lewis Federal 5300 11-21 4BR. After drilling past the steep downward structure, the dip rate reversed for a short interval, then resumed to a dip rate more similar to regional structure for the remainder of the lateral. Over the course of the well the consistent, non-descript gamma in the lower portion of the target interval proved to be the most useful steering guide. As was observed on previous wells within the DSU, regardless of position in zone the assembly regularly built inclination on rotation. There did not appear to be any noticeable hard streaks or intervals that were more or less favorable in relation to ROP.

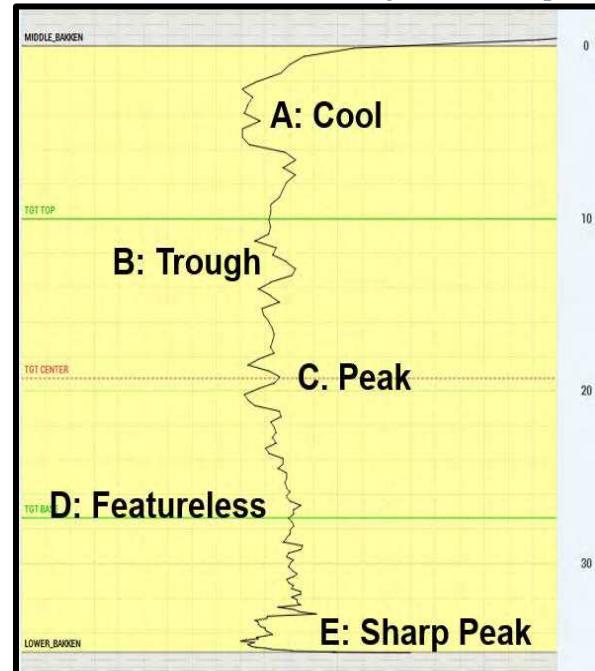


Figure 6. Target definition for the Oasis Petroleum, Lewis Federal 5300 21-31 6B (Provided by John O'Donnell, Oasis Petroleum).

The Lewis Federal 5300 21-31 6B had an estimated overall formation dip of approximately -0.50° . Penetration rates, gas shows, gamma ray data, and sample observations were utilized to keep the wellbore

in the preferred stratigraphic position within the target zone. Using offset well data provided by Oasis representatives, the target interval was determined to maintain adequate distance from the shale.

The lateral was drilled in less than 3 days from casing exit to total depth, with two lateral assemblies. A total depth of 20,940' MD was achieved at 23:05 hours on May 13, 2019. The wellbore was completed 94% within target, opening 9,725' (measurement taken from uncased lateral portion) of potentially productive reservoir rock.

Hydrocarbon Shows

Gas was continuously recorded from 8,230' to the completion of the lateral, along with the monitoring of free oil at the possum belly and shakers. In the closed mud system, hydrostatic conditions were maintained near balance, this allowed gas and fluid gains from the well to be evaluated. During the vertical, gas shows ranging from 10 to 276 units were noted, against a 10.15 to 10.70 pound per gallon (PPG) diesel-invert, mud weight. Background concentrations in the lateral ranged from 600 to 3000 units, against a 9.4-9.45 PPG saltwater gel drilling fluid (**Figure 7**). Chromatography of gas revealed typical concentrations of methane, ethane and propane characteristic of the Middle Bakken (**Figure 8**). Sample cuttings were examined for hydrocarbon “cut” by immersion of trichloroethylene and inspection under a UV fluoroscope. *Fluorescent cuts were generally pale yellow in color and had a diffuse habit at a slow to moderate speed.*

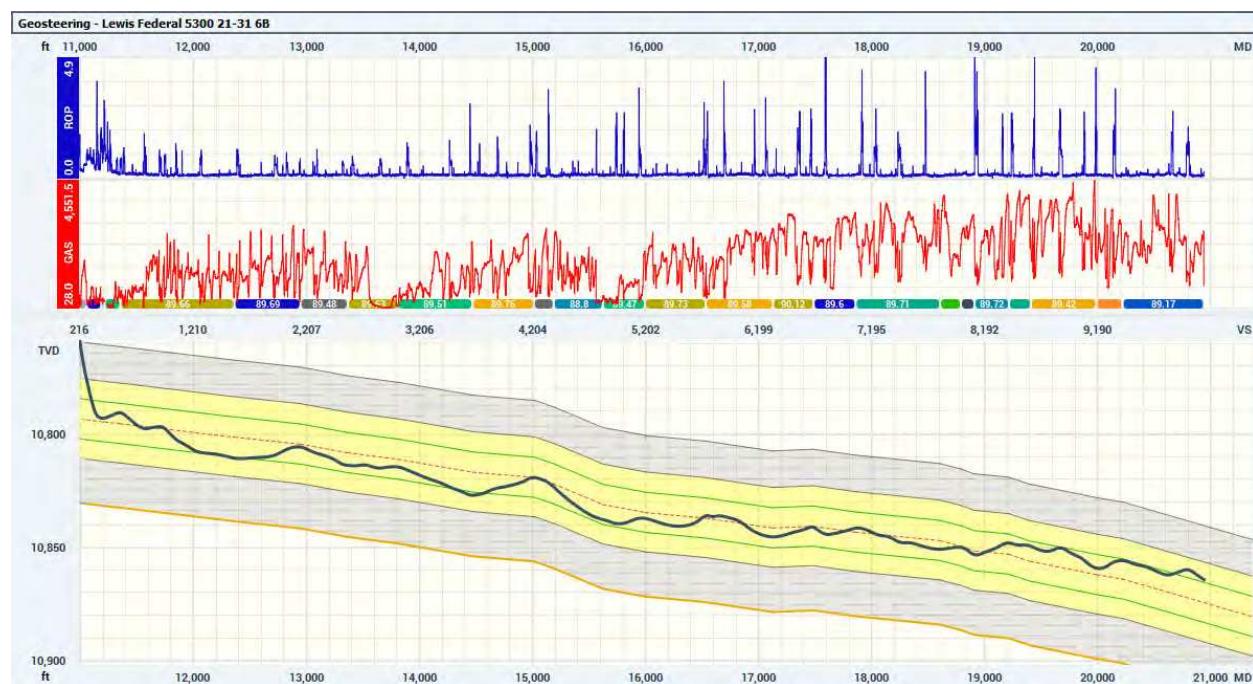


Figure 7. Cross-sectional profile of the Lewis Federal 5300 21-31 6B displaying stratigraphic position, total gas and gamma values.

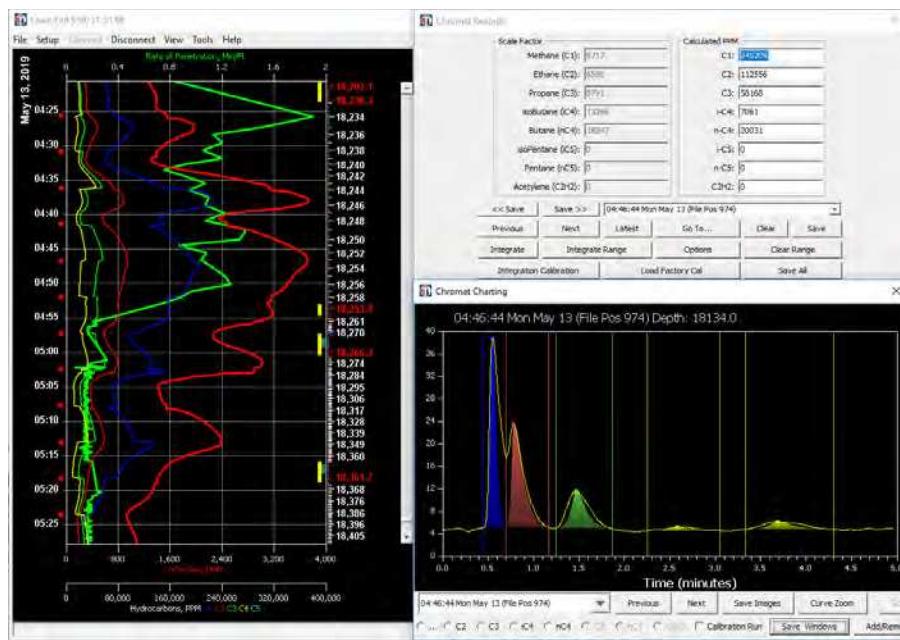


Figure 8. Screen shot of gas chromatography portraying total gas values and C₁-C₄ values, shown in parts per million.

Summary

The *Lewis Federal 5300 21-31 6B* is a well in Oasis Petroleum's horizontal Middle Bakken Member development program, in McKenzie County, North Dakota. The project was drilled from surface casing to total depth in 19 days. A total depth of 20,940' MD was achieved at 23:05 hours on May 13, 2019. The well-site team worked together to maintain the wellbore in the desired target interval for 94% within target, opening 9,725' of potentially productive reservoir rock.

Samples in the Middle Bakken Member are predominantly silty sandstone. These samples are light brown gray, light to medium gray, light brown, and off white silty sandstone. The silty sandstone is fine to very fine grained. The middle member typically contained sub-round and occasionally sub-angular grains. Samples are smooth, moderately sorted and poorly cemented by calcite. Rare quantities of disseminated and nodular pyrite are present as was trace to fair *intergranular porosity*. Trace to rare *light-medium brown, spotty oil stain* was visible in many of these samples. The overall hydrocarbon "cuts", gas and hydrocarbon shows were encouraging and indicate an oil and gas rich system in the Middle Bakken Member.

The well should be regarded as an engineering and geological success based on the combination of:

- Maximum exposure to the target
- Minimal days from re-entry to total depth
- No shale strikes
- No sidetracks

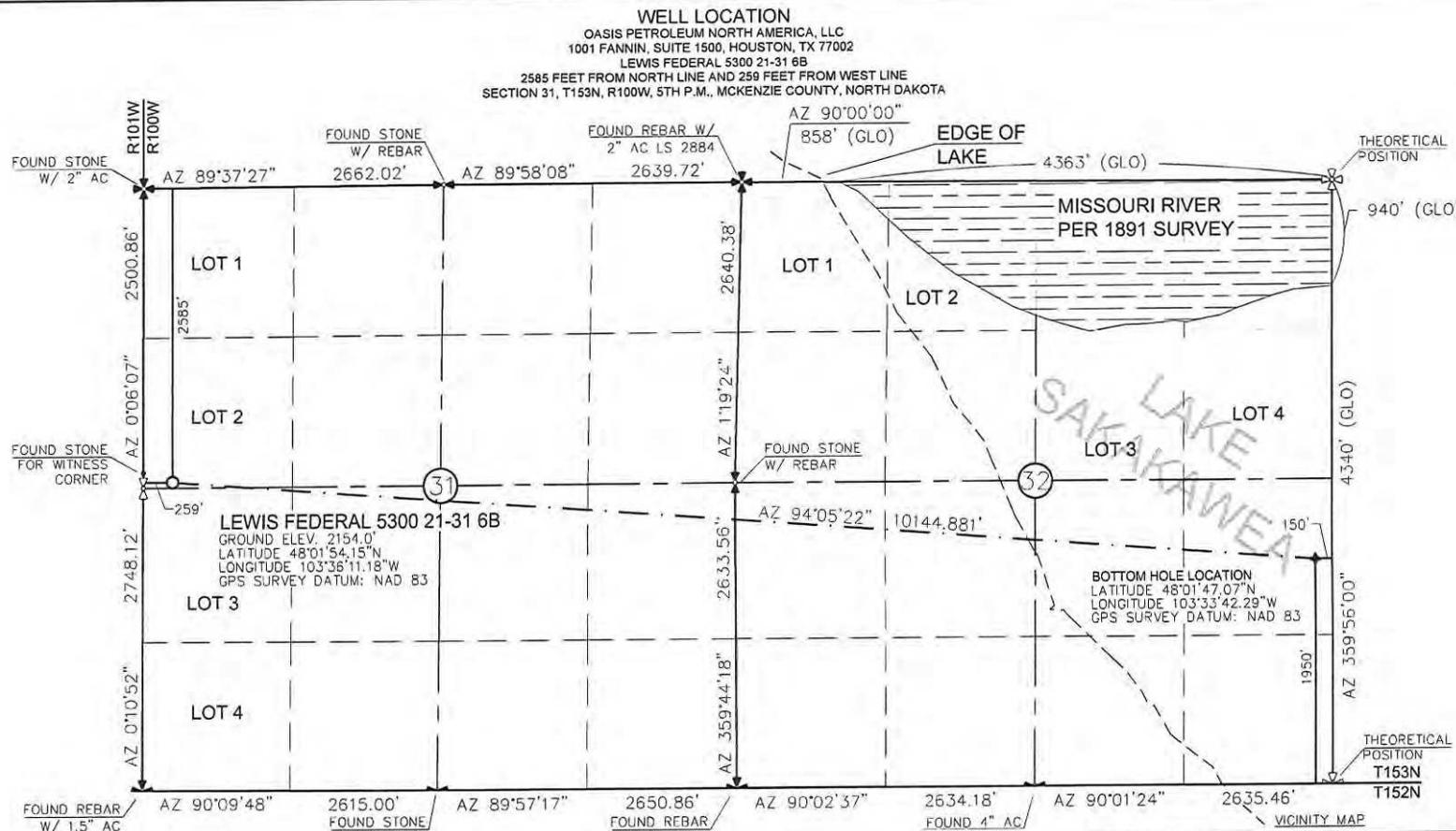
The *Oasis Petroleum North America, LLC, Lewis Federal 5300 21-31 6B* awaits completion operations to determine its ultimate production potential and commercial value.

Respectfully,
Dillon Johnson
 Lead Well Site Geologist & Geosteering Consultant
 Sunburst Consulting, Inc.
 May 14, 2019

WELL DATA SUMMARY

<u>OPERATOR:</u>	Oasis Petroleum North America LLC
<u>ADDRESS:</u>	1001 Fannin Suite 1500 Houston, TX 77002
<u>WELL NAME:</u>	Lewis Federal 5300 21-31 6B
<u>API #:</u>	33-053-05845
<u>WELL FILE #:</u>	28190
<u>SURFACE LOCATION:</u>	2,585' FNL & 259' FWL Lot 2 Section 31, T153N, R100W
<u>FIELD/ OBJECTIVE:</u>	Baker Field / Middle Bakken
<u>COUNTY, STATE:</u>	McKenzie County, North Dakota
<u>RESERVATION:</u>	N/A
<u>BASIN:</u>	Williston Basin
<u>WELL TYPE:</u>	Horizontal Development
<u>ELEVATION:</u>	GL: 2,132' KB: 2,157'
<u>SPUD DATE:</u>	February 4, 2019
<u>RE-ENTRY DATES:</u>	12.25" Vertical: April 6, 2018; 8.75" Vertical: May 6, 2018
<u>BOTTOM HOLE LOCATION:</u>	721.14' south & 10,100.63' east of surface or approx. 1,973.86' FSL & 176.08' FEL; NE SE Section 32, T153N, R100W
<u>CLOSURE COORDINATES:</u>	Closure Azimuth: 94.08° Closure Distance: 10,126.34'
<u>TOTAL DEPTH / DATE:</u>	20,940' on May 13, 2019 93% within target interval
<u>TOTAL DRILLING DAYS:</u>	19 days
<u>PUMP INFO:</u>	Stroke length - 12" Liner Inner Diameter - 5.0"

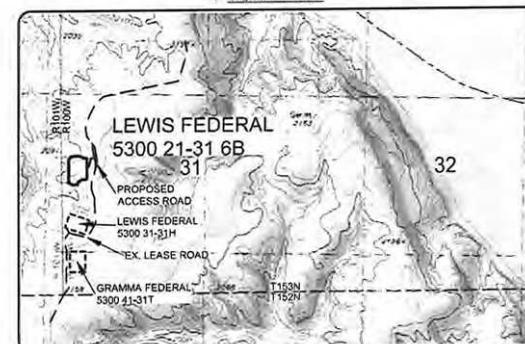
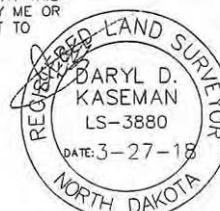
<u>COMPANY MEN:</u>	Ian Anderson, Doug Rakstad, Mike Ziegler, Mike Crow
<u>COMPANY GEOLOGIST:</u>	John O'Donnell
<u>WELLSITE GEOLOGISTS:</u>	Dillon Johnson, Michelle Baker
<u>ROCK SAMPLING:</u>	30' from 8,230 - 11,240' 50' from 11,240' - 20,940' (TD)
<u>SAMPLE CUTS:</u>	Trichloroethylene
<u>GAS DETECTION:</u>	Terra SLS, Inc. TGC - total gas w/ chromatograph Serial Number(s): ML-466
<u>DIRECTIONAL DRILLERS:</u>	RPM Consulting, Pat's Consulting Christopher Bohn, Rudy Salivar, Jason Strandlien, Willem Zylstra
<u>MWD:</u>	Scientific Drilling Steve Gray, John Parisee, Nick Froelich
<u>CASING:</u>	Surface: 13 3/8" 54# set to 3,322' Isolation: 9 5/8" 40# set to 6,145' Intermediate: 7" 32# set to 11,215'
<u>KEY OFFSET WELLS:</u>	<p>Oasis Petroleum North America, LLC Lewis Federal 5300 21-31 5B Lot 2 Section 31, T153N, R100W McKenzie County, ND</p> <p><u>NDIC:</u> 28194 <u>KB:</u> 2,157'</p> <p>Oasis Petroleum North America, LLC Lewis Federal 5300 31-31H Lot 6 Sec. 30, T153N, R100W McKenzie County, ND</p> <p><u>NDIC:</u> 20314 <u>KB:</u> 2,185'</p> <p>Oasis Petroleum North America, LLC Lewis Federal 5300 11-31 4BR Lot 1 Section 31, T153N, R100W McKenzie County, ND</p> <p><u>NDIC:</u> 30197 <u>KB:</u> 2,135'</p>



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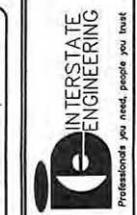
DARYL D. KASEMAN LS-3880



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Client Name:	Date:	By:	Description:
OASIS PETROLEUM NORTH AMERICA, LLC			
SECTION 31, T153N, R100W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA			
Project No.: 531-2515			
Drawn By: J.S.			
Checked By: D.B.			
Date: March 24, 2018			

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South Dakota Data and South Dakota



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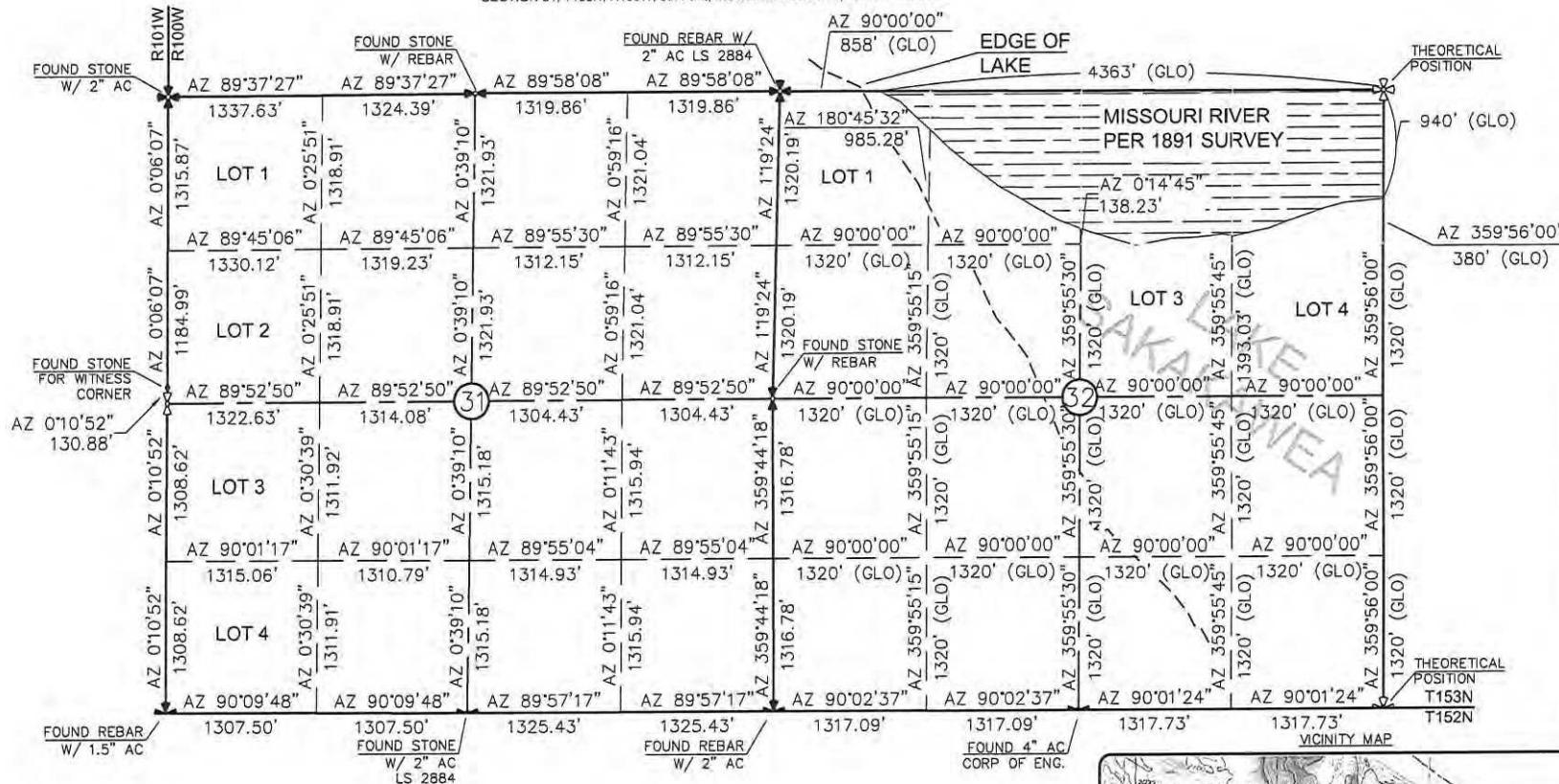
SECTION BREAKDOWN
PASIS PETROLEUM NORTH AMERICA, LLC
1 FANNIN, SUITE 1500, HOUSTON, TX 77002

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN SUITE 1500 HOUSTON TX 77003

L FANNIN, SUITE 1500, HOUSTON, TX 77002
L EWIS FEDERAL 5300 31-31-6B

"LEWIS FEDERAL 5300 21-3
FROM NORTH LINE AND 251 FF

"LEWIS FEDERAL 5300 21-31-68
2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

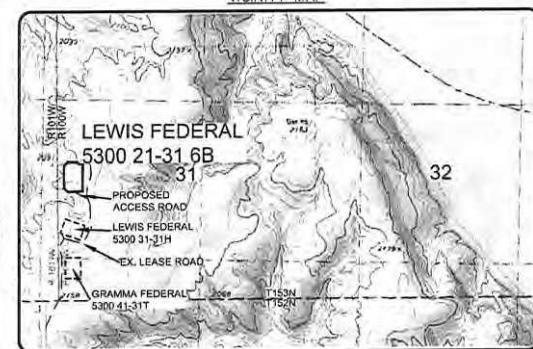


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0 100
1" = 1000'

ALL AZIMUTHS ARE BASED ON G.P.S. OBSERVATIONS. THE ORIGINAL SURVEY OF THIS AREA FOR THE GENERAL LAND OFFICE (G.L.O.) WAS 1897. THE CORNERS FOUND ARE AS INDICATED AND ALL OTHERS ARE COMPUTED FROM THOSE CORNERS FOUND AND BASED ON G.L.O. DATA. THE MAPPING ANGLE FOR THIS AREA IS APPROXIMATELY '003'.



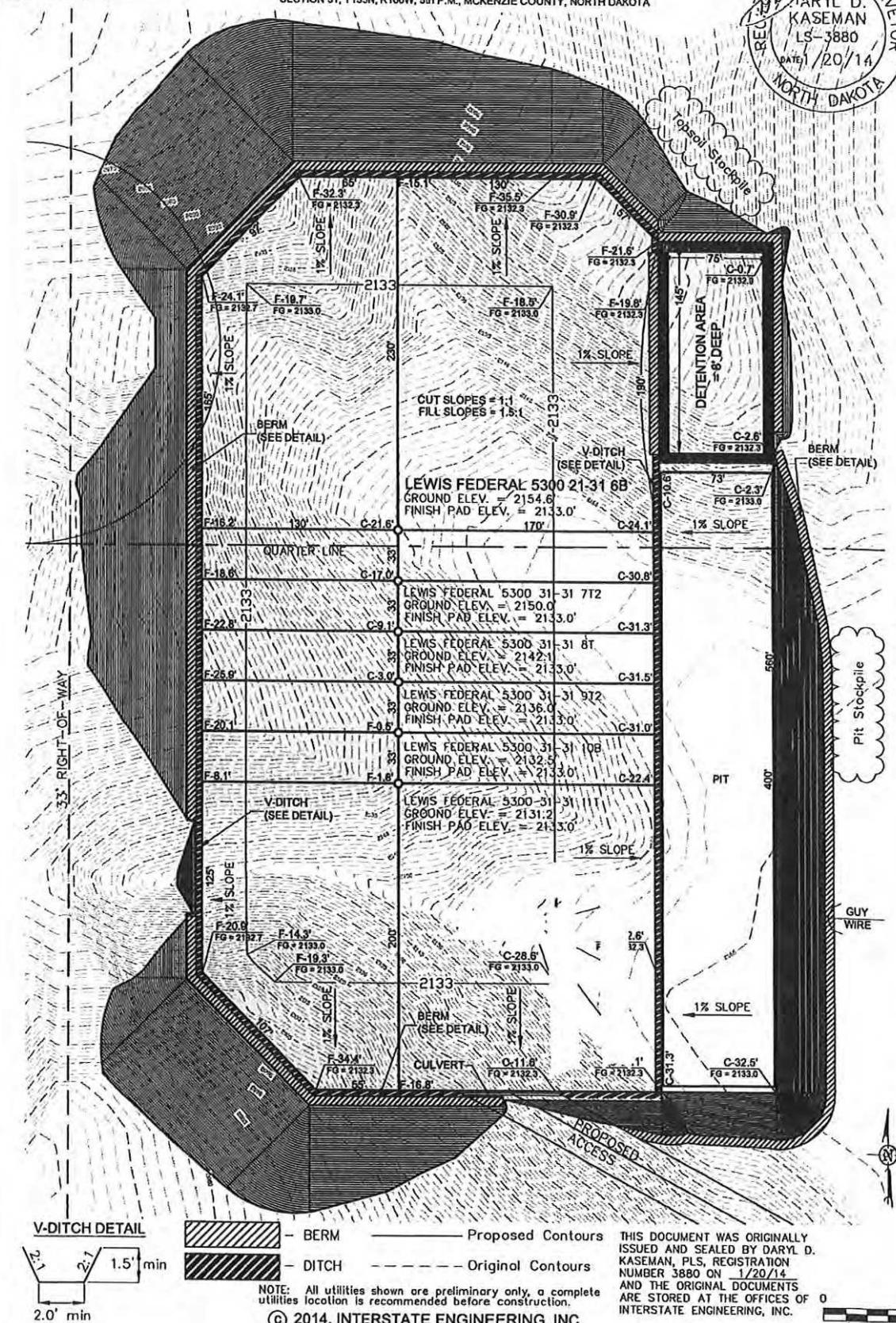
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2/8

NOTE: Pad dimensions shown are to usable area, the v-ditch and berm areas shall be built to the outside of the pad dimensions.

PAD LAYOUT
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "LEWIS FEDERAL 5300 21-31 6B"
 2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
 SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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60
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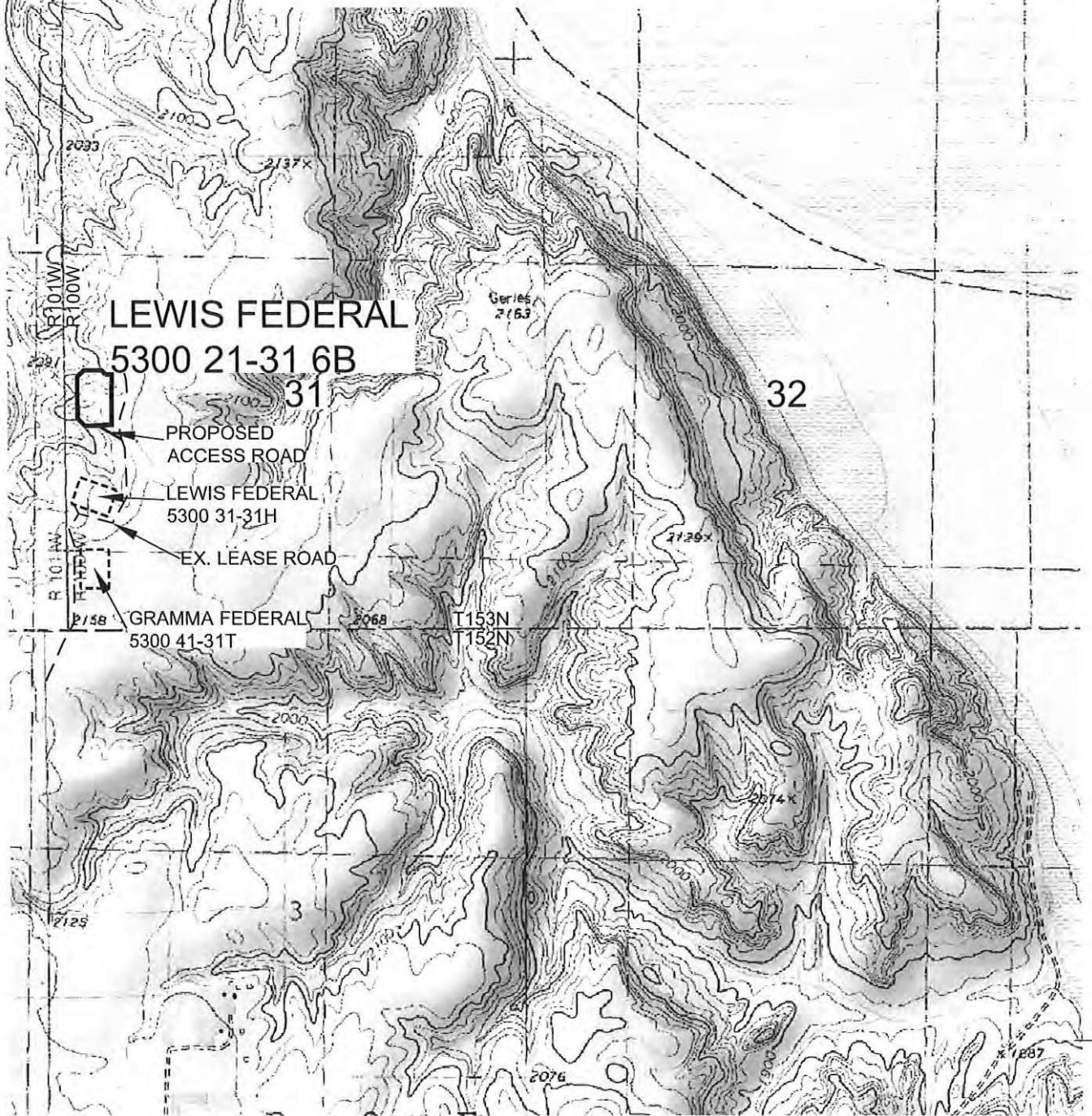
OASIS PETROLEUM NORTH AMERICA, LLC
 PAD LAYOUT
 SECTION 31, T153N, R100W
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.N.L. Project No: 813-09-379.01
 Checked By: D.D.K. Date: JAN 2014

Revision No	Date	By	Description
REV 1	1/15/14	JDL	ADDED "FEDERAL" TO NAME

5

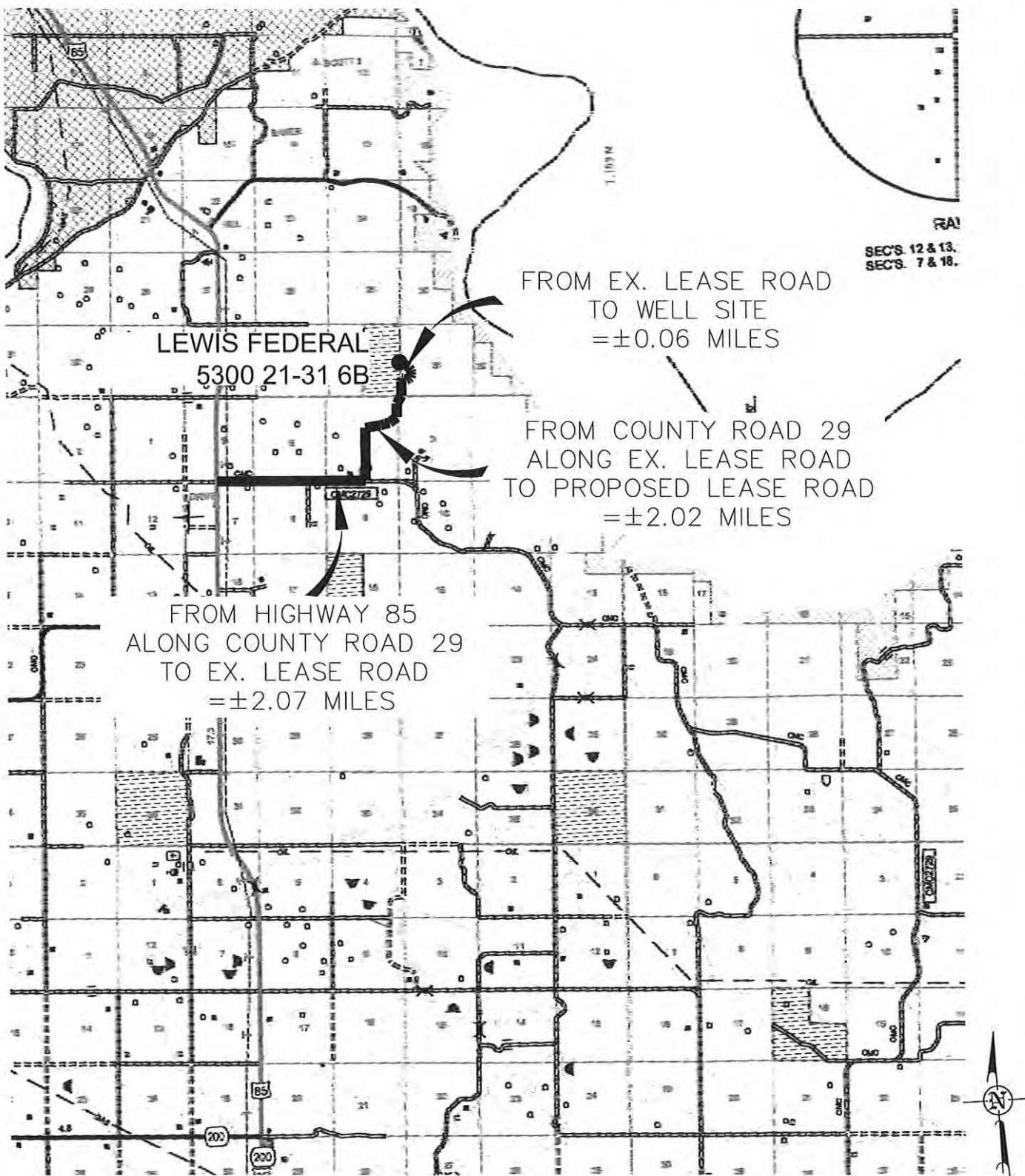
OASIS PETROLEUM NORTH AMERICA, LLC
 LEWIS FEDERAL 5300 21-31 6B
 2623' FNL/251' FWL
 QUAD LOCATION MAP
 SECTION 31, T153N, R100W
 MCKENZIE COUNTY, NORTH DAKOTA



COUNTY ROAD MAP

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"LEWIS FEDERAL 5300 21-31 6B"

2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

6/8
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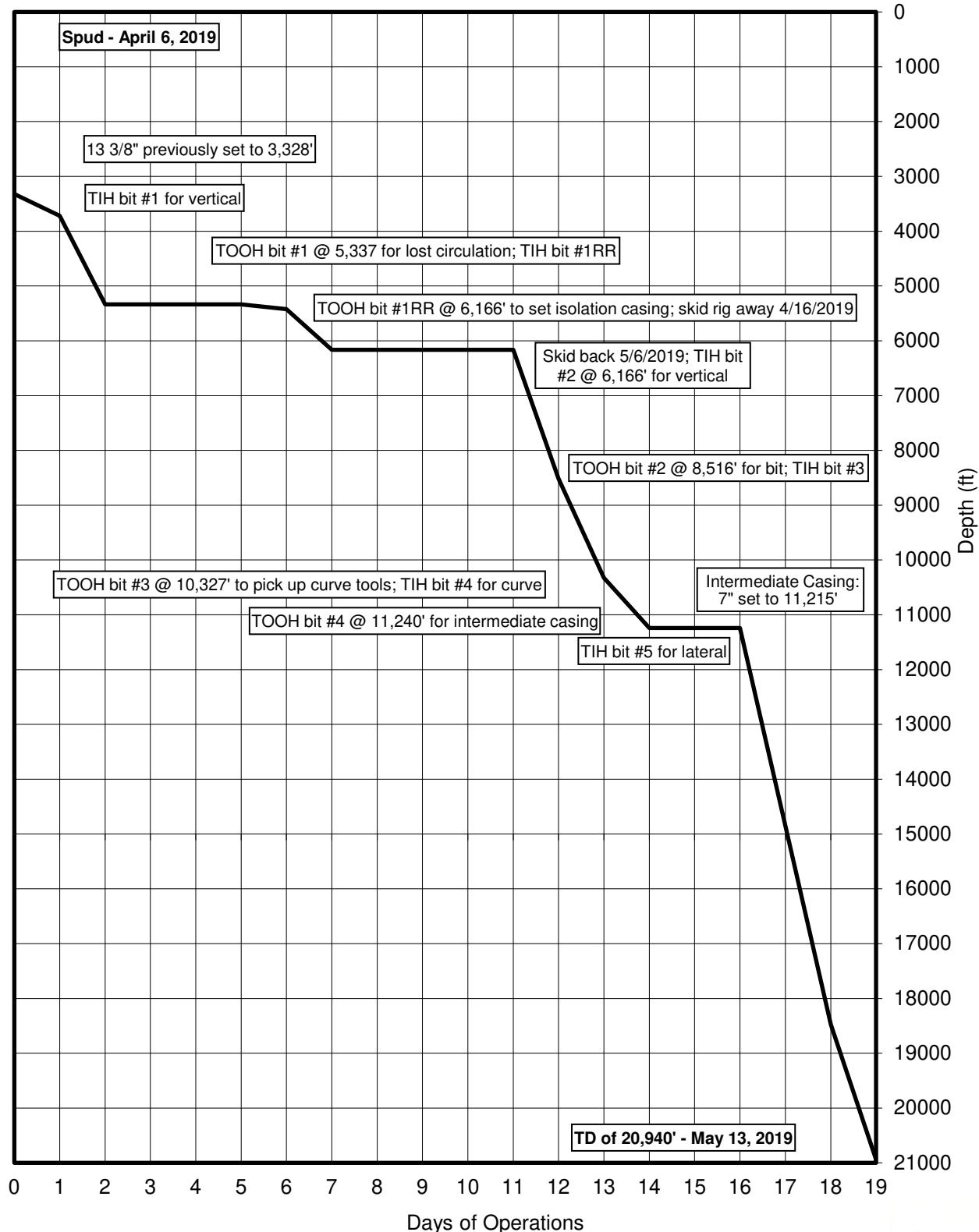
OASIS PETROLEUM NORTH AMERICA, LLC
COUNTY ROAD MAP
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-379.01
Checked By: D.D.K. Date: JAN, 2014

Revision No.	Date	By	Description
REV 1	1/15/14	JJS	ADDED "FEDERAL" TO NAME

TIME VS. DEPTH

Oasis Petroleum North America LLC
Lewis Federal 5300 21-31 6B



MORNING REPORT SUMMARY

Rig Contractor: Nabors B21								Tool Pushers: Todd Miller, Matthew Piehl										
Day	Date 2019	Depth (0600 Hrs)	24 Hr Footage	Bit #	WOB (Klbs) RT	RPM (RT)	WOB (Klbs) MM	RPM (MM)	PP	SPM 1	SPM 2	SPM 3	GPM	24 Hr Activity Summary				
0	4/6	3,322'	0'	-	-	-	-	-	-	-	-	-	-	Raise derrick, rig up, pre-spud check list, rig accepted on 4/6/19 @ 06:00 hours.				
1	4/7	3,720'	398'	1	15	55	5	228	3700	90	90	90	785	bath, hoses, drilling choke, choke line; bring over mud; pre-job safety meeting with pressure testers; test BOPs; rig up; test BOPs to 5k; test casing to 1500 psi; test orbital valve to 1000; install wear bushing; rig service; TIH picking up pipe; drilling cement out of casing, tag float at 3,296 and shoe at 3,338'; drill 15' of formation; FIT using 13.5 EMW held to 332 psi; rotary drilling from 3,338"-3,720'.				Pierre
2	4/8	5,337'	1,617'	1	15	55	15	182	3700	-	108	108	628	Rotary drilling, sliding as needed, from 3,720'-5,245'; rig service; rotary drilling, sliding as needed, from 5,245'-5,337'; circulate and weight up mud in preparation for Dakota sands; loose circulation; mix LCM, prepare to spot LCM.				Mowry
3	4/9	5,337'	0'	-	-	-	-	-	-	-	-	-	-	Spot 65 bbls of LCM at 40 lbs per bbl; trip 8 stands out; attempt to squeeze cement; TOOH; pull rotating head rubber; lay down BHA; clean rig floor; rig up Noble to run 2 7/8" tubing; run 2 7/8" tubing, PJSA with Noble to rig down; circulate and condition until mud reaches 10; circulate and condition, stage in 500' at a time, circulate until 10 ppg mud weight.				Mowry
4	4/10	5,337'	0'	1RR	-	-	-	-	-	-	-	-	-	condition, pump 250 bbls of LCM at 100 lbs/bbl; TOOH 21 stands; squeeze LCM; TOOH; lay down 2 7/8" tubing with Noble; rig down Noble; pick up BHA, rerun bit with new motor; TIH; build mud, circulate until mud reached 12.6 ppg; rig service.				Mowry
5	4/11	5,337'	0'	-	-	-	-	-	-	-	-	-	-	Build mud weight to 10.6 ppg; ream/wash to bottom; rig service; TOOH; circulate and condition; build LCM; circuate and condition; TOOH 40'/min per Oasis; circulate and condition; working as directed by operator, stage in hole 1,000' at a time and circulate LCM; service rig.				Mowry
6	4/12	5,422'	85'	1RR	15	55	-	171	3700	101	101	-	588	Circulate and condition bottoms up; pump LCM; ream/wash to 4,600'; circulate and condition; add LCM; ream/wash to bottom; circulate and condition; mix LCM; attempt to do formation intergrity testing (FIT); build volume and weight; circulate and condition; service rig; drill F/ 5,338'-5,422'.				Mowry
7	4/13	6,166'	744'	1RR	15	55	-	196	5140	76	76	76	676	C&C due to lost circulation thrown LCM and mix bar/LCM in premix; rotary drilling F/5,431'-5,751'; C&C build premix to 12.5 and 80 lbs per bbl LCM; TOOH 3 stands; C&C due to lost circulation; back reaming; C&C while weighting/LCM up premix tanks; TIH and wash through Dakota; rotary drilling F/5,751'-6,166'; service rig.				Swift
8	4/14	6,166'	0'	-	-	-	-	-	-	-	-	-	-	Back ream out the hole; flow check; TOOH back reaming; flow check; laydown BHA; rig up casing crew; run casing.				Swift
9	4/15	6,166'	0'	-	-	-	-	-	-	-	-	-	-	Rig service; circulate, get active down to 12.5 ppg; run casing; rig down casing crew; rig up cement crew; primary cementing.				Swift
10	4/16	6,166'	0'	-	-	-	-	-	-	-	-	-	-	Primary cementing; pressure test casing shoe; rig down cement crew; install packoff with Cactus; nipple down safety meeting; nipple down BOPs; rig down flowline and shakers; skid rig; install naitch cap with cactus; suspend operations to skid to the Lewis Federal 5300 21-31 5 B at 15:30 hours on 04/15/19.				Swift

MORNING REPORT SUMMARY

Rig Contractor: Nabors B21									Tool Pushers: Todd Miller, Matthew Piehl						24 Hr Activity Summary			
Day	Date 2019	Depth (0600 Hrs)	24 Hr Footage	Bit #	WOB (Klbs) RT	RPM (RT)	WOB (Klbs) MM	RPM (MM)	PP	SPM 1	SPM 2	SPM 3	GPM	24 Hr Activity Summary				Formation
11	5/6	6,166'	0'	-	-	-	-	-	-	-	-	-	-	Rig accepted at 13:00 hours on 05/05/19; nipple up; nipple up; rig up flow line, cat walk, flare lines, and panic lines; rig service; test BOP; pick up BHA; TIH; slip and cut.				Swift
12	5/7	8,516'	2,350'	2	30	45	30	149	4800	74	74	74	646	Drill cement shoe at 6,145', rotate ahead 15', FIT using 13 ppg EMW held to 520 psi; rotary drilling from 6,145'-7,487'; service rig; drill F/ 7,487'-8,516'; circulate and condition; survey; pump dry job; TOOH; rig service; TOOH; PJSA to lay down BHA; lay down BHA; pick up BHA; TIH.				Kibbey
13	5/8	10,327'	1,811'	3	30	45	30	149	4800	74	74	74	646	TIH; rotary drilling from 8,516'-9,920'; rig service; rotary drilling from 9,920' to 10,327'; circulate and condition; pump dry job; TOOH, pull rotating head; back ream Charles Salt 9,300'-8,500'; TOOH; lay down BHA; pick up BHA; service rig; TIH.				Lodgepole
14	5/9	11,240'	913'	4	25	20	70	275	3300	63	63	63	550	TIH; ream salts; TIH; drill curve from 10,327'-10,897'; rig service; drill curve from 10,897'-11,240'; short trip; circulate bottoms up 1.5x; laydown drill pipe.				Middle Bakken
15	5/10	11,240'	0'	4	-	-	-	-	-	-	-	-	-	Laydown drill pipe, remove rotating head, remove trip nipple; PJSM for BHA; lay down BHA; install remove wear bushing, clean rig floor as per Oasis; PJSM with Nabors casing; run casing; troubleshoot CRT; PJSM to rig down CRT, rig up CRT; PJSM to rig up CRT, rig up CRT; run casing.				Middle Bakken
16	5/11	11,240'	0'	5	-	-	-	-	-	-	-	-	-	Run casing; C&C; PJSM with Nabors casing; rig down Nabors casing/CRT; PJSM with Halliburton cement; service rig; primary cementing; pressure test casing/shoe 2500 psi for 30 min; PJSM with cementers; rig down cementers; prep floor for 4" DP; PJSM to pick up BHA; pick up BHA; TIH; test tool; cut drill line; TIH; drill cement/float equipment.				Middle Bakken
17	5/12	14,850'	3,610'	5	18	45	45	272	4600	55	55	55	320	Circulate and condition; drill ahead 15' of formation; FIT using 13 EMW held to 1908 psi; rotary drilling, sliding as needed, from 11,240'-12,602'; rig service; rotary drilling, sliding as needed, from 12,602'-14,850'.				Middle Bakken
18	5/13	18,475'	3,625'	5	25	55	65	272	4600	55	-	55	320	Rotary drilling, sliding as needed, from 14,850'-16,693'; rig service; rotary drilling, sliding as needed, from 16,693'-18,475'.				Middle Bakken
19	5/14	20,940'	2,465'	5	25	55	70	272	4650	55	-	55	320	Rotary drilling, sliding as needed, from 18,475'-20,162'; rig service; rotary drilling, sliding as needed, from 20,162'-20,940'; reach TD of 20,940' at 23:05 hours on 05/13/2019; circulate; short trip; circulate bottoms up.				Middle Bakken

DAILY MUD SUMMARY

Chemical Company: Reliable Drilling Fluids						Mud Engineer: P. Waltner						Diesel invert in vertical/curve; Salt water in lateral									
Date 2019	Mud Depth	Mud WT (ppg)	VIS (sec/qt)	PV (cP)	YP (lbs/100 ft ²)	Gels (lbs/100 ft ²)	600/300	Oil/H ₂ O (ratio)	Oil/H ₂ O (%)	Cake (API/HTHP)	Solids (%)	Cor. Solids (%)	Alk	pH	Excess Lime (lb/bbl)	Cl ⁻ (mg/L)	LGS/ HGS (%)	Salinity (ppm)	Electrical Stability	Mud loss (bbls)	Mud Gain (bbls)
04/06	3,322'	-	-	-	-	-					-	-	-	-	-	-	-	-	-	-	-
04/07	4,000'	11.7	54	17	9	6/10/-	43/26	76/24	61/19	3	20	17.81	2.1	-	2.72	36k	5.21/12.6	237952	377	-	-
04/08	5,337'	10.1	46	15	8	7/9/13	38/26	78/22	67/19	3	14	12	2.2	-	2.85	33k	4.63/7.37	222535	605	-	-
04/09	5,337'	10	46	17	8	7/9/13	42/25	79/21	69/18	3	13	10.93	2	-	2.59	34k	4.35/6.58	237392	560	-	-
04/10	5,337'	11.8	58	18	10	7/9/13	46/28	80/20	34/16	3	20	17.87	2.3	-	2.98	36k	5.32/12.55	264424	560	-	-
04/11	5,337'	12.2	65	18	10	7/9/13	46/28	80/20	62.5/16	3	21.5	19.52	2.3	-	2.98	35k	5.07/14.45	262498	560	-	-
04/12	5,422'	12.6	45	18	10	7/9/13	46/28	80/20	62.5/16	3	21.5	19.52	2.3	-	2.98	35k	5.07/14.45	262498	560	-	-
04/13	6,166'	12.5	45	-	-	-					-	-	-	-	-	-	-	-	-	-	-
04/14	6,166'	12.5	45	-	-	-					-	-	-	-	-	-	-	-	-	-	-
04/15	6,166'	12.5	45	-	-	-					-	-	-	-	-	-	-	-	-	-	-
04/16	6,166'	12.5	45	-	-	-					-	-	-	-	-	-	-	-	-	-	-
05/06	6,166'	10.7	48	15	11	8/10/12	41/26	73/27	62/23	-/3	15	12.99	1.7	-	2.2	36k	4.16/8.83	203039	340	-	-
05/07	8,550'	10.15	42	19	16	8/10/12	54/35	74/26	64/23	-/3	13	10.61	1.5	-	1.94	42k	2.89/7.72	229441	490	-	-
05/08	10,327'	10.2	45	17	15	11/13/-	49/32	74/26	64/22	-/3	14	11.48	1.6	-	2.07	44k	4.38/7.1	246008	610	-	-
05/09	11,240'	10.7	40	16	13	11/13/-	45/29	79/21	66/17.5	-/3	16.5	14.3	1.3	-	1.68	52k	5.68/7.8	264492	750	-	-
05/10	11,240'	10.4	43	-	-	-					-	-	-	-	-	-	-	-	-	-	-
05/11	11,240'						Change mud from diesel invert to salt water														
05/12	15,950'	9.45	28	2	1	1/1/1	5/3	-	-/92	-	8	0.23	0.1	-	0	157k	0.23/0	-	-	-	-
05/13	18,025'	9.45	28	-	-	-					-	-	-	-	-	-	-	-	-	-	-

BOTTOM HOLE ASSEMBLY RECORD

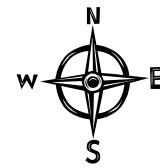
Bit Data											Motor Data						Reason For Removal
Bit #	Size (in.)	Type	Make	Model	Depth In	Depth Out	Footage	Hours	Σ hrs	Vert. Dev.	Make	Model	Lobe	Stage	Bend	Rev/Gal	
1	12 1/4	PDC	Ulterra	SPL616	3,322'	5,337'	2,015'	14	14	Vertical	Stickman	Predator	5/6	6.0	2.0°	0.29	Lost circulation
1RR	12 1/4	PDC	Ulterra	SPL616	5,337'	6,166'	829'	23.5	37.5	Vertical	Stickman	Predator	5/6	6.0	2.0°	0.29	TD Isolation Portion
2	8 3/4	PDC	Smith	XS616	6,166'	8,516'	2,350'	16	53.5	Vertical	NOV	-	7/8	5.7	1.50°	0.23	Planned bit trip
3	8 3/4	PDC	Smith	XS616	8,516'	10,327'	1,811'	13	66.5	Vertical	NOV	-	7/8	5.7	1.50°	0.23	TD Vertical
4	8 3/4	PDC	Reed	TKC56	10,327'	11,240'	913'	17	83.5	Curve	NOV	-	4/5	7.0	2.38°	0.5	TD Curve
5	6	PDC	Reed	TKC53	11,240'	20,940'	9,700'	57	140.5	Lateral	Discovery	-	7/8	10.6	1.50°	0.85	TD lateral



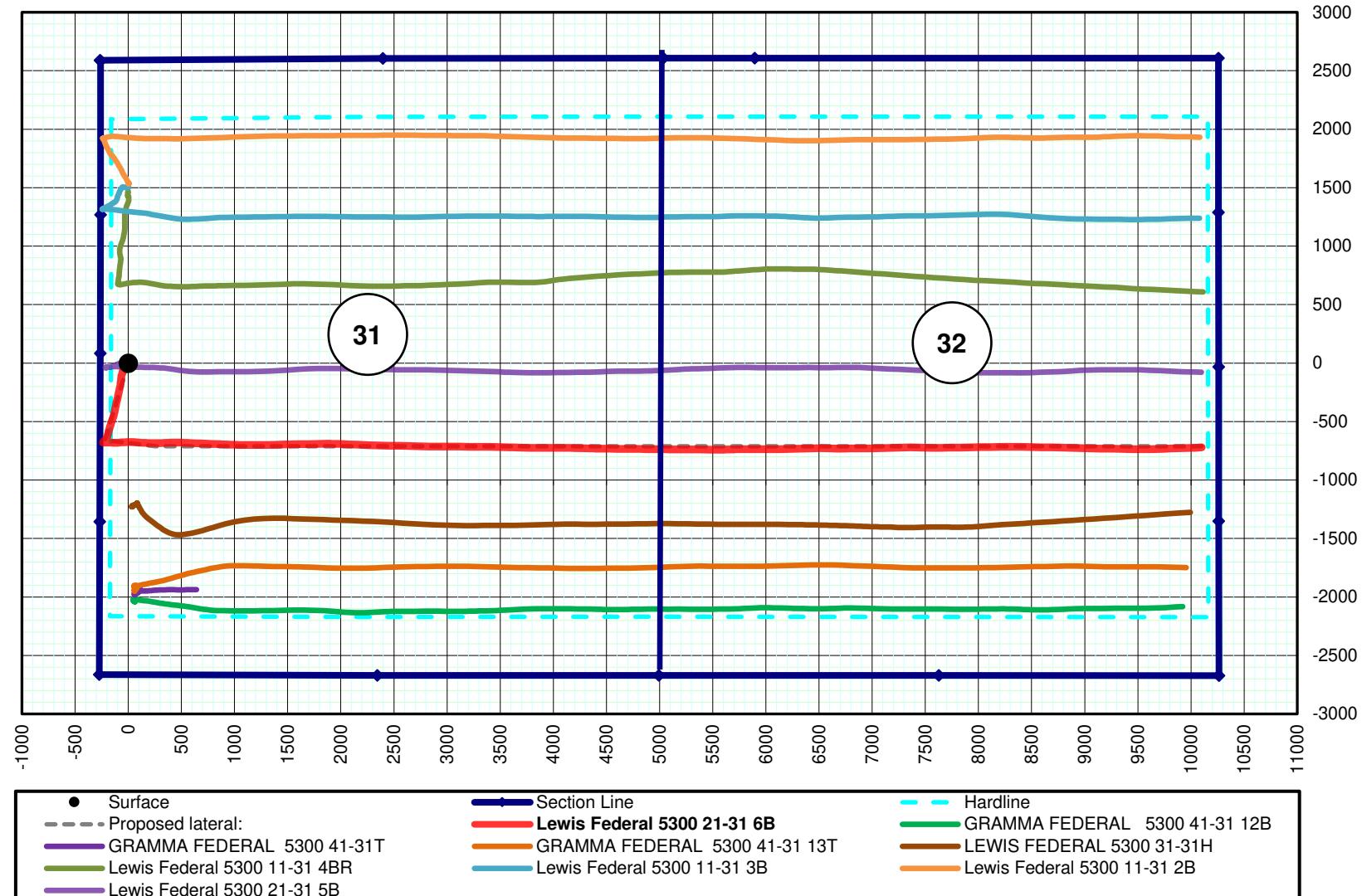
Note: 1,280 acre laydown
spacing unit with 500' N/S
& 100' E/W setbacks

PLAN VIEW

Oasis Petroleum North America, LLC
Lewis Federal 5300 21-31 6B
2,585' FNL & 259' FWL
Lot 2 Sec. 31, T153N, R100W



Bottom Hole Location
721.14' S & 10,100.63' E
of surface location or
1,973.86' FSL & 176.08' FEL
NE SE Sec. 32, T153N, R100W



Curve Landing Profile

WELL

Lewis Federal 5300 21-31 6B

API
33053058490000

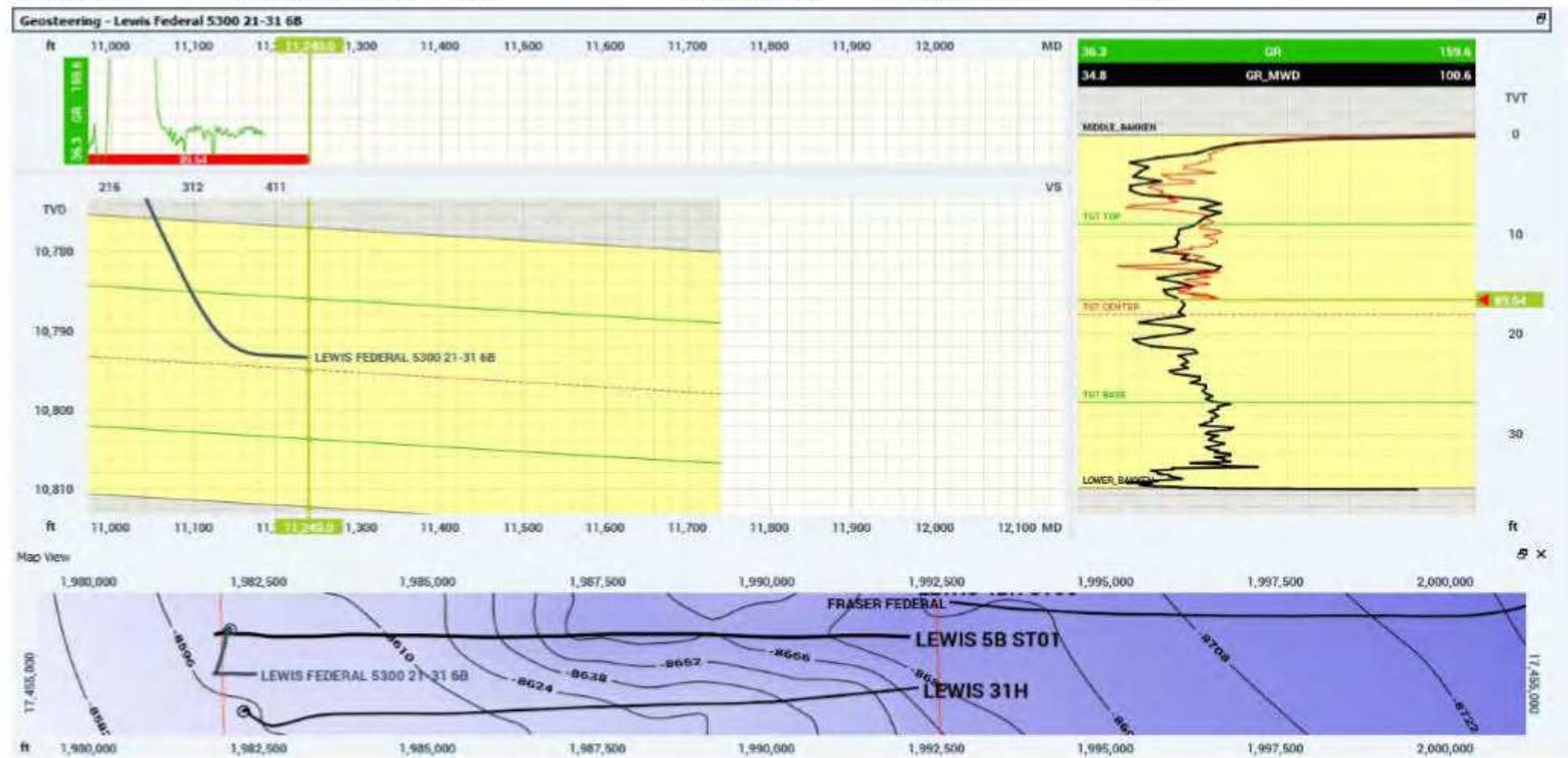
TYPEWELL
Lewis Federal 5300 31-31H

FIELD
Baker

INTERPRETER
D. Johnson, M Baker

DATE
5/11/2019 5:57 AM

VS AZIMUTH
94.00°



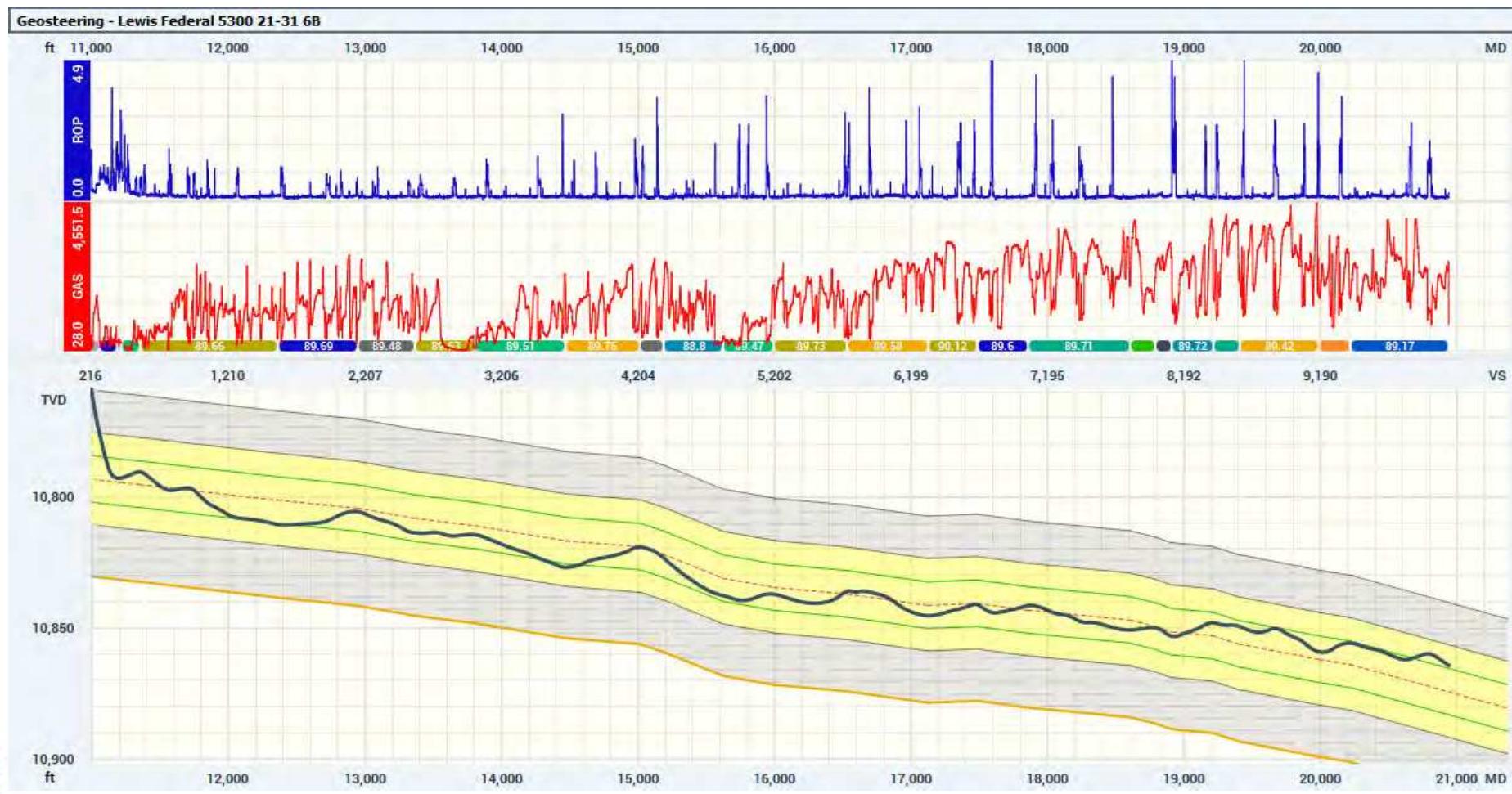
LANDING PROJECTION

Formation/ Zone:	Proposed Top of Target From:			
	Lewis Federal 5300 21-31 5B	Lewis Federal 5300 31-31H	Lewis Federal 5300 11-31 4BR	Average of Offset Wells
Greenhorn	10,799'	10,791'	10,782'	10,791'
Mowry (Dakota Group)	10,807'	10,793'	10,789'	10,796'
Inyan Kara (Dakota Group)	10,803'	10,788'	10,786'	10,792'
Swift (Base Dakota Group)	10,816'	10,802'	10,798'	10,805'
Kibbey "Lime"	10,797'	10,782'	10,800'	10,793'
Charles Salt	10,793'	10,784'	10,799'	10,792'
Base Last Salt	10,788'	10,774'	10,786'	10,783'
Mission Canyon	10,792'	10,777'	10,792'	10,787'
Lodgepole	10,791'	10,780'	10,788'	10,786'
Lodgepole A	10,788'	10,779'	10,782'	10,783'
Lodgepole B	10,789'	10,771'	10,789'	10,783'
Lodgepole C	10,791'	10,796'	10,790'	10,792'
Lodgepole D	10,794'	10,798'	10,788'	10,793'
Lodgepole E	10,797'	10,793'	10,797'	10,796'
Lodgepole F	10,794'	10,795'	10,795'	10,794'
False Bakken	10,794'	10,799'	10,796'	10,797'
Upper Bakken Shale	10,793'	10,793'	10,793'	10,793'
Middle Bakken	10,794'	10,794'	10,794'	10,794'
Target Top	10,794'	10,794'	10,794'	10,794'
Target Landing	10,794'	10,794'	10,794'	10,794'

Current Landing Target (18' below the base of the UBS):

10,794'

Summary Data Profile



Geosteering Profile



Operator:	Oasis Petroleum North America, LLC
Well:	Lewis Federal 5300 21-31 6B
Surface Coordinates:	2,585' FNL & 259' FWL
Surface Location:	Lot 2 Sec. 31, T153N, R100W
County, State:	McKenzie County, ND
Bottom Hole Location:	721.14' S & 10,100.63' E of surface location or 1,973.86' FSL & 176.08' FEL NE SE Sec. 32, T153N, R100W



Kick-off: 5/8/2019
 Finish: 5/13/2019

Directional Supervision:
 Scientific Drilling
 RPM Consulting

GL: 2,132
 KB: 2,157

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative]

Vertical Section Azimuth: 94.03 DLS/

No.	MD	INC	AZM	TVD	N-S	E-W	SECT	100
Tie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	13.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00
2	147.00	0.50	123.40	147.00	-0.32	0.49	0.51	0.37
3	245.00	0.90	114.50	244.99	-0.88	1.55	1.60	0.42
4	335.00	1.10	166.70	334.98	-2.01	2.39	2.52	1.00
5	423.00	0.50	155.60	422.97	-3.18	2.74	2.96	0.70
6	513.00	1.10	195.10	512.96	-4.37	2.68	2.98	0.87
7	596.00	0.90	169.10	595.95	-5.78	2.59	2.99	0.59
8	691.00	0.70	164.60	690.94	-7.08	2.89	3.38	0.22
9	775.00	0.30	112.10	774.94	-7.65	3.23	3.76	0.68
10	870.00	0.30	278.90	869.94	-7.71	3.21	3.75	0.63
11	956.00	0.20	303.90	955.94	-7.59	2.87	3.39	0.17
12	1045.00	0.70	259.30	1044.93	-7.60	2.20	2.73	0.65
13	1120.00	0.90	259.80	1119.93	-7.79	1.17	1.72	0.27
14	1220.00	1.10	221.60	1219.91	-8.65	-0.24	0.37	0.68
15	1309.00	0.70	321.10	1308.90	-8.87	-1.15	-0.52	1.57
16	1397.00	0.50	325.20	1396.90	-8.13	-1.70	-1.13	0.23
17	1485.00	0.30	219.10	1484.90	-8.00	-2.07	-1.50	0.74
18	1575.00	0.50	294.00	1574.90	-8.02	-2.57	-2.00	0.57
19	1661.00	0.30	268.40	1660.89	-7.87	-3.14	-2.58	0.31
20	1750.00	0.70	251.90	1749.89	-8.05	-3.89	-3.32	0.47
21	1839.00	0.50	237.50	1838.89	-8.42	-4.74	-4.13	0.28
22	1916.00	0.50	324.10	1915.88	-8.33	-5.22	-4.62	0.89
23	2013.00	0.20	32.50	2012.88	-7.85	-5.37	-4.81	0.48
24	2103.00	0.20	84.10	2102.88	-7.70	-5.13	-4.58	0.19
25	2193.00	0.20	96.30	2192.88	-7.70	-4.82	-4.27	0.05
26	2282.00	1.10	98.30	2281.87	-7.84	-3.82	-3.26	1.01
27	2361.00	1.10	304.70	2360.87	-7.52	-3.69	-3.16	2.71
28	2458.00	0.90	306.80	2457.85	-6.53	-5.07	-4.60	0.21
29	2532.00	0.50	292.80	2531.85	-6.06	-5.83	-5.39	0.58
30	2632.00	0.50	342.00	2631.85	-5.47	-6.37	-5.97	0.42
31	2720.00	0.30	336.50	2719.84	-4.90	-6.58	-6.22	0.23
32	2809.00	0.90	356.80	2808.84	-3.99	-6.71	-6.42	0.70
33	2883.00	0.50	315.60	2882.83	-3.18	-6.97	-6.73	0.84
34	2969.00	0.90	323.80	2968.83	-2.36	-7.63	-7.45	0.48
35	3064.00	0.90	341.90	3063.81	-1.05	-8.30	-8.21	0.30



Operator:	Oasis Petroleum North America, LLC
Well:	Lewis Federal 5300 21-31 6B
Surface Coordinates:	2,585' FNL & 259' FWL
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County, State:	McKenzie County, ND
Bottom Hole Location:	721.14' S & 10,100.63' E of surface location or 1,973.86' FSL & 176.08' FEL NE SE Sec. 32, T153N, R100W



Kick-off: 5/8/2019
Finish: 5/13/2019

Directional Supervision:
Scientific Drilling
RPM Consulting

GL: 2,132
KB: 2,157

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative]

Vertical Section Azimuth: 94.03
DLS/

No.	MD	INC	AZM	TVD	N-S	E-W	SECT	100
36	3152.00	0.50	40.60	3151.81	-0.10	-8.27	-8.24	0.87
37	3227.00	0.50	52.60	3226.81	0.34	-7.80	-7.80	0.14
38	3270.00	0.70	48.30	3269.80	0.63	-7.45	-7.48	0.48
39	3288.00	0.70	48.60	3287.80	0.78	-7.29	-7.32	0.02
40	3372.00	0.38	23.50	3371.80	1.37	-6.79	-6.87	0.47
41	3403.00	0.37	22.05	3402.80	1.56	-6.71	-6.80	0.04
42	3497.00	0.62	227.56	3496.80	1.50	-6.97	-7.06	1.03
43	3591.00	1.93	216.07	3590.77	-0.12	-8.28	-8.25	1.41
44	3685.00	2.97	220.12	3684.68	-3.27	-10.78	-10.53	1.12
45	3780.00	4.51	220.49	3779.48	-7.99	-14.79	-14.20	1.62
46	3875.00	5.26	221.37	3874.13	-14.10	-20.10	-19.06	0.79
47	3969.00	6.03	222.43	3967.68	-20.97	-26.28	-24.74	0.83
48	4063.00	7.29	215.97	4061.04	-29.45	-33.11	-30.96	1.56
49	4156.00	7.81	213.35	4153.24	-39.50	-40.05	-37.17	0.67
50	4250.00	7.41	203.94	4246.41	-50.38	-46.02	-42.37	1.39
51	4343.00	7.21	196.77	4338.66	-61.44	-50.14	-45.70	1.00
52	4437.00	6.87	192.66	4431.95	-72.58	-53.07	-47.84	0.65
53	4530.00	6.96	194.92	4524.27	-83.45	-55.74	-49.74	0.31
54	4623.00	6.56	196.33	4616.63	-93.99	-58.69	-51.94	0.47
55	4717.00	6.35	197.61	4710.03	-104.10	-61.77	-54.30	0.27
56	4811.00	6.84	188.74	4803.41	-114.59	-64.19	-55.98	1.20
57	4905.00	6.84	186.21	4896.74	-125.69	-65.65	-56.65	0.32
58	4998.00	7.20	185.75	4989.04	-136.99	-66.83	-57.04	0.39
59	5091.00	6.97	188.68	5081.33	-148.37	-68.27	-57.67	0.46
60	5185.00	7.24	188.34	5174.61	-159.86	-69.99	-58.58	0.29
61	5278.00	7.45	189.42	5266.85	-171.61	-71.82	-59.59	0.27
62	5371.00	8.18	188.90	5358.98	-184.10	-73.83	-60.71	0.79
63	5464.00	8.90	190.44	5450.95	-197.71	-76.16	-62.08	0.81
64	5558.00	9.75	192.59	5543.71	-212.63	-79.21	-64.07	0.98
65	5651.00	10.76	192.67	5635.22	-228.78	-82.83	-66.55	1.09
66	5744.00	11.98	193.75	5726.40	-246.63	-87.03	-69.48	1.33
67	5838.00	13.18	194.13	5818.14	-266.50	-91.97	-73.01	1.28
68	5931.00	14.45	194.82	5908.45	-288.00	-97.52	-77.04	1.38
69	6024.00	15.53	195.34	5998.28	-311.22	-103.79	-81.66	1.17
70	6106.00	16.54	195.91	6077.09	-333.03	-109.89	-86.21	1.25
71	6206.00	13.84	192.11	6173.59	-358.42	-116.30	-90.83	2.88



Operator:	Oasis Petroleum North America, LLC
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Surface Coordinates:	2,585' FNL & 259' FWL
Surface Location:	Lot 2 Sec. 31, T153N, R100W
County, State:	McKenzie County, ND
Bottom Hole Location:	721.14' S & 10,100.63' E of surface location or 1,973.86' FSL & 176.08' FEL NE SE Sec. 32, T153N, R100W



Kick-off: 5/8/2019
Finish: 5/13/2019

Directional Supervision:
Scientific Drilling
RPM Consulting

GL: 2,132
KB: 2,157

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative]

Vertical Section Azimuth: 94.03 DLS/

No.	MD	INC	AZM	TVD	N-S	E-W	SECT	100
72	6306.00	12.38	191.44	6270.98	-380.63	-120.94	-93.89	1.47
73	6402.00	11.32	191.12	6364.93	-399.96	-124.80	-96.38	1.11
74	6495.00	9.90	193.28	6456.34	-416.70	-128.39	-98.79	1.59
75	6588.00	8.31	191.72	6548.17	-431.06	-131.60	-100.98	1.73
76	6682.00	6.99	191.68	6641.33	-443.31	-134.13	-102.65	1.40
77	6775.00	6.16	203.29	6733.72	-453.44	-137.25	-105.05	1.68
78	6869.00	5.70	202.39	6827.22	-462.38	-141.02	-108.18	0.50
79	6962.00	6.09	202.89	6919.72	-471.20	-144.70	-111.23	0.42
80	7056.00	6.16	201.15	7013.19	-480.50	-148.46	-114.33	0.21
81	7150.00	6.40	202.37	7106.62	-490.05	-152.27	-117.46	0.29
82	7244.00	6.40	199.61	7200.04	-499.83	-156.03	-120.51	0.33
83	7338.00	6.35	200.43	7293.46	-509.63	-159.60	-123.39	0.11
84	7431.00	6.79	198.30	7385.84	-519.67	-163.12	-126.20	0.54
85	7524.00	6.70	197.29	7478.20	-530.07	-166.46	-128.80	0.16
86	7618.00	5.58	202.21	7571.66	-539.54	-169.82	-131.48	1.32
87	7711.00	5.17	197.50	7664.25	-547.72	-172.79	-133.87	0.65
88	7804.00	4.95	199.82	7756.89	-555.49	-175.41	-135.93	0.32
89	7898.00	5.24	197.62	7850.52	-563.40	-178.08	-138.05	0.37
90	7991.00	4.60	198.96	7943.18	-570.97	-180.58	-140.00	0.70
91	8085.00	4.12	195.30	8036.90	-577.79	-182.69	-141.64	0.59
92	8178.00	3.97	194.95	8129.67	-584.13	-184.41	-142.90	0.16
93	8272.00	3.58	192.22	8223.47	-590.14	-185.87	-143.93	0.46
94	8367.00	3.24	194.33	8318.30	-595.64	-187.16	-144.84	0.38
95	8460.00	3.03	185.67	8411.16	-600.63	-188.05	-145.38	0.56
96	8554.00	3.14	188.07	8505.02	-605.65	-188.66	-145.63	0.18
97	8649.00	2.83	190.41	8599.90	-610.53	-189.45	-146.07	0.35
98	8742.00	3.27	197.53	8692.76	-615.32	-190.66	-146.95	0.62
99	8835.00	3.81	202.03	8785.59	-620.72	-192.62	-148.52	0.65
100	8930.00	3.63	207.44	8880.39	-626.31	-195.19	-150.69	0.42
101	9024.00	3.79	207.19	8974.19	-631.71	-197.98	-153.10	0.17
102	9118.00	3.78	211.10	9067.98	-637.13	-201.00	-155.73	0.27
103	9211.00	3.59	214.94	9160.79	-642.14	-204.25	-158.62	0.33
104	9304.00	3.14	217.10	9253.63	-646.56	-207.46	-161.50	0.50
105	9397.00	3.10	221.66	9346.49	-650.47	-210.66	-164.43	0.27
106	9491.00	2.92	225.27	9440.36	-654.06	-214.05	-167.56	0.28
107	9584.00	2.77	225.86	9533.25	-657.29	-217.35	-170.62	0.16



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Vertical Section Azimuth: 94.03 DLS/

No.	MD	INC	AZM	TVD	N-S	E-W	SECT	100
108	9677.00	2.56	220.20	9626.15	-660.44	-220.30	-173.34	0.36
109	9771.00	2.60	222.26	9720.05	-663.62	-223.09	-175.90	0.11
110	9864.00	2.65	221.91	9812.96	-666.78	-225.95	-178.53	0.06
111	9957.00	2.37	225.28	9905.87	-669.73	-228.75	-181.12	0.34
112	10051.00	2.11	224.11	9999.80	-672.34	-231.33	-183.51	0.28
113	10144.00	1.94	225.38	10092.74	-674.68	-233.65	-185.65	0.19
114	10239.00	1.77	231.64	10187.69	-676.72	-235.94	-187.80	0.28
115	10271.00	1.58	227.58	10219.67	-677.32	-236.65	-188.47	0.70
116	10334.00	1.76	125.68	10282.66	-678.47	-236.51	-188.24	4.12
117	10366.00	6.61	99.33	10314.56	-679.06	-234.29	-185.99	15.92
118	10397.00	10.98	96.53	10345.19	-679.69	-229.60	-181.26	14.16
119	10429.00	15.39	91.02	10376.34	-680.11	-222.32	-173.97	14.31
120	10460.00	19.30	89.51	10405.93	-680.14	-213.08	-164.75	12.70
121	10491.00	22.21	89.40	10434.91	-680.03	-202.10	-153.80	9.39
122	10523.00	25.70	89.29	10464.15	-679.88	-189.11	-140.86	10.91
123	10554.00	29.58	90.25	10491.61	-679.83	-174.73	-126.52	12.60
124	10585.00	34.09	91.10	10517.94	-680.03	-158.38	-110.20	14.62
125	10616.00	36.63	93.29	10543.22	-680.73	-140.46	-92.27	9.16
126	10647.00	39.27	90.00	10567.66	-681.26	-121.41	-73.23	10.73
127	10679.00	41.85	88.53	10591.97	-680.99	-100.61	-52.50	8.60
128	10710.00	45.02	86.03	10614.48	-679.96	-79.32	-31.34	11.63
129	10741.00	49.40	85.13	10635.54	-678.20	-56.65	-8.85	14.29
130	10773.00	53.77	85.59	10655.42	-676.18	-31.66	15.93	13.70
131	10804.00	58.12	88.13	10672.77	-674.79	-6.03	41.41	15.59
132	10836.00	59.74	91.88	10689.29	-674.80	21.37	68.74	11.24
133	10867.00	60.31	92.93	10704.78	-675.92	48.20	95.59	3.46
134	10899.00	62.17	93.71	10720.18	-677.55	76.21	123.63	6.19
135	10930.00	66.10	93.55	10733.70	-679.32	104.04	151.52	12.69
136	10961.00	66.58	93.64	10746.14	-681.10	132.38	179.92	1.57
137	10993.00	68.25	92.48	10758.43	-682.67	161.88	209.46	6.20
138	11024.00	73.94	90.27	10768.47	-683.37	191.18	238.74	19.55
139	11056.00	77.30	90.69	10776.42	-683.63	222.18	269.67	10.58
140	11087.00	77.99	90.53	10783.05	-683.95	252.46	299.90	2.28
141	11118.00	81.06	89.04	10788.68	-683.83	282.93	330.29	10.97
142	11149.00	86.65	88.52	10792.00	-683.18	313.74	360.97	18.11
143	11181.00	89.67	86.78	10793.03	-681.86	345.69	392.75	10.89



Operator:	Oasis Petroleum North America, LLC
Well:	Lewis Federal 5300 21-31 6B
Surface Coordinates:	2,585' FNL & 259' FWL
Surface Location:	Lot 2 Sec. 31, T153N, R100W
County, State:	McKenzie County, ND
Bottom Hole Location:	721.14' S & 10,100.63' E of surface location or 1,973.86' FSL & 176.08' FEL NE SE Sec. 32, T153N, R100W



Kick-off: 5/8/2019
Finish: 5/13/2019

Directional Supervision:
Scientific Drilling
RPM Consulting

GL: 2,132
KB: 2,157

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative]

Vertical Section Azimuth: 94.03

DLS/

No.	MD	INC	AZM	TVD	N-S	E-W	SECT	100
144	11240.00	91.21	89.99	10792.58	-680.20	404.65	451.46	6.03
145	11271.00	91.11	90.33	10791.95	-680.29	435.65	482.38	1.14
146	11301.00	91.51	89.99	10791.26	-680.37	465.64	512.30	1.75
147	11332.00	90.64	90.21	10790.68	-680.43	496.63	543.23	2.89
148	11363.00	88.90	91.23	10790.81	-680.81	527.63	574.17	6.51
149	11394.00	87.69	92.69	10791.73	-681.87	558.60	605.14	6.12
150	11424.00	87.58	92.45	10792.97	-683.22	588.54	635.10	0.88
151	11486.00	87.62	92.32	10795.56	-685.80	650.43	697.02	0.22
152	11516.00	88.22	92.42	10796.65	-687.04	680.39	726.99	2.03
153	11609.00	90.77	91.77	10797.47	-690.44	773.31	819.92	2.83
154	11701.00	90.07	92.46	10796.80	-693.83	865.25	911.87	1.07
155	11731.00	88.66	92.86	10797.13	-695.22	895.21	941.86	4.89
156	11762.00	86.99	91.86	10798.30	-696.50	926.16	972.82	6.28
157	11793.00	86.89	92.30	10799.96	-697.62	957.10	1003.76	1.45
158	11824.00	87.36	91.22	10801.51	-698.57	988.04	1034.69	3.80
159	11885.00	88.60	90.91	10803.66	-699.71	1048.99	1095.57	2.10
160	11977.00	88.02	90.05	10806.38	-700.48	1140.95	1187.36	1.13
161	12069.00	89.67	89.39	10808.23	-700.03	1232.93	1279.07	1.93
162	12162.00	89.73	89.67	10808.72	-699.26	1325.92	1371.79	0.31
163	12253.00	89.36	88.42	10809.44	-697.75	1416.90	1462.44	1.43
164	12314.00	89.23	88.47	10810.19	-696.09	1477.88	1523.14	0.23
165	12345.00	89.40	87.89	10810.56	-695.11	1508.86	1553.98	1.95
166	12440.00	90.23	89.79	10810.87	-693.18	1603.83	1648.58	2.18
167	12535.00	90.20	89.65	10810.51	-692.72	1698.83	1743.31	0.15
168	12630.00	90.13	88.75	10810.24	-691.39	1793.82	1837.98	0.95
169	12723.00	91.04	89.17	10809.29	-689.71	1886.80	1930.61	1.08
170	12755.00	91.51	91.23	10808.58	-689.82	1918.79	1962.52	6.60
171	12818.00	91.37	92.02	10806.99	-691.60	1981.74	2025.45	1.27
172	12913.00	90.17	91.69	10805.72	-694.68	2076.68	2120.37	1.31
173	13008.00	88.49	92.28	10806.83	-697.97	2171.62	2215.30	1.87
174	13102.00	89.20	92.23	10808.72	-701.67	2265.52	2309.23	0.76
175	13197.00	88.96	91.79	10810.25	-705.00	2360.45	2404.16	0.53
176	13291.00	88.06	90.47	10812.69	-706.85	2454.40	2498.01	1.70
177	13323.00	89.23	90.03	10813.45	-706.99	2486.39	2529.93	3.91
178	13386.00	89.77	90.09	10814.00	-707.06	2549.39	2592.77	0.86
179	13480.00	90.47	92.44	10813.80	-709.13	2643.36	2686.66	2.61



Operator:	Oasis Petroleum North America, LLC
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County, State:	McKenzie County, ND
Bottom Hole Location:	721.14' S & 10,100.63' E of surface location or 1,973.86' FSL & 176.08' FEL NE SE Sec. 32, T153N, R100W



Kick-off: 5/8/2019
 Finish: 5/13/2019

Directional Supervision:
 Scientific Drilling
 RPM Consulting

GL: 2,132
 KB: 2,157

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative]

Vertical Section Azimuth: 94.03 DLS/

No.	MD	INC	AZM	TVD	N-S	E-W	SECT	100
180	13574.00	88.83	91.39	10814.38	-712.27	2737.30	2780.59	2.07
181	13668.00	90.43	90.49	10814.98	-713.81	2831.28	2874.44	1.95
182	13763.00	90.17	89.53	10814.49	-713.83	2926.28	2969.21	1.05
183	13858.00	88.90	89.03	10815.26	-712.64	3021.26	3063.88	1.44
184	13952.00	88.76	91.53	10817.18	-713.10	3115.24	3157.65	2.66
185	14046.00	88.86	91.30	10819.13	-715.42	3209.19	3251.53	0.27
186	14141.00	89.10	89.88	10820.82	-716.40	3304.16	3346.34	1.52
187	14235.00	88.63	89.55	10822.68	-715.93	3398.14	3440.06	0.61
188	14330.00	88.96	92.22	10824.68	-717.39	3493.10	3534.88	2.83
189	14424.00	88.66	90.67	10826.63	-719.76	3587.05	3628.76	1.68
190	14455.00	89.87	91.75	10827.03	-720.42	3618.04	3659.72	5.23
191	14518.00	90.50	91.42	10826.83	-722.16	3681.01	3722.67	1.13
192	14613.00	91.41	91.02	10825.24	-724.18	3775.98	3817.54	1.05
193	14708.00	90.44	90.51	10823.71	-725.45	3870.96	3912.37	1.15
194	14803.00	90.67	89.90	10822.79	-725.79	3965.95	4007.15	0.69
195	14897.00	91.00	89.43	10821.42	-725.24	4059.94	4100.87	0.61
196	14960.00	91.77	89.84	10819.90	-724.84	4122.92	4163.67	1.38
197	14991.00	90.33	91.21	10819.33	-725.13	4153.91	4194.60	6.41
198	15054.00	89.06	91.21	10819.67	-726.46	4216.89	4257.52	2.02
199	15085.00	89.06	91.36	10820.17	-727.15	4247.88	4288.48	0.48
200	15180.00	87.39	91.50	10823.12	-729.52	4342.80	4383.34	1.76
201	15211.00	87.15	91.70	10824.59	-730.39	4373.76	4414.27	1.01
202	15242.00	87.76	90.70	10825.97	-731.03	4404.72	4445.20	3.78
203	15274.00	87.55	90.68	10827.28	-731.42	4436.69	4477.12	0.66
204	15305.00	87.42	90.15	10828.64	-731.64	4467.66	4508.03	1.76
205	15336.00	87.82	91.08	10829.93	-731.98	4498.63	4538.95	3.26
206	15367.00	88.09	90.59	10831.03	-732.43	4529.61	4569.88	1.80
207	15431.00	87.92	90.76	10833.26	-733.18	4593.56	4633.73	0.38
208	15462.00	88.22	90.30	10834.30	-733.47	4624.54	4664.66	1.77
209	15493.00	88.36	90.25	10835.23	-733.62	4655.53	4695.58	0.48
210	15556.00	88.86	90.24	10836.76	-733.89	4718.51	4758.42	0.79
211	15588.00	89.16	91.09	10837.31	-734.26	4750.50	4790.36	2.82
212	15619.00	89.23	90.34	10837.75	-734.64	4781.50	4821.30	2.43
213	15651.00	89.10	91.16	10838.21	-735.06	4813.49	4853.25	2.59
214	15713.00	88.86	89.97	10839.32	-735.67	4875.48	4915.12	1.96
215	15745.00	90.03	89.72	10839.63	-735.59	4907.48	4947.04	3.74



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Kick-off: 5/8/2019
Finish: 5/13/2019

Directional Supervision:
Scientific Drilling
RPM Consulting

GL: 2,132
KB: 2,157

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative]

Vertical Section Azimuth: 94.03

DLS/

No.	MD	INC	AZM	TVD	N-S	E-W	SECT	100
216	15776.00	90.00	90.26	10839.62	-735.58	4938.47	4977.96	1.74
217	15839.00	91.10	90.42	10839.01	-735.96	5001.47	5040.83	1.76
218	15870.00	91.27	91.25	10838.37	-736.41	5032.46	5071.77	2.73
219	15934.00	90.60	91.14	10837.33	-737.74	5096.44	5135.68	1.06
220	15997.00	89.43	90.32	10837.31	-738.54	5159.43	5198.58	2.27
221	16029.00	89.20	90.53	10837.69	-738.78	5191.43	5230.51	0.97
222	16123.00	89.00	89.66	10839.17	-738.94	5285.41	5324.28	0.95
223	16217.00	89.50	90.78	10840.40	-739.30	5379.40	5418.06	1.30
224	16312.00	90.10	90.66	10840.73	-740.49	5474.40	5512.90	0.64
225	16406.00	90.94	89.08	10839.88	-740.28	5568.39	5606.64	1.90
226	16438.00	91.41	88.80	10839.22	-739.69	5600.37	5638.51	1.71
227	16470.00	92.11	88.31	10838.24	-738.88	5632.35	5670.35	2.67
228	16501.00	92.41	88.63	10837.02	-738.05	5663.31	5701.18	1.41
229	16532.00	90.67	89.12	10836.18	-737.45	5694.30	5732.04	5.83
230	16563.00	89.16	89.37	10836.23	-737.04	5725.29	5762.93	4.94
231	16595.00	89.93	89.64	10836.48	-736.76	5757.29	5794.83	2.55
232	16626.00	90.60	90.23	10836.34	-736.72	5788.29	5825.75	2.88
233	16689.00	89.30	90.17	10836.40	-736.94	5851.29	5888.61	2.07
234	16784.00	89.20	89.95	10837.64	-737.04	5946.28	5983.37	0.25
235	16879.00	87.65	89.32	10840.25	-736.44	6041.24	6078.06	1.76
236	16974.00	88.56	90.08	10843.39	-735.94	6136.18	6172.73	1.25
237	17068.00	89.33	88.88	10845.12	-735.09	6230.16	6266.42	1.52
238	17163.00	90.40	88.17	10845.35	-732.64	6325.13	6360.98	1.35
239	17257.00	90.94	88.20	10844.25	-729.67	6419.07	6454.48	0.58
240	17351.00	90.67	90.01	10842.93	-728.20	6513.05	6548.12	1.95
241	17446.00	91.24	92.29	10841.34	-730.11	6608.01	6642.98	2.47
242	17509.00	87.85	90.07	10841.84	-731.40	6670.98	6705.89	6.43
243	17541.00	87.92	89.86	10843.03	-731.38	6702.96	6737.79	0.69
244	17636.00	90.54	89.08	10844.30	-730.50	6797.94	6832.47	2.88
245	17730.00	90.67	89.74	10843.31	-729.54	6891.93	6926.16	0.72
246	17825.00	90.94	89.36	10841.97	-728.79	6986.91	7020.86	0.49
247	17920.00	89.23	88.56	10841.83	-727.07	7081.89	7115.48	1.99
248	18014.00	88.53	87.93	10843.67	-724.19	7175.83	7208.98	1.00
249	18108.00	89.80	89.14	10845.04	-721.79	7269.79	7302.54	1.87
250	18203.00	88.16	89.25	10846.73	-720.45	7364.76	7397.18	1.73
251	18298.00	90.23	92.23	10848.07	-721.68	7459.73	7492.00	3.82



Operator:	Oasis Petroleum North America, LLC
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Kick-off: 5/8/2019
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Minimum Curvature Method (SPE-3362)

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Vertical Section Azimuth: 94.03 DLS/

No.	MD	INC	AZM	TVD	N-S	E-W	SECT	DLS/ 100
252	18392.00	89.06	90.91	10848.65	-724.25	7553.68	7585.91	1.88
253	18486.00	89.20	89.36	10850.08	-724.47	7647.67	7679.68	1.66
254	18581.00	89.83	89.20	10850.88	-723.28	7742.66	7774.35	0.68
255	18675.00	90.57	89.97	10850.55	-722.60	7836.65	7868.06	1.14
256	18770.00	90.07	88.67	10850.02	-721.47	7931.64	7962.74	1.47
257	18864.00	87.49	88.01	10852.02	-718.75	8025.58	8056.24	2.83
258	18959.00	91.17	89.89	10853.13	-717.01	8120.53	8150.84	4.35
259	19053.00	91.00	89.01	10851.35	-716.11	8214.51	8244.53	0.95
260	19148.00	91.74	89.94	10849.08	-715.24	8309.48	8339.20	1.25
261	19243.00	89.03	90.93	10848.44	-715.96	8404.46	8434.00	3.04
262	19338.00	90.23	91.28	10849.06	-717.79	8499.44	8528.87	1.32
263	19432.00	88.53	90.94	10850.07	-719.61	8593.41	8622.74	1.84
264	19527.00	89.46	90.76	10851.74	-721.02	8688.39	8717.58	1.00
265	19622.00	91.58	90.96	10850.88	-722.45	8783.37	8812.42	2.24
266	19716.00	88.06	91.96	10851.17	-724.84	8877.32	8906.31	3.89
267	19811.00	88.83	91.49	10853.75	-727.70	8972.24	9001.20	0.95
268	19906.00	87.39	90.41	10856.89	-729.28	9067.17	9096.01	1.89
269	20000.00	89.60	91.23	10859.35	-730.62	9161.12	9189.82	2.51
270	20095.00	92.04	90.68	10857.99	-732.20	9256.09	9284.67	2.63
271	20188.00	90.44	91.29	10855.98	-733.80	9349.06	9377.51	1.84
272	20283.00	88.73	90.38	10856.67	-735.19	9444.04	9472.35	2.04
273	20377.00	89.56	90.80	10858.07	-736.15	9538.02	9566.17	0.99
274	20472.00	88.70	88.68	10859.52	-735.72	9633.00	9660.89	2.41
275	20566.00	88.70	88.33	10861.65	-733.27	9726.95	9754.43	0.37
276	20660.00	90.91	87.81	10861.97	-730.11	9820.89	9847.91	2.42
277	20755.00	91.14	89.08	10860.27	-727.53	9915.83	9942.45	1.36
278	20849.00	87.75	88.43	10861.18	-725.49	10009.79	10036.03	3.67
279	20873.00	88.02	87.08	10862.06	-724.55	10033.76	10059.87	5.73
280	20940.00	88.02	87.08	10864.38	-721.14	10100.63	10126.34	0.00

FORMATION TOPS & STRUCTURAL RELATIONSHIPS

Operator: Well Name: Location: Elevation:	Subject Well:								Offset Wells:		
	Oasis Petroleum North America LLC Lewis Federal 5300 21-31 6B 2,585' FNL & 259' FWL Lot 2 Section 31, T153N, R100W								Dip To Lewis Federal 5300 21-31 5B	Dip To Lewis Federal 5300 31-31H	Dip To Lewis Federal 5300 11-31 4BR
Formation/ Marker	Prog. Top	Prog. Datum (MSL)	Driller's Depth Top (MD)	Driller's Depth Top (TVD)	Datum (MSL)	Interval Thickness	Thickness to Target	Dip To Prog.			
Greenhorn	4,619'	-2,462'	4,624'	4,621'	-2,464'	414'	6,173'	-2'	-7'	-4'	15'
Mowry (Dakota Group)	5,030'	-2,873'	5,044'	5,035'	-2,878'	417'	5,759'	-5'	-14'	-6'	8'
Inyan Kara (Dakota Group)	5,443'	-3,286'	5,465'	5,452'	-3,295'	458'	5,342'	-9'	-11'	-1'	11'
Swift (Base Dakota Group)	5,897'	-3,740'	5,933'	5,910'	-3,753'	-	4,884'	-13'	-23'	-14'	-1'
Kibbey "Lime"	8,431'	-6,274'	8,490'	8,441'	-6,284'	143'	2,353'	-10'	-4'	5'	-3'
Charles Salt	8,580'	-6,423'	8,633'	8,584'	-6,427'	670'	2,210'	-4'	0'	4'	-2'
Base Last Salt	9,258'	-7,101'	9,304'	9,254'	-7,097'	211'	1,540'	4'	5'	14'	11'
Mission Canyon	9,462'	-7,305'	9,515'	9,465'	-7,308'	565'	1,329'	-3'	1'	11'	5'
Lodgepole	10,032'	-7,875'	10,082'	10,030'	-7,873'	63'	764'	2'	2'	8'	9'
Lodgepole A	10,095'	-7,938'	10,144'	10,093'	-7,936'	84'	701'	2'	4'	9'	15'
Lodgepole B	10,179'	-8,022'	10,228'	10,177'	-8,020'	174'	617'	2'	4'	16'	8'
Lodgepole C	10,351'	-8,194'	10,403'	10,351'	-8,194'	75'	443'	0'	2'	-8'	7'
Lodgepole D	10,422'	-8,265'	10,481'	10,426'	-8,269'	149'	368'	-4'	-2'	-10'	9'
Lodgepole E	10,569'	-8,412'	10,656'	10,575'	-8,418'	91'	219'	-6'	-4'	-6'	0'
Lodgepole F	10,663'	-8,506'	10,791'	10,666'	-8,509'	86'	128'	-3'	-1'	-7'	2'
False Bakken	10,749'	-8,592'	10,977'	10,752'	-8,595'	7'	42'	-3'	-2'	-11'	1'
Upper Bakken Shale	10,757'	-8,600'	10,995'	10,759'	-8,602'	17'	35'	-2'	0'	-5'	4'
Middle Bakken	10,773'	-8,616'	11,053'	10,776'	-8,619'	9'	18'	-3'	-1'	-6'	3'
Target Top	10,782'	-8,625'	11,095'	10,785'	-8,628'	9'	9'	-3'	-1'	-6'	3'

CONTROL DATA

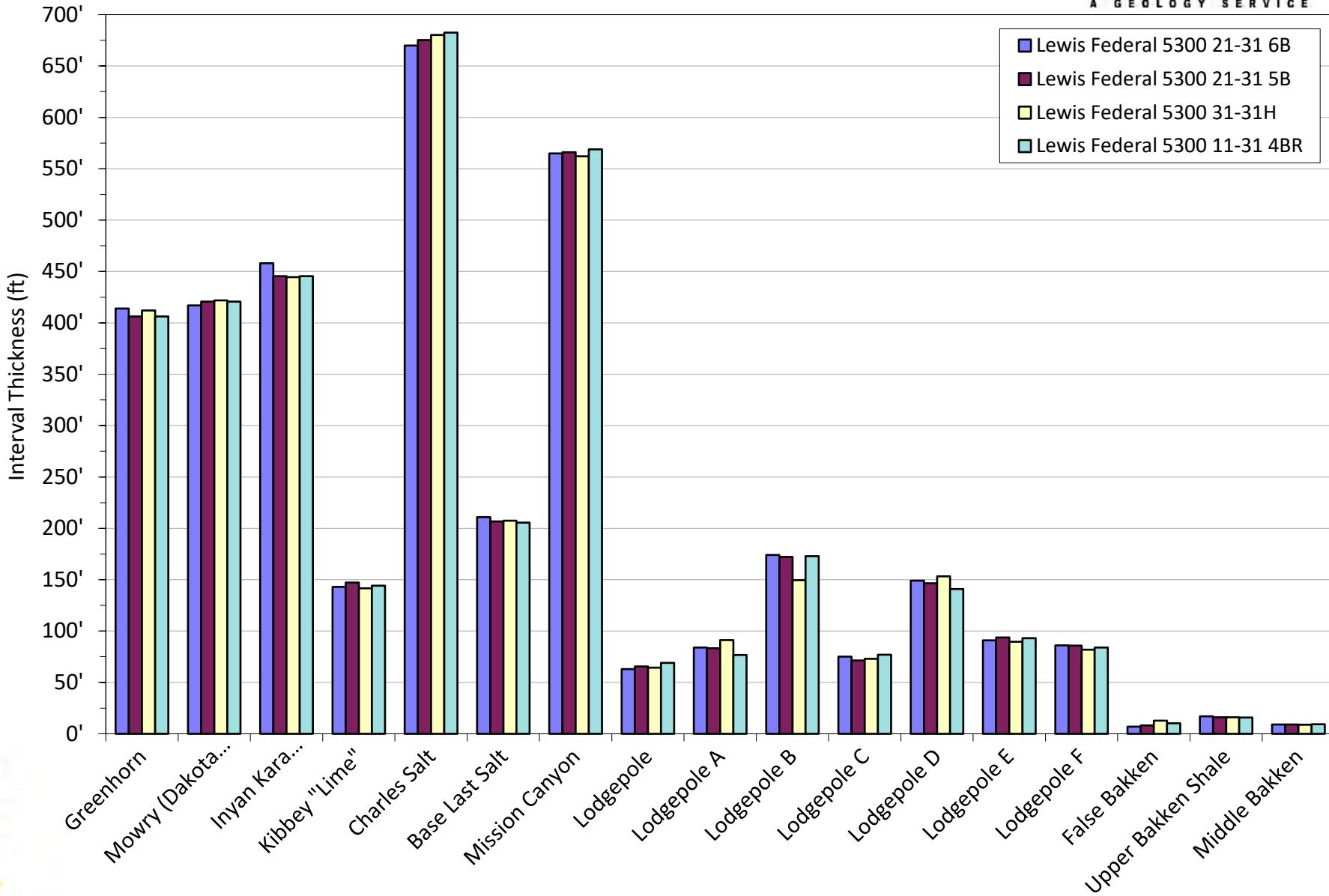
Operator:	Oasis Petroleum North America, LLC				Oasis Petroleum North America, LLC				Oasis Petroleum North America, LLC			
Well Name:	Lewis Federal 5300 21-31 5B				Lewis Federal 5300 31-31H				Lewis Federal 5300 11-31 4BR			
Location:	Lot 2 Section 31, T153N, R100W McKenzie County, ND 0.3 miles N of subject well				Lot 6 Sec. 30, T153N, R100W McKenzie County, ND 0.15 miles S of subject well				Lot 1 Section 31, T153N, R100W McKenzie County, ND 0.3 miles N of subject well			
Elevation:	KB: 2,157' NDIC: 28194				KB: 2,185' NDIC: 20314				KB: 2,135' NDIC: 30197			
Formation/ Zone	Driller's (TVD)	Datum (MSL)	Interval	Thickness to Target	Driller's (TVD)	Datum (MSL)	Interval	Thickness to Target	E-Log (TVD)	Datum (MSL)	Interval	Thickness to Target
Greenhorn	4,614'	-2,457'	406'	6,178'	4,645'	-2,460'	412'	6,170'	4,614'	-2,479'	406'	6,161'
Mowry (Dakota Group)	5,021'	-2,864'	421'	5,772'	5,057'	-2,872'	422'	5,758'	5,021'	-2,886'	421'	5,754'
Inyan Kara (Dakota Group)	5,441'	-3,284'	446'	5,351'	5,479'	-3,294'	444'	5,336'	5,441'	-3,306'	446'	5,334'
Swift (Base Dakota Group)	5,887'	-3,730'	-	4,906'	5,924'	-3,739'	-	4,892'	5,887'	-3,752'	-	4,888'
Kibbey "Lime"	8,437'	-6,280'	147'	2,356'	8,474'	-6,289'	142'	2,341'	8,416'	-6,281'	144'	2,359'
Charles Salt	8,584'	-6,427'	675'	2,209'	8,616'	-6,431'	680'	2,200'	8,560'	-6,425'	683'	2,215'
Base Last Salt	9,259'	-7,102'	207'	1,534'	9,296'	-7,111'	208'	1,520'	9,243'	-7,108'	205'	1,532'
Mission Canyon	9,466'	-7,309'	566'	1,327'	9,504'	-7,319'	562'	1,312'	9,448'	-7,313'	569'	1,327'
Lodgepole	10,032'	-7,875'	66'	761'	10,066'	-7,881'	64'	750'	10,017'	-7,882'	69'	758'
Lodgepole A	10,097'	-7,940'	83'	695'	10,130'	-7,945'	91'	686'	10,086'	-7,951'	77'	689'
Lodgepole B	10,181'	-8,024'	172'	612'	10,221'	-8,036'	150'	594'	10,163'	-8,028'	173'	612'
Lodgepole C	10,353'	-8,196'	71'	440'	10,371'	-8,186'	73'	445'	10,336'	-8,201'	77'	439'
Lodgepole D	10,424'	-8,267'	146'	368'	10,444'	-8,259'	153'	372'	10,413'	-8,278'	141'	362'
Lodgepole E	10,571'	-8,414'	94'	222'	10,597'	-8,412'	90'	218'	10,553'	-8,418'	93'	222'
Lodgepole F	10,665'	-8,508'	86'	128'	10,687'	-8,502'	82'	129'	10,646'	-8,511'	84'	129'
False Bakken	10,750'	-8,593'	8'	42'	10,769'	-8,584'	13'	47'	10,731'	-8,596'	10'	44'
Upper Bakken Shale	10,759'	-8,602'	16'	34'	10,782'	-8,597'	16'	34'	10,741'	-8,606'	16'	34'
Middle Bakken	10,775'	-8,618'	9'	18'	10,798'	-8,613'	9'	18'	10,757'	-8,622'	9'	18'
Target Top	10,784'	-8,627'	9'	9'	10,807'	-8,622'	9'	9'	10,766'	-8,631'	9'	9'
Target Landing	10,793'	-8,636'	9'	0'	10,816'	-8,631'	9'	0'	10,775'	-8,640'	9'	0'
Target Base	10,802'	-8,645'	9'	-9'	10,824'	-8,639'	9'	-9'	10,784'	-8,649'	12'	-9'
Lower Bakken Shale	10,811'	-8,654'		-18'	10,833'	-8,648'		-17'	10,796'	-8,661'		-21'

Projected depth



INTERVAL THICKNESS

Oasis Petroleum North America LLC - Lewis Federal 5300 21-31 6B



LITHOLOGY

Oasis Petroleum North America, LLC

Lewis Federal 5300 21-31 6B

Sunburst geologists caught 30' sample intervals from 8,230'-11,240' and 50' sample intervals through the lateral to TD at 20,940'. Additional spot samples were caught through the vertical, curve, and lateral as needed. Samples were examined wet and dry under a binocular microscope. Sample fluorescent cuts are masked by invert mud through 11,240', at which time the drilling fluid was displaced to saltwater. Quantifiers in order of increasing abundance are trace, rare, occasional, common and abundant. One set of sample cuttings were packaged and mailed to the North Dakota Geological Survey Core Library, per state requirement.

Vertical Log Descriptions: **MD / TVD (MSL Datum)**

Drilling in the Otter Formation [Mississippian Big Snowy Group]

8,230-8,260 SILTSTONE: orange red-red brown, firm, trace soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray-buff, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,260-8,290 SILTSTONE: orange red-red brown, firm, trace soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray-buff, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,290-8,320 SILTSTONE: brick red, firm, trace soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray-buff, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,320-8,350 SILTSTONE: orange red-red brown, firm, trace soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray-buff, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,350-8,380 SILTSTONE: red orange, firm, trace soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray-buff, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,380-8,410 SILTSTONE: orange red-red brown, firm, trace soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray-buff, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,410-8,440 SILTSTONE: red orange, firm, trace soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray-buff, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,440-8,470 SILTSTONE: red orange, firm, trace soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray-buff, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,470-8,500 No Sample

Kibbey "Lime" [Mississippian Big Snowy Group] **8,490' MD / 8,441' TVD (-6,284')**

8,500-8,530 SILTSTONE: dark red, red brown, dark orange, firm, rare soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light gray, rare medium gray, trace cream, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,530-8,560 SILTSTONE: dark red, red brown, dark orange, firm, rare soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain

8,560-8,590 SILTSTONE: red brown, dark red, firm, rare soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light-medium gray, trace tan, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

8,590-8,620 SILTSTONE: red brown, dark red, firm, rare soft, sub blocky, calcareous cement, well cemented, no visible porosity, no visible oil stain; rare SILTY SANDSTONE: light-medium gray, trace tan, very fine-fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented, no visible porosity, no visible oil stain

Charles Formation [Mississippian Madison Group] **8,633' MD / 8,584' TVD (-6,427')**

8,620-8,650 LIMESTONE: mudstone, light-medium gray, rare cream, microcrystalline, firm, earthy texture, rare crystalline texture, no visible porosity, no visible oil stain; rare SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

8,650-8,680 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

8,680-8,710 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

8,710-8,740 SALT: translucent, occasional milky white, firm, hard, crystalline, massive, anhedral, no visible porosity; occasional LIMESTONE: mudstone, cream, common light-medium gray, rare tan, microcrystalline, firm, earthy texture, no visible porosity, no visible oil stain

8,740-8,770 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

8,770-8,800 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

8,800-8,830 SALT: translucent, trace milky white, firm, hard, crystalline, massive, anhedral, no visible porosity; trace LIMESTONE: mudstone, cream, tan, rare medium-light gray, microcrystalline, firm, trace friable, earthy texture, no visible porosity, no visible oil stain

8,830-8,860 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

8,860-8,890 ANHYDRITE: milky white, cream, rare light gray, microcrystalline, soft, amorphous, no visible porosity; occasional LIMESTONE: mudstone, light gray, rare medium finely, trace cream, earthy texture, friable, common firm, no visible porosity; trace SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

8,890-8,920 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity; trace ANHYDRITE: milky white, cream, microcrystalline, soft, amorphous, no visible porosity

8,920-8,950 DOLOMITE: mudstone, cream, tan, light brown gray, rare medium-light gray, microcrystalline, firm-hard, dense-banded, crystalline texture, argillaceous in part, no visible porosity; rare ANHYDRITE: milky white, cream, microcrystalline, soft, amorphous, no visible porosity

8,950-8,980 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

8,980-9,010 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

9,010-9,040 LIMESTONE: mudstone, light gray, occasional cream, trace medium-dark gray, microcrystalline, firm, dense, rare banded, crystalline texture, argillaceous in part, no visible porosity, no visible oil stain

9,040-9,070 DOLOMITE: mudstone, tan, light brown gray, microcrystalline, firm, dense-banded, crystalline-sucrosic texture, argillaceous in part, no visible porosity, no visible oil stain

9,070-9,100 ANHYDRITE: milky white, microcrystalline, soft, amorphous, no visible porosity; occasional ARGILLACEOUS LIMESTONE: mudstone, rare wackestone, light-medium gray, occasional dark gray, trace cream, earthy texture, friable, common firm, no visible porosity

9,100-9,130 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

9,130-9,160 LIMESTONE: mudstone, tan, cream, light-medium gray, microcrystalline, firm-hard, dense-banded, crystalline-sucrosic texture, argillaceous in part, no visible porosity; occasional ANHYDRITE: off white, tan, microcrystalline, firm-soft, massive, amorphous, no visible porosity

9,160-9,190 LIMESTONE: mudstone, tan, cream, light-medium gray, microcrystalline, firm-hard, dense-banded, crystalline-sucrosic texture, argillaceous in part, no visible porosity, no visible oil stain; occasional ANHYDRITE: off white, tan, microcrystalline, firm-soft, massive, amorphous, no visible porosity

9,190-9,220 LIMESTONE: mudstone, light gray, occasional cream, rare medium-dark gray, microcrystalline, firm, dense-banded, crystalline-sucrosic texture, argillaceous in part, no visible porosity, no visible oil stain

9,220-9,250 ARGILLACEOUS LIMESTONE-LIMESTONE: mudstone, medium gray, occasional light brown gray, rare dark gray, trace cream, microcrystalline, firm, rare friable, earthy texture, no visible porosity, no visible oil stain

9,250-9,280 SALT: translucent, common milky white, firm, hard, crystalline, massive, anhedral, no visible porosity

Base of Last Salt [Charles Formation] **9,304' MD / 9,254' TVD (-7,097')**

9,280-9,310 LIMESTONE: mudstone, tan, cream, light-medium gray, microcrystalline, firm-hard, dense-banded, crystalline-sucrosic texture, argillaceous in part, no visible porosity, no visible oil stain; rare ANHYDRITE: off white, tan, microcrystalline, soft, massive, amorphous, no visible porosity

9,310-9,340 LIMESTONE: mudstone, tan, cream, light-medium gray, microcrystalline, firm-hard, dense-banded, crystalline-sucrosic texture, argillaceous in part, no visible porosity, no visible oil stain; rare ANHYDRITE: off white, tan, microcrystalline, soft, massive, amorphous, no visible porosity

9,340-9,370 LIMESTONE: mudstone, light-medium gray, tan-cream, microcrystalline, firm-friable, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain; rare ANHYDRITE: off white, tan, microcrystalline, soft, massive, amorphous, no visible porosity

9,370-9,400 LIMESTONE: mudstone, light-medium gray, light brown gray, rare cream, microcrystalline, firm, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

9,400-9,430 LIMESTONE: mudstone, light-medium gray, light brown gray, rare cream, microcrystalline, firm, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

9,430-9,460 LIMESTONE: mudstone, light-medium gray, light brown gray, rare cream, microcrystalline, firm, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

9,460-9,490 LIMESTONE: mudstone, tan, light gray, rare medium-dark gray, microcrystalline, firm, trace friable, dense, earthy texture, rare crystalline texture, argillaceous in part, no visible porosity, no visible oil stain

Mission Canyon [Mississippian Madison Group] **9,515' MD / 9,465' TVD (-7,308')**

9,490-9,520 LIMESTONE: mudstone, tan, light gray, rare medium-dark gray, microcrystalline, firm, trace friable, dense, earthy texture, rare crystalline texture, argillaceous in part, no visible porosity, no visible oil stain

9,520-9,550 LIMESTONE: mudstone, tan, light gray, rare medium-dark gray, microcrystalline, firm, trace friable, dense, earthy texture, rare crystalline texture, argillaceous in part, no visible porosity, no visible oil stain

9,550-9,580 LIMESTONE: mudstone, light-medium gray, occasional tan, rare dark gray, microcrystalline, firm, occasional friable, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

9,580-9,610 LIMESTONE: mudstone, light-medium gray, occasional tan, rare dark gray, microcrystalline, firm, occasional friable, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

9,610-9,640 LIMESTONE: mudstone, tan, cream, light gray, microcrystalline, firm, rare friable, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

9,640-9,670 LIMESTONE: mudstone, tan, cream, light gray, microcrystalline, firm, rare friable, dense, earthy texture, no visible porosity, no visible oil stain

9,670-9,700 LIMESTONE: mudstone, tan, cream, light gray, microcrystalline, firm, rare friable, dense, earthy texture, no visible porosity, no visible oil stain

9,700-9,730 LIMESTONE: mudstone, light-medium gray, occasional cream, rare tan, trace light brown gray, trace dark gray, microcrystalline, firm, rare friable, dense, earthy texture, rare crystalline texture, argillaceous in part, no visible porosity, no visible oil stain

9,730-9,760 LIMESTONE: mudstone, light-medium gray, occasional cream, rare tan, trace light brown gray, trace dark gray, microcrystalline, firm, rare friable, dense, earthy texture, rare crystalline texture, argillaceous in part, no visible porosity, no visible oil stain

9,760-9,790 LIMESTONE: mudstone, tan, cream, rare light brown gray, microcrystalline, firm, rare friable, dense, earthy texture, trace crystalline texture, argillaceous in part, no visible porosity, no visible oil stain

9,790-9,820 LIMESTONE: mudstone, tan, cream, rare light brown gray, microcrystalline, firm, rare friable, dense, earthy texture, trace crystalline texture, argillaceous in part, no visible porosity, no visible oil stain

9,820-9,850 ARGILLACEOUS LIMESTONE: mudstone, light gray, common off white, occasional tan, rare gray-brown, microcrystalline, firm-friable, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

9,850-9,880 LIMESTONE: mudstone, light gray, common off white, occasional tan, occasional gray-brown, microcrystalline, firm-friable, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

9,880-9,910 LIMESTONE: mudstone, tan, cream, light-medium gray, trace dark gray, microcrystalline, firm, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain; occasional ARGILLACEOUS LIMESTONE: mudstone, rare wackestone, medium-light gray, light brown, microcrystalline, firm, dense, earthy texture, no visible porosity, no visible oil stain

9,910-9,940 LIMESTONE: mudstone, tan, cream, light-medium gray, trace dark gray, microcrystalline, firm, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain; trace ARGILLACEOUS LIMESTONE: as above

9,940-9,970 LIMESTONE: mudstone, tan, cream, light-medium gray, trace dark gray, microcrystalline, firm, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain; trace ARGILLACEOUS LIMESTONE: as above

9,970-10,000 LIMESTONE: mudstone, light-medium gray, occasional tan, rare dark gray, microcrystalline, firm, occasional friable, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

10,000-10,030 LIMESTONE: mudstone, light-medium gray, occasional tan, rare dark gray, microcrystalline, firm, occasional friable, dense, earthy texture, argillaceous in part, no visible porosity, no visible oil stain

10,030-10,060 ARGILLACEOUS LIMESTONE: mudstone, light-medium gray, light gray brown, rare dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,060-10,090 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone; medium-dark gray, light gray brown, rare light gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

Lodgepole Formation [Mississippian Madison Group]10,082' MD / 10,030' TVD (-7,873')

10,090-10,120 ARGILLACEOUS LIMESTONE: mudstone, dark gray, occasional medium-light gray, rare cream, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,120-10,150 ARGILLACEOUS LIMESTONE: mudstone, medium-light gray, rare cream, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,150-10,180 ARGILLACEOUS LIMESTONE: mudstone, light gray, cream, medium-dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,180-10,210 ARGILLACEOUS LIMESTONE: mudstone, light gray, cream, medium-dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,210-10,240 ARGILLACEOUS LIMESTONE: mudstone, light gray, cream, medium-dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,240-10,270 ARGILLACEOUS LIMESTONE: mudstone, light gray, rare medium-dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,270-10,284 ARGILLACEOUS LIMESTONE: mudstone, light gray, rare medium-dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,284-10,327 No sample

Horizontal Log Descriptions:MD / TVD (MSL Datum)

10,327-10,330 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, dark gray, common light brown gray, occasional light-medium gray, rare tan, microcrystalline, firm, trace hard, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,330-10,360 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, dark gray, common light brown gray, occasional light-medium gray, rare tan, microcrystalline, firm, trace hard, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,360-10,390 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, light gray, occasional tan, rare light brown gray, trace medium-dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,390-10,420 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, light gray, occasional tan, rare light brown gray, trace medium-dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,420-10,450 ARGILLACEOUS LIMESTONE: mudstone, light brown gray, light-medium gray, cream, firm, microcrystalline, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,450-10,480 ARGILLACEOUS LIMESTONE: mudstone, light brown gray, light-medium gray, cream, firm, microcrystalline, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,480-10,510 ARGILLACEOUS LIMESTONE: mudstone, light brown gray, light-medium gray, cream, firm, microcrystalline, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,510-10,540 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, medium-light gray, light brown gray, rare dark gray, trace cream, firm, trace hard, microcrystalline, earthy texture, no visible porosity, no visible oil stain

10,540-10,570 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, medium-light gray, light brown gray, rare dark gray, trace cream, firm, trace hard, microcrystalline, earthy texture, no visible porosity, no visible oil stain

10,570-10,600 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, dark gray, common light brown gray, occasional light-medium gray, rare tan, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,600-10,630 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, dark gray, common light brown gray, occasional light-medium gray, rare tan, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,630-10,660 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, dark gray, common light brown gray, occasional light-medium gray, rare tan, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,660-10,690 ARGILLACEOUS LIMESTONE: mudstone, rare wackestone, light brown gray, light gray, rare cream, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,690-10,720 ARGILLACEOUS LIMESTONE: mudstone, rare wackestone, light brown gray, light gray, rare cream, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,720-10,750 ARGILLACEOUS LIMESTONE: mudstone, rare wackestone, light brown gray, light gray, rare cream, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,750-10,780 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, medium-light gray, light brown gray, occasional dark gray, rare cream, microcrystalline, firm, trace hard, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,780-10,810 ARGILLACEOUS LIMESTONE: mudstone, occasional wackestone, medium-light gray, light brown gray, occasional dark gray, rare cream, microcrystalline, firm, trace hard, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,810-10,840 ARGILLACEOUS LIMESTONE: mudstone, light brown gray, common light-medium gray, trace cream, firm, microcrystalline, earthy texture, rare disseminated pyrite, no visible porosity, no visible oil stain

10,840-10,870 ARGILLACEOUS LIMESTONE: mudstone, trace wackestone, light gray, occasional tan, rare light brown gray, trace medium-dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,870-10,900 ARGILLACEOUS LIMESTONE: mudstone, trace wackestone, light-medium gray, rare light brown gray, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,900-10,930 ARGILLACEOUS LIMESTONE: mudstone, trace wackestone, light-medium gray, rare light brown gray, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,930-10,960 ARGILLACEOUS LIMESTONE: mudstone, trace wackestone, light-medium gray, rare light brown gray, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10,960-10,990 ARGILLACEOUS LIMESTONE-LIMESTONE: mudstone, trace wackestone, light-medium gray, rare light brown gray, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

False Bakken [Lodgepole Formation] **10,977' MD / 10,752' TVD (-8,595')**

Upper Bakken Shale Member [Mississippian-Bakken Formation] **10,995' MD / 10,759' TVD (-8,602')**

10,990-11,020 SHALE: black, hard, brittle, blocky, carbonaceous, petroliferous, pyritic, no visible porosity, possible fracture porosity, dark brown even oil stain

11,020-11,050 SHALE: black, hard, brittle, blocky, carbonaceous, petroliferous, pyritic, no visible porosity, possible fracture porosity, dark brown even oil stain

Middle Bakken Member [Mississippian-Devonian Bakken Formation] **11,053' MD / 10,776' TVD (-8,619')**

11,050-11,080 SILTY SANDSTONE: light-medium gray, light gray-brown, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; trace SHALE: as above

11,080-11,110 SILTY SANDSTONE: light-medium gray, light gray-brown, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain

11,110-11,140 SILTY SANDSTONE: light gray brown, occasional light-medium gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain

11,140-11,170 SILTY SANDSTONE: tan-light brown gray, occasional gray-off white, rare medium gray, firm, fine grained, sub-rounded, occasional sub angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, rare nodular pyrite, trace intergranular porosity

11,170-11,200 SILTY SANDSTONE: tan-light brown gray, occasional gray-off white, rare medium gray, firm, fine grained, sub-rounded, occasional sub angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain

11,250-11,300 Sample moderately contaminated with cement; SILTY SANDSTONE: light-medium gray, light brown, light brown gray, firm, fine grained, sub-rounded, occasional sub angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,300-11,350 SILTY SANDSTONE: light-medium gray, light brown, light brown gray, firm, fine grained, sub-rounded, occasional sub angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,350-11,400 SILTY SANDSTONE: light-medium gray, light brown, light brown gray, firm, fine grained, sub-rounded, occasional sub angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,350-11,400 SILTY SANDSTONE: tan, light brown, occasional light brown gray, rare light-medium gray, trace off white, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,400-11,450 SILTY SANDSTONE: tan, light brown, occasional light brown gray, rare light-medium gray, trace off white, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,450-11,500 SILTY SANDSTONE: tan, light brown, occasional light brown gray, rare light-medium gray, trace off white, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,500-11,550 SILTY SANDSTONE: light brown gray, light brown, rare medium-light gray, firm, fine grained, sub-rounded, occasional sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,550-11,600 SILTY SANDSTONE: light brown gray, light brown, rare medium-light gray, firm, fine grained, sub-rounded, occasional sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,600-11,650 SILTY SANDSTONE: light brown gray, light brown, rare medium-light gray, firm, fine grained, sub-rounded, occasional sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,650-11,700 SILTY SANDSTONE: off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,700-11,750 SILTY SANDSTONE: off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,750-11,800 SILTY SANDSTONE: light brown, off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,800-11,850 SILTY SANDSTONE: light brown, off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,850-11,900 SILTY SANDSTONE: light brown, off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,900-11,950 SILTY SANDSTONE: medium-light gray, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

11,950-12,000 SILTY SANDSTONE: medium-light gray, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,000-12,050 SILTY SANDSTONE: medium-light gray, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,050-12,100 SILTY SANDSTONE: light-medium gray, light brown gray, rare dark gray, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,100-12,150 SILTY SANDSTONE: light-medium gray, light brown gray, rare dark gray, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,150-12,200 SILTY SANDSTONE: light-medium gray, light brown gray, rare dark gray, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,200-12,250 SILTY SANDSTONE: light brown gray, medium-light gray, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,250-12,300 SILTY SANDSTONE: light brown gray, medium-light gray, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,300-12,350 SILTY SANDSTONE: light brown gray, medium-light gray, firm, fine grained, sub-rounded, rare sub angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,350-12,400 SILTY SANDSTONE: off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,400-12,450 SILTY SANDSTONE: off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,450-12,500 SILTY SANDSTONE: off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,500-12,550 SILTY SANDSTONE: off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,550-12,600 SILTY SANDSTONE: light gray-off white, light brown gray, rare light-medium brown, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,600-12,650 SILTY SANDSTONE: off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,650-12,700 SILTY SANDSTONE: light gray-off white, light brown gray, rare light-medium brown, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

12,700-12,750 SILTY SANDSTONE: light brown, off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,450-13,500 SILTY SANDSTONE: off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,500-13,550 SILTY SANDSTONE: off white, light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,550-13,600 SILTY SANDSTONE: light gray, light brown gray, off white, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,600-13,650 SILTY SANDSTONE: off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,650-13,700 SILTY SANDSTONE: light gray, light brown gray, off white, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,700-13,750 SILTY SANDSTONE: light gray, light brown gray, off white, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,750-13,800 SILTY SANDSTONE: light-medium brown, off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,800-13,850 SILTY SANDSTONE: light-medium brown, off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,850-13,900 SILTY SANDSTONE: light-medium brown, off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,900-13,950 SILTY SANDSTONE: light brown, off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,950-14,000 SILTY SANDSTONE: light brown gray, light-medium brown, rare off white-gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,000-14,050 SILTY SANDSTONE: light brown gray, light-medium brown, rare off white-gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite and nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,050-14,100 SILTY SANDSTONE: light brown gray, light-medium brown, rare off white-gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,100-14,150 SILTY SANDSTONE: light brown gray, light-medium brown, rare off white-gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,150-14,200 SILTY SANDSTONE: off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,200-14,250 SILTY SANDSTONE: off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,250-14,300 SILTY SANDSTONE: off white, light gray-light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,300-14,350 SILTY SANDSTONE: off white, light gray-light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,350-14,400 SILTY SANDSTONE: off white, light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,400-14,450 SILTY SANDSTONE: off white, light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,450-14,500 SILTY SANDSTONE: off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,500-14,550 SILTY SANDSTONE: off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,550-14,600 SILTY SANDSTONE: light brown gray, off white-gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,600-14,650 SILTY SANDSTONE: light brown, light brown gray, occasional medium-light gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,650-14,700 SILTY SANDSTONE: light brown, light brown gray, occasional medium-light gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,700-14,750 SILTY SANDSTONE: light brown, light brown gray, occasional medium-light gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,750-14,800 SILTY SANDSTONE: light-medium gray, light brown gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,800-14,850 SILTY SANDSTONE: light-medium gray, light brown gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,850-14,900 SILTY SANDSTONE: light-medium gray, light brown gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,900-14,950 SILTY SANDSTONE: off white, tan, light brown gray, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

14,950-15,000 SILTY SANDSTONE: off white, tan, light brown gray, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,000-15,050 SILTY SANDSTONE: light brown gray, light brown, occasional medium-light gray, rare dark gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,050-15,100 SILTY SANDSTONE: light brown gray, light brown, occasional medium-light gray, rare dark gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,100-15,150 SILTY SANDSTONE: light brown gray, light brown, occasional medium-light gray, rare dark gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,150-15,200 SILTY SANDSTONE: off white, light brown, rare light brown gray, trace light gray, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,200-15,250 SILTY SANDSTONE: off white, light brown, rare light brown gray, trace light gray, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,250-15,300 SILTY SANDSTONE: off white, light brown, rare light brown gray, trace light gray, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,300-15,350 SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,350-15,400 SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,400-15,450 SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,450-15,500 SILTY SANDSTONE: light-medium gray, off white, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,500-15,550 SILTY SANDSTONE: light-medium gray, off white, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,550-15,600 SILTY SANDSTONE: light-medium gray, off white, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,600-15,650 SILTY SANDSTONE: light-medium gray, occasional light brown gray, rare off white, trace dark gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,650-15,700 SILTY SANDSTONE: light-medium gray, occasional light brown gray, rare off white, trace dark gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,700-15,750 SILTY SANDSTONE: light-medium gray, occasional light brown gray, rare off white, trace dark gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,750-15,800 SILTY SANDSTONE: off white, light brown, rare light brown gray, trace light gray, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,800-15,850 SILTY SANDSTONE: off white, light brown, occasional medium-dark gray, rare light brown gray, trace light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,850-15,900 SILTY SANDSTONE: off white, light brown, occasional medium-dark gray, rare light brown gray, trace light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,900-15,950 SILTY SANDSTONE: light-medium gray, occasional light brown gray, rare off white, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

15,950-16,000 SILTY SANDSTONE: light-medium gray, occasional light brown gray, rare off white, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,000-16,050 SILTY SANDSTONE: light-medium gray, occasional light brown gray, rare off white, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,050-16,100 SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,100-16,150 SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,150-16,200 SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,200-16,250 SILTY SANDSTONE: medium-light gray, dark gray, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,250-16,300 SILTY SANDSTONE: medium-light gray, dark gray, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,300-16,350 SILTY SANDSTONE: medium-light gray, dark gray, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,350-16,400 SILTY SANDSTONE: light-medium gray, light brown gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,400-16,450 SILTY SANDSTONE: light-medium gray, light brown gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,450-16,500 SILTY SANDSTONE: light-medium gray, light brown gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,500-16,550 SILTY SANDSTONE: light-medium gray, light brown gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

16,550-16,600 SILTY SANDSTONE: light-medium gray, light brown gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,250-17,300 SILTY SANDSTONE: light gray-off white, light brown-light brown gray, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,300-17,350 SILTY SANDSTONE: light gray-off white, light brown-light brown gray, firm, rare hard, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,350-17,400 SILTY SANDSTONE: light-medium brown, off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,400-17,450 SILTY SANDSTONE: light-medium brown, off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,450-17,500 SILTY SANDSTONE: light-medium brown, off white-light gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,500-17,550 SILTY SANDSTONE: light gray brown, off white-light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,550-17,600 SILTY SANDSTONE: light gray brown, off white-light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,600-17,650 SILTY SANDSTONE: light gray brown, off white-light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,650-17,700 SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,700-17,750 SILTY SANDSTONE: light brown gray, common off white-light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,750-17,800 SILTY SANDSTONE: light brown, gray-gray brown, occasional off white, friable-firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,800-17,850 SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,850-17,900 SILTY SANDSTONE: light brown gray, common off white-light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,900-17,950 SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

17,950-18,000 SILTY SANDSTONE: light brown, gray-gray brown, occasional off white, friable-firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

18,000-18,050 SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

18,050-18,100 SILTY SANDSTONE: light brown gray, common off white-light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

18,100-18,150 SILTY SANDSTONE: light brown gray, common off white-light gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, rare nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

18,150-18,200 SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; slow pale yellow diffuse cut fluorescence

18,200-18,250 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light brown gray, medium-light gray, occasional dark gray, trace off white, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; contaminated cut fluorescence

18,250-18,300 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light brown gray, medium-light gray, occasional dark gray, trace off white, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; contaminated cut fluorescence

18,300-18,350 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light brown gray, medium-light gray, occasional dark gray, trace off white, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; contaminated cut fluorescence

18,350-18,400 Sample slightly contaminated with lubricant; SILTY SANDSTONE: medium-light gray, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,400-18,450 Sample slightly contaminated with lubricant; SILTY SANDSTONE: medium-light gray, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,450-18,500 Sample slightly contaminated with lubricant; SILTY SANDSTONE: medium-light gray, off white, occasional light brown gray, trace dark gray, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,500-18,550 Sample slightly contaminated with lubricant; SILTY SANDSTONE: medium-light gray, off white, occasional light brown gray, trace dark gray, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,550-18,600 Sample slightly contaminated with lubricant; SILTY SANDSTONE: medium-light gray, off white, occasional light brown gray, trace dark gray, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,600-18,650 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light brown, light-medium gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,650-18,700 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light brown, light-medium gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,700-18,750 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light brown, light-medium gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,750-18,800 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,800-18,850 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,850-18,900 Sample slightly contaminated with lubricant; SILTY SANDSTONE: light-medium gray, light brown gray, rare light brown, trace off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,900-18,950 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown gray, light brown, rare off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

18,950-19,000 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown gray, light brown, rare off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,000-19,050 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown gray, light brown, rare off white, trace dark gray, firm, rare hard, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,050-19,100 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,100-19,150 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,150-19,200 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,200-19,250 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,250-19,300 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown, light brown gray, occasional medium-light gray, rare off white, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,300-19,350 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown, light brown gray, occasional medium-light gray, rare off white, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,350-19,400 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown, light brown gray, occasional medium-light gray, rare off white, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,400-19,450 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,450-19,500 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,500-19,550 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,550-19,600 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown gray, light brown, rare off white, trace dark gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,600-19,650 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown gray, light brown, rare off white, trace dark gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,650-19,700 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown gray, light brown, rare off white, trace dark gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,700-19,750 Sample moderately contaminated with lubricant; SILTY SANDSTONE: medium-light gray, occasional off white, rare light brown, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,750-19,800 Sample moderately contaminated with lubricant; SILTY SANDSTONE: medium-light gray, occasional off white, rare light brown, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,800-19,850 Sample moderately contaminated with lubricant; SILTY SANDSTONE: medium-light gray, occasional off white, rare light brown, firm, fine grained, sub-rounded, rare sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,850-19,900 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, light-medium gray, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,900-19,950 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, light-medium gray, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

19,950-20,000 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown, light brown gray, occasional medium-light gray, rare off white, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,000-20,050 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light brown, light brown gray, occasional medium-light gray, rare off white, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,050-20,100 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, common light brown, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,100-20,150 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,150-20,200 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,200-20,250 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,250-20,300 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, common light brown, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,300-20,350 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; contaminated cut fluorescence

20,350-20,400 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, common light brown, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,400-20,450 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, common light brown, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,450-20,500 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; contaminated cut fluorescence

20,500-20,550 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,550-20,600 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, common light brown, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,600-20,650 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; contaminated cut fluorescence

20,650-20,700 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, common light brown, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,700-20,750 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light gray brown-brown, occasional off white-light gray, firm-friable, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, rare disseminated pyrite, trace nodular pyrite, trace intergranular porosity, trace light-medium brown spotty oil stain; contaminated cut fluorescence

20,750-20,800 Sample moderately contaminated with lubricant; SILTY SANDSTONE: light-medium gray, common light brown, rare light brown gray, firm, fine grained, sub-rounded, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,800-20,850 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20,850-20,900 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence

20900-20940 Sample moderately contaminated with lubricant; SILTY SANDSTONE: off white, tan, light brown gray, firm, fine grained, sub-rounded, occasional sub-angular, moderately poorly sorted, calcareous cement, moderately cemented, trace disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; contaminated cut fluorescence



SUNDY NOTICES AND REPORTS ON WORKS FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2008)

RECEIVED

Well File No.
28190

JAN 21 2019

**ND Oil & Gas
Division**

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date January 23, 2019
<input type="checkbox"/> Report of Work Done	Date Work Completed
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	
Approximate Start Date	

<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input checked="" type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
<input type="checkbox"/> Other	

Well Name and Number Lewis Federal 5300 21-31 6B					
Footages 2585 F N L	Qtr-Qtr 259 F W L	Section LOT 3	Township 31	Range 153 N	Range 100 W
Field Baker	Pool Bakken			County McKenzie	

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

Name of Contractor(s)			
Address	City	State	Zip Code

DETAILS OF WORK

Oasis Petroleum respectfully requests to amend the surface casing depth to 3300' MD (previously (2157') due to potential flowback in the Dakota formation. In order to counteract projected flowback at surface, Oasis needs to increase mud weight, and lowering the surface casing point will allow this to be performed safely. A DV tool will not be used.

Attached are revised drill plans reflecting the amended casing points, cement volumes, and other related volumes.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9436	
Address 1001 Fannin St, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Jennifer Swenson	
Title Regulatory Specialist	Date January 21, 2019	
Email Address jswenson@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 1-21-2019	
By 	
Title DAVID BURNS	
Engineering Technician	

DAVID BURNS
Engineering Technician

DRILLING PLAN							
OPERATOR	Oasis Petroleum			COUNTY/STATE	McKenzie Co., ND		
WELL NAME	Lewis Federal 5300 21-31 6B			RIG	0		
WELL TYPE	Middle Bakken			LOCATION	T153N R100W S31 SWNW		
EST. T.D.	Surface Location (survey plat): 2585' FNL 20,945'			FINISH PAD ELEV:	2,132'		
TOTAL LATERAL:	9,850'			KB ELEV:	2,157'		
MARKER	TVD	Subsea TVD	LOGS:	Type	Interval		
Pierre	NDIC MAP	2,007	OH Logs: Triple Combo	GR/Resistivity	KOP to Kibbey (or min run of 1800' whichever is greater)		
Greenhorn		4,615	GR	To surface			
Mowry (Dakota Group)		5,029	CND	Through Dakota Group (Inyan Kara Sands)			
Inyan Kara (Dakota Group)		5,451	CBL/GR:	Above top of cement/GR to base of casing			
Swift (Base Dakota Group)		5,874	MWD GR:	KOP to lateral TD			
Rierdon		6,390					
Dunham Salt		6,917					
Dunham Salt Base		6,974					
Pine Salt		7,281					
Pine Salt Base		7,342					
Opeche Salt		7,460					
Opeche Salt Base		7,486					
Amsden		7,682					
Tyler		7,870					
Otter/Base Minnelusa		8,088					
Kibbey Lime		8,435					
Charles Salt		8,581					
Base Last Salt		9,252					
Mission Canyon		9,466					
Lodgepole		10,025					
False Bakken		10,739					
Upper Bakken Shale		10,749					
Middle Bakken		10,765					
Target Top		10,775					
Target Landing		10,784					
Target Base		10,793					
Lower Bakken		10,803					
-		-					
-		-					
-		-					
-		-					
-		-					
-		-					
Est. Average Dip Rate:	89.59						
Max. Anticipated BHP:	4,706'						
MUD:	Interval	Type	WT	Vis	WL	Remarks	
Surface:	0' -	3,300'	FW/Gel Lime Sweeps	8.4-9.0	28-32	NC	Circ Mud Tanks
Intermediate:	3,300' -	11,095'	Invert	9.5-10.4	40-50	30+HtHp	Circ Mud Tanks
Laterals:	11,095' -	20,945'	Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks
CASING:	Size	Wt ppf	Hole	Depth	Cement	WOC	Remarks
Surface:	13-3/8"	54.5#	17-1/2"	3,300'	To Surface	12 hours	150' into Pierre
Intermediate: (Dakota)	9-5/8"	40#	12-1/4"	5,974'	To Surface	24 hours	Set Casing across Dakota
Intermediate:	7"	32#	8-3/4"	11,095'	4829	24 hours	200' above Mowry
Production Liner:	4.5"	13.5#	6"	20,945'	10282		50' above KOP
PROBABLE PLUGS, IF REQ'D:							
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI	
Surface:	3,300'	3,300'	2585 FNL	259 FWL	Sec 31 T153N R100W	-	
KOP:	10,332'	10,293'	2002 FSL	40 FWL	Sec 31 T153N R100W	-	Survey Company: Build Rate: 12 deg /100'
EOC:	11,095'	10,784'	1950 FSL	513 FWL	Sec 31 T153N R100W	90.0	
Casing Point:	11,095'	10,784'	1950 FSL	513 FWL	Sec 31 T153N R100W	90.0	
TD:	20,945'	10,860'	1950 FSL	150 FEL	Sec 32 T153N R100W	90.0	
Comments:							
Request waiver of open hole logs. Justification well: Lewis Federal 5300 31-31H (33053034330000) ~0.22 miles S of SHL							
The above open hole logs will be run if Oasis does not submit and receive an approved logging waiver from the NDIC.							
Currently planned for 50 stages. No frac string planned. 4-1/2" cemented liner completed using plug & perf method							
Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations.							
68334-30-5 (Primary Name: Fuels, diesel) 68476-34-6 (Primary Name: Fuels, diesel, No. 2) 68476-30-2 (Primary Name: Fuel oil No. 2)							
68476-31-3 (Primary Name: Fuel oil, No. 4) 8008-20-6 (Primary Name: Kerosene)							
Geology: LRH		4/3/2018			Engineering:	TR 4/16/18	
Revision:					Revision:		
Revision 2:					Revision 2:		

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, ND

SURFACE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift
13-3/8"	0' - 3300'	54.5	J-55	STC	12.615"	12.459"

Interval	Description	Collapse (psi) / a	Burst (psi) / b	Tension (1000 lbs) / c
0' - 3300'	13-3/8", 54.5#, J-55, LTC, 8rd	1130 / 0.73	2730 / 1.22	514 / 2.01

API Rating & Safety Factor

- a) Collapse based on full casing evacuation with 9 ppg fluid on backside (3300' setting depth).
- b) Burst pressure based on 13 ppg fluid with no fluid on backside (3300' setting depth).
- c) Based on string weight in 9 ppg fluid at 3300' TVD plus 100k# overpull. (Buoyed weight equals 155k lbs.)

Cement volumes are based on 13-3/8" casing set in 17-1/2 " hole with 60% excess to circulate cement back to surface.

Mix and pump the following slurry.

Pre-flush (Spacer): 20 bbls fresh water

Lead Slurry: **1166 sks** (602 bbls), 11.5 lb/gal, 2.97 cu. Ft./sk Varicem Cement with 0.125 il/sk Lost Circulation Additive

Tail Slurry: **300 sks** (62 bbls), 13.0 lb/gal, 2.01 cu.ft./sk Varicem with .125 lb/sk Lost Circulation Agent

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, ND

Contingency INTERMEDIATE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift
9-5/8"	0' - 5974'	40	J-55	LTC	8.921"	8.765"

Interval	Description	Collapse (psi) / a	Burst (psi) / b	Tension (1000 lbs) / c
0' - 5974'	9-5/8", 36#, J-55, LTC, 8rd	3530 / 4.00	7870 / 3.08	1260 / 4.18

API Rating & Safety Factor

- a) Collapse based on full casing evacuation with 10.4 ppg fluid on backside (5974' setting depth).
- b) Burst pressure calculated from a gas kick coming from the production zone (Bakken Pool) at 9,000psi and a subsequent breakdown at the 9-5/8" shoe, based on a 15.2#/ft fracture gradient. Backup of 9 ppg fluid..
- c) Tension based on string weight in 10.4 ppg fluid at 5974' TVD plus 100k# overpull. (Buoyed weight equals 201k lbs.)

Cement volumes are based on 9-5/8" casing set in 12-1/4 " hole with 10% excess to circulate cement back to surface.

Pre-flush (Spacer): **20 bbls** Chem wash

Lead Slurry: **541 sks** (280 bbls), 2.90 ft3/sk, 11.5 lb/gal Conventional system with 94 lb/sk cement, 4% D079 extender, 2% D053 expanding agent, 2% CaCl2 and 0.250 lb/sk D130 lost circulation control agent.

Tail Slurry: **594 sks** (123 bbls), 1.16 ft3/sk 15.8 lb/gal Conventional system with 94 lb/sk cement, 0.25% CaCl2, and 0.250 lb/sk lost circulation control agent

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, ND

INTERMEDIATE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift**
7"	0' - 11095'	32	HCP-110	BTC/LTC	6.094"	6.000***

**Special Drift 7"32# to 6.0"

Interval	Length	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) / c
0' - 5000'	5000'	7", 32#, HCP-110, BTC, 8rd	11820 / 2.10*	12460 / 1.28	897 / 2.23
5000' - 11095'	6095'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.06**	12460 / 1.30	

API Rating & Safety Factor

- a) *Assume full casing evacuation with 10 ppg fluid on backside. **Assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals.
- b) Burst pressure based on 9000 psig max press for stimulation plus 10.2 ppg fluid in casing and 9 ppg fluid on backside-to 10784' TVD.
- c) Based on string weight in 10 ppg fluid, (301k lbs buoyed weight) plus 100k lbs overpull.

Cement volumes are estimates based on 7" casing set in an 8-3/4" hole with 30% excess.

Mix and pump the following slurry

Pre-flush (Spacer): **100 bbls** Saltwater
20 bbls Tuned Spacer III

Lead Slurry: **218 sks** (101 bbls), 11.8 ppg, 2.55 cu. ft./sk Econocem Cement with .3% Fe-2 and .25 lb/sk Lost Circulation Additive

Tail Slurry: **572 sks** (167 bbls), 14.0 ppg, 1.55 cu. ft./sk Extendcem System with .2% HR-5 Retarder and .25 lb/sk Lost Circulation Additive

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, ND

PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift
4-1/2"	10282' - 20945'	13.5	P-110	GB CD BTC	3.920"	3.795"

Interval	Length	Description	Collapse	Burst	Tension
10282' - 20945'	10663	4-1/2", 13.5 lb, P-110, GB CD BTC	(psi) a 10670 / 1.98	(psi) b 12410 / 1.28	(1000 lbs) c 443 / 1.98

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10860' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10860' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 123k lbs.) plus 100k lbs overpull.

Cement volumes are estimates based on 4-1/2" casing hung from 7" casing, and into 6" OH. 20% excess.

Mix and pump the cement slurry. Follow cement with liner dart and then saltwater displacement

Pre-flush (Spacer): **20 bbls** Viscous spacer

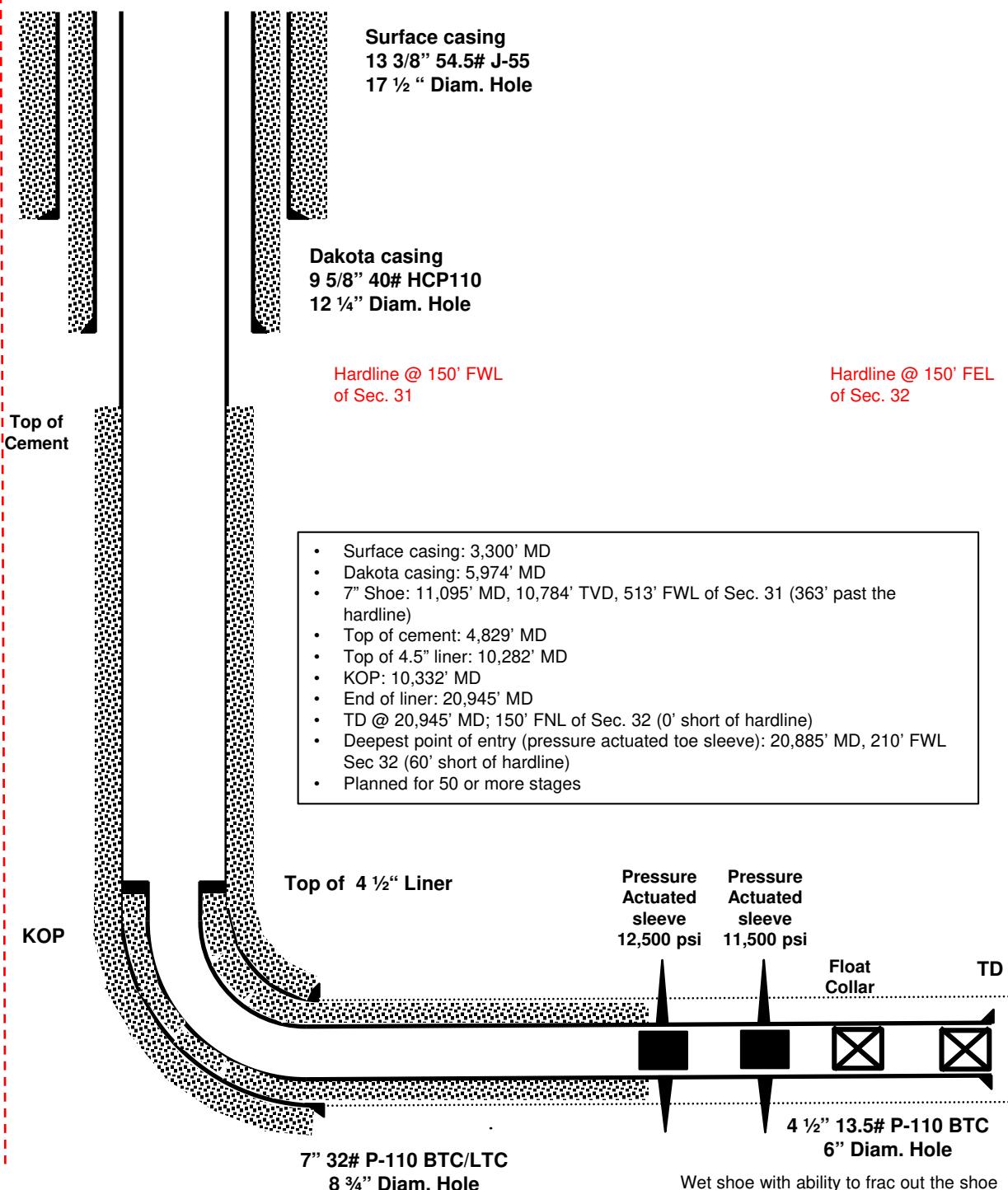
Cement Slurry: **726 sks** (197 bbls), 14.3ppg, 1.52 cu/ft/sk conventional system with
20% silica flour

Displacement **272 bbls** Based on 53 ft shoe track and 4" drill pipe from surface to top of liner
4" DP: 0ft to 10282ft @ 0.011bbl/ft
4.5" casing: 10282ft to 20892ft; 0.0149bbl/ft

ELEVATION: 2,132' SL

Lewis Federal 5300 21-31 6B Proposed Wellbore Schematic

FORMATION: Bakken



OASIS PETROLEUM NA LLC

Lewis Federal 5300 21-31 6B

Wellbore: T153N-R100W Sec. 31 & 32

SHL: 2585' FNL & 259' FWL T153N-R100W Sec. 31

Williams County, North Dakota

Updated: 4-12-2018 TR



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2006)

RECEIVED

JAN - 4 2019

Well File No.

28190

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date January 3, 2019	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.		<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
Approximate Start Date		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	Waiver from tubing/packer requirement

Well Name and Number Lewis Federal 5300 21-31 6b					
Footages 2623	F N L	259	Qtr-Qtr 251	Section LOT 2	Township 31
Field Baker		Pool Bakken		Range 153 N 100 W	

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

Name of Contractor(s)			
Address		City	State
			Zip Code

DETAILS OF WORK

Oasis Petroleum North America LLC requests a variance to NDAC 43-02-03-21 for the tubing/packer requirement: Casing, tubing, and cementing requirements during the completion period immediately following the upcoming fracture stimulation.

The following assurances apply:

1. the well is equipped with new 29# and 32# casing at surface with an API burst rating of 11,220 psi;
2. The Frac design will use a safety factor of 0.85 API burst rating to determine the maximum pressure;
3. Damage to the casing during the frac would be detected immediately by monitoring equipment;
4. The casing is exposed to significantly lower rates and pressures during flowback than during the frac job;
5. The frac fluid and formation fluids have very low corrosion and erosion rates;
6. Production equipment will be installed as soon as possible after the well ceases flowing;
7. A 300# gauge will be installed on the surface casing during the flowback period

Company Oasis Petroleum North America LLC		Telephone Number 281-404-9436
Address 1001 Fannin, Suite 1500		
City Houston		State TX
Signature 		Printed Name Jennifer Swenson
Title Regulatory Specialist		Date January 3, 2019
Email Address jswenson@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 	
By 	
Title PETROLEUM ENGINEER	



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4
Received
 INDUSTRIAL COMMISSION OF NORTH DAKOTA
 OIL AND GAS DIVISION
 600 EAST BOULEVARD DEPT 405
 BISMARCK, ND 58505-0840
 SFN 5749 (09-2006)

Well File No.
28190

APP APR 18 2018

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date April 30, 2018
<input type="checkbox"/> Report of Work Done	Date Work Completed
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	
Approximate Start Date	

ND Oil & Gas Division

<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
<input type="checkbox"/> Supplemental History	<input checked="" type="checkbox"/> Change Production Method
<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
<input type="checkbox"/> Other	SHL and BHL Changes

Well Name and Number
Lewis Federal 5300 21-31 6B

Footages 2623 F N L	Qtr-Qtr 251 F W L	Section LOT2	Township 31	Range 153 N	100 W
Field Baker	Pool Bakken	County McKenzie			

24-HOUR PRODUCTION RATE

	Before	After	
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)

Address

City

State

Zip Code

DETAILS OF WORK

Oasis Petroleum respectfully requests the following changes to the above referenced permitted well:

SHL change: 2585' FNL & 259' FWL Lot 2 Sec. 31 T153N R100W (Previously 2623' FNL & 251' FWL Lot 2 Sec. 31 T153N R100W)

BHL change: 1950' FSL & 150' FEL NESE Sec. 32 T153N R100W (Previously 1995' FNL & 201' FEL Lot 4 Sec. 32 T153N R100W)

Must run a CBL on the 9-5/8" intermediate string which is proposed to isolate the Dakota Group prior to running 7" casing.

TD Change: 20945' MD / 10860 TVD (Previously 20792' MD / 10872' TVD)

Oasis must submit plat of production CTB within 30 days of 4-24-2018.

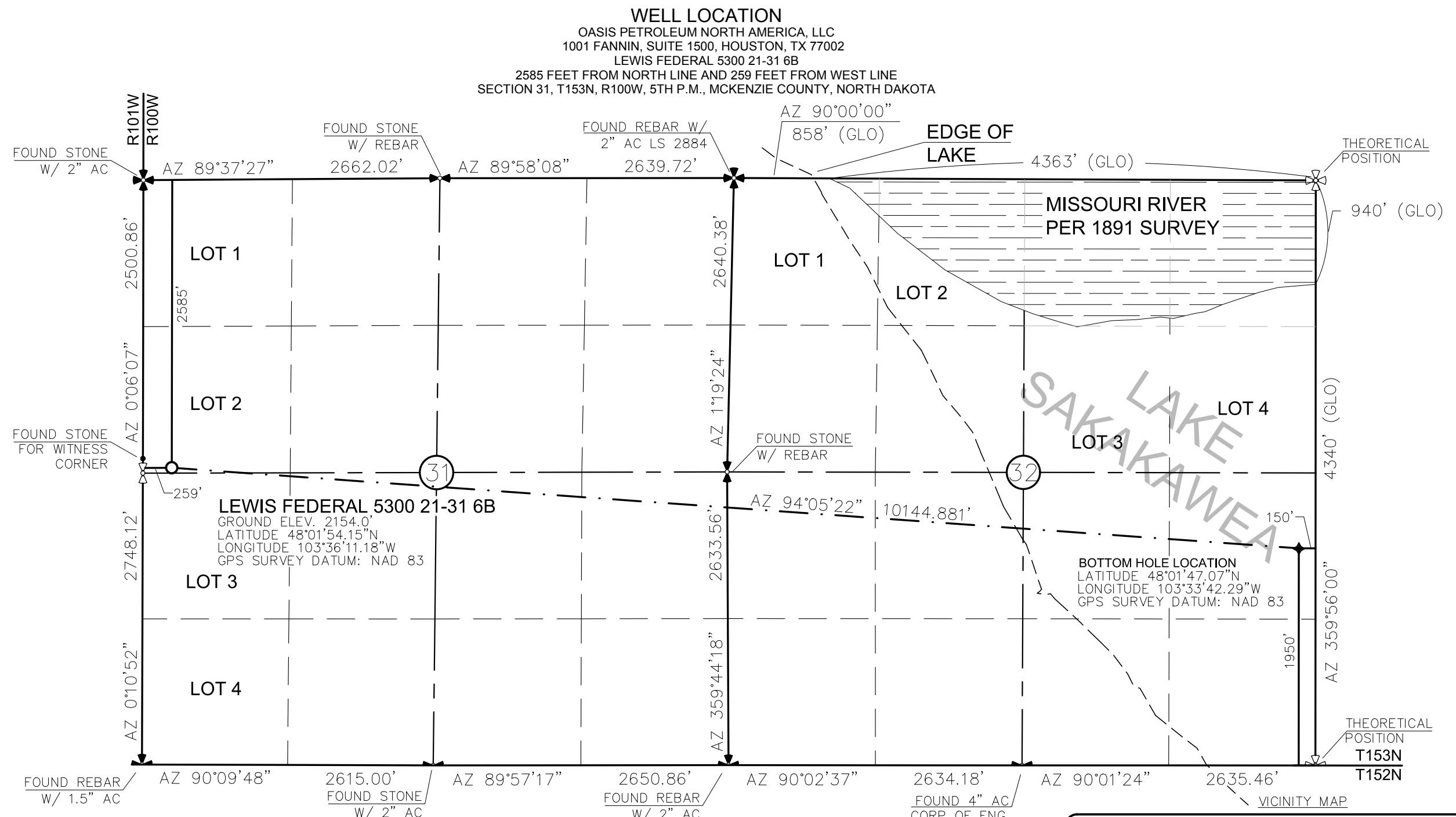
Please see attached supporting documents.

The East 150' setback is based on a production liner cemented in the lateral with a wet shoe and the ability to frac out the shoe.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9494	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature <i>Sadie Goodrum</i>	Printed Name Sadie Goodrum	
Title Regulatory Specialist II	Date April 18, 2018	
Email Address sgoodrum@oasispetroleum.com		

FOR STATE USE ONLY

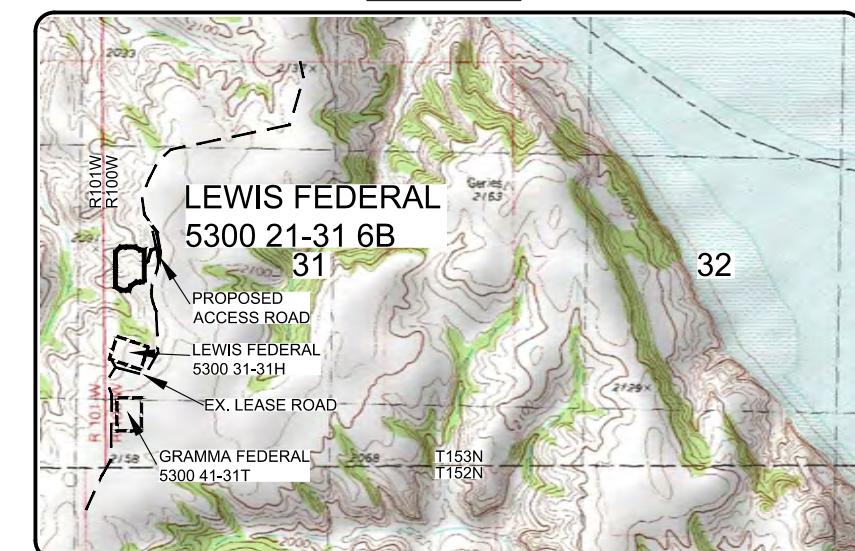
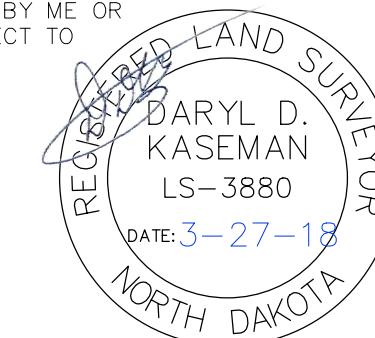
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 4/24/2018	
By <i>Dan J. Bass</i>	
Title Engineering Tech.	



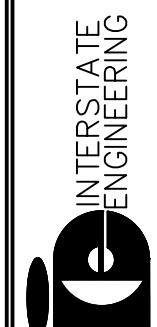
THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 ON 3-27-18 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.

- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED

DARYL D. KASEMAN LS-3880



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119

Revision No.	Date	By	Description
S1709-184	MARCH 2018	J.J.S.	New Stakeout CAD/LENS 6B New Stakeout CAD/LENS 6B due to 5000 21-31 6B Well from Saka Lake

DRILLING PLAN							
OPERATOR	Oasis Petroleum			COUNTY/STATE	McKenzie Co., ND		
WELL NAME	Lewis Federal 5300 21-31 6B			RIG	0		
WELL TYPE	Middle Bakken			LOCATION	T153N R100W S31 SWNW		
EST. T.D.	20,945'			Surface Location (survey plat): 2585' FNL		259' FWL	
TOTAL LATERAL:	9,850'			FINISH PAD ELEV:	2,132'		Sub Height: 25'
					KB ELEV:	2,157'	
MARKER		TVD	Subsea TVD	LOGS:	Type	Interval	
Pierre	NDIC MAP	2,007	150'	OH Logs: Triple Combo		KOP to Kibbey (or min run of 1800' whichever is greater)	
Greenhorn		4,615	-2,458'	GR/Resistivity		Bottom of surface casing	
Mowry (Dakota Group)		5,029	-2,872'	GR		To surface	
Inyan Kara (Dakota Group)		5,451	-3,294'	CND		Through Dakota Group (Inyan Kara Sands)	
Swift (Base Dakota Group)		5,874	-3,717'	CBL/GR:		Above top of cement/GR to base of casing	
Rierdon		6,390	-4,233'	MWD GR:		KOP to lateral TD	
Dunham Salt		6,917	-4,760'				
Dunham Salt Base		6,974	-4,817'				
Pine Salt		7,281	-5,124'	DEVIATION:			
Pine Salt Base		7,342	-5,185'	Surf:		3 deg. max., 1 deg / 100'; svry every 500'	
Opeche Salt		7,460	-5,303'	Prod:		5 deg. max., 1 deg / 100'; svry every 100'	
Opeche Salt Base		7,486	-5,329'				
Amsden		7,682	-5,525'	DST'S:			
Tyler		7,870	-5,713'				
Otter/Base Minnelusa		8,088	-5,931'				
Kibbey Lime		8,435	-6,278'				
Charles Salt		8,581	-6,424'				
Base Last Salt		9,252	-7,095'	CORES:			
Mission Canyon		9,466	-7,309'	Core Planned?	NO		
Lodgepole		10,025	-7,868'	Core Type:	-		
False Bakken		10,739	-8,582'	Formations/Depths:			
Upper Bakken Shale		10,749	-8,592'				
Middle Bakken		10,765	-8,608'				
Target Top		10,775	-8,618'				
Target Landing		10,784	-8,627'	MUDLOGGING:			
Target Base		10,793	-8,636'	Company:	TBD		
Lower Bakken		10,803	-8,646'	Starting Depth:	Begin 200' above Kibbey		
-		-	-	Sample Protocol:	30' samples in curve, 50' samples in lateral		
-		-	-	BOP:			
-		-	-		11" 5000 psi blind, pipe & annular		
-		-	-				
Est. Average Dip Rate:	89.59						
Max. Anticipated BHP:	4,706'			Surface Formation:	Glacial till		
MUD:	Interval	Type		WT	Vis	WL	Remarks
Surface:	0' -	2,157'	FW/Gel Lime Sweeps	8.4-9.0	28-32	NC	Circ Mud Tanks
Intermediate:	2,157' -	11,095'	Invert	9.5-10.4	40-50	30+HtHp	Circ Mud Tanks
Laterals:	11,095' -	20,945'	Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks
CASING:	Size	Wt pfp	Hole	Depth	Cement	WOC	Remarks
Surface:	13-3/8"	54.5#	17-1/2"	2,157'	To Surface	12 hours	150' into Pierre
Intermediate: (Dakota)	9-5/8"	36#	12-1/4"	5,974'	To Surface	24 hours	Set Casing across Dakota
Intermediate:	7"	32#	8-3/4"	11,095'	4829	24 hours	200' above Mowry
Production Liner:	4.5"	13.5#	6"	20,945'	10282		50' above KOP
PROBABLE PLUGS, IF REQ'D:							
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI	
Surface:	2,157'	2,157'	2585 FNL	259 FWL	Sec 31 T153N R100W	-	Survey Company:
KOP:	10,332'	10,293'	2002 FSL	40 FWL	Sec 31 T153N R100W	-	Build Rate: 12 deg /100'
EOC:	11,095'	10,784'	1950 FSL	513 FWL	Sec 31 T153N R100W	90.0	
Casing Point:	11,095'	10,784'	1950 FSL	513 FWL	Sec 31 T153N R100W	90.0	
TD:	20,945'	10,860'	1950 FSL	150 FEL	Sec 32 T153N R100W	90.0	
Comments:							
Request waiver of open hole logs. Justification well: Lewis Federal 5300 31-31H (33053034330000) ~0.22 miles S of SHL							
The above open hole logs will be run if Oasis does not submit and receive an approved logging waiver from the NDIC.							
Currently planned for 50 stages. No frac string planned. 4-1/2" cemented liner completed using plug & perf method							
Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations.							
68334-30-5 (Primary Name: Fuels, diesel) 68476-34-6 (Primary Name: Fuels, diesel, No. 2) 68476-30-2 (Primary Name: Fuel oil No. 2)							
68476-31-3 (Primary Name: Fuel oil, No. 4) 8008-20-6 (Primary Name: Kerosene)							
Geology:		LRH	4/3/2018	Engineering:		TR 4/16/18	
Revision:				Revision:			
Revision 2:				Revision 2:			

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, ND

SURFACE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift
13-3/8"	0' - 2157'	54.5	J-55	STC	12.615"	12.459"

Interval	Description	Collapse (psi) / a	Burst (psi) / b	Tension (1000 lbs) / c
0' - 2157'	13-3/8", 54.5#, J-55, LTC, 8rd	1130 / 1.11	2730 / 1.87	514 / 2.55

API Rating & Safety Factor

- a) Collapse based on full casing evacuation with 9 ppg fluid on backside (2157' setting depth).
- b) Burst pressure based on 13 ppg fluid with no fluid on backside (2157' setting depth).
- c) Based on string weight in 9 ppg fluid at 2157' TVD plus 100k# overpull. (Buoyed weight equals 101k lbs.)

Cement volumes are based on 13-3/8" casing set in 17-1/2 " hole with 60% excess to circulate cement back to surface.
Mix and pump the following slurry.

Pre-flush (Spacer): **20 bbls** fresh water

Lead Slurry: **728 sks** (376 bbls), 11.5 lb/gal, 2.97 cu. Ft./sk Varicem Cement with 0.125 il/sk Lost Circulation Additive

Tail Slurry: **300 sks** (62 bbls), 13.0 lb/gal, 2.01 cu.ft./sk Varicem with .125 lb/sk Lost Circulation Agent

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, ND

Contingency INTERMEDIATE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift
9-5/8"	0' - 5974'	36	J-55	LTC	8.921"	8.765"

Interval	Description	Collapse (psi) / a	Burst (psi) / b	Tension (1000 lbs) / c
0' - 5974'	9-5/8", 36#, J-55, LTC, 8rd	2020 / 2.29	3520 / 1.37	453 / 1.61

API Rating & Safety Factor

- a) Collapse based on full casing evacuation with 10.4 ppg fluid on backside (5974' setting depth).
- b) Burst pressure calculated from a gas kick coming from the production zone (Bakken Pool) at 9,000psi and a subsequent breakdown at the 9-5/8" shoe, based on a 15.2#/ft fracture gradient. Backup of 9 ppg fluid..
- c) Tension based on string weight in 10.4 ppg fluid at 5974' TVD plus 100k# overpull. (Buoyed weight equals 181k lbs.)

Cement volumes are based on 9-5/8" casing set in 12-1/4 " hole with 10% excess to circulate cement back to surface.

Pre-flush (Spacer): **20 bbls** Chem wash

Lead Slurry: **520 sks** (268 bbls), 2.90 ft3/sk, 11.5 lb/gal Conventional system with 94 lb/sk cement, 4% D079 extender, 2% D053 expanding agent, 2% CaCl2 and 0.250 lb/sk D130 lost circulation control agent.

Tail Slurry: **594 sks** (123 bbls), 1.16 ft3/sk 15.8 lb/gal Conventional system with 94 lb/sk cement, 0.25% CaCl2, and 0.250 lb/sk lost circulation control agent

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, ND

INTERMEDIATE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift**
7"	0' - 11095'	32	HCP-110	BTC/LTC	6.094"	6.000***

**Special Drift 7"32# to 6.0"

Interval	Length	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) / c
0' - 5000'	5000'	7", 32#, HCP-110, BTC, 8rd	11820 / 2.10*	12460 / 1.28	897 / 2.23
5000' - 11095'	6095'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.06**	12460 / 1.30	

API Rating & Safety Factor

- a) *Assume full casing evacuation with 10 ppg fluid on backside. **Assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals.
- b) Burst pressure based on 9000 psig max press for stimulation plus 10.2 ppg fluid in casing and 9 ppg fluid on backside-to 10784' TVD.
- c) Based on string weight in 10 ppg fluid, (301k lbs buoyed weight) plus 100k lbs overpull.

Cement volumes are estimates based on 7" casing set in an 8-3/4" hole with 30% excess.

Mix and pump the following slurry

Pre-flush (Spacer): **100 bbls** Saltwater
20 bbls Tuned Spacer III

Lead Slurry: **218 sks** (101 bbls), 11.8 ppg, 2.55 cu. ft./sk Econocem Cement with .3% Fe-2 and .25 lb/sk Lost Circulation Additive

Tail Slurry: **572 sks** (167 bbls), 14.0 ppg, 1.55 cu. ft./sk Extendcem System with .2% HR-5 Retarder and .25 lb/sk Lost Circulation Additive

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, ND

PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift
4-1/2"	10282' - 20945'	13.5	P-110	GB CD BTC	3.920"	3.795"

Interval	Length	Description	Collapse	Burst	Tension
10282' - 20945'	10663	4-1/2", 13.5 lb, P-110, GB CD BTC	(psi) a 10670 / 1.98	(psi) b 12410 / 1.28	(1000 lbs) c 443 / 1.98

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10860' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10860' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 123k lbs.) plus 100k lbs overpull.

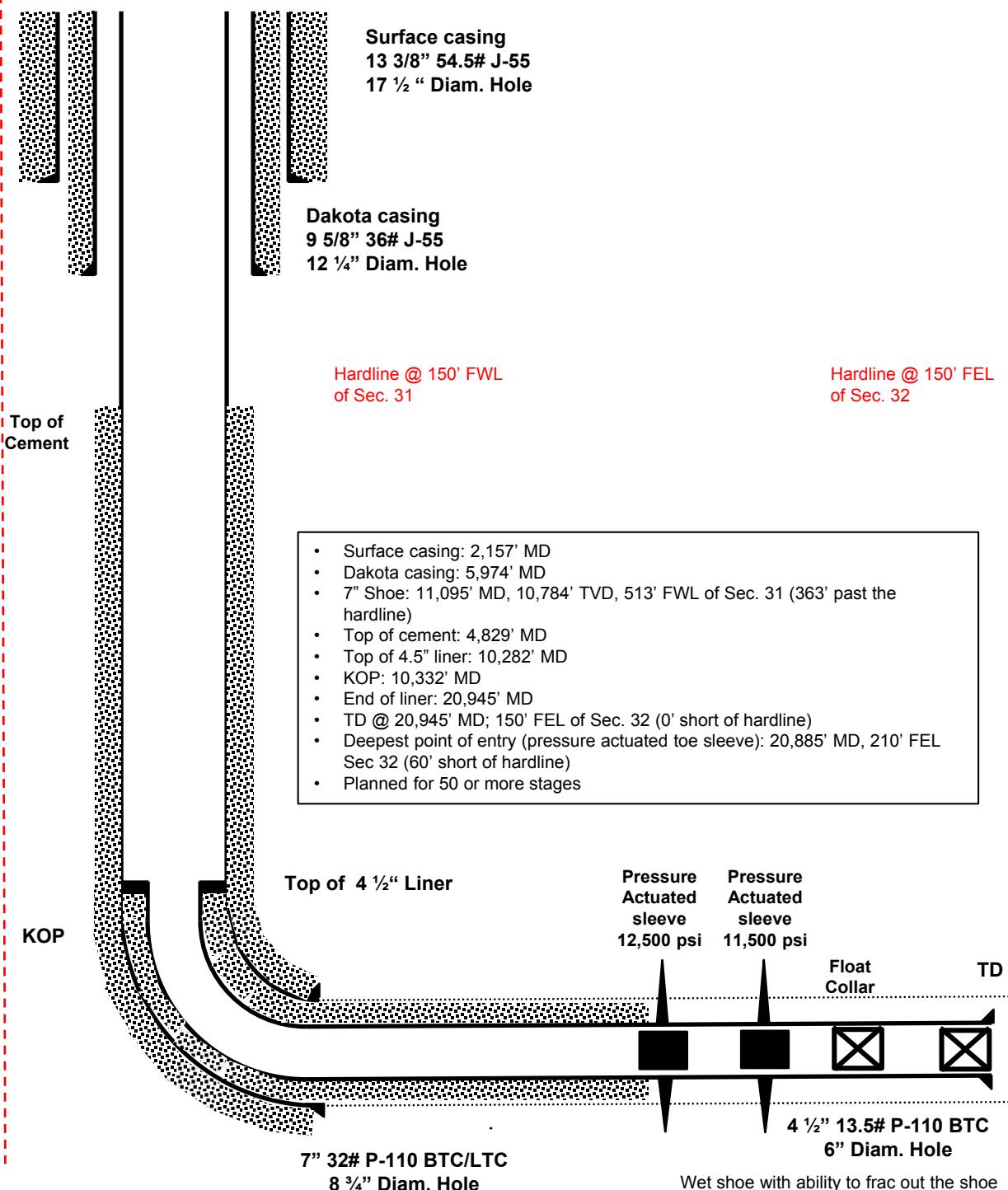
Cement volumes are estimates based on 4-1/2" casing hung from 7" casing, and into 6" OH. 20% excess.
 Mix and pump the cement slurry. Follow cement with liner dart and then saltwater displacement

Pre-flush (Spacer):	20 bbls Viscous spacer
Cement Slurry:	726 sks (197 bbls), 14.3ppg, 1.52 cu/ft/sk conventional system with 20% silica flour
Displacement	272 bbls Based on 53 ft shoe track and 4" drill pipe from surface to top of liner 4" DP: 0ft to 10282ft @ 0.011bbl/ft 4.5" casing: 10282ft to 20892ft; 0.0149bbl/ft

ELEVATION: 2,132' SL

Lewis Federal 5300 21-31 6B Proposed Wellbore Schematic

FORMATION: Bakken



OASIS PETROLEUM NA LLC

Lewis Federal 5300 21-31 6B

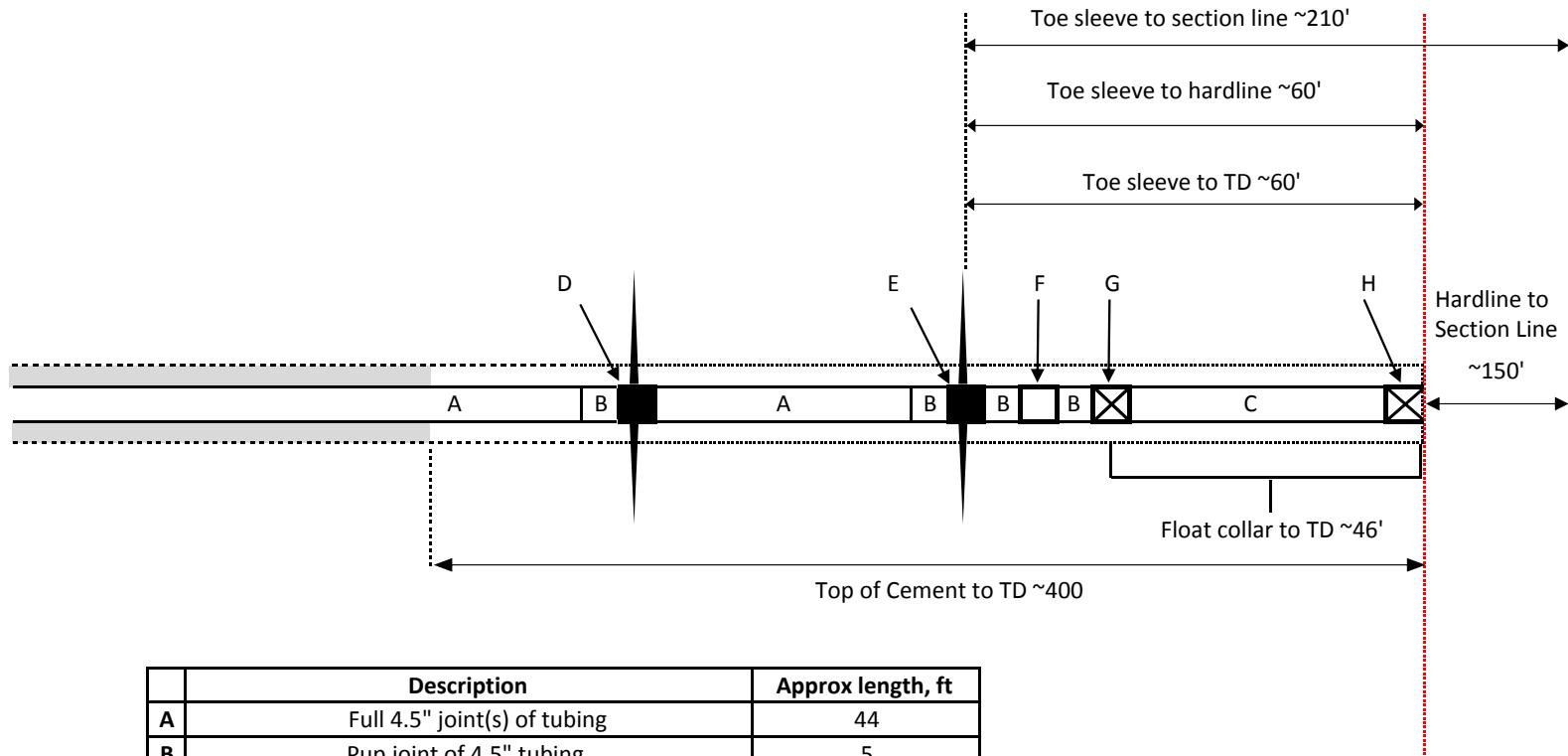
Wellbore: T153N-R100W Sec. 31 & 32

SHL: 2585' FNL & 259' FWL T153N-R100W Sec. 31

Williams County, North Dakota

Updated: 4-12-2018 TR

Lewis Federal 5300 21-31 6B planned toe completion



	Description	Approx length, ft
A	Full 4.5" joint(s) of tubing	44
B	Pup joint of 4.5" tubing	5
C	Full 4.5" joint of tubing, with NO cement	44
D	Pressure actuated sleeve, 12,500psi absolute	7
E	Pressure actuated sleeve, 11,500psi absolute	5
F	Landing collar	2
G	Float collar	2
H	Float shoe	2

*First stage to be pumped out of sleeves labeled "D" and "E." Acid used as necessary to break down formation

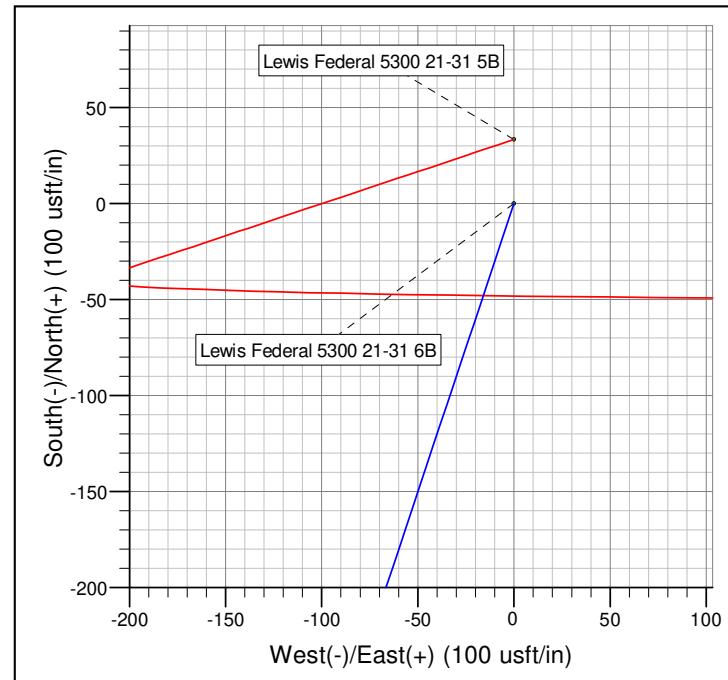
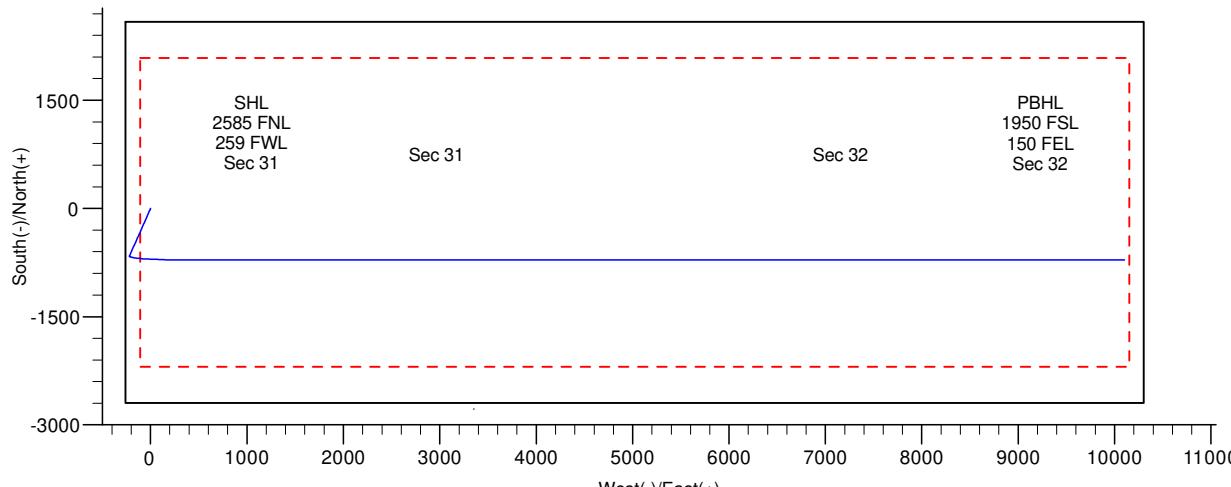
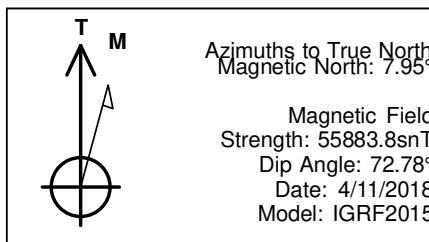
*Diagram not to scale

Project: Indian Hills
 Site: 153N-100W-31/32
 Well: Lewis Federal 5300 21-31 6B
 Wellbore: Lewis Federal 5300 21-31 6B
 Design: Design #1



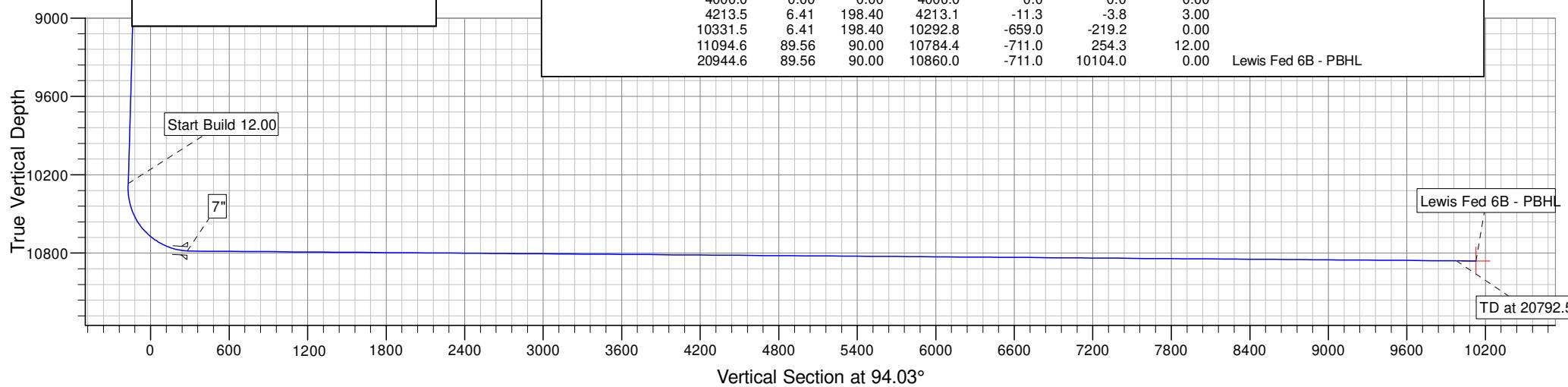
WELL DETAILS: Lewis Federal 5300 21-31 6B

Northing 391628.50	Ground Level: 2132.0	Easting 1209475.85	Latitude 48° 1' 54.150 N	Longitude 103° 36' 11.180 W
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CASING DETAILS			
TVD 2150.0 10783.6	MD 2150.0 11071.0	Name 13 3/8" 7"	Size 13.375 7.000

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	Target	
0.0	0.00	0.00	0.0	0.0	0.0	0.00		
4000.0	0.00	0.00	4000.0	0.0	0.0	0.00		
4213.5	6.41	198.40	4213.1	-11.3	-3.8	3.00		
10331.5	6.41	198.40	10292.8	-659.0	-219.2	0.00		
11094.6	89.56	90.00	10784.4	-711.0	254.3	12.00		
20944.6	89.56	90.00	10860.0	-711.0	10104.0	0.00	Lewis Fed 6B - PBHL	



Oasis

**Indian Hills
153N-100W-31/32
Lewis Federal 5300 21-31 6B**

Lewis Federal 5300 21-31 6B

Plan: Design #1

Standard Planning Report

16 April, 2018

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2157.0usft
Project:	Indian Hills	MD Reference:	WELL @ 2157.0usft
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal 5300 21-31 6B		
Design:	Design #1		

Project	Indian Hills
Map System:	US State Plane 1983
Geo Datum:	North American Datum 1983
Map Zone:	North Dakota Northern Zone

Site	153N-100W-31/32
Site Position:	Northing: 390,397.86 usft
From: Lat/Long	Easting: 1,209,464.32 usft
Position Uncertainty:	Slot Radius: 13.200 in

Well	Lewis Federal 5300 21-31 6B, DEV
Well Position	+N/S 1,230.1 usft Northing: 391,628.50 usft Latitude: 48° 1' 42.010 N +E/W -38.1 usft Easting: 1,209,475.85 usft Longitude: 103° 36' 10.620 W
Position Uncertainty	2.0 usft Wellhead Elevation: Grid Convergence: -2.31 °

Wellbore	Lewis Federal 5300 21-31 6B
Magnetics	Model Name Sample Date Declination Dip Angle Field Strength IGRF2015 4/11/2018 (°) (°) (nT)

Design	Design #1
Audit Notes:	
Version: Phase: PROTOTYPE Tie On Depth: 0.0	
Vertical Section: Depth From (TVD) +N/S +E/W Direction (usft) (usft) (usft) (°)	
0.0 0.0 0.0 94.03	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
4,213.5	6.41	198.40	4,213.1	-11.3	-3.8	3.00	3.00	0.00	198.40	
10,331.5	6.41	198.40	10,292.8	-659.0	-219.2	0.00	0.00	0.00	0.00	
11,094.6	89.56	90.00	10,784.4	-711.0	254.3	12.00	10.90	-14.20	-108.34	
20,944.6	89.56	90.00	10,860.0	-711.0	10,104.0	0.00	0.00	0.00	0.00	Lewis Fed 6B - PBHL

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2157.0usft
Project:	Indian Hills	MD Reference:	WELL @ 2157.0usft
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal 5300 21-31 6B		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	3.00	198.40	4,100.0	-2.5	-0.8	-0.6	3.00	3.00	0.00
4,200.0	6.00	198.40	4,199.6	-9.9	-3.3	-2.6	3.00	3.00	0.00
4,213.5	6.41	198.40	4,213.1	-11.3	-3.8	-3.0	3.00	3.00	0.00
4,300.0	6.41	198.40	4,299.0	-20.5	-6.8	-5.4	0.00	0.00	0.00
4,400.0	6.41	198.40	4,398.4	-31.1	-10.3	-8.1	0.00	0.00	0.00
4,500.0	6.41	198.40	4,497.8	-41.6	-13.9	-10.9	0.00	0.00	0.00
4,600.0	6.41	198.40	4,597.1	-52.2	-17.4	-13.7	0.00	0.00	0.00
4,700.0	6.41	198.40	4,696.5	-62.8	-20.9	-16.4	0.00	0.00	0.00
4,800.0	6.41	198.40	4,795.9	-73.4	-24.4	-19.2	0.00	0.00	0.00
4,900.0	6.41	198.40	4,895.3	-84.0	-27.9	-22.0	0.00	0.00	0.00
5,000.0	6.41	198.40	4,994.6	-94.6	-31.5	-24.7	0.00	0.00	0.00
5,100.0	6.41	198.40	5,094.0	-105.2	-35.0	-27.5	0.00	0.00	0.00
5,200.0	6.41	198.40	5,193.4	-115.8	-38.5	-30.3	0.00	0.00	0.00
5,300.0	6.41	198.40	5,292.8	-126.3	-42.0	-33.1	0.00	0.00	0.00
5,400.0	6.41	198.40	5,392.1	-136.9	-45.6	-35.8	0.00	0.00	0.00
5,500.0	6.41	198.40	5,491.5	-147.5	-49.1	-38.6	0.00	0.00	0.00
5,600.0	6.41	198.40	5,590.9	-158.1	-52.6	-41.4	0.00	0.00	0.00
5,700.0	6.41	198.40	5,690.3	-168.7	-56.1	-44.1	0.00	0.00	0.00
5,800.0	6.41	198.40	5,789.6	-179.3	-59.6	-46.9	0.00	0.00	0.00
5,900.0	6.41	198.40	5,889.0	-189.9	-63.2	-49.7	0.00	0.00	0.00
6,000.0	6.41	198.40	5,988.4	-200.5	-66.7	-52.4	0.00	0.00	0.00
6,100.0	6.41	198.40	6,087.8	-211.0	-70.2	-55.2	0.00	0.00	0.00
6,200.0	6.41	198.40	6,187.2	-221.6	-73.7	-58.0	0.00	0.00	0.00
6,300.0	6.41	198.40	6,286.5	-232.2	-77.2	-60.8	0.00	0.00	0.00
6,400.0	6.41	198.40	6,385.9	-242.8	-80.8	-63.5	0.00	0.00	0.00
6,500.0	6.41	198.40	6,485.3	-253.4	-84.3	-66.3	0.00	0.00	0.00
6,600.0	6.41	198.40	6,584.7	-264.0	-87.8	-69.1	0.00	0.00	0.00
6,700.0	6.41	198.40	6,684.0	-274.6	-91.3	-71.8	0.00	0.00	0.00
6,800.0	6.41	198.40	6,783.4	-285.2	-94.9	-74.6	0.00	0.00	0.00
6,900.0	6.41	198.40	6,882.8	-295.7	-98.4	-77.4	0.00	0.00	0.00
7,000.0	6.41	198.40	6,982.2	-306.3	-101.9	-80.1	0.00	0.00	0.00
7,100.0	6.41	198.40	7,081.5	-316.9	-105.4	-82.9	0.00	0.00	0.00
7,200.0	6.41	198.40	7,180.9	-327.5	-108.9	-85.7	0.00	0.00	0.00
7,300.0	6.41	198.40	7,280.3	-338.1	-112.5	-88.5	0.00	0.00	0.00
7,400.0	6.41	198.40	7,379.7	-348.7	-116.0	-91.2	0.00	0.00	0.00
7,500.0	6.41	198.40	7,479.0	-359.3	-119.5	-94.0	0.00	0.00	0.00
7,600.0	6.41	198.40	7,578.4	-369.8	-123.0	-96.8	0.00	0.00	0.00
7,700.0	6.41	198.40	7,677.8	-380.4	-126.6	-99.5	0.00	0.00	0.00
7,800.0	6.41	198.40	7,777.2	-391.0	-130.1	-102.3	0.00	0.00	0.00
7,900.0	6.41	198.40	7,876.5	-401.6	-133.6	-105.1	0.00	0.00	0.00
7,929.6	6.41	198.40	7,906.0	-404.7	-134.6	-105.9	0.00	0.00	0.00
Start Drop -5.00									
7,939.6	6.41	198.40	7,915.9	-405.8	-135.0	-106.2	0.00	0.00	0.00
Start 2060.6 hold at 7939.7 MD									
8,000.0	6.41	198.40	7,975.9	-412.2	-137.1	-107.8	0.00	0.00	0.00
8,100.0	6.41	198.40	8,075.3	-422.8	-140.6	-110.6	0.00	0.00	0.00
8,200.0	6.41	198.40	8,174.7	-433.4	-144.2	-113.4	0.00	0.00	0.00
8,300.0	6.41	198.40	8,274.0	-444.0	-147.7	-116.2	0.00	0.00	0.00
8,400.0	6.41	198.40	8,373.4	-454.5	-151.2	-118.9	0.00	0.00	0.00
8,500.0	6.41	198.40	8,472.8	-465.1	-154.7	-121.7	0.00	0.00	0.00
8,600.0	6.41	198.40	8,572.2	-475.7	-158.3	-124.5	0.00	0.00	0.00
8,700.0	6.41	198.40	8,671.5	-486.3	-161.8	-127.2	0.00	0.00	0.00
8,800.0	6.41	198.40	8,770.9	-496.9	-165.3	-130.0	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2157.0usft
Project:	Indian Hills	MD Reference:	WELL @ 2157.0usft
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal 5300 21-31 6B		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,900.0	6.41	198.40	8,870.3	-507.5	-168.8	-132.8	0.00	0.00	0.00
9,000.0	6.41	198.40	8,969.7	-518.1	-172.3	-135.5	0.00	0.00	0.00
9,100.0	6.41	198.40	9,069.0	-528.7	-175.9	-138.3	0.00	0.00	0.00
9,200.0	6.41	198.40	9,168.4	-539.2	-179.4	-141.1	0.00	0.00	0.00
9,300.0	6.41	198.40	9,267.8	-549.8	-182.9	-143.9	0.00	0.00	0.00
9,400.0	6.41	198.40	9,367.2	-560.4	-186.4	-146.6	0.00	0.00	0.00
9,500.0	6.41	198.40	9,466.5	-571.0	-189.9	-149.4	0.00	0.00	0.00
9,600.0	6.41	198.40	9,565.9	-581.6	-193.5	-152.2	0.00	0.00	0.00
9,700.0	6.41	198.40	9,665.3	-592.2	-197.0	-154.9	0.00	0.00	0.00
9,800.0	6.41	198.40	9,764.7	-602.8	-200.5	-157.7	0.00	0.00	0.00
9,900.0	6.41	198.40	9,864.0	-613.4	-204.0	-160.5	0.00	0.00	0.00
10,000.0	6.41	198.40	9,963.4	-623.9	-207.6	-163.2	0.00	0.00	0.00
10,000.2	6.41	198.40	9,963.6	-624.0	-207.6	-163.3	0.00	0.00	0.00
Start 306.4 hold at 10000.2 MD									
10,100.0	6.41	198.40	10,062.8	-634.5	-211.1	-166.0	0.00	0.00	0.00
10,200.0	6.41	198.40	10,162.2	-645.1	-214.6	-168.8	0.00	0.00	0.00
10,300.0	6.41	198.40	10,261.6	-655.7	-218.1	-171.6	0.00	0.00	0.00
10,306.6	6.41	198.40	10,268.1	-656.4	-218.4	-171.7	0.00	0.00	0.00
Start Build 12.00									
10,331.5	6.41	198.40	10,292.8	-659.0	-219.2	-172.4	0.00	0.00	0.00
10,400.0	8.67	134.23	10,360.9	-666.3	-216.7	-169.4	12.00	3.31	-93.65
10,500.0	19.16	107.81	10,457.9	-676.6	-195.6	-147.7	12.00	10.48	-26.42
10,600.0	30.75	100.27	10,548.4	-686.2	-154.7	-106.2	12.00	11.59	-7.54
10,700.0	42.55	96.62	10,628.5	-694.7	-95.7	-46.7	12.00	11.81	-3.65
10,800.0	54.43	94.32	10,694.7	-701.7	-21.3	28.0	12.00	11.88	-2.29
10,900.0	66.34	92.63	10,744.0	-706.9	65.3	114.7	12.00	11.91	-1.69
11,000.0	78.27	91.22	10,774.3	-710.0	160.3	209.8	12.00	11.93	-1.41
11,052.0	84.47	90.54	10,782.1	-710.8	211.7	261.1	12.00	11.93	-1.30
Start 19.6 hold at 11052.0 MD									
11,071.0	86.74	90.30	10,783.6	-710.9	230.6	280.0	12.00	11.93	-1.28
7"									
11,071.6	86.81	90.29	10,783.6	-710.9	231.2	280.6	12.00	11.93	-1.27
Start DLS 3.00 TFO 90.10									
11,094.6	89.56	90.00	10,784.4	-711.0	254.3	303.6	12.00	11.93	-1.27
11,100.0	89.56	90.00	10,784.4	-711.0	259.6	308.9	0.00	0.00	0.00
11,200.0	89.56	90.00	10,785.2	-711.0	359.6	408.7	0.00	0.00	0.00
11,300.0	89.56	90.00	10,785.9	-711.0	459.6	508.4	0.00	0.00	0.00
11,400.0	89.56	90.00	10,786.7	-711.0	559.6	608.2	0.00	0.00	0.00
11,500.0	89.56	90.00	10,787.5	-711.0	659.6	707.9	0.00	0.00	0.00
11,600.0	89.56	90.00	10,788.2	-711.0	759.6	807.7	0.00	0.00	0.00
11,700.0	89.56	90.00	10,789.0	-711.0	859.6	907.4	0.00	0.00	0.00
11,800.0	89.56	90.00	10,789.8	-711.0	959.6	1,007.2	0.00	0.00	0.00
11,900.0	89.56	90.00	10,790.5	-711.0	1,059.6	1,106.9	0.00	0.00	0.00
12,000.0	89.56	90.00	10,791.3	-711.0	1,159.6	1,206.7	0.00	0.00	0.00
12,100.0	89.56	90.00	10,792.1	-711.0	1,259.6	1,306.4	0.00	0.00	0.00
12,173.8	89.56	90.00	10,792.6	-711.0	1,333.4	1,380.0	0.00	0.00	0.00
Start 8618.7 hold at 12173.8 MD									
12,200.0	89.56	90.00	10,792.8	-711.0	1,359.6	1,406.2	0.00	0.00	0.00
12,300.0	89.56	90.00	10,793.6	-711.0	1,459.6	1,505.9	0.00	0.00	0.00
12,400.0	89.56	90.00	10,794.4	-711.0	1,559.6	1,605.7	0.00	0.00	0.00
12,500.0	89.56	90.00	10,795.2	-711.0	1,659.6	1,705.4	0.00	0.00	0.00
12,600.0	89.56	90.00	10,795.9	-711.0	1,759.6	1,805.2	0.00	0.00	0.00
12,700.0	89.56	90.00	10,796.7	-711.0	1,859.6	1,904.9	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2157.0usft
Project:	Indian Hills	MD Reference:	WELL @ 2157.0usft
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal 5300 21-31 6B		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,800.0	89.56	90.00	10,797.5	-711.0	1,959.6	2,004.7	0.00	0.00	0.00
12,900.0	89.56	90.00	10,798.2	-711.0	2,059.6	2,104.4	0.00	0.00	0.00
13,000.0	89.56	90.00	10,799.0	-711.0	2,159.6	2,204.2	0.00	0.00	0.00
13,100.0	89.56	90.00	10,799.8	-711.0	2,259.6	2,303.9	0.00	0.00	0.00
13,200.0	89.56	90.00	10,800.5	-711.0	2,359.6	2,403.7	0.00	0.00	0.00
13,300.0	89.56	90.00	10,801.3	-711.0	2,459.6	2,503.4	0.00	0.00	0.00
13,400.0	89.56	90.00	10,802.1	-711.0	2,559.6	2,603.2	0.00	0.00	0.00
13,500.0	89.56	90.00	10,802.8	-711.0	2,659.6	2,702.9	0.00	0.00	0.00
13,600.0	89.56	90.00	10,803.6	-711.0	2,759.6	2,802.7	0.00	0.00	0.00
13,700.0	89.56	90.00	10,804.4	-711.0	2,859.6	2,902.4	0.00	0.00	0.00
13,800.0	89.56	90.00	10,805.1	-711.0	2,959.6	3,002.2	0.00	0.00	0.00
13,900.0	89.56	90.00	10,805.9	-711.0	3,059.6	3,101.9	0.00	0.00	0.00
14,000.0	89.56	90.00	10,806.7	-711.0	3,159.6	3,201.7	0.00	0.00	0.00
14,100.0	89.56	90.00	10,807.4	-711.0	3,259.6	3,301.4	0.00	0.00	0.00
14,200.0	89.56	90.00	10,808.2	-711.0	3,359.5	3,401.2	0.00	0.00	0.00
14,300.0	89.56	90.00	10,809.0	-711.0	3,459.5	3,500.9	0.00	0.00	0.00
14,400.0	89.56	90.00	10,809.7	-711.0	3,559.5	3,600.7	0.00	0.00	0.00
14,500.0	89.56	90.00	10,810.5	-711.0	3,659.5	3,700.4	0.00	0.00	0.00
14,600.0	89.56	90.00	10,811.3	-711.0	3,759.5	3,800.2	0.00	0.00	0.00
14,700.0	89.56	90.00	10,812.0	-711.0	3,859.5	3,899.9	0.00	0.00	0.00
14,800.0	89.56	90.00	10,812.8	-711.0	3,959.5	3,999.7	0.00	0.00	0.00
14,900.0	89.56	90.00	10,813.6	-711.0	4,059.5	4,099.4	0.00	0.00	0.00
15,000.0	89.56	90.00	10,814.3	-711.0	4,159.5	4,199.2	0.00	0.00	0.00
15,100.0	89.56	90.00	10,815.1	-711.0	4,259.5	4,298.9	0.00	0.00	0.00
15,200.0	89.56	90.00	10,815.9	-711.0	4,359.5	4,398.7	0.00	0.00	0.00
15,300.0	89.56	90.00	10,816.7	-711.0	4,459.5	4,498.4	0.00	0.00	0.00
15,400.0	89.56	90.00	10,817.4	-711.0	4,559.5	4,598.2	0.00	0.00	0.00
15,500.0	89.56	90.00	10,818.2	-711.0	4,659.5	4,697.9	0.00	0.00	0.00
15,600.0	89.56	90.00	10,819.0	-711.0	4,759.5	4,797.7	0.00	0.00	0.00
15,700.0	89.56	90.00	10,819.7	-711.0	4,859.5	4,897.4	0.00	0.00	0.00
15,800.0	89.56	90.00	10,820.5	-711.0	4,959.5	4,997.2	0.00	0.00	0.00
15,900.0	89.56	90.00	10,821.3	-711.0	5,059.5	5,096.9	0.00	0.00	0.00
16,000.0	89.56	90.00	10,822.0	-711.0	5,159.5	5,196.7	0.00	0.00	0.00
16,100.0	89.56	90.00	10,822.8	-711.0	5,259.5	5,296.4	0.00	0.00	0.00
16,200.0	89.56	90.00	10,823.6	-711.0	5,359.5	5,396.2	0.00	0.00	0.00
16,300.0	89.56	90.00	10,824.3	-711.0	5,459.5	5,495.9	0.00	0.00	0.00
16,400.0	89.56	90.00	10,825.1	-711.0	5,559.5	5,595.7	0.00	0.00	0.00
16,500.0	89.56	90.00	10,825.9	-711.0	5,659.5	5,695.4	0.00	0.00	0.00
16,600.0	89.56	90.00	10,826.6	-711.0	5,759.5	5,795.2	0.00	0.00	0.00
16,700.0	89.56	90.00	10,827.4	-711.0	5,859.5	5,894.9	0.00	0.00	0.00
16,800.0	89.56	90.00	10,828.2	-711.0	5,959.5	5,994.7	0.00	0.00	0.00
16,900.0	89.56	90.00	10,828.9	-711.0	6,059.5	6,094.4	0.00	0.00	0.00
17,000.0	89.56	90.00	10,829.7	-711.0	6,159.5	6,194.2	0.00	0.00	0.00
17,100.0	89.56	90.00	10,830.5	-711.0	6,259.5	6,293.9	0.00	0.00	0.00
17,200.0	89.56	90.00	10,831.2	-711.0	6,359.5	6,393.7	0.00	0.00	0.00
17,300.0	89.56	90.00	10,832.0	-711.0	6,459.5	6,493.4	0.00	0.00	0.00
17,400.0	89.56	90.00	10,832.8	-711.0	6,559.5	6,593.2	0.00	0.00	0.00
17,500.0	89.56	90.00	10,833.5	-711.0	6,659.5	6,692.9	0.00	0.00	0.00
17,600.0	89.56	90.00	10,834.3	-711.0	6,759.4	6,792.7	0.00	0.00	0.00
17,700.0	89.56	90.00	10,835.1	-711.0	6,859.4	6,892.4	0.00	0.00	0.00
17,800.0	89.56	90.00	10,835.9	-711.0	6,959.4	6,992.2	0.00	0.00	0.00
17,900.0	89.56	90.00	10,836.6	-711.0	7,059.4	7,091.9	0.00	0.00	0.00
18,000.0	89.56	90.00	10,837.4	-711.0	7,159.4	7,191.7	0.00	0.00	0.00
18,100.0	89.56	90.00	10,838.2	-711.0	7,259.4	7,291.4	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2157.0usft
Project:	Indian Hills	MD Reference:	WELL @ 2157.0usft
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal 5300 21-31 6B		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
18,200.0	89.56	90.00	10,838.9	-711.0	7,359.4	7,391.2	0.00	0.00	0.00
18,300.0	89.56	90.00	10,839.7	-711.0	7,459.4	7,490.9	0.00	0.00	0.00
18,400.0	89.56	90.00	10,840.5	-711.0	7,559.4	7,590.7	0.00	0.00	0.00
18,500.0	89.56	90.00	10,841.2	-711.0	7,659.4	7,690.4	0.00	0.00	0.00
18,600.0	89.56	90.00	10,842.0	-711.0	7,759.4	7,790.2	0.00	0.00	0.00
18,700.0	89.56	90.00	10,842.8	-711.0	7,859.4	7,889.9	0.00	0.00	0.00
18,800.0	89.56	90.00	10,843.5	-711.0	7,959.4	7,989.7	0.00	0.00	0.00
18,900.0	89.56	90.00	10,844.3	-711.0	8,059.4	8,089.4	0.00	0.00	0.00
19,000.0	89.56	90.00	10,845.1	-711.0	8,159.4	8,189.2	0.00	0.00	0.00
19,100.0	89.56	90.00	10,845.8	-711.0	8,259.4	8,288.9	0.00	0.00	0.00
19,200.0	89.56	90.00	10,846.6	-711.0	8,359.4	8,388.7	0.00	0.00	0.00
19,300.0	89.56	90.00	10,847.4	-711.0	8,459.4	8,488.4	0.00	0.00	0.00
19,400.0	89.56	90.00	10,848.1	-711.0	8,559.4	8,588.2	0.00	0.00	0.00
19,500.0	89.56	90.00	10,848.9	-711.0	8,659.4	8,687.9	0.00	0.00	0.00
19,600.0	89.56	90.00	10,849.7	-711.0	8,759.4	8,787.7	0.00	0.00	0.00
19,700.0	89.56	90.00	10,850.4	-711.0	8,859.4	8,887.4	0.00	0.00	0.00
19,800.0	89.56	90.00	10,851.2	-711.0	8,959.4	8,987.2	0.00	0.00	0.00
19,900.0	89.56	90.00	10,852.0	-711.0	9,059.4	9,086.9	0.00	0.00	0.00
20,000.0	89.56	90.00	10,852.7	-711.0	9,159.4	9,186.7	0.00	0.00	0.00
20,100.0	89.56	90.00	10,853.5	-711.0	9,259.4	9,286.4	0.00	0.00	0.00
20,200.0	89.56	90.00	10,854.3	-711.0	9,359.4	9,386.2	0.00	0.00	0.00
20,300.0	89.56	90.00	10,855.0	-711.0	9,459.4	9,485.9	0.00	0.00	0.00
20,400.0	89.56	90.00	10,855.8	-711.0	9,559.4	9,585.7	0.00	0.00	0.00
20,500.0	89.56	90.00	10,856.6	-711.0	9,659.4	9,685.4	0.00	0.00	0.00
20,600.0	89.56	90.00	10,857.4	-711.0	9,759.4	9,785.2	0.00	0.00	0.00
20,700.0	89.56	90.00	10,858.1	-711.0	9,859.4	9,884.9	0.00	0.00	0.00
20,792.4	89.56	90.00	10,858.8	-711.0	9,951.8	9,977.1	0.00	0.00	0.00
TD at 20792.5									
20,800.0	89.56	90.00	10,858.9	-711.0	9,959.4	9,984.7	0.00	0.00	0.00
20,900.0	89.56	90.00	10,859.7	-711.0	10,059.4	10,084.4	0.00	0.00	0.00
20,944.6	89.56	90.00	10,860.0	-711.0	10,104.0	10,129.0	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/S (usft)	+E/W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Lewis Fed 6B - PBHL - plan hits target center - Point	0.00	0.00	10,860.0	-711.0	10,104.0	390,510.97	1,219,543.00	48° 1' 47.106 N	103° 33' 42.517 W

Casing Points									
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)					
2,150.0	2,150.0 13 3/8"			13.375					
11,071.0	10,783.6 7"			7.000					

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2157.0usft
Project:	Indian Hills	MD Reference:	WELL @ 2157.0usft
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal 5300 21-31 6B		
Design:	Design #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,008.0	2,008.0	Pierre			
4,610.9	4,608.0	Greenhorn			
5,026.5	5,021.0	Mowry			
5,416.9	5,409.0	Dakota			
6,385.0	6,371.0	Rierdon			
6,918.3	6,901.0	Dunham Salt			
6,988.8	6,971.0	Dunham Salt Base			
7,292.7	7,273.0	Pine Salt			
7,358.1	7,338.0	Pine Salt Base			
7,424.5	7,404.0	Opeche Salt			
7,516.1	7,495.0	Opeche Salt Base			
7,739.4	7,717.0	Amsden			
7,888.4	7,865.0	Tyler			
8,113.8	8,089.0	Otter/Base Minnelusa			
8,458.9	8,432.0	Kibbey Lime			
8,612.9	8,585.0	Charles Salt			
9,286.1	9,254.0	Base Last Salt			
9,503.5	9,470.0	Mission Canyon			
10,047.9	10,011.0	Lodgepole			
10,890.2	10,740.0	False Bakken			
10,920.9	10,752.0	Upper Bakken Shale			
11,026.3	10,779.0	Middle Bakken (Top of Target)			

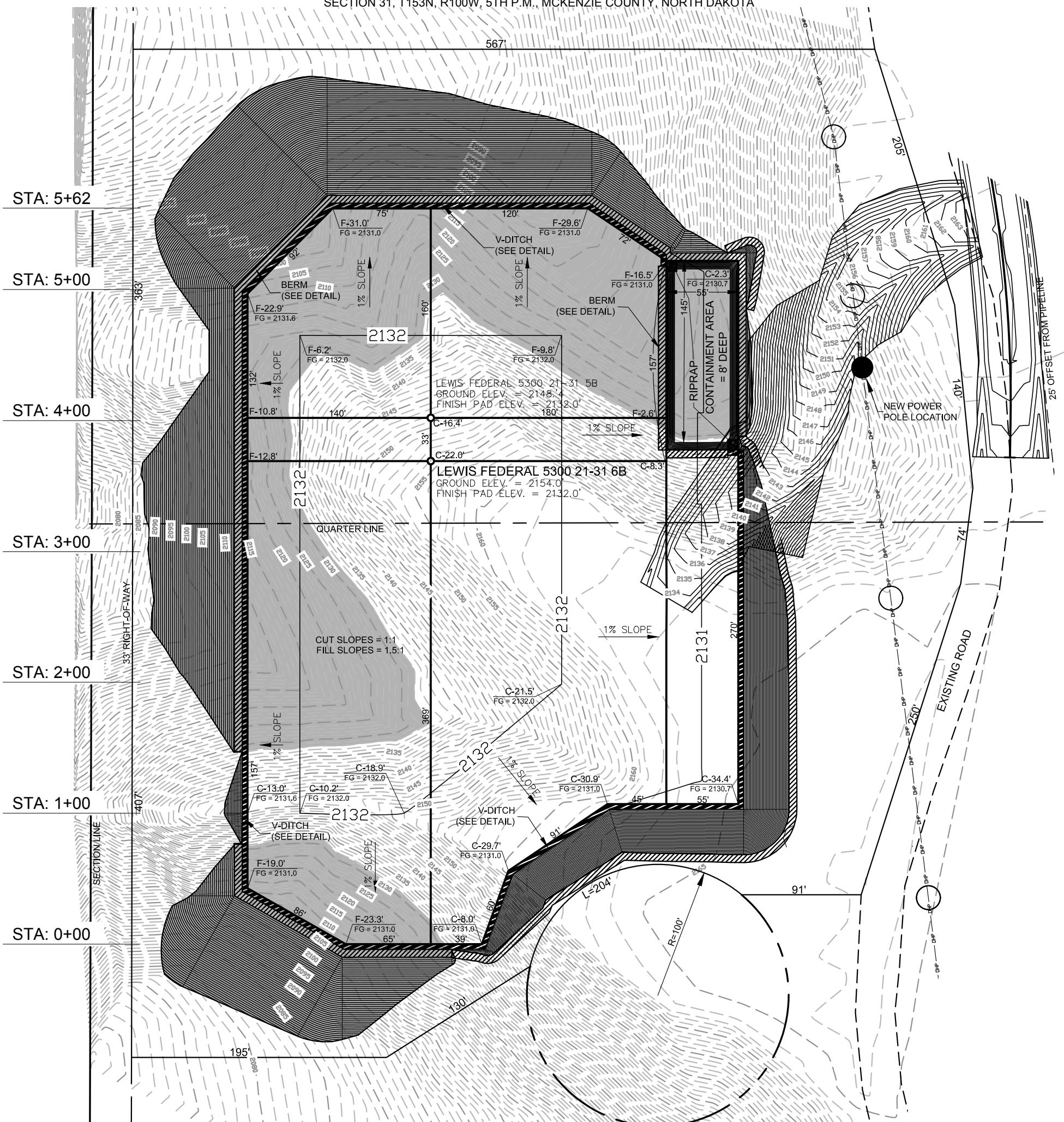
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/S (usft)	+E/W (usft)		
2,200.0	2,200.0	0.0	0.0	Start Build 5.00	
2,210.0	2,210.0	0.0	0.0	Start 5719.7 hold at 2210.0 MD	
7,929.6	7,906.0	-404.7	-134.6	Start Drop -5.00	
7,939.6	7,915.9	-405.8	-135.0	Start 2060.6 hold at 7939.7 MD	
10,000.2	9,963.6	-624.0	-207.6	Start 306.4 hold at 10000.2 MD	
10,306.6	10,268.1	-656.4	-218.4	Start Build 12.00	
11,052.0	10,782.1	-710.8	211.7	Start 19.6 hold at 11052.0 MD	
11,071.6	10,783.6	-710.9	231.2	Start DLS 3.00 TFO 90.10	
12,173.8	10,792.6	-711.0	1,333.4	Start 8618.7 hold at 12173.8 MD	
20,792.4	10,858.8	-711.0	9,951.8	TD at 20792.5	

PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
LEWIS FEDERAL 5300 21-31 6B

LEWIS FEDERAL 338-2151-3B
2585 FEET FROM NORTH LINE AND 259 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

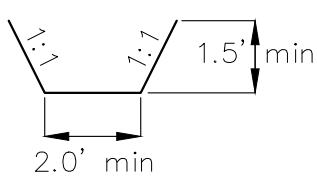


NOTE: Pad dimensions shown are to usable area, the v-ditch and berm areas shall be built to the outside of the pad dimensions.

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 ON 3-27-18 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.



V-DITCH DETAIL



– BERM ————— Proposed Contours
 – DITCH - - - - - Original Contours

NOTE: All utilities shown are preliminary only, a complete utilities location is recommended before construction.

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3/9



Professionals you need, people you trust

Interstate Engineering, Inc.
P.O. Box 646
425 East Main Street
Sidney, Montana 59270
Ph (406) 433-5617
Fax (406) 433-5618
www.interstateeng.com
offices in Minnesota, North Dakota and South Dakota

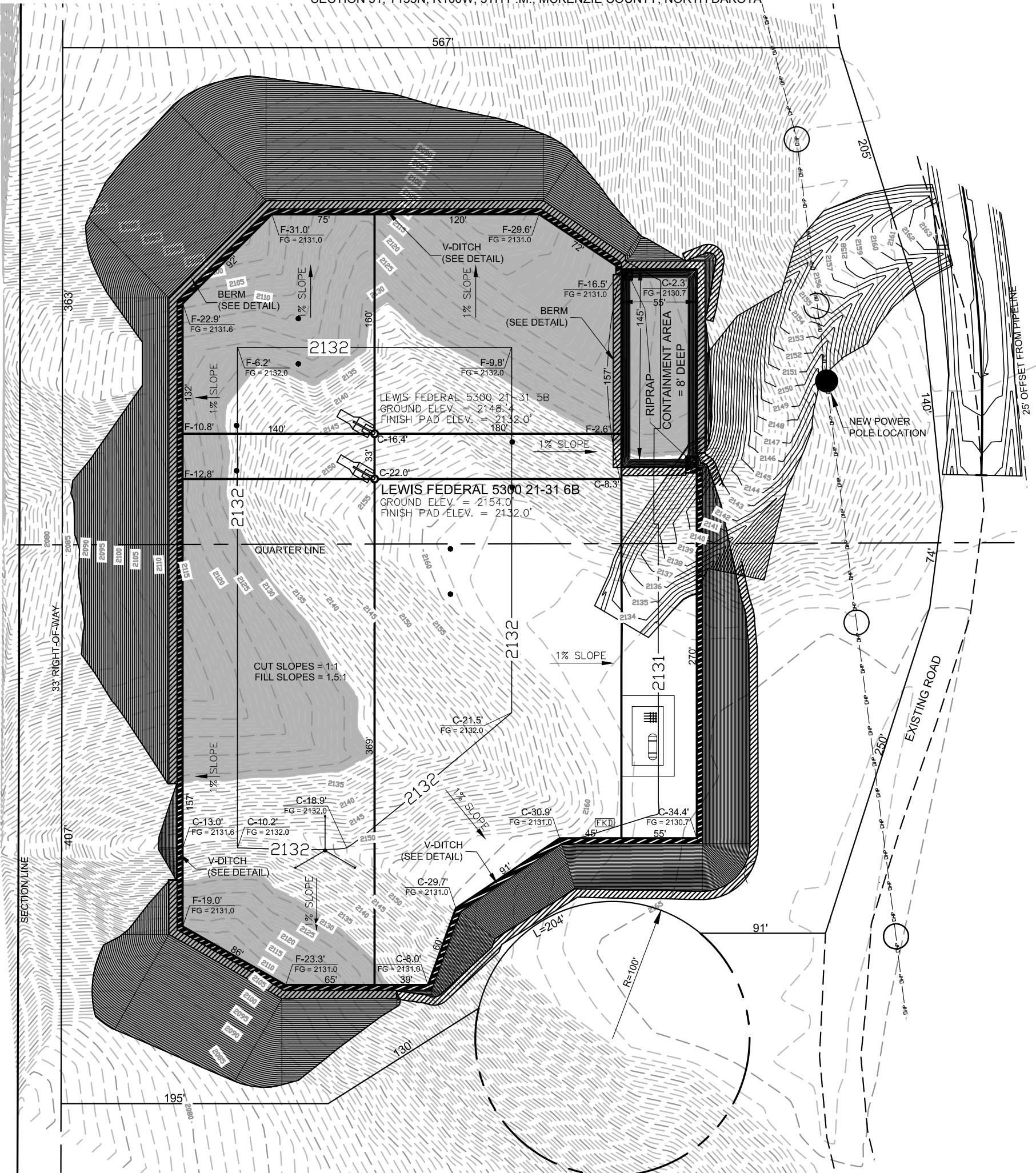
OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 31, T153N, R100W, 5TH P.M..

Drawn By: J.J.S. Project No.: S17-09-184
Checked By: D.D.K. Date: MARCH 2018

PRODUCTION LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
LEWIS FEDERAL 5300 21-31 6B

LEWIS FEDERAL 338 27-31-3B
2585 FEET FROM NORTH LINE AND 259 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

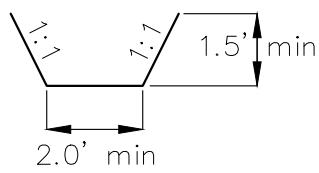


NOTE: Pad dimensions shown are to usable area, the v-ditch and berm areas shall be built to the outside of the pad dimensions.

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 ON 3-27-18 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.



V-DITCH DETAIL



Proposed Contours

NOTE: All utilities shown are preliminary only, a complete utility location is recommended before construction.

4/9



Professionals you need, people you trust

Interstate Engineering, Inc.
P.O. Box 648
425 East Main Street
Sidney, Montana 59270
Ph (406) 433-5617
Fax (406) 433-5618
www.intersteeeng.com
offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
PRODUCTION LAYOUT
SECTION 31, T153N, R100W, 5TH P.M..

Drawn By: J.J.S.
Checked By: D.D.K.

Project No.: S17-09-184
Date: MARCH 2018

Revision No.	Date	By	Description

S:\LEMS\1-1000\1-1000-0000\1-1000-0000.dwg - 3/27/2018
5300 21-31 6-Well Pad to New Standards\CADD\LEMS 6B\LEMS 6B.dwg - 3/27/2018
6:05 PM beth.schmiller



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2006)

Received

Well File No.
28190

APR 24 2018

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date April 23, 2018
<input type="checkbox"/> Report of Work Done	Date Work Completed
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	
Approximate Start Date	

ND Oil & Gas Division	
<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
<input checked="" type="checkbox"/> Other	APD Renewal

Well Name and Number Lewis Federal 5300 21-31 6B						
Footages 2623 2585	F N L	251	Qtr-Qtr LOT2	Section 31	Township 153 N	Range 100 W
Field Baker	Pool Bakken			County McKenzie		

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

Name of Contractor(s)			
Address	City	State	Zip Code

DETAILS OF WORK

Oasis Petroleum requests a permit renewal for above referenced well. Changes to this wellbore have been submitted under separate cover.

Please use the credit card on file for the \$100.00 application processing fee.

Permit Expires 4/21/19.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9436	
Address 1001 Fannin St, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Jennifer Swenson	
Title Regulatory Specialist	Date April 23, 2018	
Email Address jswenson@oasispetroleum.com		

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 4/24/18	
By 	
Title Engineering Technician	



Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.dmr.nd.gov/oilgas/

28190

March 19, 2018

OASIS PETRO NO AMER
1001 FANNIN STE 1500
HOUSTON, TX 77002

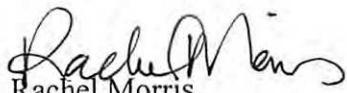
RE: LEWIS FEDERAL 5300 21-31 6B
LOT2 Sec. 31-153N-100W
MCKENZIE COUNTY
WELL FILE NO. 28190

Gentlemen:

The records and files of the Industrial Commission indicate that the above referenced permit will expire April 21, 2018.

Permits to drill are only valid for one year in the State of North Dakota. If you would like to renew for another year, please submit a Form 4 along with the \$100.00 filing fee. Alternatively, you may elect to send in a Form 4 cancelling the permit. If you have any questions, please contact Todd Holweger.

Sincerely,


Rachel Morris
Administrative Assistant



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFSN 5749 (09-2006)

Received

Well File No.
28190

APR 20 2017

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date April 21, 2017
<input type="checkbox"/> Report of Work Done	Date Work Completed
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	
Approximate Start Date	

ND Oil & Gas

DIVISION

- | | |
|---|---|
| <input type="checkbox"/> Drilling Prognosis | <input type="checkbox"/> Spill Report |
| <input type="checkbox"/> Redrilling or Repair | <input type="checkbox"/> Shooting |
| <input type="checkbox"/> Casing or Liner | <input type="checkbox"/> Acidizing |
| <input type="checkbox"/> Plug Well | <input type="checkbox"/> Fracture Treatment |
| <input type="checkbox"/> Supplemental History | <input type="checkbox"/> Change Production Method |
| <input type="checkbox"/> Temporarily Abandon | <input type="checkbox"/> Reclamation |
| <input checked="" type="checkbox"/> Other | APD Renewal |

Well Name and Number
Lewis Federal 5300 21-31 6B

Footages 2623 F N L	Qtr-Qtr 251 F W L	Section LOT2	Township 31	Range 153 N	100 W
Field Baker	Pool Bakken	County McKenzie			

24-HOUR PRODUCTION RATE

	Before		After
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)

Address

City

State

Zip Code

DETAILS OF WORK

Oasis Petroleum requests a permit renewal for above referenced well. There are no changes to the current drill plan.

Please use the credit card on file for the \$100.00 application processing fee.

See attached supporting gas capture plan.

Dmv# 50908

Permit Expires 4/21/18.

cc \$100.00 4/25/17 th

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9436	
Address 1001 Fannin St, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Jennifer Swenson	
Title Regulatory Specialist	Date April 20, 2017	
Email Address jswenson@oasispetroleum.com		

FOR STATE USE ONLY

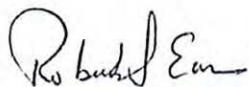
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 4/21/17	
By 	
Title Engineering Technician	

GAS CAPTURE PLAN AFFIDAVIT

STATE OF TEXAS §
 §
COUNTY OF HARRIS §

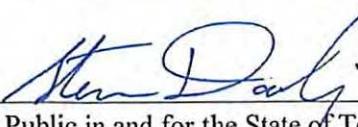
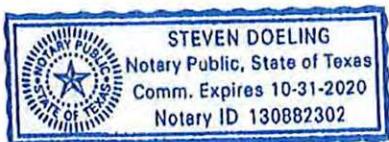
Robert Eason, being duly sworn, states as follows:

1. I am employed by Oasis Petroleum North America LLC ("Oasis") as Marketing Manager, I'm over the age of 21 and have personal knowledge of the matters set forth in this affidavit.
2. This affidavit is submitted in conjunction with the Application for Permit to Drill for the Lewis Federal 5300 21-31 6B well, with a surface location in Lot 2 of Section 31, Township 153 North, Range 100 West, McKenzie County, North Dakota (the "Well").
3. Oasis currently anticipates that gas to be produced from the Well will be gathered by Hiland Partners (the "Gathering Company"). Oasis has advised the Gathering Company of its intent to drill the Well and has advised the Gathering Company that it currently anticipates that the Well will be completed in ~ 2nd Quarter 2018, with an initial gas production rate of approximately 983 mcf/day.



Robert H. Eason
Marketing Manager

Subscribed and sworn to before me this 15th day of March, 2017.



Notary Public in and for the State of Texas
My Commission expires:

GAS CAPTURE PLAN – OASIS PETROLEUM

Lewis Federal 5300 21-31 6B

Section 31-T153N-R100W

Baker Field

McKenzie County, North Dakota

Anticipated first flow date	~Q2 2018
Gas Gatherer:	Hiland Partners (Kinder Morgan)
Gas to be processed at*:	Hiland Operated Watford City Plant
Maximum Daily Capacity of Existing Gas Line*:	92,500 MCFD
Current Throughput of Existing Gas Line*:	81,000 MCFD
Anticipated Daily Capacity of Existing Gas Line at Date of First Gas Sales*:	92,500 MCFD
Anticipated Throughput of Existing Gas Line at Date of First Gas Sales*:	72,000 MCFD
Gas Gatherer's Issues or Expansion Plans for the Area*:	There are no expansion plans at this time.

Map:	Attached
Affidavit:	Attached
*Provided by Gatherer	

Flowback Strategy																			
Total Number of Wells at Location:	7																		
Multi-Well Start-up Plan:	Initial production from the 1st new well at the CTB is anticipated ~ Q2 2018 with each following well making 1st production every 5th day thereafter																		
Estimated Flow Rate:	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Lewis Federal 5300 21-31 6B</th><th style="text-align: right; width: 20%;">MCFD</th><th style="text-align: right; width: 20%;">BOPD</th><th style="text-align: right; width: 20%;">5300 31-32 CTB</th></tr> </thead> <tbody> <tr> <td>30 Days:</td><td style="text-align: right;">705</td><td style="text-align: right;">784</td><td style="text-align: right;">2,912</td></tr> <tr> <td>50 Days:</td><td style="text-align: right;">565</td><td style="text-align: right;">628</td><td style="text-align: right;">4,195</td></tr> <tr> <td>I80 Days:</td><td style="text-align: right;">346</td><td style="text-align: right;">384</td><td style="text-align: right;">2,302</td></tr> </tbody> </table>			Lewis Federal 5300 21-31 6B	MCFD	BOPD	5300 31-32 CTB	30 Days:	705	784	2,912	50 Days:	565	628	4,195	I80 Days:	346	384	2,302
Lewis Federal 5300 21-31 6B	MCFD	BOPD	5300 31-32 CTB																
30 Days:	705	784	2,912																
50 Days:	565	628	4,195																
I80 Days:	346	384	2,302																

Oasis Flaring Percentage		
Statewide	13%	Baker Field
Oasis % of Gas Flared:	13%	17%

**Flared percentage reflects December 2016*

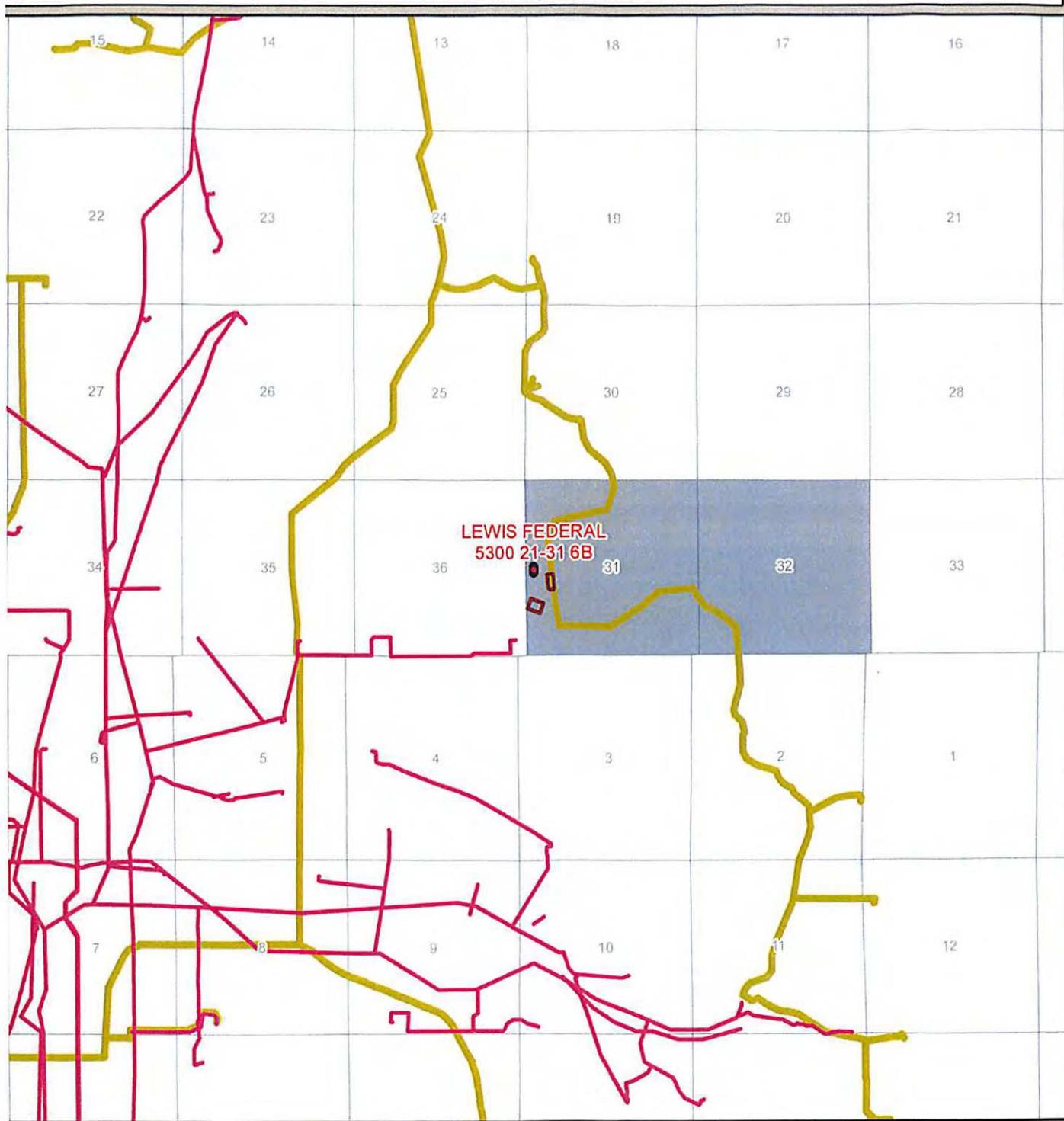
Alternatives to Flaring		
The installation of a temporary gas liquification unit recovering >50% of C3+ NGLs for an estimated reduction in flared volumes of ~30%		
Source: Oasis Marketing (281) 404-9464		

Gas Capture Plan - Detail View

LEWIS FEDERAL 5300 21-31 6B

Section 31 T153N R100W

McKenzie County, North Dakota

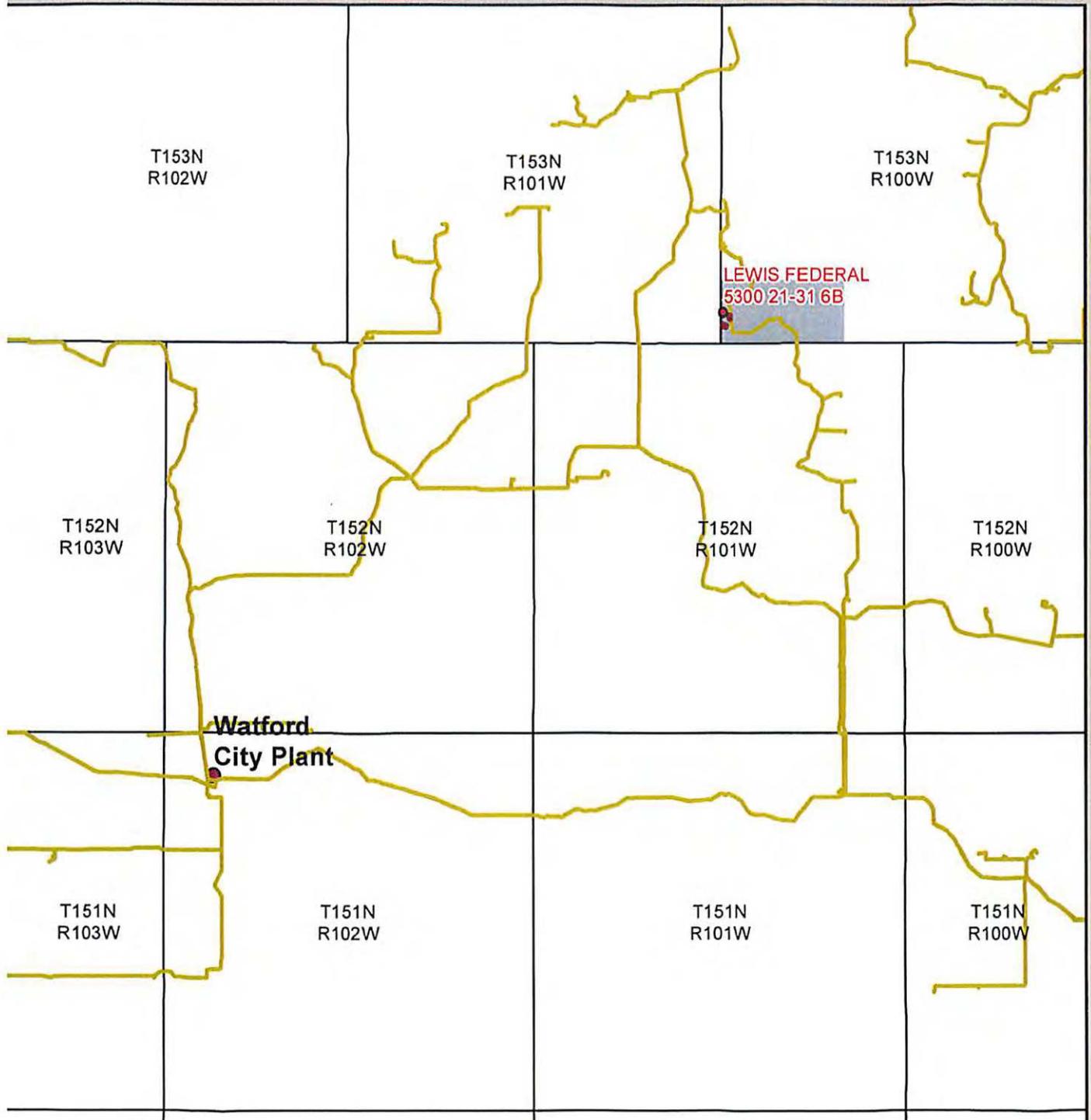


- CTB Outline
- Proposed Well
- Hiland Gas Line
- Oneok Gas Line

Gas Gatherer: Hiland Partners, LP
Gas to be processed at: Watford City Plant



Gas Capture Plan - Overview
LEWIS FEDERAL 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, North Dakota



- CTB Outline
- Hiland Gas Line
- Processing Plant

Gas Gatherer: Hiland Partners, LP
Gas to be processed at: Watford City Plant





SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFSN 5749 (09-2006)

Received

Well File No.

28190

APR 15 2016

ND Oil & Gas Division

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date April 21, 2016
<input type="checkbox"/> Report of Work Done	Date Work Completed
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03. Approximate Start Date	

- | | |
|---|---|
| <input type="checkbox"/> Drilling Prognosis | <input type="checkbox"/> Spill Report |
| <input type="checkbox"/> Redrilling or Repair | <input type="checkbox"/> Shooting |
| <input type="checkbox"/> Casing or Liner | <input type="checkbox"/> Acidizing |
| <input type="checkbox"/> Plug Well | <input type="checkbox"/> Fracture Treatment |
| <input type="checkbox"/> Supplemental History | <input type="checkbox"/> Change Production Method |
| <input type="checkbox"/> Temporarily Abandon | <input type="checkbox"/> Reclamation |
| <input checked="" type="checkbox"/> Other | APD Renewal |

Well Name and Number
Lewis Federal 5300 21-31 6B

Footages 2623 F N L	Qtr-Qtr 251 F W L	Section LOT2	Township 31	Range 153 N	100 W
Field Baker	Pool Bakken	County McKenzie			

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

Name of Contractor(s)

Address	City	State	Zip Code
---------	------	-------	----------

DETAILS OF WORK

Oasis Petroleum requests a permit renewal for above referenced well. There are no changes to the current drill plan.

Please use the credit card on file for the \$100.00 application processing fee.

See attached supporting gas capture plan.

Permit Expires 4/21/17. cc 100.00 4-22-16 KB

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9436	
Address 1001 Fannin St, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Jennifer Swenson	
Title Regulatory Specialist	Date April 14, 2016	
Email Address jswenson@oasispetroleum.com		

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 4/21/16	
By 	
Title Engineering Technician	

GAS CAPTURE PLAN AFFIDAVIT

STATE OF TEXAS §
 §
COUNTY OF HARRIS §

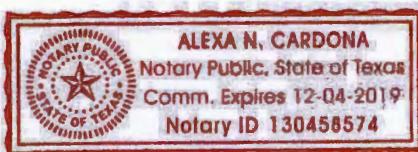
Robert Eason, being duly sworn, states as follows:

1. I am employed by Oasis Petroleum North America LLC ("Oasis") as Marketing Manager, I'm over the age of 21 and have personal knowledge of the matters set forth in this affidavit.
2. This affidavit is submitted in conjunction with the Application for Permit to Drill for the Lewis Federal 5300 21-31 6B well, with a surface location in Lot 2 of Section 31, Township 153 North, Range 100 West, McKenzie County, North Dakota (the "Well").
3. Oasis currently anticipates that gas to be produced from the Well will be gathered by Hiland Partners (the "Gathering Company"). Oasis has advised the Gathering Company of its intent to drill the Well and has advised the Gathering Company that it currently anticipates that the Well will be completed in ~ 2nd Quarter 2017, with an initial gas production rate of approximately 983 mcf/day.



Robert H. Eason
Marketing Manager

Subscribed and sworn to before me this 11th day of April, 2016.



Alexa N. Cardona
Notary Public in and for the State of Texas

GAS CAPTURE PLAN – OASIS PETROLEUM

Lewis Federal 5300 21-31 6B

Section 31-T153N-R100W

Baker Field

McKenzie County, North Dakota

Anticipated first flow date	~Q2 2017
Gas Gatherer:	Hiland Partners
Gas to be processed at*:	Hiland Operated Watford City Plant
Maximum Daily Capacity of Existing Gas Line*:	92,500 MCFD
Current Throughput of Existing Gas Line*:	81,000 MCFD
Anticipated Daily Capacity of Existing Gas Line at Date of First Gas Sales*:	92,500 MCFD
Anticipated Throughput of Existing Gas Line at Date of First Gas Sales*:	72,000 MCFD
Gas Gatherer's Issues or Expansion Plans for the Area*:	There are no expansion plans at this time.
Map:	Attached
Affidavit:	Attached

*Provided by Gatherer

Flowback Strategy

Total Number of Wells at Location:	7	Initial production from the 1st new well at the CTB is anticipated ~ Q2 2017 with each following well making 1st production every 5th day thereafter
Multi-Well Start-up Plan:		
Estimated Flow Rate:	<u>Lewis Federal 5300 21-31 6B</u>	<u>5300 31-32 CTB</u>
	<u>MCFD</u>	<u>BOPD</u>
30 Days:	705	784
60 Days:	565	628
180 Days:	346	384
	<u>MCFD</u>	<u>BOPD</u>
	2,912	3,236
	4,195	4,662
	2,302	2,557

Oasis Flaring Percentage

	Statewide	Baker Field
Oasis % of Gas Flared:	6%	6%

*Flared percentage reflects March 2016

Alternatives to Flaring

The installation of a temporary gas liquification unit recovering >50% of C3+ NGLs for an estimated reduction in flared volumes of ~30%

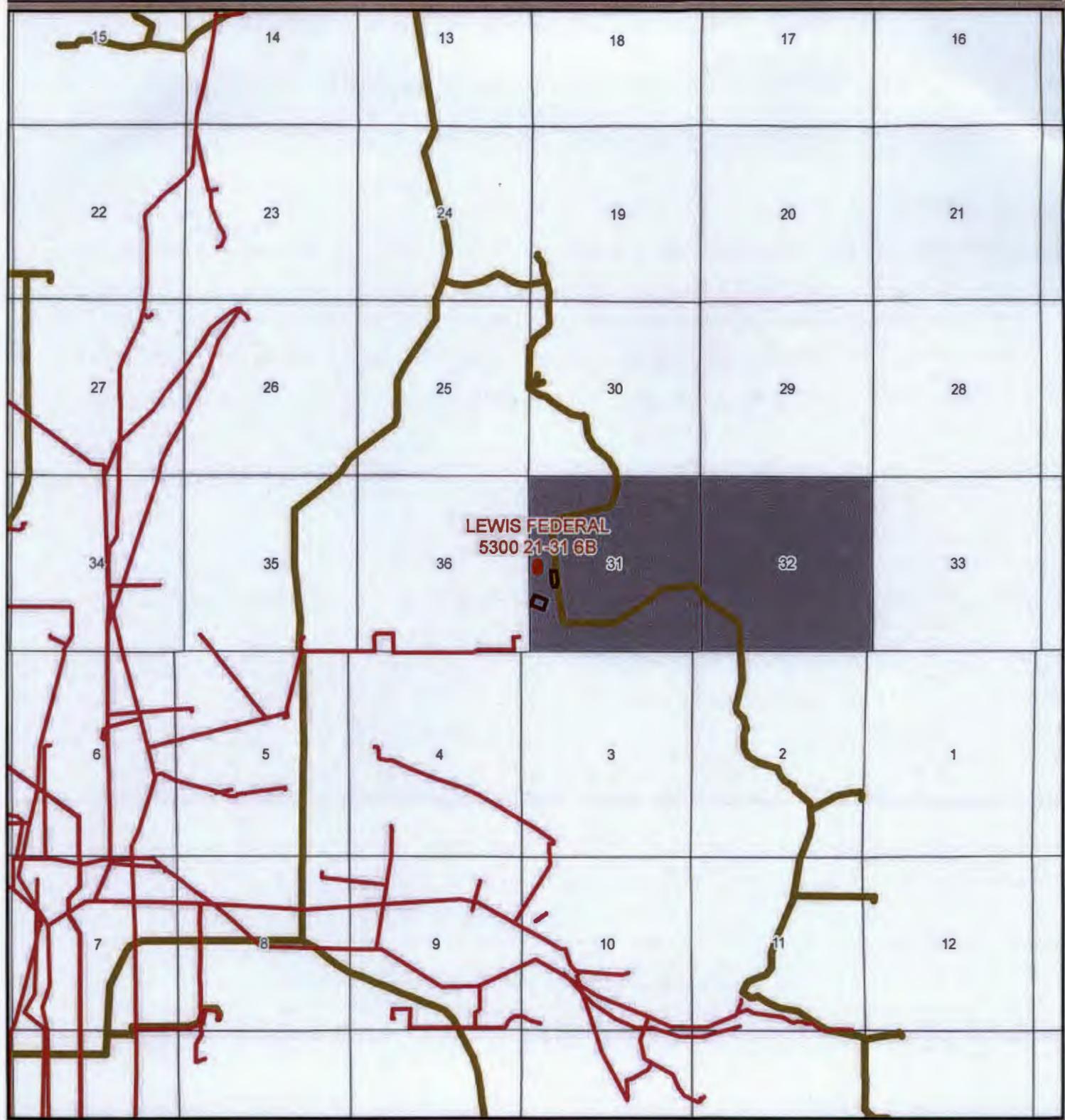
Source: Oasis Marketing (281) 404-9661

Gas Capture Plan - Detail View

LEWIS FEDERAL 5300 21-31 6B

Section 31 T153N R100W

McKenzie County, North Dakota

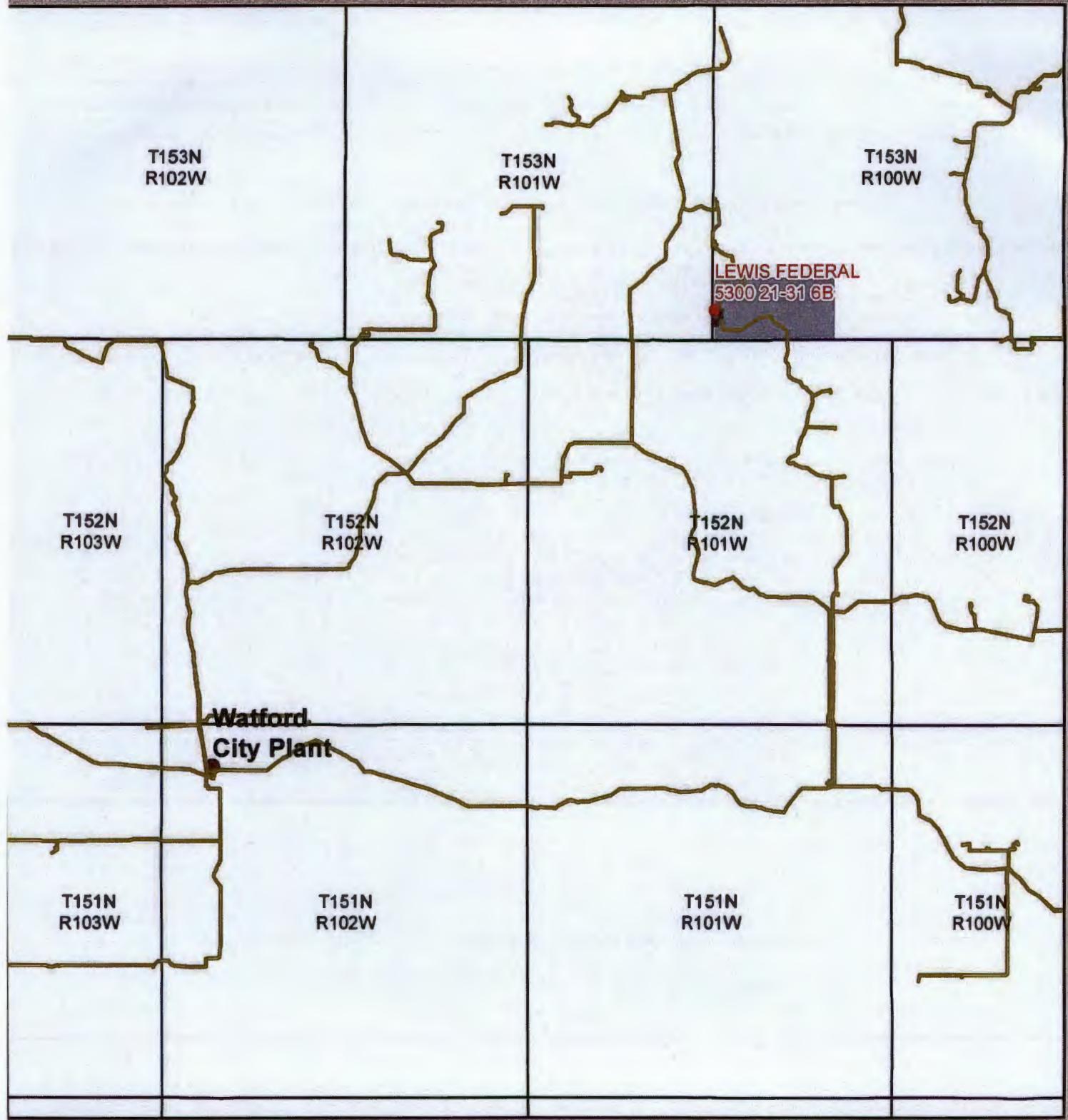


- CTB Outline
- Proposed Well
- Hiland Gas Line
- Oneok Gas Line

Gas Gatherer: Hiland Partners, LP
Gas to be processed at: Watford City Plant

OASIS
PETROLEUM

Gas Capture Plan - Overview
LEWIS FEDERAL 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, North Dakota



- Proposed Well
- CTB Outline
- Hiland Gas Line
- Processing Plant

Gas Gatherer: Hiland Partners, LP
Gas to be processed at: Watford City Plant

OASIS
PETROLEUM



Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.dmr.nd.gov/oilgas

28190

March 21, 2016

OASIS PETRO NO AMER
1001 FANNIN STE 1500
HOUSTON, TX 77002

RE: LEWIS FEDERAL 5300 21-31 6B
LOT2 Sec. 31-153N-100W
MCKENZIE COUNTY
WELL FILE NO. 28190

Gentlemen:

The records and files of the Industrial Commission indicate that the above referenced permit will expire April 21, 2016.

Permits to drill are only valid for one year in the State of North Dakota. If you would like to renew for another year, please submit a Form 4 along with the \$100.00 filing fee. Alternatively, you may elect to send in a Form 4 cancelling the permit. If you have any questions, please contact Todd Holweger.

Sincerely,

Rachel Morris
Administrative Assistant



Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.dmr.nd.gov/oilgas/

28190

March 20, 2017

OASIS PETRO NO AMER
1001 FANNIN STE 1500
HOUSTON, TX 77002

RE: LEWIS FEDERAL 5300 21-31 6B
LOT2 Sec. 31-153N-100W
MCKENZIE COUNTY
WELL FILE NO. 28190

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Sincerely,

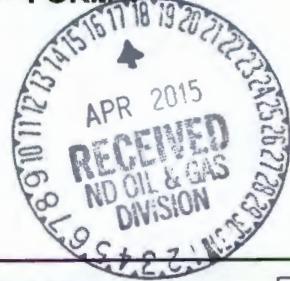

Rachel Morris
Administrative Assistant



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2006)

Well File No.
28190



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Notice of Intent

Approximate Start Date

April 21, 2015

Report of Work Done

Date Work Completed

Notice of Intent to Begin a Workover Project that may Qualify
for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.

Approximate Start Date

Drilling Prognosis

Spill Report

Redrilling or Repair

Shooting

Casing or Liner

Acidizing

Plug Well

Fracture Treatment

Supplemental History

Change Production Method

Temporarily Abandon

Reclamation

Other **APD Renewal**

Well Name and Number

Lewis Federal 5300 21-31 6B

Footages	Qtr-Qtr	Section	Township	Range	
2623 F N L	251 F W L	LOT2	31	153 N	100 W

Field	Pool	County
Baker	Bakken	McKenzie

24-HOUR PRODUCTION RATE

	Before	After	
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)

Address	City	State	Zip Code
---------	------	-------	----------

DETAILS OF WORK

Oasis Petroleum requests a permit renewal for above referenced well. There are no changes to the current drill plan.

Please use the **credit card** on file for the \$100.00 application processing fee.

See attached supporting documents including frac fluid statement, physical address statement and gas capture plan.

Permit Expires 4/21/16. CC 100.00 4-22-15 KB

Company Oasis Petroleum North America LLC		Telephone Number 281-404-9500
Address 1001 Fannin St, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature <i>Victoria Siemieniewski</i>	Printed Name Victoria Siemieniewski	
Title Regulatory Specialist	Date April 15, 2015	
Email Address vsiemieniewski@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 4/22/15	
By <i>Alice D. Webber</i>	
Title Engineering Technician	



4/7/15

Victoria Siemieniewski
Regulatory Specialist
Oasis Petroleum
1001 Fannin St.
Suite 1500
Houston, TX 77002

Alice Webber
Engineering Technician
North Dakota Industrial Commission
600 East Boulevard Avenue Dept. 405
Bismarck, ND 58505-0840

RE: Lewis Federal 5300 21-31 6B
Lewis Federal 5300 31-31 7T2
Lewis Federal 5300 31-31 8T
Lewis Federal 5300 31-31 9T2
Lewis Federal 5300 31-31 10B
Lewis Federal 5300 31-31 11T
Frac Fluid Statement

Dear Ms. Webber:

Oasis Petroleum does not use diesel fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations.

68334-30-5 (Primary Name: Fuel, diesel) 68476-34-6 (Primary Name: Fuels, diesel, No. 2) 68476-30-2
(Primary Name: Fuel oil, No. 2)
68476-31-3 (Primary Name: Fuel oil, No. 4) 8008-20-6 (Primary Name: Kerosene)

Thank you for your consideration.

Respectfully,

A handwritten signature in black ink, appearing to read "VSi" followed by a stylized surname.

Victoria Siemieniewski
Regulatory Specialist
Oasis Petroleum
281-404-9652



4/15/2015

Victoria Siemieniewski
Regulatory Specialist
Oasis Petroleum
1001 Fannin St.
Suite 1500
Houston, TX 77002

Alice Webber
Engineering Technician
North Dakota Industrial Commission
600 East Boulevard Avenue Dept. 405
Bismarck, ND 58505-0840

RE: Lewis Federal 5300 21-31 6B
Lewis Federal 5300 31-31 7T2
Lewis Federal 5300 31-31 8T
Lewis Federal 5300 31-31 9T2
Lewis Federal 5300 31-31 10B
Lewis Federal 5300 31-31 11T
Request for a legal street address

Dear Ms. Webber:

Oasis Petroleum has requested a physical street address for the subject well/well facility. The request was made to Aaron Chisholm, GIS Specialist, McKenzie County. Upon receiving a legal street address, Oasis will submit the address to the NDIC on a Sundry Notice (form 4) pursuant to 43-02-03-28.

Thank you for your consideration.

Respectfully,

A handwritten signature in black ink, appearing to read "S. Siemieniewski".

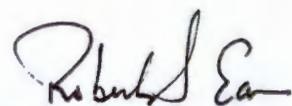
Victoria Siemieniewski
Regulatory Specialist
Oasis Petroleum
281-404-9652

GAS CAPTURE PLAN AFFIDAVIT

STATE OF TEXAS §
 §
 §
COUNTY OF HARRIS §

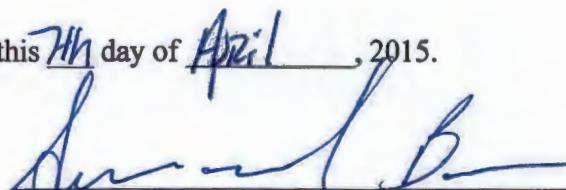
Robert Eason, being duly sworn, states as follows:

1. I am employed by Oasis Petroleum North America LLC ("Oasis") as Marketing Manager, I'm over the age of 21 and have personal knowledge of the matters set forth in this affidavit.
2. This affidavit is submitted in conjunction with the Application for Permit to Drill for the Lewis Federal 5300 21-31 6B well, with a surface location in Lot 2 of Section 31, Township 153 North, Range 100 West, McKenzie County, North Dakota (the "Well").
3. Oasis currently anticipates that gas to be produced from the Well will be gathered by Hiland Partners (the "Gathering Company"). Oasis has advised the Gathering Company of its intent to drill the Well and has advised the Gathering Company that it currently anticipates that the Well will be completed in ~ 2nd Quarter 2016, with an initial gas production rate of approximately 983 mcf/day.



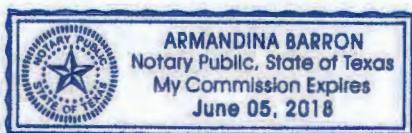
Robert H. Eason
Marketing Manager

Subscribed and sworn to before me this 7th day of April, 2015.



Armandina Barron

Notary Public in and for the State of Texas
My Commission expires: 6-5-18



GAS CAPTURE PLAN – OASIS PETROLEUM

Lewis Federal 5300 21-31 6B

Section 31-T153N-R100W

Baker Field

McKenzie County, North Dakota

Anticipated first flow date	~Q2 2016
Gas Gatherer:	Hiland Partners
Gas to be processed at*:	Hiland Operated Watford City Plant
Maximum Daily Capacity of Existing Gas Line*:	55,000 MCFD
Current Throughput of Existing Gas Line*:	37,000 MCFD
Anticipated Daily Capacity of Existing Gas Line at Date of First Gas Sales*:	71,500 MCFD
Anticipated Throughput of Existing Gas Line at Date of First Gas Sales*:	70,000 MCFD
Gas Gatherer's Issues or Expansion Plans for the Area*:	~17 miles of line looping, installation of the River's Edge compressor station and the addition of new compression at the Forthune compressor station. All scheduled to be completed and in service by 3rd Q of 2015.
Map:	Attached
Affidavit:	Attached
*provided by Gatherer	

Flowback Strategy

Total Number of Wells at Location:	7	
Multi-Well Start-up Plan:		Initial production from the 1st new well at the CTB is anticipated ~ Q2 2016 with each following well making 1st production every 5th day thereafter
Estimated Flow Rate:		<u>Lewis Federal 5300 21-31 6B</u>
	<u>MCFD</u>	<u>BOPD</u>
30 Days:	705	784
60 Days:	565	628
180 Days:	346	384
		<u>5300 31-32 CTB</u>
	<u>MCFD</u>	<u>BOPD</u>
	2,912	3,236
	4,195	4,662
	2,302	2,557

Oasis Flaring Percentage

	Statewide	Baker Field
Oasis % of Gas Flared:	13%	21%

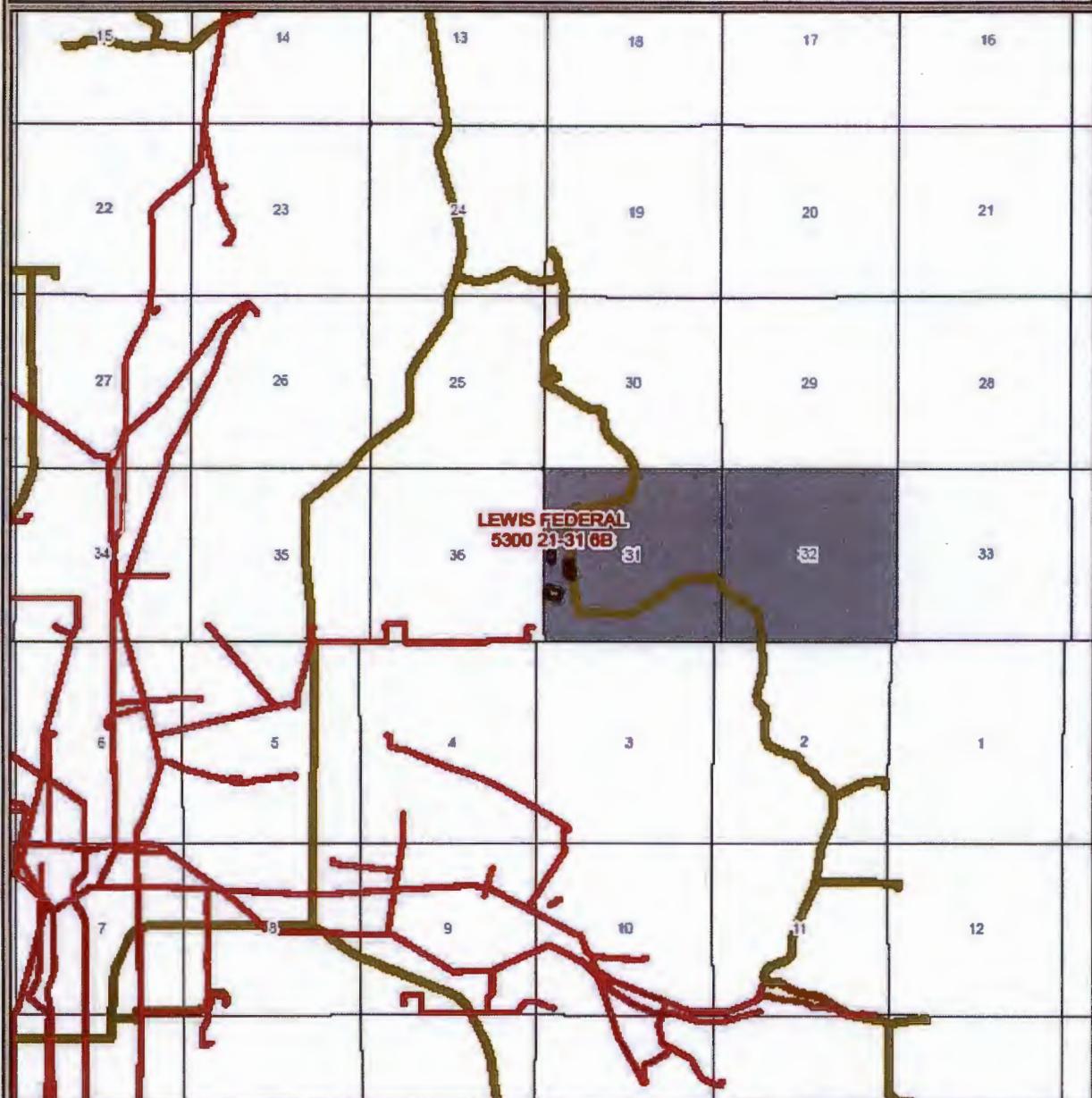
*Flared percentage reflects February 2015

Alternatives to Flaring

The installation of a temporary gas liquification unit recovering >50% of C3+ NGLs for an estimated reduction in flared volumes of ~30%

SOURCE: Oasis Marketing (281) 404-9435

Gas Capture Plan - Detail View
LEWIS FEDERAL 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, North Dakota

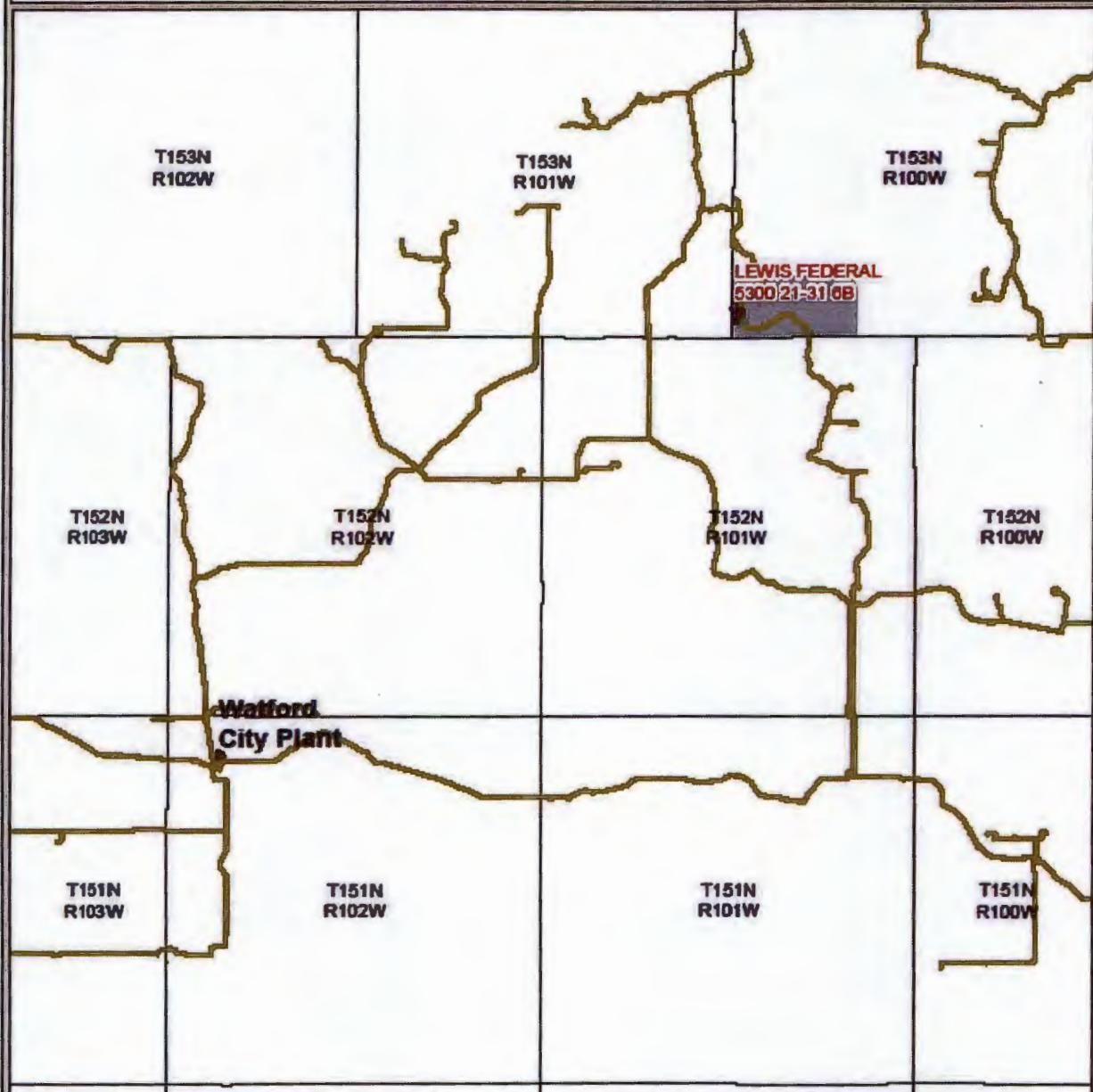


- CTS Outline
- Proposed Well
- Hiland Gas Line
- Oneok Gas Line

Gas Gatherer: Hiland Partners, LP
Gas to be processed: Watford City Plant



Gas Capture Plan - Overview
LEWIS FEDERAL 5300 21-31 6B
Section 31 T153N R100W
McKenzie County, North Dakota



- CTB Outline
- Hiland Gas Line
- Processing Plant

Gas Gatherer: Hiland Partners, LP
Gas to be processed at: Watford City Plant





Oil and Gas Division

Lynn D. Helms - Director Bruce E. Hicks - Assistant Director
Department of Mineral Resources Lynn D. Helms - Director
North Dakota Industrial Commission www.dmr.nd.gov/oilgas
28190

March 23, 2015

OASIS PETRO NO AMER
1001 FANNIN STE 1500
HOUSTON, TX 77002

RE: LEWIS FEDERAL 5300 21-31 6B
LOT2 Sec. 31-153N-100W
MCKENZIE COUNTY
WELL FILE NO. 28190

Gentlemen:

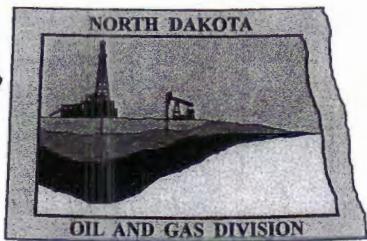
The records and files of the Industrial Commission indicate that the above referenced permit will expire April 21, 2015.

Permits to drill are only valid for one year in the State of North Dakota. If you would like to renew for another year, please submit a Form 4 along with the \$100.00 filing fee. Alternatively, you may elect to send in a Form 4 cancelling the permit. If you have any questions, please contact Todd Holweger.

Sincerely,



Jeanette Bean
Administrative Assistant



Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.dmr.nd.gov/oilgas/

28190

BRANDI TERRY
OASIS PETROLEUM NORTH AMERICA LLC
1001 FANNIN STE 1500
HOUSTON, TX 77002 USA

Date: 4/28/2014

RE: CORES AND SAMPLES

Well Name: **LEWIS FEDERAL 5300 21-31 6B** Well File No.: **28190**
Location: **LOT 2 31-153-100** County: **MCKENZIE**
Permit Type: **Development - HORIZONTAL**
Field: **BAKER** Target Horizon: **BAKKEN**

Dear BRANDI TERRY:

North Dakota Century Code Section 38-08-04 provides for the preservation of cores and samples and their shipment to the State Geologist when requested. The following is required on the above referenced well:

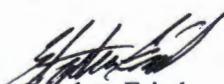
- 1) All cores, core chips and samples must be submitted to the State Geologist as provided for under North Dakota Century Code: Section 38-08-04 and North Dakota Administrative Code: Section 43-02-03-38.1.
- 2) Samples: The Operator is to begin collecting sample drill cuttings no lower than the:
Base of the Last Charles Salt
 - Sample cuttings shall be collected at:
 - o 30' maximum intervals through all vertical and build sections.
 - o 100' maximum intervals through any horizontal sections.
 - Samples must be washed, dried, placed in standard sample envelopes (3" x 4.5"), packed in the correct order into standard sample boxes (3.5" x 5.25" x 15.25").
 - Samples boxes are to be carefully identified with a label that indicates the operator, well name, well file number, American Petroleum Institute (API) number, location and depth of samples; and forwarded in to the state core and sample library within 30 days of the completion of drilling operations.
- 3) Cores: Any cores cut shall be preserved in correct order, boxed in standard core boxes (4.5", 4.5", 35.75"), and the entire core forwarded to the state core and samples library within 180 days of completion of drilling operations.
Any extension of time must have approval on a Form 4 Sundry Notice.

All cores, core chips, and samples must be shipped, prepaid, to the state core and samples library at the following address:

**ND Geological Survey Core Library
2835 Campus Road, Stop 8156
Grand Forks, ND 58202**

North Dakota Century Code Section 38-08-16 allows for a civil penalty for any violation of Chapter 38 08 not to exceed \$12,500 for each offense, and each day's violation is a separate offense.

Sincerely


Stephen Fried
Geologist



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2006)



Well File No.
28190

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date March 12, 2014	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	Waiver to rule Rule 43-02-03-31

Well Name and Number Lewis Federal 5300 21-31 6B					
Footages	2623 F N L	251 F W L	Qtr-Qtr LOT2	Section 31	Township 153 N Range 100 W
Field		Pool Bakken		County McKenzie	

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

Name of Contractor(s)			
Address	City	State	Zip Code

DETAILS OF WORK

Oasis Petroleum respectfully requests a waiver to Rule 43-02-03-31 in regards to running open hole logs for the above referenced well. Justification for this request is as follows:

The Oasis Petroleum/ Lewis Federal 5300 31-31H (NDIC # 20314) located 250' S of the surface location.

If this exception is approved, Oasis Petroleum will run a CBL on the intermediate string, and we will also run GR to surface. Oasis Petroleum will also submit two digital copies of each cased hole log and a copy of the mud log containing MWD gamma ray.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9591
Address 1001 Fannin, Suite 1500	
City Houston	State TX Zip Code 77002
Signature <i>Chelsea Covington</i>	Printed Name Chelsea Covington
Title Regulatory Assistant	Date March 12, 2014
Email Address ccovington@oasispetroleum.com	

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 4-21-2014	
By <i>Stephen Fried</i>	
Title Stephen Fried	Geologist



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5748 (08-2008)

Well File No.
28190

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date March 11, 2011	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other Suspension of Drilling	

Well Name and Number Lewis Federal 5300 21-31 6B					
Footages 2623 F N L	Qtr-Qtr 251 F W L	Section LOT2	Township 31	Range 153 N	Range 100 W
Field Wildcat	Pool Bakken	County McKenzie			

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

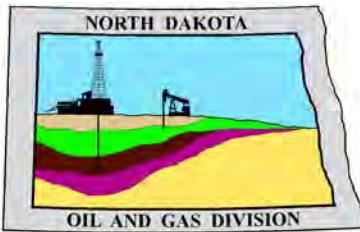
Name of Contractor(s)			
Address	City	State	Zip Code

DETAILS OF WORK

Oasis requests permission for suspension of drilling for up to 90 days for the referenced well under NDAC 43-02-03-55. Oasis intends to drill the surface hole with freshwater based drilling mud and set surface casing with a small drilling rig and move off within 3 to 5 days. The casing will be set at a depth pre-approved by the NDIC per the Application for Permit to Drill NDAC 43-02-03-21. No saltwater will be used in the drilling and cementing operations of the surface casing. Once the surface casing is cemented, a plug or mechanical seal will be placed at the top of the casing to prevent any foreign matter from getting into the well. A rig capable of drilling to TD will move onto the location within the 90 days previously outlined to complete the drilling and casing plan as per the APD. The undersigned states that this request for suspension of drilling operations in accordance with the Subsection 4 of Section 43-02-03-55 of the NDAC, is being requested to take advantage of the cost savings and time savings of using an initial rig that is smaller than the rig necessary to drill a well to total depth but is not intended to alter or extend the terms and conditions of, or suspend any obligation under, any oil and gas lease with acreage in or under the spacing or drilling unit for the above-referenced well. Oasis understands NDAC 43-02-03-31 requirements regarding confidentiality pertaining to this permit. The lined reserve pit will be fenced immediately after construction if the well pad is located in a pasture (NDAC 43-02-03-19 & 19.1). Oasis will plug and abandon the well and reclaim the well site if the well is not drilled by the larger rotary rig within 90 days after spudding the well with the smaller drilling rig. Oasis must notify NDIC Field Inspector Richard Dunn @701-770-3554 with spud and TD.

Company Oasis Petroleum North America LLC	Telephone Number (281) 404-9591	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature Chelsea Covington	Printed Name Chelsea Covington	
Title Regulatory Assistant	Date March 12, 2014	
Email Address ccovington@oasispetroleum.com		

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 4-21-2014	
By David Burns	
Title David Burns	
Engineering Tech.	



Oil and Gas Division

Lynn D. Helms - Director Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.oilgas.nd.gov

April 21, 2014

Chelsea Covington
Regulatory Assistant
OASIS PETROLEUM NORTH AMERICA LLC
1001 Fannin Suite 1500
Houston, TX 77002

**RE: HORIZONTAL WELL
LEWIS FEDERAL 5300 21-31 6B
LOT2 Section 31-153N-100W
McKenzie County
Well File # 28190**

Dear Chelsea:

Pursuant to Commission Order No. 23752, approval to drill the above captioned well is hereby given. The approval is granted on the condition that all portions of the well bore not isolated by cement, be no closer than the **500' setback** from the north & south boundaries and **200' setback** from the east & west boundaries within the 1280 acre spacing unit consisting of Sections 31 & 32 T153N R100W.

PERMIT STIPULATIONS: Effective June 1, 2014, a covered leak-proof container (with placard) for filter sock disposal must be maintained on the well site beginning when the well is spud, and must remain on-site during clean-out, completion, and flow-back whenever filtration operations are conducted. Due to a drainage adjacent to the well site, a dike is required surrounding the entire location. OASIS PETRO NO AMER must contact NDIC Field Inspector Richard Dunn at 701-770-3554 prior to location construction.

Drilling pit

NDAC 43-02-03-19.4 states that "a pit may be utilized to bury drill cuttings and solids generated during well drilling and completion operations, providing the pit can be constructed, used and reclaimed in a manner that will prevent pollution of the land surface and freshwaters. Reserve and circulation of mud system through earthen pits are prohibited. All pits shall be inspected by an authorized representative of the director prior to lining and use. Drill cuttings and solids must be stabilized in a manner approved by the director prior to placement in a cuttings pit."

Form 1 Changes & Hard Lines

Any changes, shortening of casing point or lengthening at Total Depth must have prior approval by the NDIC. The proposed directional plan is at a legal location. Based on the azimuth of the proposed lateral the maximum legal coordinate from the well head is: 10074 E.

Location Construction Commencement (Three Day Waiting Period)

Operators shall not commence operations on a drill site until the 3rd business day following publication of the approved drilling permit on the NDIC - OGD Daily Activity Report. If circumstances require operations to commence before the 3rd business day following publication on the Daily Activity Report, the waiting period may be waived by the Director. Application for a waiver must be by sworn affidavit providing the information necessary to evaluate the extenuating circumstances, the factors of NDAC 43-02-03-16.2 (1), (a)-(f), and any other information that would allow the Director to conclude that in the event another owner seeks revocation of the drilling permit, the applicant should retain the permit.

Permit Fee & Notification

Payment was received in the amount of \$100 via credit card .The permit fee has been received. It is requested that notification be given immediately upon the spudding of the well. This information should be relayed to the Oil & Gas Division, Bismarck, via telephone. The following information must be included: Well name, legal location, permit number, drilling contractor, company representative, date and time of spudding. Office hours are 8:00 a.m. to 12:00 p.m. and 1:00 p.m. to 5:00 p.m. Central Time. Our telephone number is (701) 328-8020, leave a message if after hours or on the weekend.

Survey Requirements for Horizontal, Horizontal Re-entry, and Directional Wells

NDAC Section 43-02-03-25 (Deviation Tests and Directional Surveys) states in part (that) the survey contractor shall file a certified copy of all surveys with the director free of charge within thirty days of completion. Surveys must be submitted as one electronic copy, or in a form approved by the director. However, the director may require the directional survey to be filed immediately after completion if the survey is needed to conduct the operation of the director's office in a timely manner. Certified surveys must be submitted via email in one adobe document, with a certification cover page to certsurvey@nd.gov.

Survey points shall be of such frequency to accurately determine the entire location of the well bore.

Specifically, the Horizontal and Directional well survey frequency is 100 feet in the vertical, 30 feet in the curve (or when sliding) and 90 feet in the lateral.

Surface casing cement

Tail cement utilized on surface casing must have a minimum compressive strength of 500 psi within 12 hours, and tail cement utilized on production casing must have a minimum compressive strength of 500 psi before drilling the plug or initiating tests.

Logs

NDAC Section 43-02-03-31 requires the running of (1) a suite of open hole logs from which formation tops and porosity zones can be determined, (2) a Gamma Ray Log run from total depth to ground level elevation of the well bore, and (3) a log from which the presence and quality of cement can be determined (Standard CBL or Ultrasonic cement evaluation log) in every well in which production or intermediate casing has been set, this log must be run prior to completing the well. All logs run must be submitted free of charge, as one digital TIFF (tagged image file format) copy and one digital LAS (log ASCII) formatted copy. Digital logs may be submitted on a standard CD, DVD, or attached to an email sent to digitallogs@nd.gov

Thank you for your cooperation.

Sincerely,

David Burns
Engineering Technician



APPLICATION FOR PERMIT TO DRILL HORIZONTAL WELL - FORM 1H

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 54269 (08-2005)

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Type of Work New Location	Type of Well Oil & Gas	Approximate Date Work Will Start 04 / 01 / 2014	Confidential Status No
Operator OASIS PETROLEUM NORTH AMERICA LLC		Telephone Number 281-404-9591	
Address 1001 Fannin Suite 1500		City Houston	State TX Zip Code 77002

Notice has been provided to the owner of any permanently occupied dwelling within 1,320 feet. This well is not located within five hundred feet of an occupied dwelling.

WELL INFORMATION (If more than one lateral proposed, enter data for additional laterals on page 2)

Well Name LEWIS FEDERAL				Well Number 5300 21-31 6B			
Surface Footages 2623 F N L 251 F W L		Qtr-Qtr LOT2	Section 31	Township 153 N	Range 100 W	County McKenzie	
Longstring Casing Point Footages 2305 F N L 633 F W L		Qtr-Qtr LOT2	Section 31	Township 153 N	Range 100 W	County McKenzie	
Longstring Casing Point Coordinates From Well Head 318 N From WH 412 E From WH		Azimuth 56.93 °	Longstring Total Depth 11071 Feet MD 10784 Feet TVD				
Bottom Hole Footages From Nearest Section Line 1995 F N L 201 F E L		Qtr-Qtr LOT4	Section 32	Township 153 N	Range 100 W	County McKenzie	
Bottom Hole Coordinates From Well Head 628 N From WH 10073 E From WH		KOP Lateral 1 10306 Feet MD	Azimuth Lateral 1 90 °	Estimated Total Depth Lateral 1 20793 Feet MD 10872 Feet TVD			
Latitude of Well Head 48 ° 01 ' 53.79 "	Longitude of Well Head -103 ° 36 ' 11.33 "	NAD Reference NAD83	Description of Spacing Unit: (Subject to NDIC Approval) Sections 31 & 32 T153N R100W				
Ground Elevation 2155 Feet Above S.L.	Acres in Spacing/Drilling Unit 1280	Spacing/Drilling Unit Setback Requirement 500 Feet N/S 200 Feet E/W			Industrial Commission Order 23752		
North Line of Spacing/Drilling Unit 10522 Feet	South Line of Spacing/Drilling Unit 10535 Feet	East Line of Spacing/Drilling Unit 5280 Feet			West Line of Spacing/Drilling Unit 5248 Feet		
Objective Horizons Bakken						Pierre Shale Top 2008	
Proposed Surface Casing	Size 13 - 3/8 "	Weight 54 Lb./Ft.	Depth 2110 Feet	Cement Volume 1184 Sacks	NOTE: Surface hole must be drilled with fresh water and surface casing must be cemented back to surface.		
Proposed Longstring Casing	Size 9 - 5/8 "	Weight(s) 40 Lb./Ft.	Longstring Total Depth 11071 Feet MD 10784 Feet TVD		Cement Volume 1113 Sacks	Cement Top 3909 Feet	Top Dakota Sand 5409 Feet
Base Last Charles Salt (If Applicable) 9254 Feet		NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.					
Proposed Logs Triple Combo: KOP-KibbyGR/Res to BSC GR-To Surf CND thru Dakota							
Drilling Mud Type (Vertical Hole - Below Surface Casing) Invert				Drilling Mud Type (Lateral) Salt Water Gel			
Survey Type in Vertical Portion of Well MWD Every 100 Feet		Survey Frequency: Build Section 30 Feet		Survey Frequency: Lateral 90 Feet		Survey Contractor Ryan	

NOTE: A Gamma Ray log must be run to ground surface and a CBL must be run on intermediate or longstring casing string if set.

Surveys are required at least every 30 feet in the build section and every 90 feet in the lateral section of a horizontal well. Measurement inaccuracies are not considered when determining compliance with the spacing/drilling unit boundary setback requirement except in the following scenarios: 1) When the angle between the well bore and the respective boundary is 10 degrees or less; or 2) If Industry standard methods and equipment are not utilized. Consult the applicable field order for exceptions.

If measurement inaccuracies are required to be considered, a 2° MWD measurement inaccuracy will be applied to the horizontal portion of the well bore. This measurement inaccuracy is applied to the well bore from KOP to TD.

REQUIRED ATTACHMENTS: Certified surveyor's plat, horizontal section plat, estimated geological tops, proposed mud/cementing plan, directional plot/plan, \$100 fee.

See Page 2 for Comments section and signature block.

COMMENTS, ADDITIONAL INFORMATION, AND/OR LIST OF ATTACHMENTS**Documents forwarded by email: Drill plan with drilling fluids, Well Summary with casing/cement plans, Directional Plan & Plot, Plats****Lateral 2**

KOP Lateral 2 Feet MD	Azimuth Lateral 2 °	Estimated Total Depth Lateral 2 Feet MD Feet TVD			KOP Coordinates From Well Head From WH From WH		
Formation Entry Point Coordinates From Well Head From WH		Bottom Hole Coordinates From Well Head From WH			From WH		
KOP Footages From Nearest Section Line F L		Qtr-Qtr	Section	Township N	Range W	County	
Bottom Hole Footages From Nearest Section Line F L		Qtr-Qtr	Section	Township N	Range W	County	

Lateral 3

KOP Lateral 3 Feet MD	Azimuth Lateral 3 °	Estimated Total Depth Lateral 3 Feet MD Feet TVD			KOP Coordinates From Well Head From WH From WH		
Formation Entry Point Coordinates From Well Head From WH		Bottom Hole Coordinates From Well Head From WH			From WH		
KOP Footages From Nearest Section Line F L		Qtr-Qtr	Section	Township N	Range W	County	
Bottom Hole Footages From Nearest Section Line F L		Qtr-Qtr	Section	Township N	Range W	County	

Lateral 4

KOP Lateral 4 Feet MD	Azimuth Lateral 4 °	Estimated Total Depth Lateral 4 Feet MD Feet TVD			KOP Coordinates From Well Head From WH From WH		
Formation Entry Point Coordinates From Well Head From WH		Bottom Hole Coordinates From Well Head From WH			From WH		
KOP Footages From Nearest Section Line F L		Qtr-Qtr	Section	Township N	Range W	County	
Bottom Hole Footages From Nearest Section Line F L		Qtr-Qtr	Section	Township N	Range W	County	

Lateral 5

KOP Lateral 5 Feet MD	Azimuth Lateral 5 °	Estimated Total Depth Lateral 5 Feet MD Feet TVD			KOP Coordinates From Well Head From WH From WH		
Formation Entry Point Coordinates From Well Head From WH		Bottom Hole Coordinates From Well Head From WH			From WH		
KOP Footages From Nearest Section Line F L		Qtr-Qtr	Section	Township N	Range W	County	
Bottom Hole Footages From Nearest Section Line F L		Qtr-Qtr	Section	Township N	Range W	County	

I hereby swear or affirm the information provided is true, complete and correct as determined from all available records.

Date

03 / 12 / 2014**ePermit**

Printed Name

Chelsea Covington

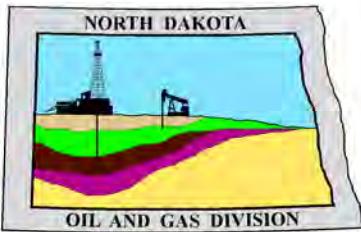
Title

Regulatory Assistant**FOR STATE USE ONLY**

Permit and File Number 28190	API Number 33 - 053 - 05845
Field BAKER	
Pool BAKKEN	Permit Type DEVELOPMENT

FOR STATE USE ONLY

Date Approved 4 / 21 / 2014
By David Burns
Title Engineering Technician



Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.oilgas.nd.gov

April 9, 2014

**RE: Filter Socks and Other Filter Media
Leakproof Container Required
Oil and Gas Wells**

Dear Operator,

North Dakota Administrative Code Section 43-02-03-19.2 states in part that all waste material associated with exploration or production of oil and gas must be properly disposed of in an authorized facility in accord with all applicable local, state, and federal laws and regulations.

Filtration systems are commonly used during oil and gas operations in North Dakota. The Commission is very concerned about the proper disposal of used filters (including filter socks) used by the oil and gas industry.

Effective June 1, 2014, a container must be maintained on each well drilled in North Dakota beginning when the well is spud and must remain on-site during clean-out, completion, and flow-back whenever filtration operations are conducted. The on-site container must be used to store filters until they can be properly disposed of in an authorized facility. Such containers must be:

- leakproof to prevent any fluids from escaping the container
- covered to prevent precipitation from entering the container
- placard to indicate only filters are to be placed in the container

If the operator will not utilize a filtration system, a waiver to the container requirement will be considered, but only upon the operator submitting a Sundry Notice (Form 4) justifying their request.

As previously stated in our March 13, 2014 letter, North Dakota Administrative Code Section 33-20-02.1-01 states in part that every person who transports solid waste (which includes oil and gas exploration and production wastes) is required to have a valid permit issued by the North Dakota Department of Health, Division of Waste Management. Please contact the Division of Waste Management at (701) 328-5166 with any questions on the solid waste program. Note oil and gas exploration and production wastes include produced water, drilling mud, invert mud, tank bottom sediment, pipe scale, filters, and fly ash.

Thank you for your cooperation.

Sincerely,

Bruce E. Hicks

Assistant Director

WELL LOCATION PLAT

OASIS PETROLEUM NORTH AMERICA, LLC

FANNIN, SUITE 1500, HOUSTON, TX 77002

LEWIS FEDERAL 5300 21-31 6B"

2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

LEWIS FEDERAL 5300 21-31 6B

GROUND ELEV. 2154.6'
LATITUDE 48°01'53.79"N
LONGITUDE 103°36'11.33"W
GPS SURVEY DATUM: NAD 83

POINT 31
AZ 86°26'55"
10087.22'

POINT 32
AZ 1°19'24"

THEORETICAL POSITION
R101W
R100W
T153N
T152N

THEORETICAL POSITION
940' (GLO)
1995'
210'
4340' (GLO)
AZ 359°56'00"

MISSOURI RIVER PER 1891 SURVEY

EDGE OF LAKE
4363' (GLO)

LOT 1
2500.86'
2623'
AZ 0°06'07"

LOT 2

LOT 3
2748.12'
251'

LOT 4
AZ 0°10'52"

FOUND STONE W/ REBAR
2662.02'
AZ 89°37'27"

FOUND REBAR W/ 2" AC

FOUND STONE W/ REBAR
2639.72'
AZ 89°58'08"

FOUND REBAR W/ 1.5" AC

FOUND STONE
2615.00'
AZ 90°09'48"

FOUND STONE
2650.86'
AZ 89°57'17"

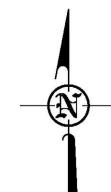
FOUND REBAR
2634.18'
AZ 90°02'37"

FOUND 4" AC
2635.46'
AZ 90°01'24"

VICINITY MAP

SAKAKAWEA

THIS DOCUMENT WAS ORIGINALLY
ISSUED AND SEALED BY DARYL D.
KASEMAN, PLS, REGISTRATION NUMBER
3880 ON 1/20/14 AND THE
ORIGINAL DOCUMENTS ARE STORED AT
THE OFFICES OF INTERSTATE
ENGINEERING, INC.

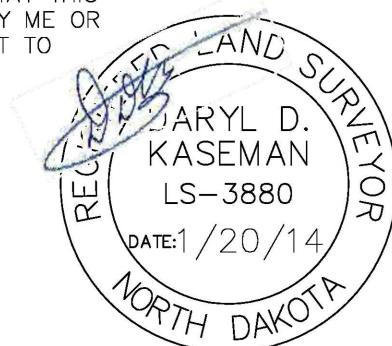


0 1000

1" = 1000'

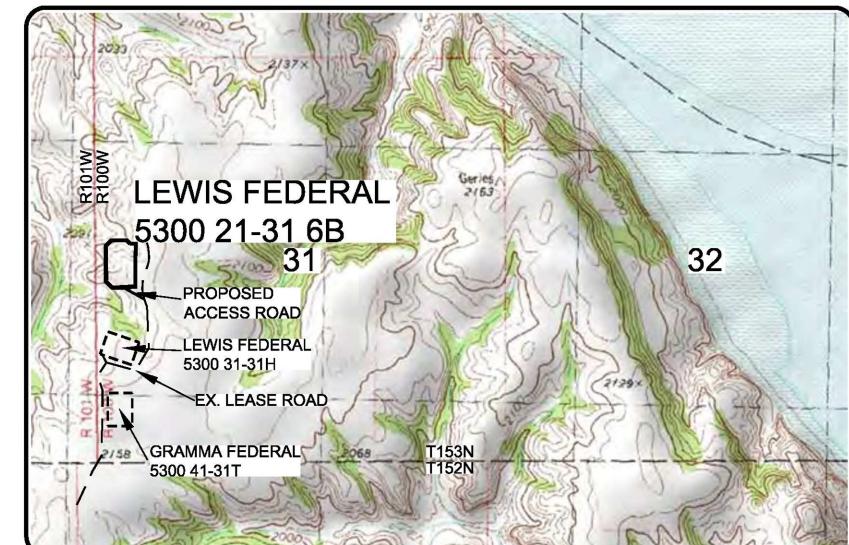
-  — MONUMENT — RECOVERED
 — MONUMENT — NOT RECOVERED

DARYL D. KASEMAN LS-3880



STAKED ON 1/9/14
VERTICAL CONTROL DATUM WAS BASED UPON
CONTROL POINT 705 WITH AN ELEVATION OF 2158.3'

THIS SURVEY AND PLAT IS BEING PROVIDED AT THE REQUEST
OF ERIC BAYES OF OASIS PETROLEUM. I CERTIFY THAT THIS
PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR
UNDER MY SUPERVISION AND IS TRUE AND CORRECT TO
THE BEST OF MY KNOWLEDGE AND BELIEF.



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INTERSTATE
ENGINEERING

SHEET NO.

201

Revision No.	Date	By	Description
REV 1	1/15/14	J.S.	ADDED "FEDERAL" TO NAME

OASS PETROLEUM NORTH AMERICA, LLC	
WELL LOCATION PLAT	
SECTION 31, T153N, R100W	
MCKENZIE COUNTY, NORTH DAKOTA	
Drawn By	B.H.B.
Checked By	D.D.K.
Project No.:	S13-08-379.01
Date:	JAN. 2014

Interstate Engineering, Inc.
P.O. Box 648
425 East Main Street
Sidney, Montana 59270
Ph. (406) 433-5617
Fax. (406) 433-5618
www.interstateeng.com

Other offices in Minnesota, North Dakota and South Dakota

DRILLING PLAN												
OPERATOR	Oasis Petroleum			COUNTY/STATE	McKenzie Co., ND							
WELL NAME	Lewis Federal 5300 21-31 6B			RIG	Nabors B22							
WELL TYPE	Horizontal Middle Bakken											
LOCATION	SW NW 31-153N-100W	Surface Location (survey plat): 2623' FNL		251' FWL								
EST. T.D.	20,792'			GROUND ELEV:	2,133'	Sub Height: 25'						
TOTAL LATERAL:	9,721'			KB ELEV:	2,158'							
MARKER	TVD	Subsea TVD	LOGS:	Type	Interval							
Pierre	NDIC MAP	2,008	150	OH Logs: Request Log waiver based on the Lewis Federal 5300 31-31H 1,250' S of surface location								
Greenhorn		4,608	-2,450	CBL/GR: Above top of cement/GR to base of casing								
Mowry		5,021	-2,863	MWD GR: KOP to lateral TD								
Dakota		5,409	-3,251									
Rierdon		6,371	-4,213	DEVIATION:	Surf: 3 deg. max., 1 deg / 100'; svry every 500' Prod: 5 deg. max., 1 deg / 100'; svry every 100'							
Dunham Salt		6,901	-4,743									
Dunham Salt Base		6,971	-4,813									
Pine Salt		7,273	-5,115									
Pine Salt Base		7,338	-5,180									
Opecche Salt		7,404	-5,246									
Opecche Salt Base		7,495	-5,337									
Amsden		7,717	-5,559									
Tyler		7,865	-5,707									
Otter/Base Minnelusa		8,089	-5,931	DST'S:	None planned							
Kibbey Lime		8,432	-6,274									
Charles Salt		8,585	-6,427	CORES:	None planned							
Base Last Salt		9,254	-7,096									
Mission Canyon		9,470	-7,312									
Lodgepole		10,011	-7,853									
False Bakken		10,740	-8,582									
Upper Bakken Shale		10,752	-8,594	MUDLOGGING:	Two-Man: Begin 200' above Kibbey 30' samples in curve and lateral							
Middle Bakken (Top of Target)		10,779	-8,621									
Middle Bakken (Base of target)		10,789	-8,631									
Lower Bakken Shale		10,804	-8,646									
Threeforks		10,834	-8,676									
Est. Dip Rate:	-0.55			BOP:	11" 5000 psi blind, pipe & annular							
Max. Anticipated BHP:	4681			Surface Formation: Glacial till								
MUD:	Interval	Type	WT	Vis	WL	Remarks						
Surface:	0' - 2,110'	FW	8.4-9.0	28-32	NC	Circ Mud Tanks						
Intermediate:	2,110' - 11,071'	Invert	9.5-10.4	40-50	30+HtIp	Circ Mud Tanks						
Laterals:	11,071' - 20,792'	Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks						
CASING:	Size	Wt ppf	Hole	Depth	Cement	WOC	Remarks					
Surface:	13-3/8"	54.5 #	17.5"	2,110'	To Surface	12	100' into Pierre					
Intermediate:	7"	29/32#	8-3/4"	11,071'	3909	24	1500' above Dakota					
Production Liner:	4.5"	11.6#	6"	20,792'	TOL @ 10,256'		50' above KOP					
PROBABLE PLUGS, IF REQ'D:												
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI						
Surface:	2,110	2,110	2623' FNL	251' FWL	S31-T153N-R100W	Survey Company:						
KOP:	10,306'	10,306'	2573' FNL	251' FWL	S32-T153N-R100W	Build Rate:	12 deg /100'					
EOC:	11,052'	10,784'	2315' FNL	647' FWL	S31-T153N-R100W	Turn Rate:	3 deg /100'					
Casing Point:	11,071'	10,784'	2305' FNL	663' FWL	S31-T153N-R100W							
Middle Bakken Lateral TD:	20,792'	10,872'	1995' FNL	200' FEL	S32-T153N-R100W		90.0					
Comments:												
Request Log waiver based on the Lewis Federal 5300 31-31H 1,250' S of surface location												
No frac string planned												
35 packers and 25 sleeves												
OASIS PETROLEUM												
Geology: NAG	1/22/2014		Engineering: M. Brown 3-4-2014									

March 3, 2014

NDIC – Oil and Gas Division

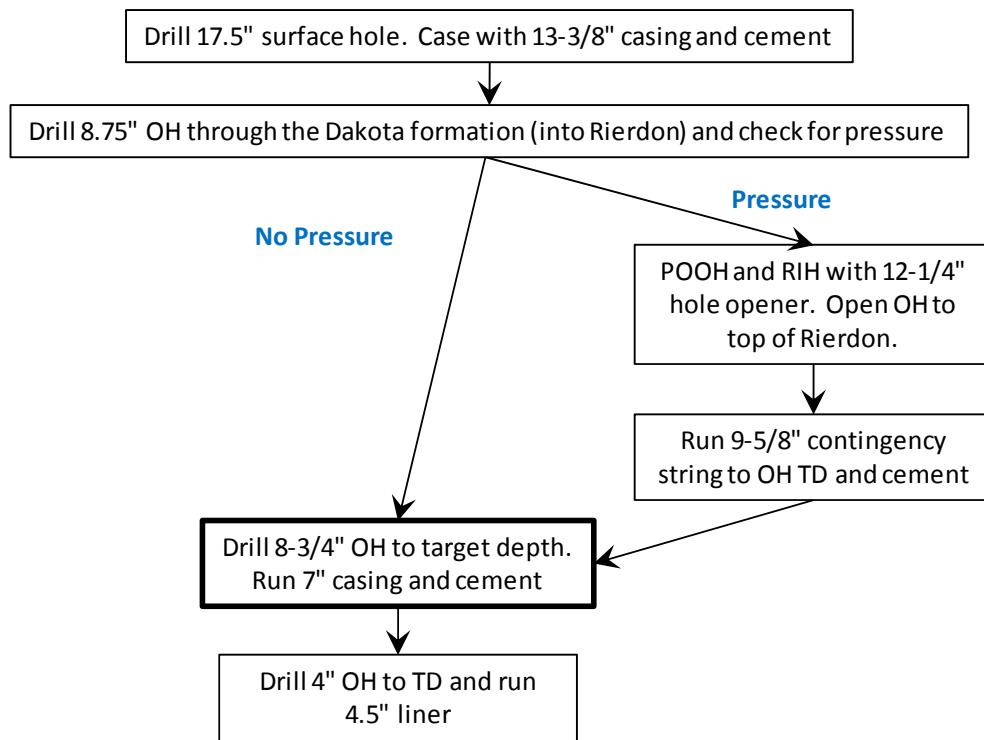
To whom it may concern:

When Oasis Petroleum drilled the Gramma Federal 5300 41-31T (NDIC #23350) in October of 2012, the following issues were encountered:

- Dakota formation (est. 11.2 EMW) causing an influx of brine
- Loss zone in the Mission Canyon at weights above ~10.2ppg resulting in significant losses as a result of high EMW needed for Dakota

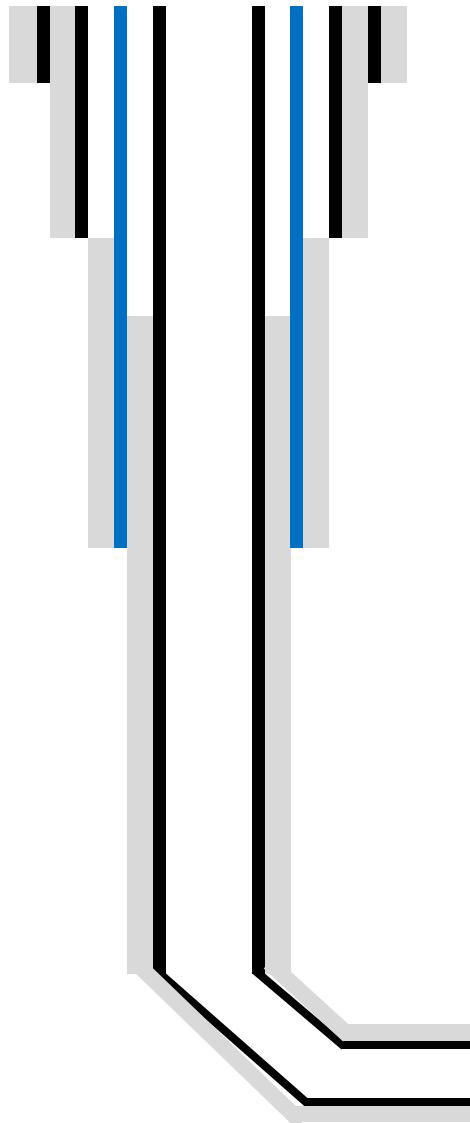
The pressured Dakota formation was again seen on the Buck Shot SWD 5201 11-3 (NDIC #90244) at an estimated equivalent mud weight (EMW) of 11.2ppg.

As a result of proximity, Oasis Petroleum is anticipating the possibility of seeing both the pressured Dakota and the loss zone in the Mission Canyon. In order to manage this, Oasis Petroleum is proposing to allow for a contingency string across the Dakota Formation. Contingency plan outlined below in flow chart. Please refer to attached wellbore diagram for representation of proposed casing design.



Sincerely,
Mike Brown
Drilling Engineer II

Lewis Infill 9-5/8" Contingency String



Hole Section	Hole Size	Casing Size	Weight	Drift	TD	TOC
Conductor	24	20	52.8	19.5	70	SFC
Surface	17.5	13.375	54.5	12.459	2100	SFC
INT - Dakota	12.25	9.625	40	8.75	6400	SFC Shoe
Prod Casing	8.75	7	29/32	6.0+	11100	3888

Oasis Petroleum
3/4/2014

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Sec. 31 T153N R100W
McKenzie County, North Dakota

SURFACE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
13-3/8"	0' to 2150	54.5	J-55	STC	12.615"	12.459"	4,100	5,470	6,840

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' to 2150	13-3/8", 54.5#, J-55, STC, 8rd	1400 / 2.04	2730 / 2.76	689 / 3.45

API Rating & Safety Factor

- a) Based on full casing evacuation with 9 ppg fluid on backside (2150' setting depth).
- b) Burst pressure based on 9 ppg fluid with no fluid on backside (2150' setting depth).
- c) Based on string weight in 9 ppg fluid at 2150' TVD plus 100k# overpull. (Buoyed weight equals 100k lbs.)

Cement volumes are based on 13-3/8" casing set in 17-1/2" hole with **40%** excess to circulate cement back to surface.
Mix and pump the following slurry.

Pre-flush (Spacer): 10 bbls fresh water

Lead Slurry: **903 sks** (320 bbls) Conventional system with 75 lb/sk cement, 2% extender, 10% expanding agent, 2% CaCl2 and 0.5 lb/sk lost circulation control agent

Tail Slurry: **300 sks** (62 bbls) Conventional system with 94 lb/sk cement, 0.2% CaCl2, and .3 lb/sk lost circulation control agent

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Sec. 31 T153N R100W
McKenzie County, North Dakota

CONTINGENCY INTERMEDIATE CASING AND CEMENT DESIGN

Intermediate Casing Design

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
9-5/8"	0' - 6400'	40	L-80	LTC	8.835"	8.75"**	5,450	7,270	9,090

**Special Drift

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' - 6400'	9-5/8", 40#, HCP-110, LTC, 8rd	3090 / 3.71*	5750 / 1.24	837 / 3.86

API Rating & Safety Factor

- a) Burst pressure calculated from a gas kick coming from the production zone (Bakken Pool) at 9,000psi and a subsequent breakdown at the 9-5/8" shoe, based on a 13.5#/ft fracture gradient. Backup of 9 ppg fluid.
- b) Collapse pressure based on 11.5ppg fluid on backside and 9ppg fluid inside of casing.
- c) Yield based on string weight in 10 ppg fluid, (217k lbs buoyed weight) plus 100k lbs overpull.

Cement volumes are estimates based on 9-5/8" casing set in an 12-1/4" hole with **30%** excess.

Pre-flush (Spacer): **20 bbls** Chem wash

Lead Slurry: **592 sks** (210 bbls) Conventional system with 75 lb/sk cement, 0.5lb/sk lost circulation, 10% expanding agent, 2% extender, 2% CaCl₂, 0.2% anti foam, and 0.4% fluid loss

Tail Slurry: **521 sks** (108 bbls) Conventional system with 94 lb/sk cement, 0.3% anti-settling agent, 0.3% fluid loss agent, 0.3 lb/sk lost circulation control agent, 0.2% anti foam, and 0.1% retarder

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Sec. 31 T153N R100W
McKenzie County, North Dakota

INTERMEDIATE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
7"	0' - 6750'	29	P-110	LTC	6.184"	6.059"	5,980	7,970	9,960
7"	6750' - 10306'	32	HCP-110	LTC	6.094"	6.000***	6,730	8,970	11210
7"	10306' - 11071'	29	P-110	LTC	6.184"	6.059"	5,980	7,970	9,960

**Special Drift

Interval	Description	Collapse		Burst	Tension
		(psi) a	(psi) b		
0' - 6750'	7", 29#, HCP-110, LTC, 8rd	8530 / 2.43*		11220 / 1.19	797 / 2.09
6750' - 10306'	7", 32#, HCP-110, LTC, 8rd	11820 / 2.20*		12460 / 1.29	
6750' - 10306'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.05**		12460 / 1.29	
10306' - 11071'	7", 32#, HCP-110, LTC, 8rd	8530 / 1.52*		11220 / 1.15	

API Rating & Safety Factor

- a. *Assume full casing evacuation with 10 ppg fluid on backside. **Assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals.
- b. Burst pressure based on 9000 psig max press for stimulation plus 10.2 ppg fluid in casing and 9 ppg fluid on backside-to 10784' TVD.
- c. Based on string weight in 10 ppg fluid, (281k lbs buoyed weight) plus 100k lbs overpull.

Cement volumes are estimates based on 7" casing set in an 8-3/4" hole with 30% excess.

Pre-flush (Spacer): **20 bbls** Chem wash
70 bbls 10.6# Scavenger

Lead Slurry: **217 sks** (87 bbls) Conventional system with 24 lb/sk cement, 54lb/sk extender, 3% KCl, 0.5% viscosifier, 0.2% anti foam, 0.5lb/sk lost circulation

Tail Slurry: **605 sks** (166 bbls) Conventional system with 94 lb/sk cement, 3% KCl, 35% Silica, 0.2% fluid loss agent, 0.5 lb/sk lost circulation control agent and 0.4% retarder

Oasis Petroleum
Well Summary
Lewis Federal 5300 21-31 6B
Sec. 31 T153N R100W
McKenzie County, North Dakota

PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Estimated Torque
4-1/2"	10256' - 20792'	11.6	P-110	BTC	4.000"	3.875"	4,500psi

Interval	Description	Collapse	Burst	Tension	Condition
		(psi) a	(psi) b	(1000 lbs) c	
10256' - 20792'	4-1/2", 11.6 lb, P-110, BTC, 8rd	7560 / 1.40	10690 / 1.10	385 / 1.88	New

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10872' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10872' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 107k lbs.) plus 100k lbs overpull.



3/18/2014

Michael Kukuk
Regulatory Supervisor
Oasis Petroleum
1001 Fannin St.
Suite 1500
Houston, TX 77002

Todd Holweger
Mineral Resources Permit Manager
North Dakota Industrial Commission
600 East Boulevard Avenue Dept. 405
Bismarck, ND 58505-0840

RE: Diesel Fuel Statement for all pending permits

Dear Mr. Holweger:

Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations. This statement applies to all of the wells listed in **Attachment 1**.

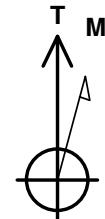
68334-30-5 (Primary Name: Fuels, diesel)
68476-34-6 (Primary Name: Fuels, diesel, No. 2)
68476-30-2 (Primary Name: Fuel oil No. 2)
68476-31-3 (Primary Name: Fuel oil, No. 4)
8008-20-6 (Primary Name: Kerosene)

Thank you for your consideration.

Respectfully,

A handwritten signature in black ink that reads "Michael Kukuk". The signature is fluid and cursive, with "Michael" on top and "Kukuk" on the bottom, slightly overlapping.

Michael Kukuk
Regulatory Supervisor
Oasis Petroleum

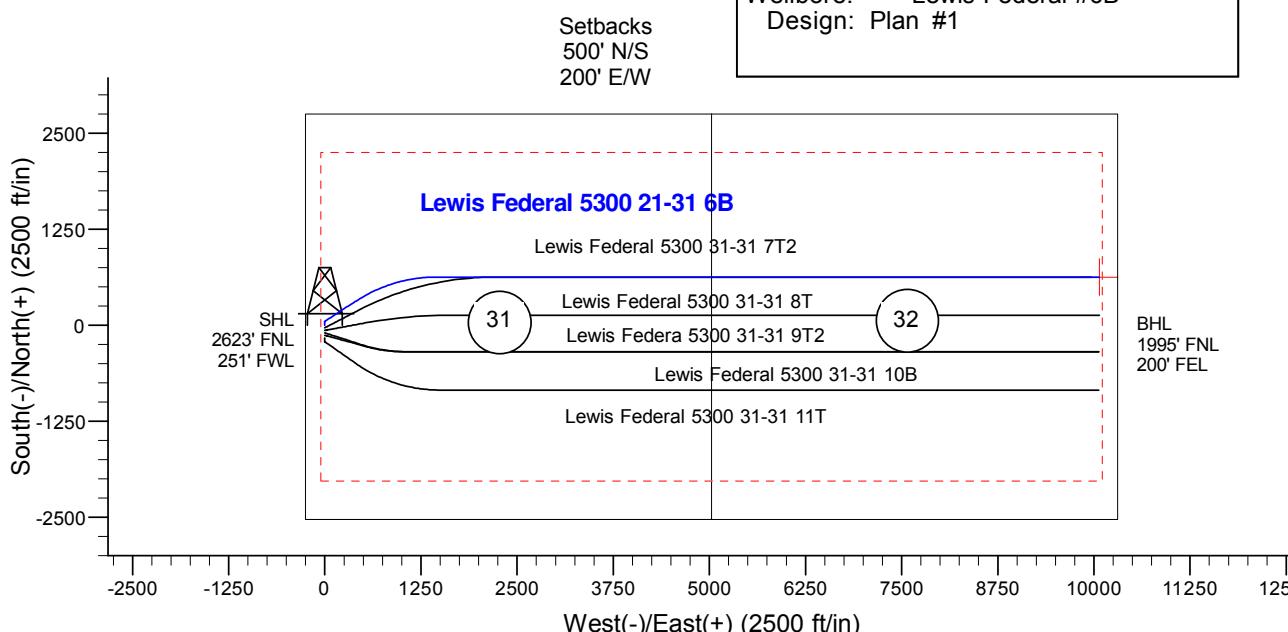


Azimuths to True North
Magnetic North: 8.30°

Magnetic Field
Strength: 56446.1nT
Dip Angle: 72.97°
Date: 3/3/2014
Model: IGRF2010



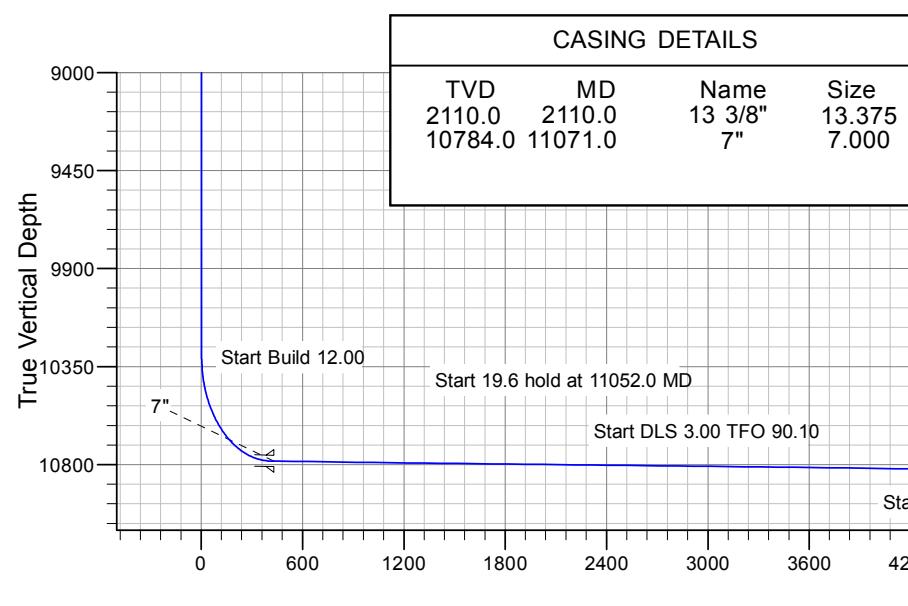
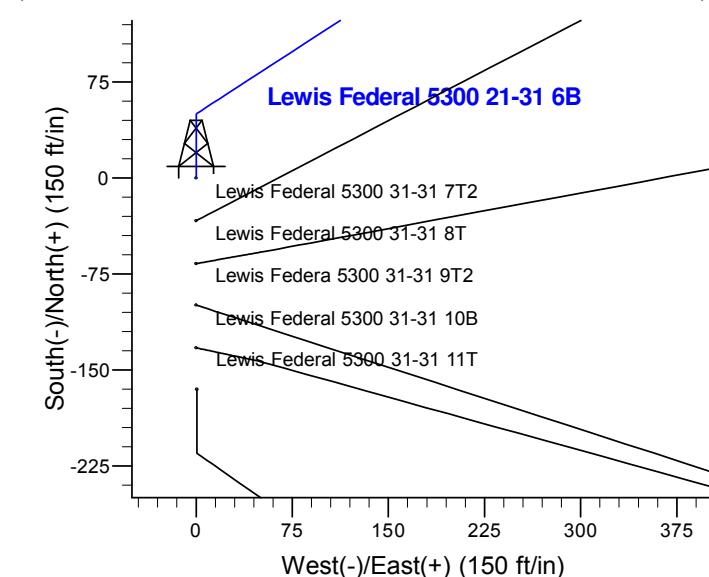
Project: Indian Hills
Site: 153N-100W-31/32
Well: Lewis Federal 5300 21-31 6B
Wellbore: Lewis Federal #6B
Design: Plan #1



SITE DETAILS: 153N-100W-31/32

Site Centre Latitude: 48° 1' 53.790 N
Longitude: 103° 36' 11.330 W

Positional Uncertainty: 0.0
Convergence: -2.31
Local North: True



SECTION DETAILS

MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	
2200.0	0.00	0.00	2200.0	0.0	0.0	0.00	
2210.0	0.50	0.00	2210.0	0.0	0.0	5.00	
7929.7	0.50	0.00	7929.4	50.0	0.0	0.00	
7939.7	0.00	0.00	7939.4	50.0	0.0	5.00	
10000.2	0.00	0.00	10000.0	50.0	0.0	0.00	
10306.6	0.00	0.00	10306.4	50.0	0.0	0.00	
11052.0	89.45	56.93	10783.8	308.0	396.3	12.00	
11071.6	89.45	56.93	10784.0	318.7	412.7	0.00	
12173.8	89.48	90.00	10794.5	628.0	1454.7	3.00	
20792.5	89.48	90.00	10872.1	628.0	10073.0	0.00	PBHL

Lewis Fed #6B PBHL

TD at 20792.5

Oasis

**Indian Hills
153N-100W-31/32
Lewis Federal 5300 21-31 6B**

Lewis Federal #6B

Plan: Plan #1

Standard Planning Report

03 March, 2014

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2158.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2158.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal #6B		
Design:	Plan #1		

Project	Indian Hills		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	North Dakota Northern Zone		

Site	153N-100W-31/32			
Site Position:		Northing:	390,399.32 ft	Latitude:
From:	Lat/Long	Easting:	1,209,468.83 ft	Longitude:
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:

Well	Lewis Federal 5300 21-31 6B				
Well Position	+N/-S +E/-W	1,193.6 ft -48.3 ft	Northing: Easting:	391,593.92 ft 1,209,468.71 ft	Latitude: Longitude:
Position Uncertainty	0.0 ft		Wellhead Elevation:		Ground Level:
Wellbore		Lewis Federal #6B		2,133.0 ft	

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/3/2014	8.30	72.97	56,446

Design	Plan #1
Audit Notes:	
Version:	
Vertical Section:	

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,210.0	0.50	0.00	2,210.0	0.0	0.0	5.00	5.00	0.00	0.00	0.00
7,929.7	0.50	0.00	7,929.4	50.0	0.0	0.00	0.00	0.00	0.00	0.00
7,939.7	0.00	0.00	7,939.4	50.0	0.0	5.00	-5.00	0.00	0.00	180.00
10,000.2	0.00	0.00	10,000.0	50.0	0.0	0.00	0.00	0.00	0.00	0.00
10,306.6	0.00	0.00	10,306.4	50.0	0.0	0.00	0.00	0.00	0.00	0.00
11,052.0	89.45	56.93	10,783.8	308.0	396.3	12.00	12.00	0.00	56.93	
11,071.6	89.45	56.93	10,784.0	318.7	412.7	0.00	0.00	0.00	0.00	
12,173.8	89.48	90.00	10,794.5	628.0	1,454.7	3.00	0.00	3.00	90.10	
20,792.5	89.48	90.00	10,872.1	628.0	10,073.0	0.00	0.00	0.00	0.00	Lewis Fed #6B PBHL

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2158.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2158.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal #6B		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,008.0	0.00	0.00	2,008.0	0.0	0.0	0.0	0.00	0.00	0.00
Pierre									
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,110.0	0.00	0.00	2,110.0	0.0	0.0	0.0	0.00	0.00	0.00
13 3/8"									
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 5.00									
2,210.0	0.50	0.00	2,210.0	0.0	0.0	0.0	5.00	5.00	0.00
Start 5719.7 hold at 2210.0 MD									
2,300.0	0.50	0.00	2,300.0	0.8	0.0	0.1	0.00	0.00	0.00
2,400.0	0.50	0.00	2,400.0	1.7	0.0	0.1	0.00	0.00	0.00
2,500.0	0.50	0.00	2,500.0	2.6	0.0	0.2	0.00	0.00	0.00
2,600.0	0.50	0.00	2,600.0	3.4	0.0	0.2	0.00	0.00	0.00
2,700.0	0.50	0.00	2,700.0	4.3	0.0	0.3	0.00	0.00	0.00
2,800.0	0.50	0.00	2,800.0	5.2	0.0	0.3	0.00	0.00	0.00
2,900.0	0.50	0.00	2,900.0	6.1	0.0	0.4	0.00	0.00	0.00
3,000.0	0.50	0.00	3,000.0	6.9	0.0	0.4	0.00	0.00	0.00
3,100.0	0.50	0.00	3,100.0	7.8	0.0	0.5	0.00	0.00	0.00
3,200.0	0.50	0.00	3,200.0	8.7	0.0	0.5	0.00	0.00	0.00
3,300.0	0.50	0.00	3,300.0	9.6	0.0	0.6	0.00	0.00	0.00
3,400.0	0.50	0.00	3,400.0	10.4	0.0	0.6	0.00	0.00	0.00
3,500.0	0.50	0.00	3,500.0	11.3	0.0	0.7	0.00	0.00	0.00
3,600.0	0.50	0.00	3,599.9	12.2	0.0	0.8	0.00	0.00	0.00
3,700.0	0.50	0.00	3,699.9	13.0	0.0	0.8	0.00	0.00	0.00
3,800.0	0.50	0.00	3,799.9	13.9	0.0	0.9	0.00	0.00	0.00
3,900.0	0.50	0.00	3,899.9	14.8	0.0	0.9	0.00	0.00	0.00
4,000.0	0.50	0.00	3,999.9	15.7	0.0	1.0	0.00	0.00	0.00
4,100.0	0.50	0.00	4,099.9	16.5	0.0	1.0	0.00	0.00	0.00
4,200.0	0.50	0.00	4,199.9	17.4	0.0	1.1	0.00	0.00	0.00
4,300.0	0.50	0.00	4,299.9	18.3	0.0	1.1	0.00	0.00	0.00
4,400.0	0.50	0.00	4,399.9	19.2	0.0	1.2	0.00	0.00	0.00
4,500.0	0.50	0.00	4,499.9	20.0	0.0	1.2	0.00	0.00	0.00
4,600.0	0.50	0.00	4,599.9	20.9	0.0	1.3	0.00	0.00	0.00
4,608.1	0.50	0.00	4,608.0	21.0	0.0	1.3	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2158.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2158.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal #6B		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Greenhorn									
4,700.0	0.50	0.00	4,699.9	21.8	0.0	1.4	0.00	0.00	0.00
4,800.0	0.50	0.00	4,799.9	22.6	0.0	1.4	0.00	0.00	0.00
4,900.0	0.50	0.00	4,899.9	23.5	0.0	1.5	0.00	0.00	0.00
5,000.0	0.50	0.00	4,999.9	24.4	0.0	1.5	0.00	0.00	0.00
5,021.1	0.50	0.00	5,021.0	24.6	0.0	1.5	0.00	0.00	0.00
Mowry									
5,100.0	0.50	0.00	5,099.9	25.3	0.0	1.6	0.00	0.00	0.00
5,200.0	0.50	0.00	5,199.9	26.1	0.0	1.6	0.00	0.00	0.00
5,300.0	0.50	0.00	5,299.9	27.0	0.0	1.7	0.00	0.00	0.00
5,400.0	0.50	0.00	5,399.9	27.9	0.0	1.7	0.00	0.00	0.00
5,409.1	0.50	0.00	5,409.0	28.0	0.0	1.7	0.00	0.00	0.00
Dakota									
5,500.0	0.50	0.00	5,499.9	28.8	0.0	1.8	0.00	0.00	0.00
5,600.0	0.50	0.00	5,599.9	29.6	0.0	1.8	0.00	0.00	0.00
5,700.0	0.50	0.00	5,699.9	30.5	0.0	1.9	0.00	0.00	0.00
5,800.0	0.50	0.00	5,799.9	31.4	0.0	2.0	0.00	0.00	0.00
5,900.0	0.50	0.00	5,899.9	32.2	0.0	2.0	0.00	0.00	0.00
6,000.0	0.50	0.00	5,999.9	33.1	0.0	2.1	0.00	0.00	0.00
6,100.0	0.50	0.00	6,099.9	34.0	0.0	2.1	0.00	0.00	0.00
6,200.0	0.50	0.00	6,199.8	34.9	0.0	2.2	0.00	0.00	0.00
6,300.0	0.50	0.00	6,299.8	35.7	0.0	2.2	0.00	0.00	0.00
6,371.2	0.50	0.00	6,371.0	36.4	0.0	2.3	0.00	0.00	0.00
Rierdon									
6,400.0	0.50	0.00	6,399.8	36.6	0.0	2.3	0.00	0.00	0.00
6,500.0	0.50	0.00	6,499.8	37.5	0.0	2.3	0.00	0.00	0.00
6,600.0	0.50	0.00	6,599.8	38.4	0.0	2.4	0.00	0.00	0.00
6,700.0	0.50	0.00	6,699.8	39.2	0.0	2.4	0.00	0.00	0.00
6,800.0	0.50	0.00	6,799.8	40.1	0.0	2.5	0.00	0.00	0.00
6,900.0	0.50	0.00	6,899.8	41.0	0.0	2.5	0.00	0.00	0.00
6,901.2	0.50	0.00	6,901.0	41.0	0.0	2.6	0.00	0.00	0.00
Dunham Salt									
6,971.2	0.50	0.00	6,971.0	41.6	0.0	2.6	0.00	0.00	0.00
Dunham Salt Base									
7,000.0	0.50	0.00	6,999.8	41.8	0.0	2.6	0.00	0.00	0.00
7,100.0	0.50	0.00	7,099.8	42.7	0.0	2.7	0.00	0.00	0.00
7,200.0	0.50	0.00	7,199.8	43.6	0.0	2.7	0.00	0.00	0.00
7,273.2	0.50	0.00	7,273.0	44.2	0.0	2.8	0.00	0.00	0.00
Pine Salt									
7,300.0	0.50	0.00	7,299.8	44.5	0.0	2.8	0.00	0.00	0.00
7,338.2	0.50	0.00	7,338.0	44.8	0.0	2.8	0.00	0.00	0.00
Pine Salt Base									
7,400.0	0.50	0.00	7,399.8	45.3	0.0	2.8	0.00	0.00	0.00
7,404.2	0.50	0.00	7,404.0	45.4	0.0	2.8	0.00	0.00	0.00
Opecche Salt									
7,495.2	0.50	0.00	7,495.0	46.2	0.0	2.9	0.00	0.00	0.00
Opecche Salt Base									
7,500.0	0.50	0.00	7,499.8	46.2	0.0	2.9	0.00	0.00	0.00
7,600.0	0.50	0.00	7,599.8	47.1	0.0	2.9	0.00	0.00	0.00
7,700.0	0.50	0.00	7,699.8	48.0	0.0	3.0	0.00	0.00	0.00
7,717.2	0.50	0.00	7,717.0	48.1	0.0	3.0	0.00	0.00	0.00
Amsden									
7,800.0	0.50	0.00	7,799.8	48.8	0.0	3.0	0.00	0.00	0.00
7,865.2	0.50	0.00	7,865.0	49.4	0.0	3.1	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2158.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2158.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal #6B		
Design:	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
Tyler										
7,900.0	0.50	0.00	7,899.8	49.7	0.0	3.1	0.00	0.00	0.00	0.00
7,929.7	0.50	0.00	7,929.4	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Start Drop -5.00										
7,939.7	0.00	0.00	7,939.4	50.0	0.0	3.1	5.00	-5.00	0.00	
Start 2060.6 hold at 7939.7 MD										
8,000.0	0.00	0.00	7,999.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,089.2	0.00	0.00	8,089.0	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Otter/Base Minnelusa										
8,100.0	0.00	0.00	8,099.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,200.0	0.00	0.00	8,199.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,300.0	0.00	0.00	8,299.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,400.0	0.00	0.00	8,399.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,432.2	0.00	0.00	8,432.0	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Kibbey Lime										
8,500.0	0.00	0.00	8,499.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,585.2	0.00	0.00	8,585.0	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Charles Salt										
8,600.0	0.00	0.00	8,599.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,700.0	0.00	0.00	8,699.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,800.0	0.00	0.00	8,799.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
8,900.0	0.00	0.00	8,899.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,000.0	0.00	0.00	8,999.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,100.0	0.00	0.00	9,099.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,200.0	0.00	0.00	9,199.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,254.2	0.00	0.00	9,254.0	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Base Last Salt										
9,300.0	0.00	0.00	9,299.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,400.0	0.00	0.00	9,399.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,470.2	0.00	0.00	9,470.0	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Mission Canyon										
9,500.0	0.00	0.00	9,499.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,600.0	0.00	0.00	9,599.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,700.0	0.00	0.00	9,699.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,800.0	0.00	0.00	9,799.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
9,900.0	0.00	0.00	9,899.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
10,000.2	0.00	0.00	10,000.0	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Start 306.4 hold at 10000.2 MD										
10,011.2	0.00	0.00	10,011.0	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Lodgepole										
10,100.0	0.00	0.00	10,099.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
10,200.0	0.00	0.00	10,199.8	50.0	0.0	3.1	0.00	0.00	0.00	0.00
10,306.6	0.00	0.00	10,306.4	50.0	0.0	3.1	0.00	0.00	0.00	0.00
Start Build 12.00										
10,325.0	2.21	56.93	10,324.8	50.2	0.3	3.4	12.00	12.00	0.00	
10,350.0	5.21	56.93	10,349.7	51.1	1.7	4.8	12.00	12.00	0.00	
10,375.0	8.21	56.93	10,374.5	52.7	4.1	7.4	12.00	12.00	0.00	
10,400.0	11.21	56.93	10,399.2	55.0	7.6	11.0	12.00	12.00	0.00	
10,425.0	14.21	56.93	10,423.6	58.0	12.2	15.8	12.00	12.00	0.00	
10,450.0	17.21	56.93	10,447.6	61.7	17.9	21.7	12.00	12.00	0.00	
10,475.0	20.21	56.93	10,471.3	66.0	24.6	28.7	12.00	12.00	0.00	
10,500.0	23.21	56.93	10,494.5	71.1	32.4	36.7	12.00	12.00	0.00	
10,525.0	26.21	56.93	10,517.2	76.8	41.1	45.8	12.00	12.00	0.00	
10,550.0	29.21	56.93	10,539.4	83.1	50.9	56.0	12.00	12.00	0.00	

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2158.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2158.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal #6B		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,575.0	32.21	56.93	10,560.9	90.1	61.6	67.1	12.00	12.00	0.00
10,600.0	35.21	56.93	10,581.7	97.7	73.2	79.1	12.00	12.00	0.00
10,625.0	38.21	56.93	10,601.7	105.8	85.7	92.1	12.00	12.00	0.00
10,650.0	41.21	56.93	10,620.9	114.5	99.1	106.0	12.00	12.00	0.00
10,675.0	44.21	56.93	10,639.3	123.8	113.3	120.8	12.00	12.00	0.00
10,700.0	47.21	56.93	10,656.8	133.5	128.3	136.4	12.00	12.00	0.00
10,725.0	50.21	56.93	10,673.2	143.8	144.1	152.7	12.00	12.00	0.00
10,750.0	53.21	56.93	10,688.7	154.5	160.5	169.8	12.00	12.00	0.00
10,775.0	56.21	56.93	10,703.2	165.6	177.6	187.6	12.00	12.00	0.00
10,800.0	59.21	56.93	10,716.5	177.2	195.3	205.9	12.00	12.00	0.00
10,825.0	62.21	56.93	10,728.8	189.1	213.6	224.9	12.00	12.00	0.00
10,850.0	65.21	56.93	10,739.8	201.3	232.4	244.4	12.00	12.00	0.00
10,850.4	65.26	56.93	10,740.0	201.5	232.7	244.7	12.00	12.00	0.00
False Bakken									
10,875.0	68.21	56.93	10,749.7	213.8	251.6	264.4	12.00	12.00	0.00
10,881.2	68.96	56.93	10,752.0	217.0	256.5	269.5	12.00	12.00	0.00
Upper Bakken Shale									
10,900.0	71.21	56.93	10,758.4	226.6	271.2	284.8	12.00	12.00	0.00
10,925.0	74.21	56.93	10,765.8	239.6	291.2	305.6	12.00	12.00	0.00
10,950.0	77.21	56.93	10,772.0	252.8	311.5	326.7	12.00	12.00	0.00
10,975.0	80.21	56.93	10,776.9	266.2	332.1	348.0	12.00	12.00	0.00
10,988.6	81.84	56.93	10,779.0	273.5	343.3	359.7	12.00	12.00	0.00
Middle Bakken (Top of Target)									
11,000.0	83.21	56.93	10,780.5	279.7	352.8	369.5	12.00	12.00	0.00
11,025.0	86.21	56.93	10,782.8	293.3	373.7	391.2	12.00	12.00	0.00
11,052.0	89.45	56.93	10,783.8	308.0	396.3	414.7	12.00	12.00	0.00
Start 19.6 hold at 11052.0 MD									
11,071.0	89.45	56.93	10,784.0	318.4	412.2	431.2	0.00	0.00	0.00
7"									
11,071.6	89.45	56.93	10,784.0	318.7	412.7	431.7	0.00	0.00	0.00
Start DLS 3.00 TFO 90.10									
11,100.0	89.45	57.79	10,784.3	334.0	436.6	456.6	3.00	-0.01	3.00
11,200.0	89.44	60.79	10,785.2	385.1	522.6	545.5	3.00	0.00	3.00
11,300.0	89.44	63.79	10,786.2	431.6	611.1	636.8	3.00	0.00	3.00
11,400.0	89.44	66.79	10,787.2	473.4	701.9	730.0	3.00	0.00	3.00
11,500.0	89.44	69.79	10,788.2	510.4	794.8	825.0	3.00	0.00	3.00
11,600.0	89.44	72.79	10,789.1	542.5	889.5	921.5	3.00	0.00	3.00
11,700.0	89.45	75.79	10,790.1	569.5	985.8	1,019.3	3.00	0.00	3.00
11,800.0	89.45	78.79	10,791.1	591.6	1,083.3	1,118.0	3.00	0.01	3.00
11,900.0	89.46	81.79	10,792.0	608.4	1,181.8	1,217.4	3.00	0.01	3.00
12,000.0	89.47	84.79	10,793.0	620.1	1,281.1	1,317.2	3.00	0.01	3.00
12,100.0	89.48	87.79	10,793.9	626.6	1,380.9	1,417.2	3.00	0.01	3.00
12,173.8	89.48	90.00	10,794.5	628.0	1,454.7	1,490.9	3.00	0.01	3.00
Start 8618.7 hold at 12173.8 MD									
12,200.0	89.48	90.00	10,794.8	628.0	1,480.9	1,517.1	0.00	0.00	0.00
12,300.0	89.48	90.00	10,795.7	628.0	1,580.9	1,616.9	0.00	0.00	0.00
12,400.0	89.48	90.00	10,796.6	628.0	1,680.9	1,716.7	0.00	0.00	0.00
12,500.0	89.48	90.00	10,797.5	628.0	1,780.9	1,816.5	0.00	0.00	0.00
12,600.0	89.48	90.00	10,798.4	628.0	1,880.9	1,916.3	0.00	0.00	0.00
12,700.0	89.48	90.00	10,799.3	628.0	1,980.9	2,016.1	0.00	0.00	0.00
12,800.0	89.48	90.00	10,800.2	628.0	2,080.9	2,115.9	0.00	0.00	0.00
12,900.0	89.48	90.00	10,801.1	628.0	2,180.9	2,215.7	0.00	0.00	0.00
13,000.0	89.48	90.00	10,802.0	628.0	2,280.9	2,315.5	0.00	0.00	0.00
13,100.0	89.48	90.00	10,802.9	628.0	2,380.9	2,415.3	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2158.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2158.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal #6B		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,200.0	89.48	90.00	10,803.8	628.0	2,480.8	2,515.1	0.00	0.00	0.00
13,300.0	89.48	90.00	10,804.7	628.0	2,580.8	2,614.9	0.00	0.00	0.00
13,400.0	89.48	90.00	10,805.6	628.0	2,680.8	2,714.7	0.00	0.00	0.00
13,500.0	89.48	90.00	10,806.5	628.0	2,780.8	2,814.5	0.00	0.00	0.00
13,600.0	89.48	90.00	10,807.4	628.0	2,880.8	2,914.3	0.00	0.00	0.00
13,700.0	89.48	90.00	10,808.3	628.0	2,980.8	3,014.1	0.00	0.00	0.00
13,800.0	89.48	90.00	10,809.2	628.0	3,080.8	3,113.9	0.00	0.00	0.00
13,900.0	89.48	90.00	10,810.1	628.0	3,180.8	3,213.7	0.00	0.00	0.00
14,000.0	89.48	90.00	10,811.0	628.0	3,280.8	3,313.5	0.00	0.00	0.00
14,100.0	89.48	90.00	10,811.9	628.0	3,380.8	3,413.3	0.00	0.00	0.00
14,200.0	89.48	90.00	10,812.8	628.0	3,480.8	3,513.1	0.00	0.00	0.00
14,300.0	89.48	90.00	10,813.7	628.0	3,580.8	3,612.9	0.00	0.00	0.00
14,400.0	89.48	90.00	10,814.6	628.0	3,680.8	3,712.7	0.00	0.00	0.00
14,500.0	89.48	90.00	10,815.5	628.0	3,780.8	3,812.5	0.00	0.00	0.00
14,600.0	89.48	90.00	10,816.4	628.0	3,880.8	3,912.3	0.00	0.00	0.00
14,700.0	89.48	90.00	10,817.3	628.0	3,980.8	4,012.2	0.00	0.00	0.00
14,800.0	89.48	90.00	10,818.2	628.0	4,080.8	4,112.0	0.00	0.00	0.00
14,900.0	89.48	90.00	10,819.1	628.0	4,180.8	4,211.8	0.00	0.00	0.00
15,000.0	89.48	90.00	10,820.0	628.0	4,280.8	4,311.6	0.00	0.00	0.00
15,100.0	89.48	90.00	10,820.9	628.0	4,380.8	4,411.4	0.00	0.00	0.00
15,200.0	89.48	90.00	10,821.8	628.0	4,480.8	4,511.2	0.00	0.00	0.00
15,300.0	89.48	90.00	10,822.7	628.0	4,580.8	4,611.0	0.00	0.00	0.00
15,400.0	89.48	90.00	10,823.6	628.0	4,680.8	4,710.8	0.00	0.00	0.00
15,500.0	89.48	90.00	10,824.5	628.0	4,780.8	4,810.6	0.00	0.00	0.00
15,600.0	89.48	90.00	10,825.4	628.0	4,880.8	4,910.4	0.00	0.00	0.00
15,700.0	89.48	90.00	10,826.3	628.0	4,980.7	5,010.2	0.00	0.00	0.00
15,800.0	89.48	90.00	10,827.2	628.0	5,080.7	5,110.0	0.00	0.00	0.00
15,900.0	89.48	90.00	10,828.1	628.0	5,180.7	5,209.8	0.00	0.00	0.00
16,000.0	89.48	90.00	10,829.0	628.0	5,280.7	5,309.6	0.00	0.00	0.00
16,100.0	89.48	90.00	10,829.9	628.0	5,380.7	5,409.4	0.00	0.00	0.00
16,200.0	89.48	90.00	10,830.8	628.0	5,480.7	5,509.2	0.00	0.00	0.00
16,300.0	89.48	90.00	10,831.7	628.0	5,580.7	5,609.0	0.00	0.00	0.00
16,400.0	89.48	90.00	10,832.6	628.0	5,680.7	5,708.8	0.00	0.00	0.00
16,500.0	89.48	90.00	10,833.5	628.0	5,780.7	5,808.6	0.00	0.00	0.00
16,600.0	89.48	90.00	10,834.4	628.0	5,880.7	5,908.4	0.00	0.00	0.00
16,700.0	89.48	90.00	10,835.3	628.0	5,980.7	6,008.2	0.00	0.00	0.00
16,800.0	89.48	90.00	10,836.2	628.0	6,080.7	6,108.0	0.00	0.00	0.00
16,900.0	89.48	90.00	10,837.1	628.0	6,180.7	6,207.8	0.00	0.00	0.00
17,000.0	89.48	90.00	10,838.0	628.0	6,280.7	6,307.6	0.00	0.00	0.00
17,100.0	89.48	90.00	10,838.9	628.0	6,380.7	6,407.4	0.00	0.00	0.00
17,200.0	89.48	90.00	10,839.8	628.0	6,480.7	6,507.2	0.00	0.00	0.00
17,300.0	89.48	90.00	10,840.7	628.0	6,580.7	6,607.0	0.00	0.00	0.00
17,400.0	89.48	90.00	10,841.6	628.0	6,680.7	6,706.8	0.00	0.00	0.00
17,500.0	89.48	90.00	10,842.5	628.0	6,780.7	6,806.6	0.00	0.00	0.00
17,600.0	89.48	90.00	10,843.4	628.0	6,880.7	6,906.4	0.00	0.00	0.00
17,700.0	89.48	90.00	10,844.3	628.0	6,980.7	7,006.2	0.00	0.00	0.00
17,800.0	89.48	90.00	10,845.2	628.0	7,080.7	7,106.0	0.00	0.00	0.00
17,900.0	89.48	90.00	10,846.1	628.0	7,180.7	7,205.8	0.00	0.00	0.00
18,000.0	89.48	90.00	10,847.0	628.0	7,280.7	7,305.6	0.00	0.00	0.00
18,100.0	89.48	90.00	10,847.9	628.0	7,380.6	7,405.4	0.00	0.00	0.00
18,200.0	89.48	90.00	10,848.8	628.0	7,480.6	7,505.2	0.00	0.00	0.00
18,300.0	89.48	90.00	10,849.7	628.0	7,580.6	7,605.0	0.00	0.00	0.00
18,400.0	89.48	90.00	10,850.6	628.0	7,680.6	7,704.8	0.00	0.00	0.00
18,500.0	89.48	90.00	10,851.5	628.0	7,780.6	7,804.6	0.00	0.00	0.00
18,600.0	89.48	90.00	10,852.4	628.0	7,880.6	7,904.4	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database: Company: Project: Site: Well: Wellbore: Design:	OpenWellsCompass - EDM Prod Oasis Indian Hills 153N-100W-31/32 Lewis Federal 5300 21-31 6B Lewis Federal #6B Plan #1	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Well Lewis Federal 5300 21-31 6B WELL @ 2158.0ft (Original Well Elev) WELL @ 2158.0ft (Original Well Elev) True Minimum Curvature
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Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
18,700.0	89.48	90.00	10,853.3	628.0	7,980.6	8,004.2	0.00	0.00	0.00
18,800.0	89.48	90.00	10,854.2	628.0	8,080.6	8,104.0	0.00	0.00	0.00
18,900.0	89.48	90.00	10,855.1	628.0	8,180.6	8,203.8	0.00	0.00	0.00
19,000.0	89.48	90.00	10,856.0	628.0	8,280.6	8,303.6	0.00	0.00	0.00
19,100.0	89.48	90.00	10,856.9	628.0	8,380.6	8,403.4	0.00	0.00	0.00
19,200.0	89.48	90.00	10,857.8	628.0	8,480.6	8,503.2	0.00	0.00	0.00
19,300.0	89.48	90.00	10,858.7	628.0	8,580.6	8,603.1	0.00	0.00	0.00
19,400.0	89.48	90.00	10,859.6	628.0	8,680.6	8,702.9	0.00	0.00	0.00
19,500.0	89.48	90.00	10,860.5	628.0	8,780.6	8,802.7	0.00	0.00	0.00
19,600.0	89.48	90.00	10,861.4	628.0	8,880.6	8,902.5	0.00	0.00	0.00
19,700.0	89.48	90.00	10,862.3	628.0	8,980.6	9,002.3	0.00	0.00	0.00
19,800.0	89.48	90.00	10,863.2	628.0	9,080.6	9,102.1	0.00	0.00	0.00
19,900.0	89.48	90.00	10,864.1	628.0	9,180.6	9,201.9	0.00	0.00	0.00
20,000.0	89.48	90.00	10,865.0	628.0	9,280.6	9,301.7	0.00	0.00	0.00
20,100.0	89.48	90.00	10,865.9	628.0	9,380.6	9,401.5	0.00	0.00	0.00
20,200.0	89.48	90.00	10,866.8	628.0	9,480.6	9,501.3	0.00	0.00	0.00
20,300.0	89.48	90.00	10,867.7	628.0	9,580.6	9,601.1	0.00	0.00	0.00
20,400.0	89.48	90.00	10,868.6	628.0	9,680.6	9,700.9	0.00	0.00	0.00
20,500.0	89.48	90.00	10,869.5	628.0	9,780.6	9,800.7	0.00	0.00	0.00
20,600.0	89.48	90.00	10,870.4	628.0	9,880.5	9,900.5	0.00	0.00	0.00
20,700.0	89.48	90.00	10,871.3	628.0	9,980.5	10,000.3	0.00	0.00	0.00
20,792.5	89.48	90.00	10,872.1	628.0	10,073.0	10,092.6	0.00	0.00	0.00
TD at 20792.5 - Lewis Fed #6B PBHL									

Design Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/S (ft)	+E/W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
Lewis Fed #6B PBHL	0.00	0.00	10,872.1	628.0	10,073.0	391,815.56	1,219,558.85	48° 1' 59.961 N	103° 33' 43.113 W
- plan hits target center									
- Point									

Casing Points									
Measured Depth (ft)	Vertical Depth (ft)	Name				Casing Diameter (in)	Hole Diameter (in)		
2,110.0	2,110.0 13 3/8"					13.375	17.500		
11,071.0	10,784.0 7"					7.000	8.750		

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Lewis Federal 5300 21-31 6B
Company:	Oasis	TVD Reference:	WELL @ 2158.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2158.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Lewis Federal 5300 21-31 6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lewis Federal #6B		
Design:	Plan #1		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,008.0	-150.0	Pierre			
4,608.1	2,450.0	Greenhorn			
5,021.1	2,863.0	Mowry			
5,409.1	3,251.0	Dakota			
6,371.2	4,213.0	Rierdon			
6,901.2	4,743.0	Dunham Salt			
6,971.2	4,813.0	Dunham Salt Base			
7,273.2	5,115.0	Pine Salt			
7,338.2	5,180.0	Pine Salt Base			
7,404.2	5,246.0	Opeche Salt			
7,495.2	5,337.0	Opeche Salt Base			
7,717.2	5,559.0	Amsden			
7,865.2	5,707.0	Tyler			
8,089.2	5,931.0	Otter/Base Minnelusa			
8,432.2	6,274.0	Kibbey Lime			
8,585.2	6,427.0	Charles Salt			
9,254.2	7,096.0	Base Last Salt			
9,470.2	7,312.0	Mission Canyon			
10,011.2	7,853.0	Lodgepole			
10,850.4	8,582.0	False Bakken			
10,881.2	8,594.0	Upper Bakken Shale			
10,988.6	8,621.0	Middle Bakken (Top of Target)			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,200.0	2,200.0	0.0	0.0	Start Build 5.00	
2,210.0	2,210.0	0.0	0.0	Start 5719.7 hold at 2210.0 MD	
7,929.7	7,929.4	50.0	0.0	Start Drop -5.00	
7,939.7	7,939.4	50.0	0.0	Start 2060.6 hold at 7939.7 MD	
10,000.2	10,000.0	50.0	0.0	Start 306.4 hold at 10000.2 MD	
10,306.6	10,306.4	50.0	0.0	Start Build 12.00	
11,052.0	10,783.8	308.0	396.3	Start 19.6 hold at 11052.0 MD	
11,071.6	10,784.0	318.7	412.7	Start DLS 3.00 TFO 90.10	
12,173.8	10,794.5	628.0	1,454.7	Start 8618.7 hold at 12173.8 MD	
20,792.5	10,872.1	628.0	10,073.0	TD at 20792.5	

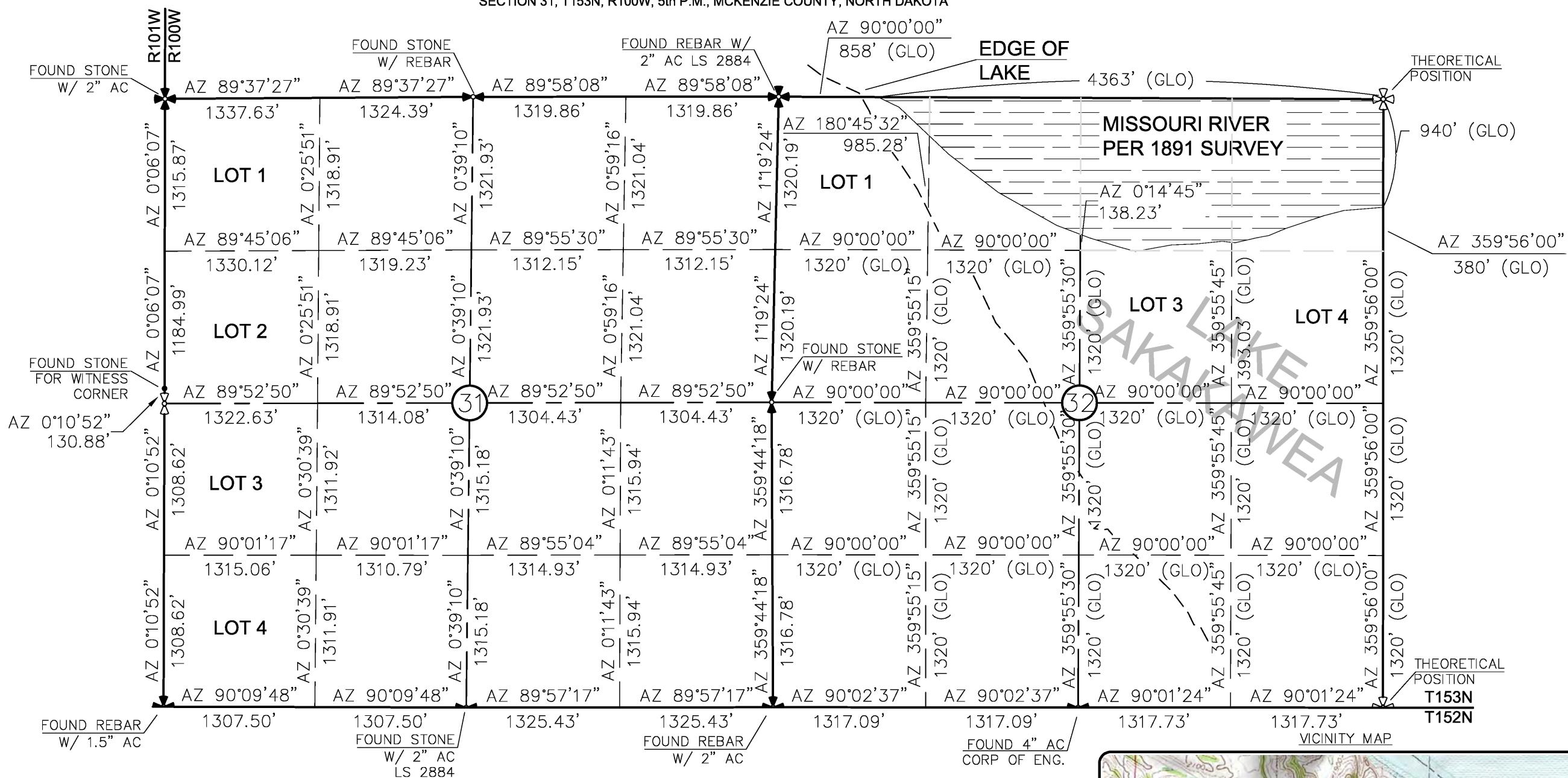
SECTION BREAKDOWN

OASIS PETROLEUM NORTH AMERICA, LLC

FANNIN, SUITE 1500, HOUSTON, TX 77002

"LEWIS FEDERAL 5300 21

2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



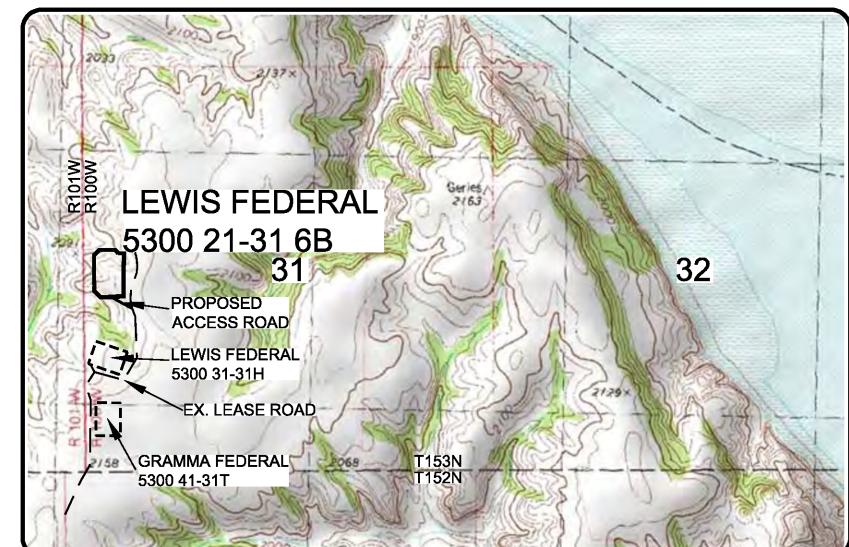
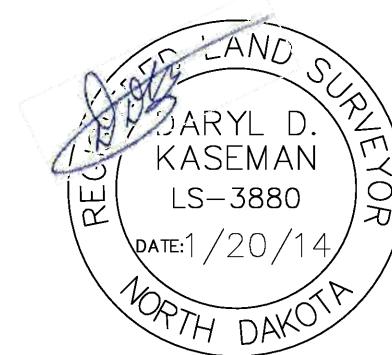
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0 100

1" = 1000'

ALL AZIMUTHS ARE BASED ON G.P.S. OBSERVATIONS. THE ORIGINAL SURVEY OF THIS AREA FOR THE GENERAL LAND OFFICE (G.L.O.) WAS 1897. THE CORNERS FOUND ARE AS INDICATED AND ALL OTHERS ARE COMPUTED FROM THOSE CORNERS FOUND AND BASED ON G.L.O. DATA. THE MAPPING ANGLE FOR THIS AREA IS APPROXIMATELY 0'03'.



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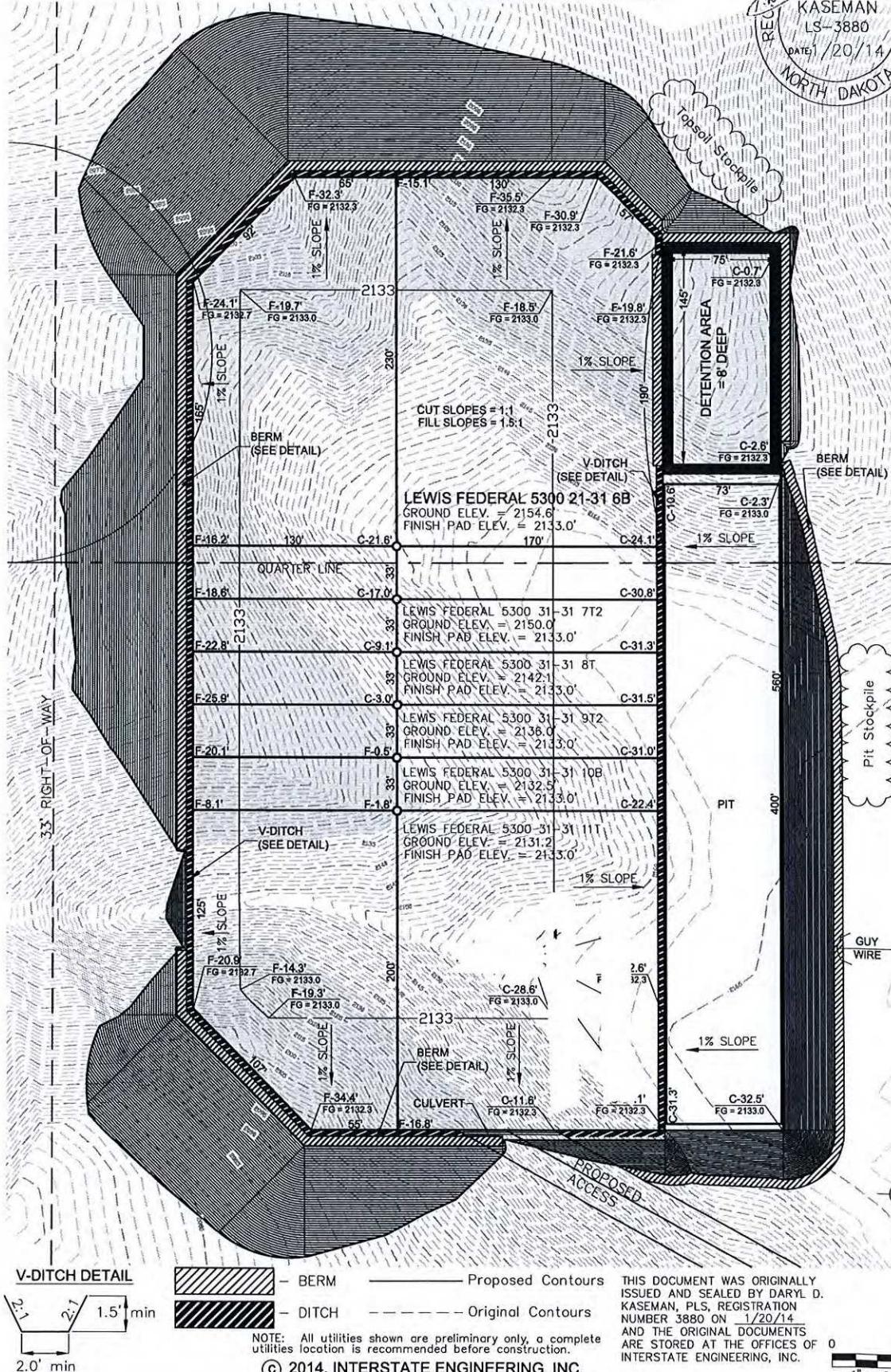
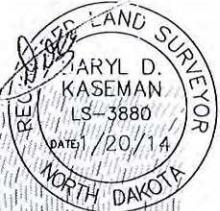


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OASIS PETROLEUM NORTH AMERICA, LLC	
SECTION BREAKDOWN	
SECTIONS 31 & 32, T153N, R100W	
MKENZIE COUNTY, NORTH DAKOTA	
Drawn By:	B.H.H.
Checked By:	D.D.K.
Project No.:	<u>S139-379-01</u>
Date:	JAN 2014
Revision No.	REV 1
Date	1/15/14
By	uS
Description	ADDED "FEDERAL" TO NAME

NOTE: Pad dimensions shown are to usable area, the v-ditch and berm areas shall be built to the outside of the pad dimensions.

PAD LAYOUT
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"LEWIS FEDERAL 5300 21-31 6B"
2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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0 60

1" = 60'

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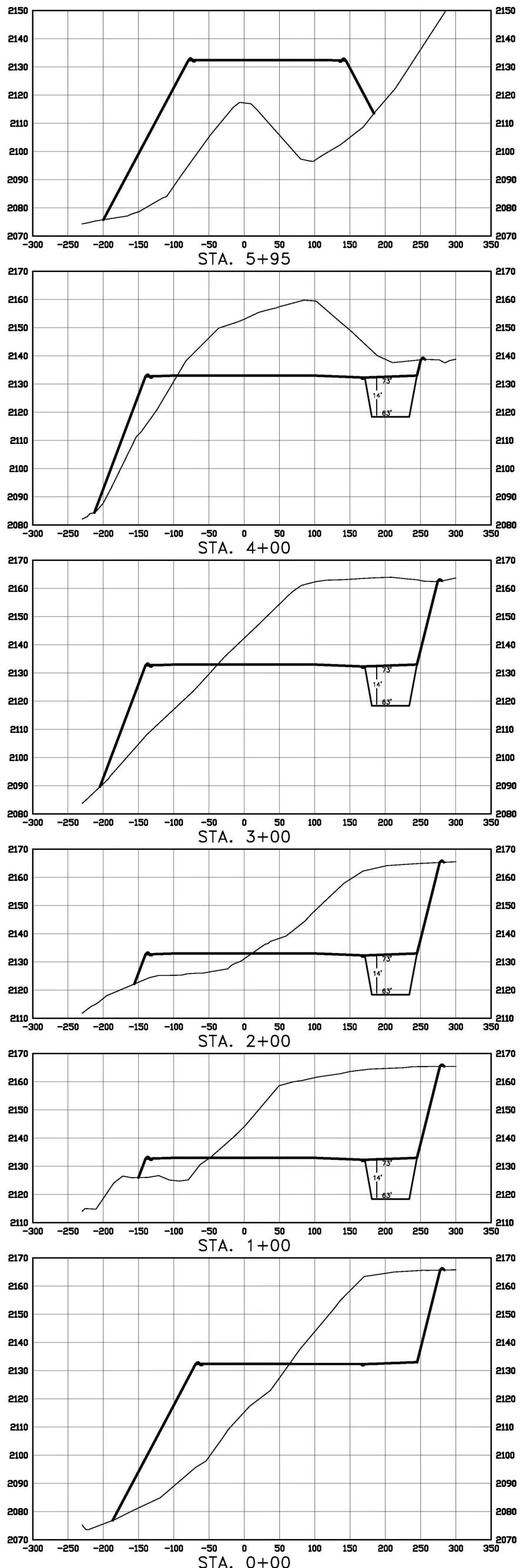
OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA

Revision No.	Date	By	Description
REV 1	1/15/14	JJS	ADDED "FEDERAL" TO NAME

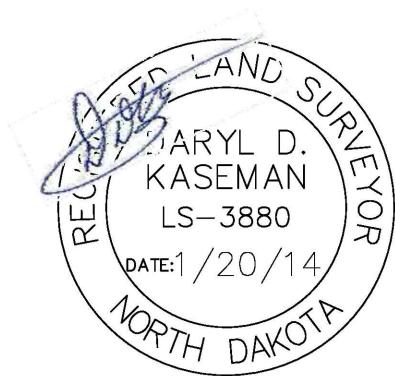
Drawn By: B.H.H. Project No: S13-09-379-01
Checked By: D.D.K. Date: JAN 2014

1/20/14
S13-09-379-01
1" = 60'
1/20/14
S13-09-379-01
1" = 60'

CROSS SECTIONS
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "LEWIS FEDERAL 5300 21-31 6B"
 2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
 SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE
 HORIZ 1"=160'
 VERT 1"=40'

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OASIS PETROLEUM NORTH AMERICA, LLC
 CROSS SECTIONS
 SECTION 31, T153N, R100W
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-379.01
 Checked By: D.D.K. Date: JAN 2014

Revision No.	Date	By	Description
REV 1	1/15/14	JJS	ADDED "FEDERAL" TO NAME

Oasis Petroleum - Lewis 5300 21-31 6B Well Location
 2-Well Pad\CAD\Lewis 5300 21-31 6B.dwg / 1/21/2014 11:15 AM josh schmitz

WELL LOCATION SITE QUANTITIES
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "LEWIS FEDERAL 5300 21-31 6B"
 2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
 SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL SITE ELEVATION	2154.6
WELL PAD ELEVATION	2133.0
EXCAVATION	110,182
PLUS PIT	<u>12,264</u>
	122,446
EMBANKMENT	83,005
PLUS SHRINKAGE (25%)	<u>20,751</u>
	103,756
STOCKPILE PIT	12,264
STOCKPILE TOP SOIL (6")	5,790
BERMS	1,887 LF = 612 CY
DITCHES	1,441 LF = 220 CY
DETENTION AREA	2,812 CY
STOCKPILE MATERIAL	3,056
DISTURBED AREA FROM PAD	7.18 ACRES

NOTE: ALL QUANTITIES ARE IN CUBIC YARDS (UNLESS NOTED)

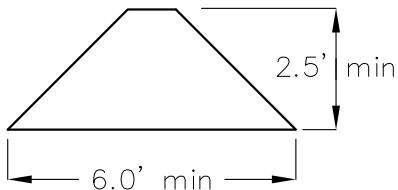
CUT END SLOPES AT 1:1
 FILL END SLOPES AT 1.5:1

WELL SITE LOCATION

2623' FNL

251' FWL

BERM DETAIL



DITCH DETAIL

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SHEET NO.

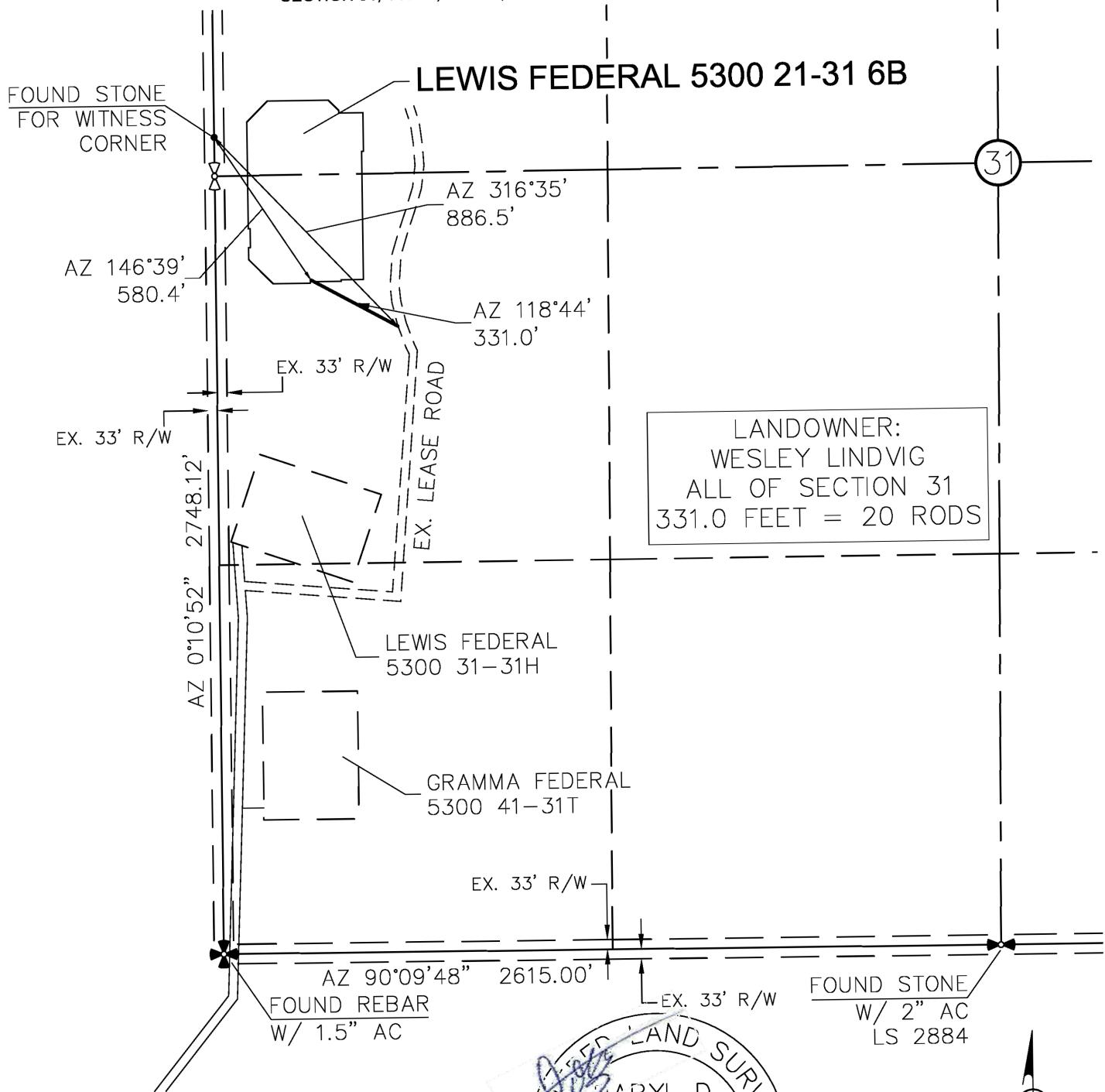
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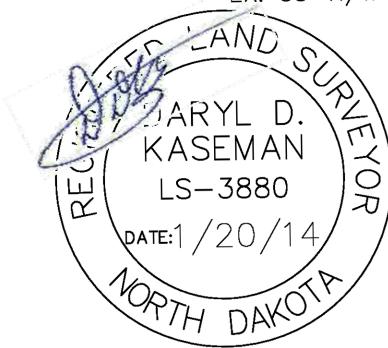
OASIS PETROLEUM NORTH AMERICA, LLC QUANTITIES			
SECTION 31, T153N, R100W			
MCKENZIE COUNTY, NORTH DAKOTA			
Drawn By:	B.H.H.	Project No.:	S13-09-379.01
Checked By:	D.D.K.	Date:	JAN. 2014

Revision No.	Date	By	Description
REV 1	1/15/14	JJS	ADDED "FEDERAL" TO NAME

ACCESS APPROACH
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "LEWIS FEDERAL 5300 21-31 6B"
 2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
 SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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0 500
1" = 500'

NOTE: All utilities shown are preliminary only, a complete utilities location is recommended before construction.

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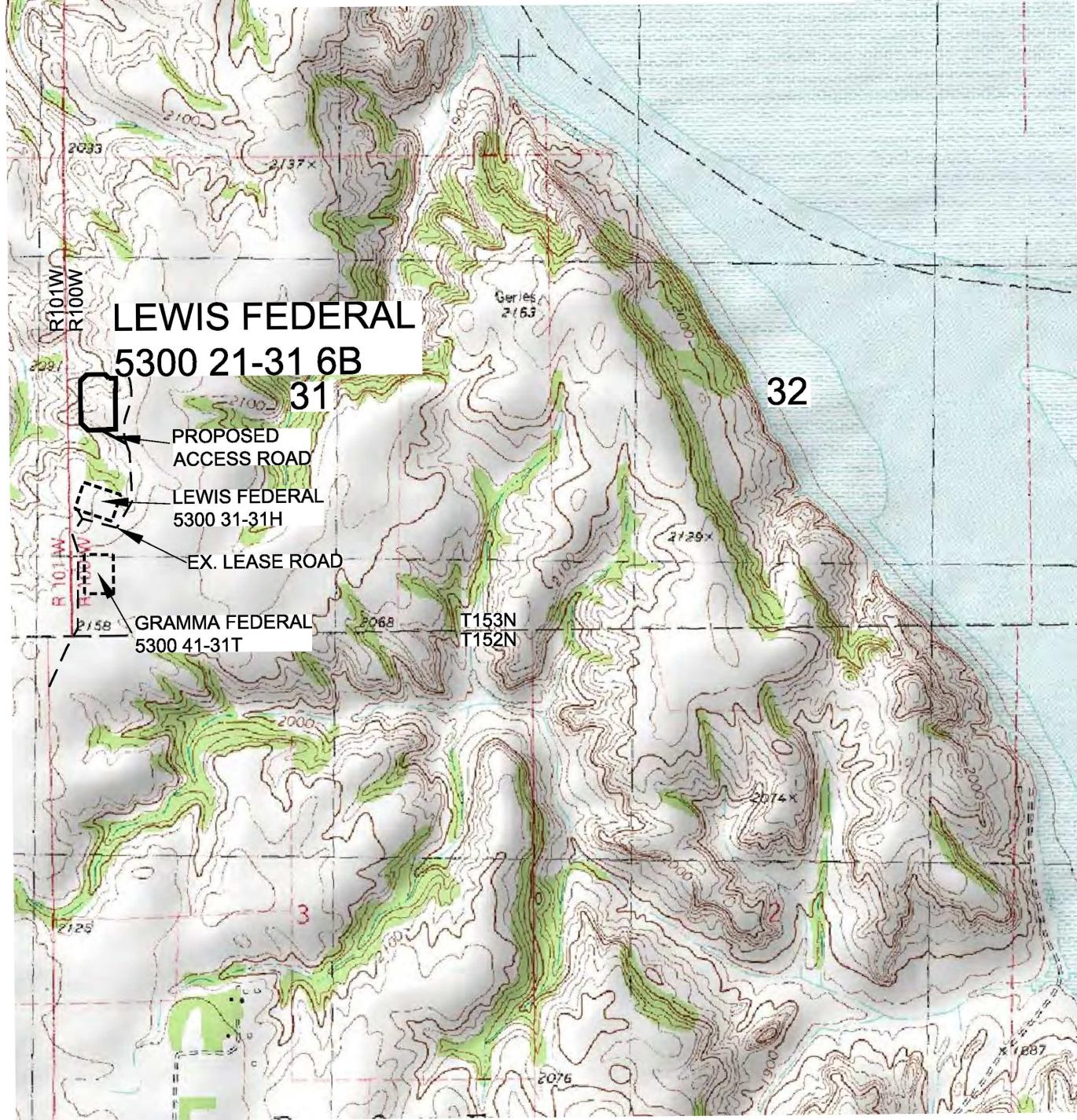
OASIS PETROLEUM NORTH AMERICA, LLC
ACCESS APPROACH
SECTION 31, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	B.H.H.	Project No.:	S13-09-379.01
Checked By:	D.D.K.	Date:	JAN. 2014

Revision No.	Date	By	Description
REV 1	1/15/14	JJS	ADDED "FEDERAL" TO NAME

OASIS PETROLEUM NORTH AMERICA, LLC
 LEWIS FEDERAL 5300 21-31 6B
 2623' FNL/251' FWL
 QUAD LOCATION MAP
 SECTION 31, T153N, R100W
 MCKENZIE COUNTY, NORTH DAKOTA



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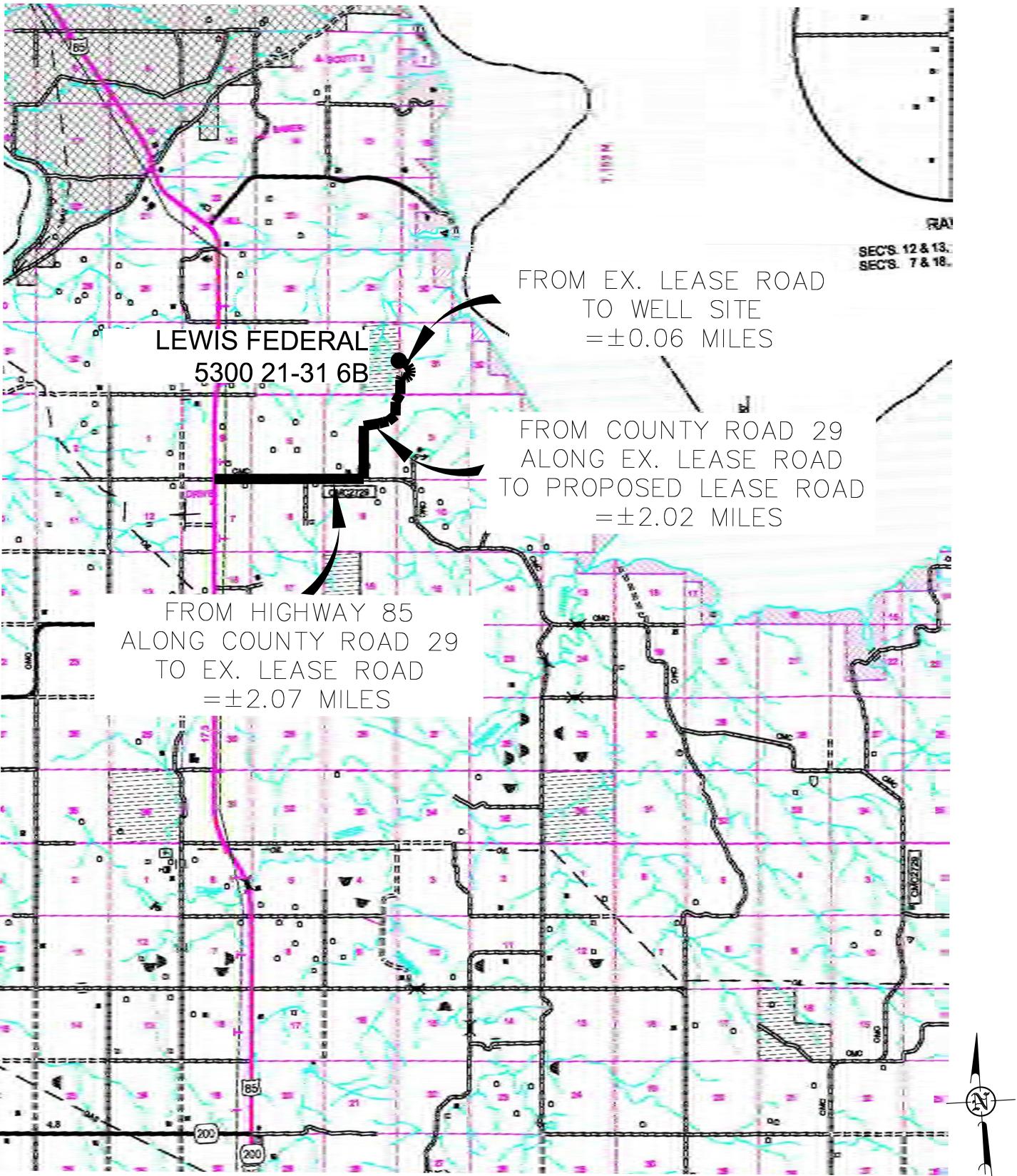
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OASIS PETROLEUM NORTH AMERICA, LLC QUAD LOCATION MAP SECTION 31, T153N, R100W MCKENZIE COUNTY, NORTH DAKOTA			
Drawn By:	B.H.H.	Project No.:	S13-09-379.01
Checked By:	D.D.K.	Date:	JAN, 2014
Revision No.	Date	By	Description
REV 1	1/15/14	JWS	ADDED "FEDERAL" TO NAME

COUNTY ROAD MAP

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"EWIS FEDERAL 5200-21-21-6P"

LEWIS PROPERTY 5500 21-31-6B
2623 FEET FROM NORTH LINE AND 251 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

6/8



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OASIS PETROLEUM NORTH AMERICA, LLC			
COUNTY ROAD MAP			
SECTION 31, T153N, R100W			
MCKENZIE COUNTY, NORTH DAKOTA			
vn By:	B.H.H.	Project No.:	\$13-09-379.01
cked By:	D.D.K.	Date:	JAN. 2014

Revision No.	Date	By	Description
REV 1	1/15/14	JJS	ADDED "FEDERAL" TO NAME

Burns, David J.

From: Lauri Stanfield <lstanfield@oasispetroleum.com>
Sent: Thursday, April 10, 2014 3:25 PM
To: Burns, David J.
Cc: Lauri Stanfield; Michael Kukuk; Chelsea Covington; Brandi Terry; Heather McCowan
Subject: Lewis Federal wells

Dave,

Pursuant to the above reference and your recent request, please find the following information for the Lewis Federal wells which will be penetrating BLM Minerals:

Lewis Federal 5300 11-31 3B – Federal APD required
Lewis Federal 5300 11-31 4T2 – Federal APD required
Lewis Federal 5300 11-31 5T – Federal APD required
Lewis Federal 5300 21-31 6B – Federal APD required
Lewis Federal 5300 31-31 7T2 – Federal APD required
Lewis Federal 5300 31-31 8T – Federal APD required
Lewis Federal 5300 31-31 9T2 – Federal APD required
Lewis Federal 5300 31-31 10B – Federal APD required
Lewis Federal 5300 31-31 11T – Federal APD required

The Lewis Federal 5300 11-31 2T does not penetrate federal minerals. The Notice of Staking for these wells was sent to the BLM back in January, and federal permits will be filed with the BLM for the above wells next week pending completion of the Surface Use Plan of Operation being completed.

Should you need additional information, please feel free to contact me.

Kind Regards,

Lauri M. Stanfield

Regulatory Specialist
1001 Fannin, Suite 1500
Houston, TX 77002
Direct: 281-404-9562





STATEMENT

This statement is being sent in order to comply with NDAC 43-02-03-16 (Application for permit to drill and recomplete) which states (in part that) "confirmation that a legal street address has been requested for the well site, and well facility if separate from the well site, and the proposed road access to the nearest existing public road". On the date noted below a legal street address was requested from the appropriate county office.

McKenzie County

Aaron Chisolm – McKenzie County Dept.

Lewis Federal 5300 21-31 6B

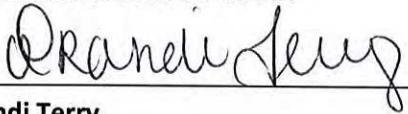
Lewis Federal 5300 31-31 7T2

Lewis Federal 5300 31-31 8T

Lewis Federal 5300 31-31 9T2

Lewis Federal 5300 31-31 10B

Lewis Federal 5300 31-31 11T



Brandi Terry

Regulatory Specialist

Oasis Petroleum North America, LLC



3/18/2014

Michael Kukuk
Regulatory Supervisor
Oasis Petroleum
1001 Fannin St.
Suite 1500
Houston, TX 77002

Todd Holweger
Mineral Resources Permit Manager
North Dakota Industrial Commission
600 East Boulevard Avenue Dept. 405
Bismarck, ND 58505-0840

RE: Diesel Fuel Statement for all pending permits

Dear Mr. Holweger:

Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations. This statement applies to all of the wells listed in **Attachment 1**.

68334-30-5 (Primary Name: Fuels, diesel)
68476-34-6 (Primary Name: Fuels, diesel, No. 2)
68476-30-2 (Primary Name: Fuel oil No. 2)
68476-31-3 (Primary Name: Fuel oil, No. 4)
8008-20-6 (Primary Name: Kerosene)

Thank you for your consideration.

Respectfully,

A handwritten signature in black ink that reads "Michael Kukuk". The signature is fluid and cursive, with "Michael" on top and "Kukuk" on the bottom, slightly overlapping.

Michael Kukuk
Regulatory Supervisor
Oasis Petroleum



Attachment 1:
APD Submissions - Age
Report

Well	Date APD Submitted	Days Since Submitted
Holmes 5501 14-5 6T	11/4/2013	134
Cook 5300 41-12 6T	11/19/2013	119
Domalakes 6092 24-16 6T2	11/22/2013	116
Delta 6093 14-15 9B	1/9/2014	68
McCauley 5501 14-4 8T	1/27/2014	50
Delta 6093 44-15 6T	1/29/2014	48
Straw POW 5602 42-17	2/3/2014	43
Harbour 5601 42-33 5T	2/4/2014	42
Harbour 5601 42-33 2B	2/4/2014	42
Harbour 5601 42-33 3T	2/4/2014	42
Harbour 5601 42-33 4B	2/4/2014	42
Wade Federal 5300 41-30 4T	2/4/2014	42
Andre 5601 42-33 2B	2/4/2014	42
Wade Federal 5300 31-30 2B	2/4/2014	42
McCauley 5501 13-3 7T	2/4/2014	42
Wade Federal 5300 31-30 10T2	2/10/2014	36
Wade Federal 5300 31-30 11T	2/10/2014	36
Twobins 5501 13-29 2T	2/11/2014	35
Patsy POW 5198 33-5	2/11/2014	35
Twobins 5501 13-29 3B	2/11/2014	35
Twobins 5501 13-29 4T	2/11/2014	35
Twobins 5501 13-29 5B	2/11/2014	35
Holmes-Harbour 5501 14-5 2B	2/12/2014	34
Shepherd Andre 5501 14-5 4B	2/12/2014	34
Wade Federal 5300 41-30 6B	2/12/2014	34
Wade Federal 5300 41-30 3T2	2/12/2014	34
Wade Federal 5300 41-30 7T	2/12/2014	34
Harbour 5501 14-4 7B	2/13/2014	33
Harbour 5501 14-4 6T	2/13/2014	33
Chalmers 5300 21-19 8T	2/21/2014	25
Chalmers 5300 21-19 6B	2/21/2014	25
Chalmers 5300 21-19 5T	2/21/2014	25
Chalmers 5300 21-19 10B	2/21/2014	25
Chalmers 5300 21-19 11T	2/21/2014	25
Chalmers 5300 21-19 9T2	2/21/2014	25
Chalmers 5300 21-19 7T2	2/21/2014	25



White Federal 5198 13-6 12B	2/21/2014	25
White Federal 5198 13-6 13T3	2/21/2014	25
White Federal 5198 13-6 14T	2/21/2014	25
Drummond 5501 42-21 3B	2/24/2014	22
Drummond 5501 42-21 4T	2/24/2014	22
Drummond 5501 42-21 5B	2/24/2014	22
Drummond 5501 42-21 6T	2/26/2014	20
Drummond 5501 41-21 7B	2/26/2014	20
Drummond 5501 41-21 8T	2/26/2014	20
McCauley Logan 5601 11-26 6T	2/26/2014	20
Harbour 5501 14-5 2T	3/3/2014	15
Andre 5501 14-5 3B	3/3/2014	15
Helling Trust Federal 5494 41-22 11T2	3/10/2014	8
Helling Trust Federal 5494 41-22 14T3	3/10/2014	8
Helling Trust Federal 5494 41-22 2B	3/10/2014	8
Helling Trust Federal 5494 41-22 8T	3/10/2014	8
Helling Trust Federal 5494 43-22 4B	3/11/2014	7
Helling Trust Federal 5494 43-22 10T	3/11/2014	7
Helling Trust Federal 5494 43-22 13T2	3/11/2014	7
Helling Trust Federal 5494 43-22 16T3	3/11/2014	7
Dishon 5893 44-35 1T2	3/12/2014	6
Lewis Federal 5300 21-31 6B	3/12/2014	6
Lewis Federal 5300 31-31 7T2	3/12/2014	6
Helling Trust Federal 5494 44-22 5B	3/12/2014	6
Helling Trust Federal 5494 44-22 6B	3/12/2014	6
Helling Trust Federal 5494 44-22 7B	3/12/2014	6
Helling Trust Federal 5494 42-22 12T2	3/12/2014	6
Helling Trust Federal 5494 42-22 15T3	3/12/2014	6
Helling Trust Federal 5494 42-22 3B	3/12/2014	6
Helling Trust Federal 5494 42-22 9T	3/12/2014	6
Lewis Federal 5300 31-31 8T	3/13/2014	5
Lewis Federal 5300 31-31 10B	3/13/2014	5
Lewis Federal 5300 31-31 11T	3/13/2014	5
Lewis Federal 5300 31-31 9T2	3/13/2014	5
Falcon Federal 2759 44-16 3B	3/17/2014	1
Falcon Federal 2759 44-16 4T	3/17/2014	1
White Federal 5198 13-6 9T	3/17/2014	1
White Federal 5198 13-6 11T2	3/17/2014	1
White Federal 5198 13-6 10T3	3/17/2014	1