

Industrial Commission of North Dakota
Oil and Gas Division
Spill / Incident Report

Date/Time Reported : Aug 22 2014 / 08:48

State Agency person :

Responsible Party : Oasis Petroleum

Well Operator : OASIS PETROLEUM NORTH AMERICA LLC

Date/Time of Incident : 8/21/2014 12:00:00 AM

NDIC File Number : 20864

Facility Number :

Well or Facility Name : BRAY 5301 43-12H

Type of Incident : Stuffing Box Leak

Field Name : BAKER

County : MCKENZIE

Section : 12

Township : 153

Range : 101

Quarter-Quarter : SW

Quarter : SE

Distance to nearest residence : 1 Mile

Distance to nearest water well : 1 Mile

Release Oil : 4 Barrels

Release Brine : 1 Barrels

Release Other :

Recovered Oil : 4 Barrels

Recovered Brine : 1 Barrels

Recovered Other :

Has/Will the incident be reported to the NRC? : Unknown

Was release contained : Yes - on Facility Site

Description of other released substance :

Immediate risk evaluation : none, spill has been cleaned up

Followup Report Requested Y/N : Y



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.
222100-01



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date October 1, 2013
<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	Central production facility-commingle prod

**Well Name and Number
(see details)**

Footages	F	L	F	L	Qtr-Qtr	Section	Township	Range
						12	153 N	101 W
Field	Pool Bakken					County	McKenzie	
Baker								

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
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DETAILS OF WORK

Oasis Petroleum North America LLC requests permission to add the following wells to CTB # 222100-01.

Well File #22740 Larry 5301 44-12B SESE 12-153-101 API 33-053-04981

Well File #22099 Yukon 5301 41-12T SWSW 12-153-101 API 33-053-03911

Well File #25571 Colville 5301 44-12T SESE 12-153-101 API 33-053-04981

Well File #22221 Innoko 5301 43-12T SWSE 12-153-101 API 33-053-03937

The following wells are currently being commingled in the subject CTB:

Well File #22100 Achilles 5301 41-12B SWSW 12-153-101 API 33-053-03912

Well File #22220 Jefferies 5301 43-12B SWSE 12-153-101 API 33-053-03936

Well File #20864 Bray 5301 43-12H SWSE 12-153-101 API 33-053-03609

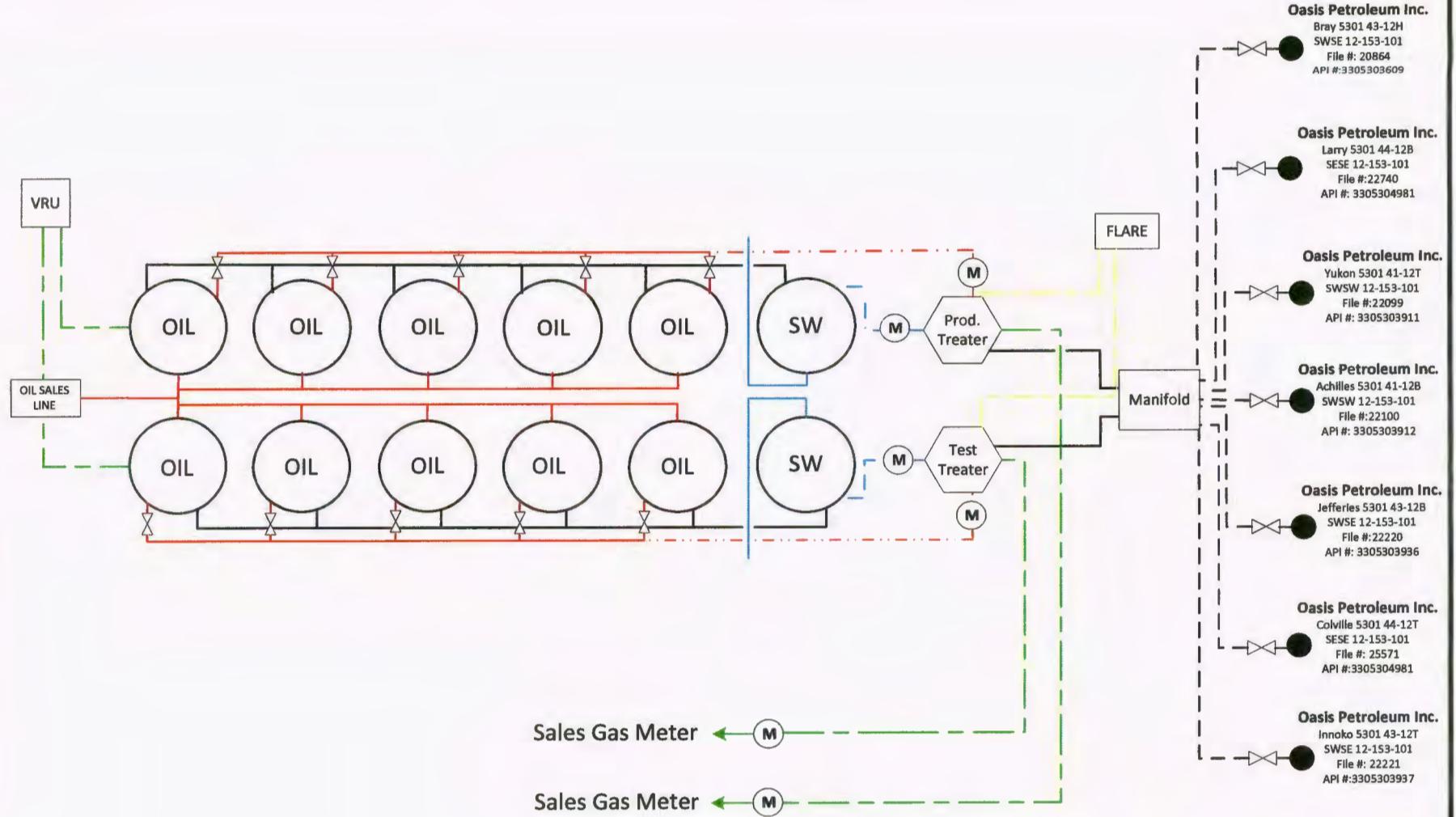
Well File #22740 Larry 5301 44-12B SESE 12-153-101 API 33-053-04071

Please find the following attachments: 1. A schematic drawing of the facility which diagrams the testing, treating, routing, and transferring of production. 2. A plat showing the location of the central facility 3. Affidavit of title indicating common ownership.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Brandi Terry	
Title Regulatory Specialist	Date July 24, 2013	
Email Address bterry@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 7-30-13	
By ORIGINAL SIGNED BY	
Title DARYL GRONFUR	
Title METER SPECIALIST	



OASIS PETROLEUM					
5301 13-24 ACHILLES CENTRAL TANK BATTERY					
DATE	REV.	BY	APPR.	SCALE	
JULY 23, 2013	0	LEE		NA	
LOCATION	FIELD				
NORTH DAKOTA	BAKER				

COMMINGLING AFFIDAVIT

STATE OF NORTH DAKOTA)
)
) ss.
COUNTY OF MCKENZIE)

Tom F. Hawkins, being duly sworn, states as follows:

1. I am the Vice President - Land and Contracts employed by Oasis Petroleum North America LLC with responsibilities in the State of North Dakota and I have personal knowledge of the matters set forth in this affidavit.

2. Sections 13 and 24, Township 153 North, Range 101 West, 5th P.M., McKenzie County, North Dakota constitute a spacing unit in accordance with the applicable orders of the North Dakota Industrial Commission for the Bakken pool.

3. Four wells have been drilled in the spacing unit, which are the Bray 5301 43-12H, Achilles 5301 41-12B, Jefferies 5301 43-12B, Larry 5301 44-12B; and three wells have been permitted in the spacing unit, which are the Colville 5301 44-12T, Innoko 5301 43-12T and Yukon 5301 41-12T.

4. By Declaration of Pooled Unit dated August 26, 2011, filed in McKenzie County, North Dakota, document number 422312, all oil and gas interests within the aforementioned spacing unit were pooled.

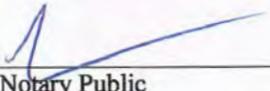
5. All Working Interests, Royalty Interests and Overriding Royalty Interests in the Bray 5301 43-12H, Achilles 5301 41-12B, Jefferies 5301 43-12B, Colville 5301 44-12T, Innoko 5301 43-12T and Yukon 5301 41-12 wells are common.

Dated this 9th day of July, 2013.


Tom F. Hawkins
Vice President-Land and Contracts

STATE OF TEXAS)
)
) ss.
COUNTY OF HARRIS)

Subscribed to and sworn before me this 9th day of July, 2013.


Notary Public
State of Texas
My Commission Expires: August 14, 2017



BATTERY LOCATION PLAT
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002
"5301 13-24 CTB"

SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

"5301 13-24 CTB"

CALCULATED FROM
WITNESS CORNER

AZ 90°34'49"

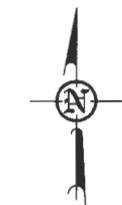
2691.29'

CALCULATED
FROM WITNESS
CORNER

573.48

CALCULATED
FROM WITNESS
CORNER
FOUND
STONE

THIS DOCUMENT WAS ORIGINALLY
ISSUED AND SEALED BY DARYL D.
KASEMAN, PLS, REGISTRATION
NUMBER 3880 ON 7/10/13 AND
THE ORIGINAL DOCUMENTS ARE
STORED AT THE OFFICES OF
INTERSTATE ENGINEERING, INC.



O F
1" = 1000'

AZ 0°00'47" 30 495|44'

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 ON 7/10/13 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.

12

YUKON
5301 41-12T
ACHILLIES
5301 41-12E

5301 13-24 CTB

VICINITY MAP

- MONUMENT - RECOVERED

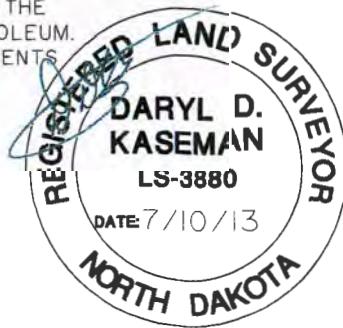
 - MONUMENT - NOT RECOVERED

STAKED ON 3/08/12
VERTICAL CONTROL DATUM WAS BASED UPON
CONTROL POINT 13 WITH AN ELEVATION OF 2090.87

THIS SURVEY AND PLAT IS BEING PROVIDED AT THE
REQUEST OF FABIAN KJORSTAD 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.

© 2012, INTERSTATE ENGINEERING, INC.

BART E. RASSEMAN 26-5550



1/5



SHEET NO.

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

Interstate Engineering, Inc.
P.O. Box 648

OASIS PETROLEUM NORTH AMERICA, LLC
WELL LOCATION PLAT

425 East Main Street
Sidney, Montana 59270

SECTION 12, T153N, R101W

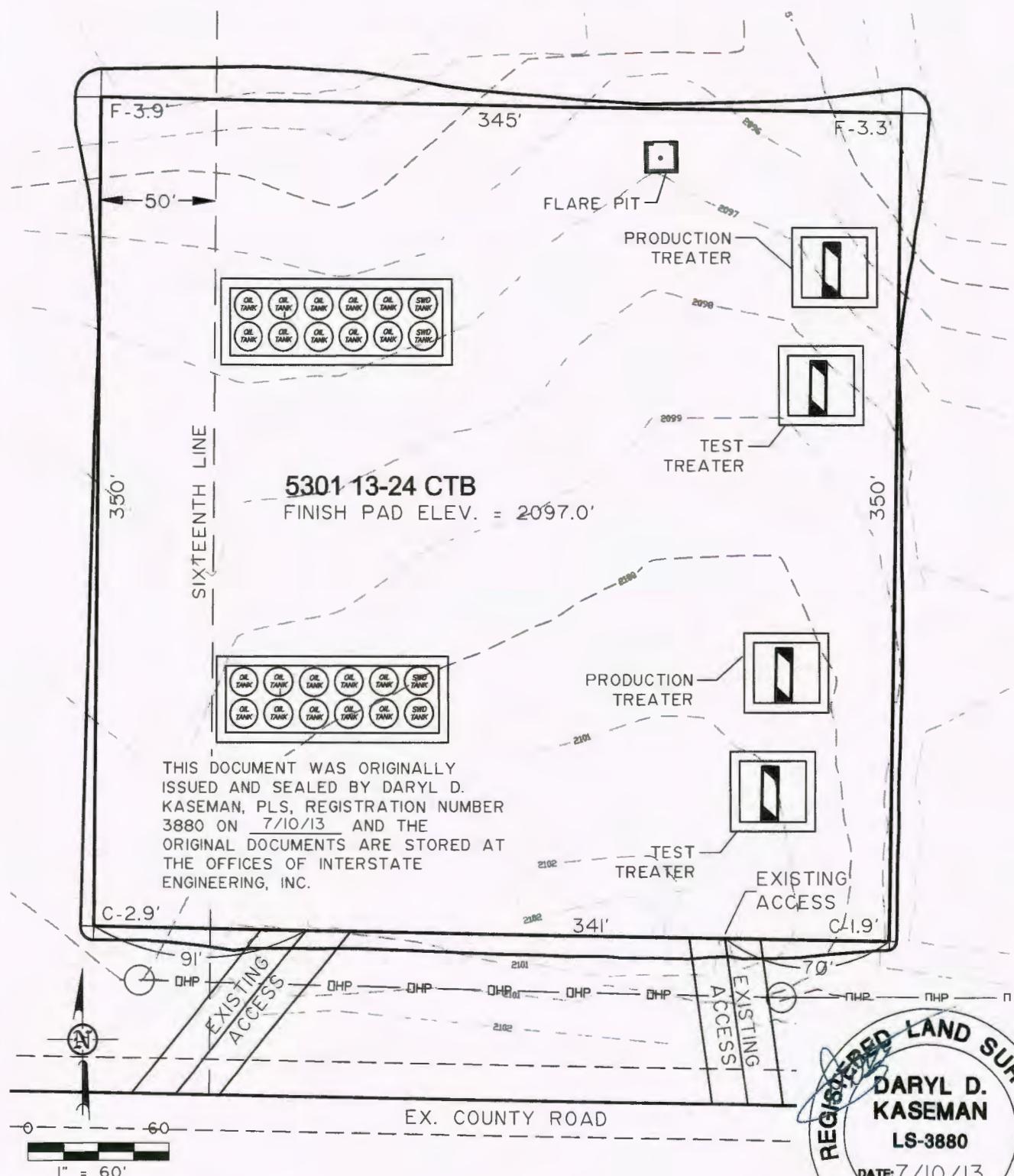
MCKENZIE COUNTY, NORTH DAKOTA

Fax (406) 433-5618
www.jengi.com

Drawn By:	J.D.M.	Project No.:	S12-09-249
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Revision No.	Date	By	Description
REV I	7/10/13	JDM	ADDED WELLS

PAD LAYOUT
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002
"5301 13-24 CTB"
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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

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2/5



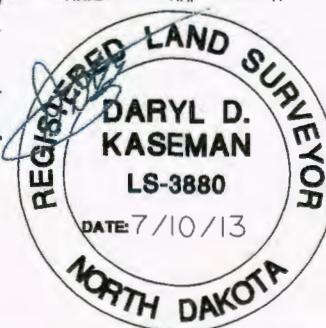
SHEET NO.

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

OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 12, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.D.M. Project No.: 512-9-249
Checked By: D.D.K. Date: SEPT. 2012

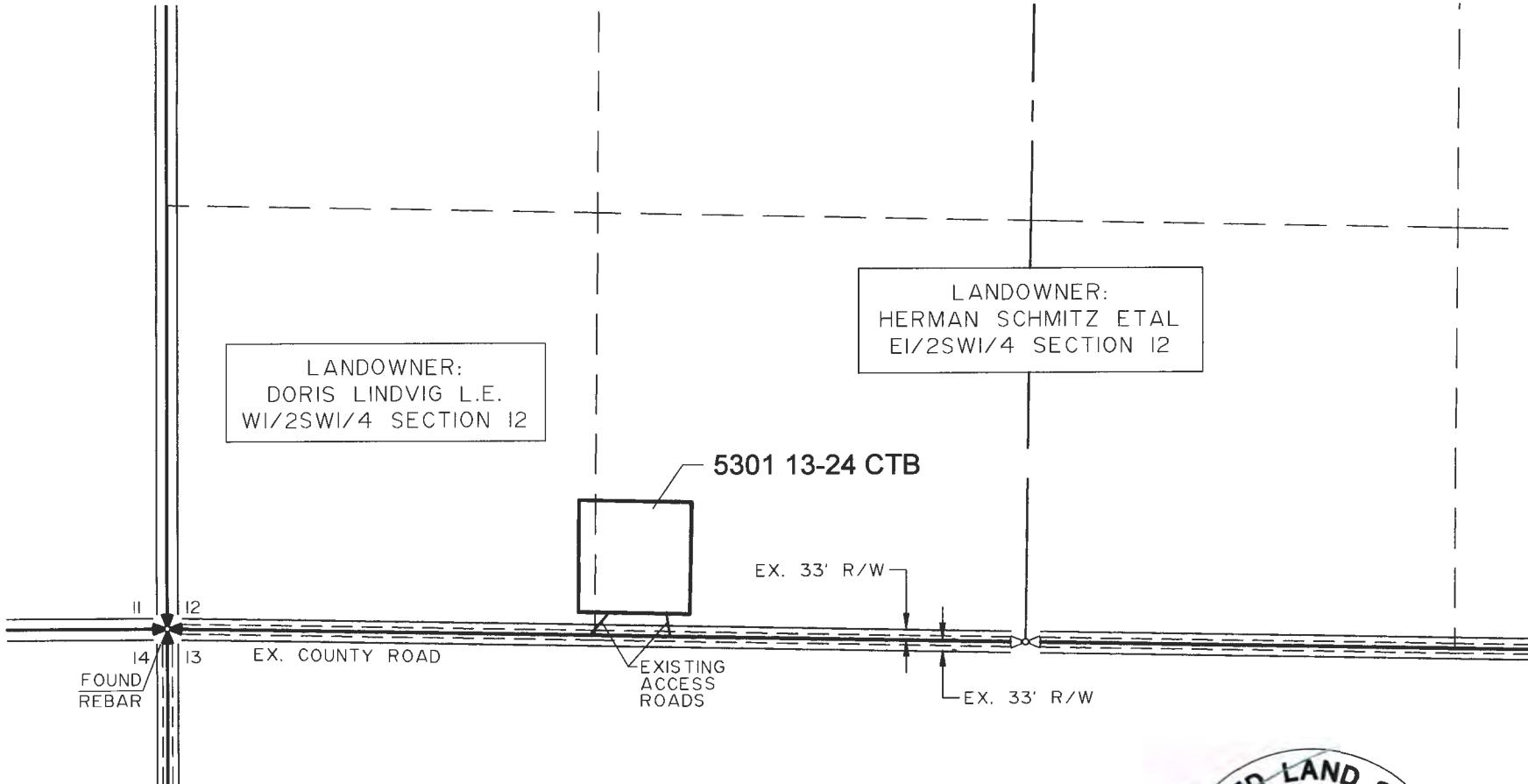
Revision No.	Date	By	Description
REV 1	7/10/13	JDM	ADDED WELLS



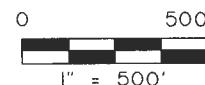
ACCESS APPROACH

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002
"5301 13-24 CTB"

SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



THIS DOCUMENT WAS ORIGINALLY
ISSUED AND SEALED BY DARYL D.
KASEMAN, PLS, REGISTRATION NUMBER
3880 ON 7/10/13 AND THE
ORIGINAL DOCUMENTS ARE STORED AT
THE OFFICES OF INTERSTATE
ENGINEERING, INC.



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

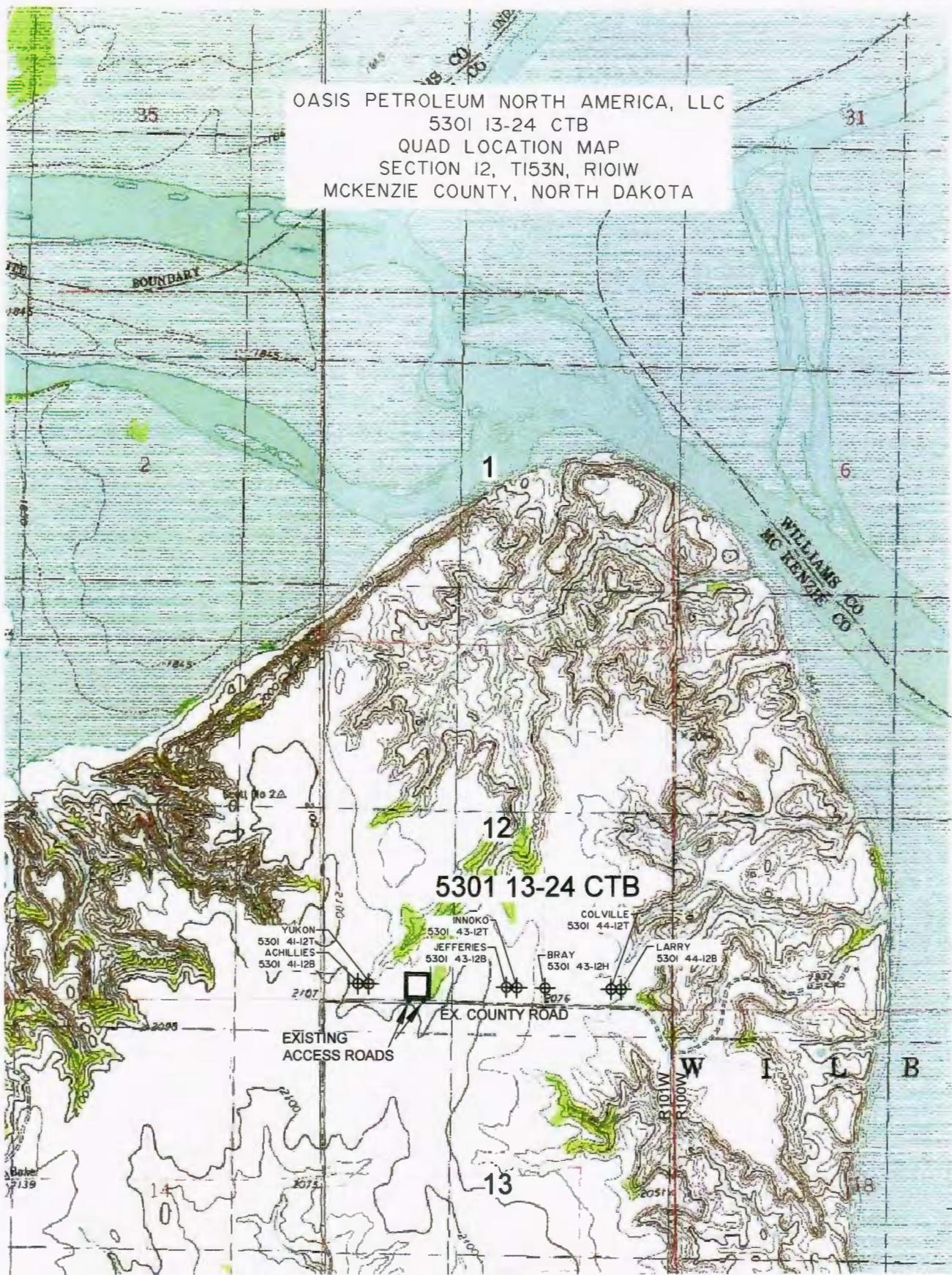


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Other offices in Montana, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
ACCESS APPROACH
SECTION 12, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA
Drawn By: J.D.M.
Checked By: D.D.K.
Project No.: ST2309-249
REV. I
7/10/13 4PM
ADDED WELLS
SHEET 2012
Date: SEPT. 2012



4/5

SHEET NO.



Professionals you need, people you trust.

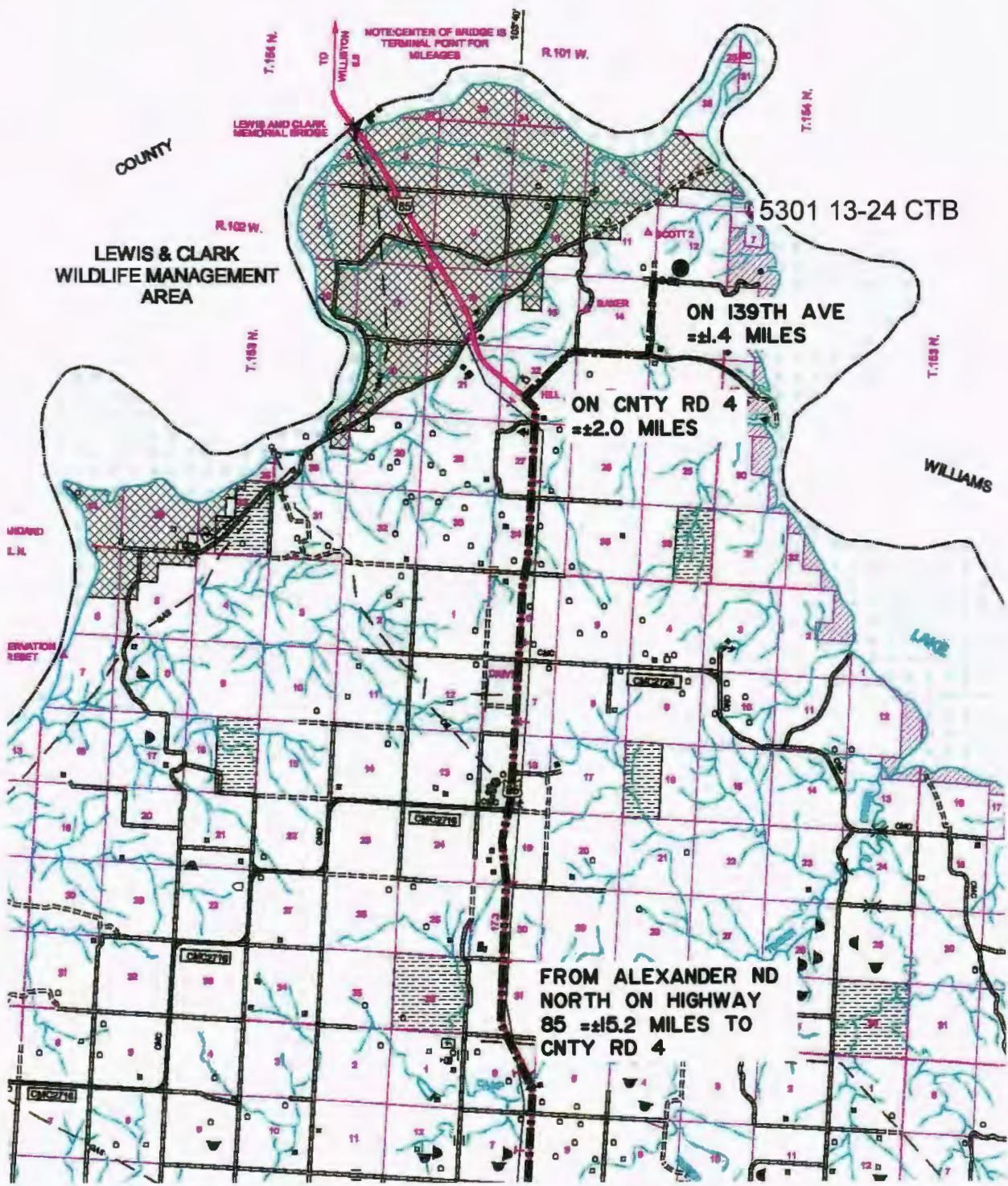
Interstate Engineering, Inc.
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Sidney, Montana 59270
Ph (406) 433-5617
Fax (406) 433-5618
www.iengi.com
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
QUAD LOCATION MAP
SECTION 12, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.D.M. Project No.: S12-09-249
Checked By: DDK Date: SEPT. 2012

Revision No.	Date	By	Description
REV 1	7/10/13	JDM	ADDED WELLS

COUNTY ROAD MAP
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002
 "5301 13-24 CTB"
 SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

5/5



SHEET NO.

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.iengi.com
 Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
 COUNTY ROAD MAP
 SECTION 12, T153N, R101W
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	J.D.M.	Project No.:	S12-09-248
Checked By:	DDK	Date:	SEPT. 2012

Revision No.	Date	By	Description
REV 1	7/10/13	JDM	ADDED WELLS



LAT/LONG PAD CORNERS

345'

48°05'00.01"N
103°37'13.86"W

48°04'59.95"N
103°37'08.78"W

5301 13-24 CTB

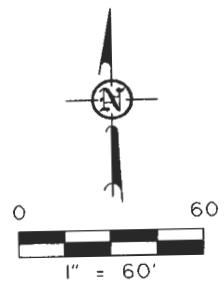
350'

350'

48°04'56.56"N
103°37'13.89"W

48°04'56.50"N
103°37'08.87"W

341'



Industrial Commission of North Dakota
Oil and Gas Division
Spill / Incident Report

Date/Time Reported : Feb 22 2012 / 0800

State Agency person :

Responsible Party : GRIZZLY MOUNTAIN TRUCKING LLC

Well Operator : OASIS PETROLEUM NORTH AMERICA LLC

Date/Time of Incident : 2/21/2012 12:00:00 AM

NDIC File Number : 20864

Facility Number :

Well or Facility Name : BRAY 5301 43-12H

Field Name : BAKER

County : MCKENZIE

Section : 12

Township : 153

Range : 101

Quarter-Quarter : SW

Quarter : SE

Distance to nearest residence : 2 Miles

Distance to nearest water well : 2 Miles

Release Oil : 2 barrels

Release Brine : 0 barrels

Release Other : 0 barrels

Recovered Oil : 2 barrels

Recovered Brine : 0 barrels

Recovered Other : 0 barrels

Has/Will the incident be reported to the NRC? : No

Was release contained : Yes - Within Dike

Description of other released substance :

Immediate risk evaluation : None.

Followup Report Requested Y/N : N



SUNDRY NOTICES AND REPORTS ON WELLS - FORM

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.
20864



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

<input type="checkbox"/> Notice of Intent	Approximate Start Date
<input checked="" type="checkbox"/> Report of Work Done	Date Work Completed August 15, 2012
<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 checked="" type="checkbox"/> Reclamation
<input type="checkbox"/> Other	<u>Reserve pit reclamation</u>

Well Name and Number
Bray 5301 43-12H

Footages	F	S	L	Qtr-Qtr	Section	Township	Range
250	F	E	L	SWSE	12	153 N	101 W
Field	Pool Bakken			County McKenzie			
Baker							

24-HOUR PRODUCTION RATE

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

Name of Contractor(s)
Excel Industries, Inc

Address: P.O. Box 159	City Miles City	State MT	Zip Code 59301
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DETAILS OF WORK

Oasis Petroleum North America LLC has completed the reclamation of the reserve pit for the above referenced well.

The INDIC field inspector, Mark Binns (NDIC) and the surface owners were notified.

Surface owners: Larry P Heen, 14033 45th St NW, Williston, ND 58801

Procedure followed as proposed.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Brandi Terry	
Title Regulatory Specialist	Date August 17, 2012	
Email Address bterry@oasispetroleum.com		

FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date 8-27-12	
By 	
Title Rep. [Signature]	



SUNDRY NOTICE AND REPORTS ON WELLS - FORM

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.
20864



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	Spill Report
<input checked="" type="checkbox"/> Report of Work Done	Date Work Completed April 30, 2012	<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 type="checkbox"/> Other	Change of status - well now on artificial lift

Well Name and Number Bray 5301 43-12H				
Footages 250 F S L	Qtr-Qtr 1927 F E L	Section SWSE	Township 12	Range 153 N 101 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 04-30-2012, the above referenced well is on pump:

Tubing: 2-7/8" L-80 tubing assembly @ 10,048'

Pump: 2-1/2" x 2" x 24' pump @ 10,016'

Company Oasis Petroleum North America LLC		Telephone Number 281 404-9491
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Brandi Terry	
Title Regulatory Specialist	Date May 3, 2012	
Email Address bterry@oasispetroleum.com		

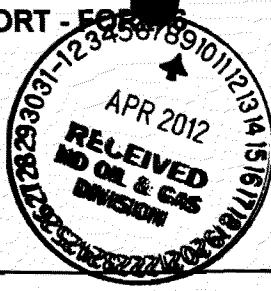
FOR STATE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date May 15, 2012	
By 	
Title PETROLEUM ENGINEER	



WELL COMPLETION OR RECOMPLETION REPORT - FORM 1

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

Well File No.
20864



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

Bray 5301 43-12H

Spacing Unit Description

Sec. 13 & 24 T153N R101W

Operator

Oasis Petroleum North America LLC

Telephone Number

281-404-9491

Field

Baker

Address

1001 Fannin, Suite 1500

Pool

Bakken

City

Houston

State

TX

Zip Code

77002

Permit Type

Wildcat

Development

Extension

LOCATION OF WELL

At Surface	Qtr-Qtr	Section	Township	Range	County
250 F S L	1927 F E L	SWSE	12	153 N	101 W
Spud Date 7/23/2011	Date TD Reached 10/21/2011	Drilling Contractor and Rig Number XTC 17	KB Elevation (Ft) 2090	Graded Elevation (Ft) 2074	

Type of Electric and Other Logs Run (See Instructions)

N/A

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

Well Bore	String Type	Size (Inch)	Top Set (MD Ft)	Depth Set (MD Ft)	Hole Size (Inch)	Weight (Lbs/Ft)	Anchor Set (MD Ft)	Packer Set (MD Ft)	Sacks Cement	Top of Cement
Surface Hole	Surface	9 5/8		2089	13 1/2	36			605	
Vertical Hole	Intermediate	7		11071	8 3/4	29 & 32			785	4950
Lateral1	Liner	4 1/2	10098	20920						

PERFORATION & OPEN HOLE INTERVALS

Well Bore	Well Bore TD Driller's Depth (MD Ft)	Completion Type	Open Hole/Perforated Interval (MD Ft)	Kick-off Point (MD Ft)	Top of Casing Window (MD Ft)	Date Per'd or Drilled	Date Isolated	Isolation Method	Sacks Cement
Lateral1	20978	Perforations	11071 20978	10220		1/3/2012			

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft)					Name of Zone (If Different from Pool Name)			
Date Well Completed (SEE INSTRUCTIONS)		Producing Method	Pumping-Size & Type of Pump			Well Status (Producing or Shut-In)		
1/13/2012	1/29/2012	Flowing				Producing		
Hours Tested	24	Choke Size	64 /64	Production for Test	Oil (Bbls) 2521	Gas (MCF) 2555	Water (Bbls) 2098	Oil Gravity-API (Corr.) °
Date of Test								Disposition of Gas Sold
Flowing Tubing Pressure (PSI)	650	Flowing Casing Pressure (PSI)		Calculated 24-Hour Rate	Oil (Bbls) 2521	Gas (MCF) 2555	Water (Bbls) 2098	Gas-Oil Ratio 1013

GEOLOGICAL MARKERS

PLUG BACK INFORMATION

CORES CUT

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

Drill Stem Test

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

Drill Pipe Recovery

Sample Chamber Recovery

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

Drill Pipe Recovery

Sample Chamber Recovery

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

Drill Pipe Recovery

Sample Chamber Recovery

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

Drill Pipe Recovery

Sample Chamber Recovery

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

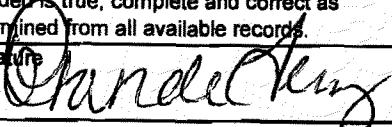
Drill Pipe Recovery

Sample Chamber Recovery

Well Specific Stimulation

Date Stimulated 1/3/2012	Stimulated Formation Bakken		Top (Ft) 11071	Bottom (Ft) 20978	Stimulation Stages 36	Volume 86805	Volume Units Barrels
Type Treatment Sand Frac	Acid %	Lbs Proppant 4377826			Maximum Treatment Pressure (PSI) 8762	Maximum Treatment Rate (BBLS/Min) 37.7	
Details 40/70 Sand- 1,824,600 20/40 Ceramic-2,553,226							
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

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Email Address bterry@oasispetroleum.com	Date 3/23/2012
Signature 	Printed Name Brandi Terry	Title Regulatory Specialist



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)

20864

Well File No.

CTB # 222100-01

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 19, 2012	<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	Central production facility-commingle prod

Well Name and Number (see details)						
Footages	F	L	Qtr-Qtr	Section	Township	Range
				12	153 N	101 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 North America LLC requests approval to commingle oil and gas in a central production facility known as: Oasis 5301 13-24CTB with common ownership for the following wells:

Well File #22100 Achilles 5301 41-12B SW SW 12-153-101 API 33-053-03912

Well File #22220 Jefferies 5301 43-12B SW SE 12-153-101 API 33-053-03936

Well File #20864 Bray 5301 43-12H SW SE 12-153-101 API 33-053-03609

Please find the following attachments:

1. A schematic drawing of the facility which diagrams the testing, treating, routing, and transferring of production.
2. A plat showing the location of the central facility
3. Affidavit of title indicating common ownership

Oasis will allocate production measured at the central production facility to the various wells on the basis of isolated production tests utilizing oil, gas and water meters on a test separator at the central production facility. Oasis will measure the production from each well separately each month for a minimum of three days. Oasis believes that such allocation will result in an accurate determination of production from each well. Tank vapor gas is being recovered and burned by a 98% DRE enclosed combuster.

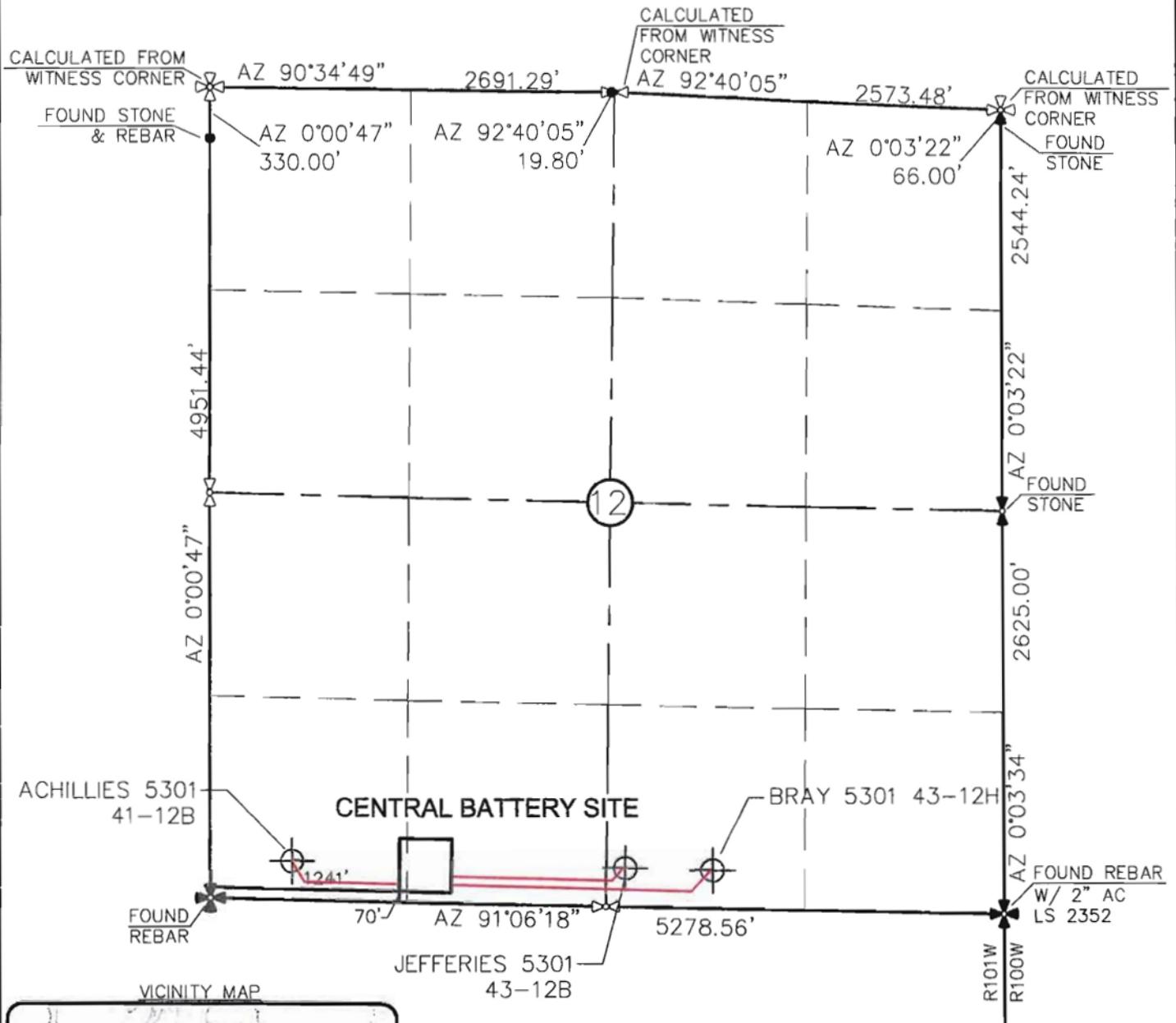
Company Oasis Petroleum North America LLC	Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Brandi Terry	
Title Regulatory Specialist	Date March 19, 2012	
Email Address bterry@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 3-23-12	
By ORIGINAL SIGNED BY	
Title DARYL GRONFUR	
METER SPECIALIST	

ADJACENT WELL LOCATIONS PLAT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002
CENTRAL BATTERY SITE"

SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



VICINITY MAP



0
1" = 1000'

- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED

1/1



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ENGINEERING

SHEET NO.

Professionals you need, people you trust

Interstate Engineering, Inc.
P.O. Box 848
425 East Main Street
Sidney, Montana 59270
Ph (406) 433-5617
Fax (406) 433-5616
www.ienig.com
Other offices in Missoula, North Idaho and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
ADJACENT WELLS PLAT
SECTION 12, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No.: S11-09-137
Checked By: D.D.K. Date: MARCH 2012

Revision No.	Date	By	Description

Oasis Petroleum Inc.

Brays 5301 43-12H
SWSE 12-153-101
File #: 20864
API #: 3305303609



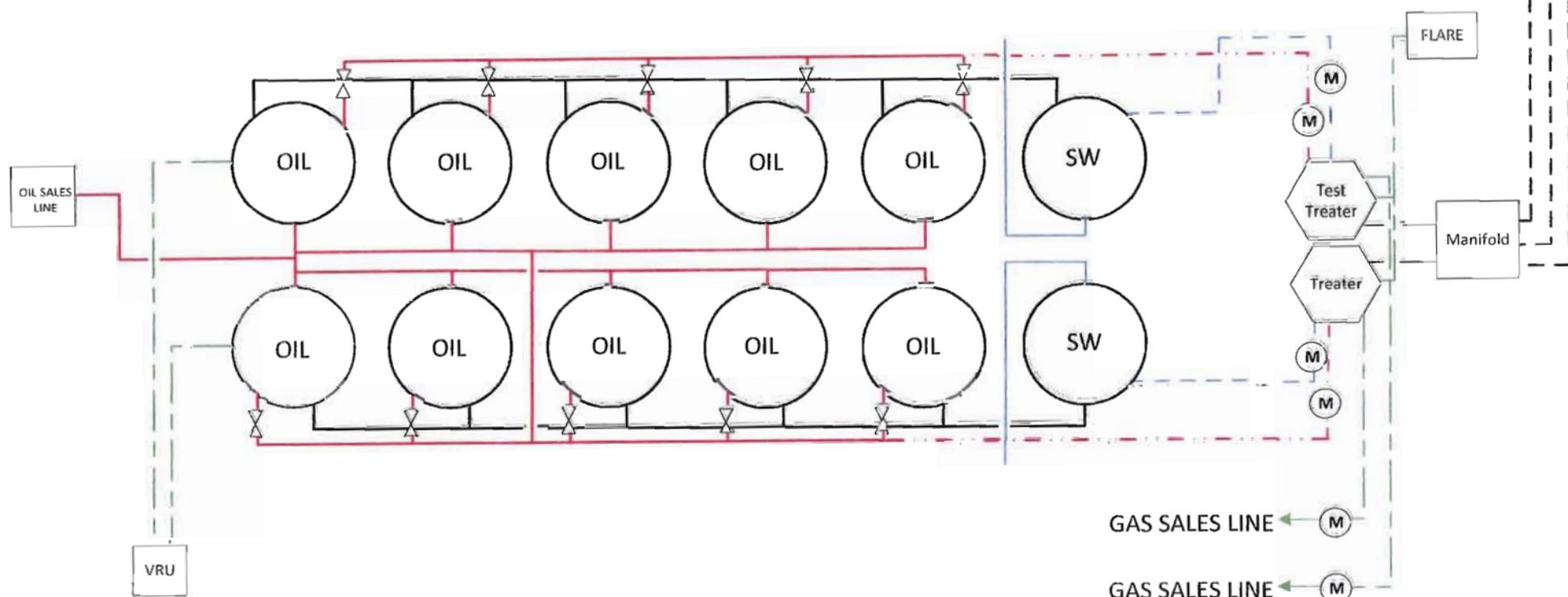
Oasis Petroleum Inc.

Jefferies 5301 43-12B
SWSW 12-153-101
File #: 22220
API #: 3305303936



Oasis Petroleum Inc.

Achilles 5301 41-12B
SWSW 12-153-101
File #: 22100
API #: 3305303912



OASIS
PETROLEUM

PRODUCTION COMMINGLING DIAGRAM - BRAY 5301 43-12H
JEFFERIES 5301 43-12B & ACHILLES 5301 41-12B

DATE	REV.	BY	APPR.	SCALE
March 14, 2012	0	LTZ		NA
LOCATION				
NORTH DAKOTA				INDIAN HILLS - SOUTH

STATE OF NORTH DAKOTA)
)
COUNTY OF MCKENZIE)

Tom F. Hawkins, being duly sworn, states as follows:

1. I am the Vice President - Land and Contracts employed by Oasis Petroleum North America LLC with responsibilities in the State of North Dakota and I have personal knowledge of the matters set forth in this affidavit.

2. Sections 13 and 24, Township 153 North, Range 101 West, McKenzie County, North Dakota constitute a spacing unit in accordance with the applicable orders for the Bakken pool.

3. Three wells have been drilled in the spacing unit, which are the Bray 5301 43-12H, the Achilles 5301 41-12B and the Jefferies 5301 43-12B .

4. By Declaration of Pooled Unit dated August 26, 2011, filed in McKenzie County, North Dakota, document number 422312, all oil and gas interests within the aforementioned spacing unit were pooled.

5. All Working Interests, Royalty Interests and Overriding Royalty Interests in the Bray 5301 43-12H, the Achilles 5301 41-12B and the Jefferies 5301 43-12B wells are common.

Dated this 14th day of March, 2012

Tom F. Hawkins

STATE OF TEXAS)
)
COUNTY OF HARRIS)

Subscribed to and sworn before me this 14th day of March, 2012

Lauren Shields

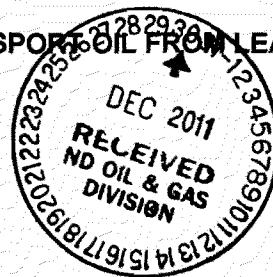


Notary Public
State of Texas
My Commission Expires: 10-17-2012



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.	20864
NDIC CTB No.	120864

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number BRAY 5301 43-12H	Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 W	County MCKENZIE
Operator OASIS PETROLEUM NORTH AMERICA LLC	Telephone Number (281) 404-9435		Field WILDCAT		
Address 1001 FANNIN, STE 1500	City HOUSTON		State TX	Zip Code 77002	

Name of First Purchaser OASIS PETROLEUM MARKETING LLC	Telephone Number (281) 404-9435	% Purchased 100	Date Effective January 1, 2012
Principal Place of Business 3773 CHERRY CREEK NORTH, STE 1000	City DENVER	State CO	Zip Code 80209
Field Address	City	State	Zip Code
Name of Transporter GRIZZLY MOUNTAIN TRUCKING	Telephone Number (406) 377-6831	% Transported 75	Date Effective January 1, 2012
Address 54 HWY 16	City GLENDALE	State MT	Zip Code 59330

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
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease COCORD ENERGY TRANSPORT	% Transported 25	Date Effective January 1, 2012
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments REVISED TO CHANGE 1ST PURCHASER EFFECTIVE 1/1/2012		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date December 21, 2011	
Signature 	Printed Name DINA BARRON	Title MKTG CONTRACTS ADMINISTRATOR

Above Signature Witnessed By Witness Signature 	Witness Printed Name GARY BURLESON	Witness Title MARKETING DIRECTOR
---	--	--

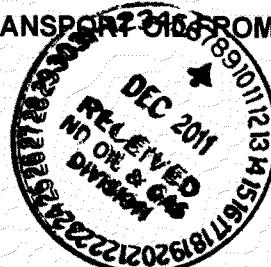
FOR STATE USE ONLY

Date Approved JAN 18 2012
By
Title Oil & Gas Production Analyst



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.
20864

NDIC CTB No.

20864

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number BRAY 5301 43-12H	Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 W	County MCKENZIE
Operator OASIS PETROLEUM NORTH AMERICA LLC	Telephone Number (281) 404-9435		Field WILDCAT		
Address 1001 FANNIN, STE 1500	City HOUSTON	State TX		Zip Code 77002	

Name of First Purchaser High Sierra Crude Oil & Marketing, LLC	Telephone Number (303) 319-3259	% Purchased 75	Date Effective December 1, 2011
Principal Place of Business 3773 CHERRY CREEK NORTH, STE 1000	City DENVER	State CO	Zip Code 80209
Field Address	City	State	Zip Code
Name of Transporter GRIZZLY MOUNTAIN TRUCKING	Telephone Number (406) 377-6831	% Transported 75	Date Effective December 1, 2011
Address 54 HWY 16	City GLENDIVE	State MT	Zip Code 59330

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 COCNORD ENERGY	% Purchased 25	Date Effective December 1, 2011
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease COCORD ENERGY TRANSPORT	% Transported 25	Date Effective December 1, 2011
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date December 1, 2011
Signature 	Printed Name DINA BARRON
Title MKTG CONTRACTS ADMINISTRATOR	

Above Signature Witnessed By	
Witness Signature 	Witness Printed Name GARY BURLESON
Witness Title MARKETING DIRECTOR	

FOR STATE USE ONLY

Date Approved JAN 18 2012	
By	
Title Erica Robertson	
Oil & Gas Production Analyst	



ORIGINAL

Industrial Commission of North Dakota

Well or Facility No

Oil and Gas Division

20864

Verbal Approval To Purchase and Transport Oil

Tight Hole Yes

OPERATOR

Operator
OASIS PETROLEUM NORTH AMERICA LL

Representative
Todd Hanson

Rep Phone
(701) 577-1632

WELL INFORMATION

Well Name
BRAY 5301 43-12H

Well Location QQ Sec Twp Rng
SWSE 12 153 N 101 W
 Footages **250** Feet From the S Line
1927 Feet From the E Line

Inspector
Marc Binns
 County
MCKENZIE
 Field
WILDCAT
 Pool

Date of First Production Through Permanent Wellhead **1/12/2012** This Is Not The First Sales

PURCHASER / TRANSPORTER

Purchaser
OASIS PETROLEUM MARKETING LLC

Transporter
CONCORD ENERGY TRANSPORT

TANK BATTERY

Single Well Tank Battery Number :

SALES INFORMATION This Is Not The First Sales

ESTIMATED BARRELS TO BE SOLD	ACTUAL BARRELS SOLD	DATE
5000	BBLS	
	BBLS	

DETAILS

Start Date **1/13/2012**
 Date Approved **1/13/2012**
 Approved By

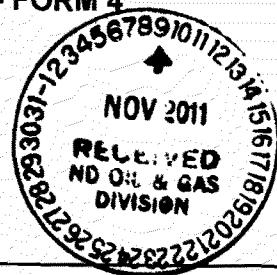


SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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.

20864



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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date November 8, 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.		<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	Change well status to CONFIDENTIAL

Well Name and Number
Bray 5301 43-12H

Footages 250 F S L	Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 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

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

Ends 05-14-2012

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature <i>Brandi Terry</i>	Printed Name Brandi Terry	
Title Regulatory Specialist	Date November 8, 2011	
Email Address bterry@oasispetroleum.com		

FOR STATE USE ONLY

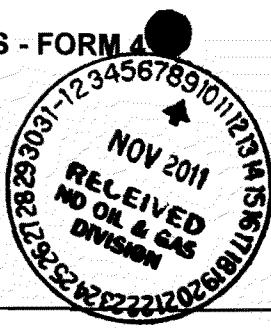
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 11-14-2011	
By David Tabar	
Title Engineering Technician	



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.
20864



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

Notice of Intent

Approximate Start Date
November 8, 2011

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

Waiver from tubing/packer requirement

Well Name and Number

Bray 5301 43-12H

Footages

250 F	S	L	1927 F	E	L	Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 W
-------	---	---	--------	---	---	--------------	------------	----------------	-------------

Field

Wildcat

Pool
Bakken

County
McKenzie

24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address

City

State

Zip Code

DETAILS OF WORK

Oasis Petroleum North America LLC requests a waiver from the tubing/pkr requirement included in NDAC 43-02-03-21: 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# & 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 flow back 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.

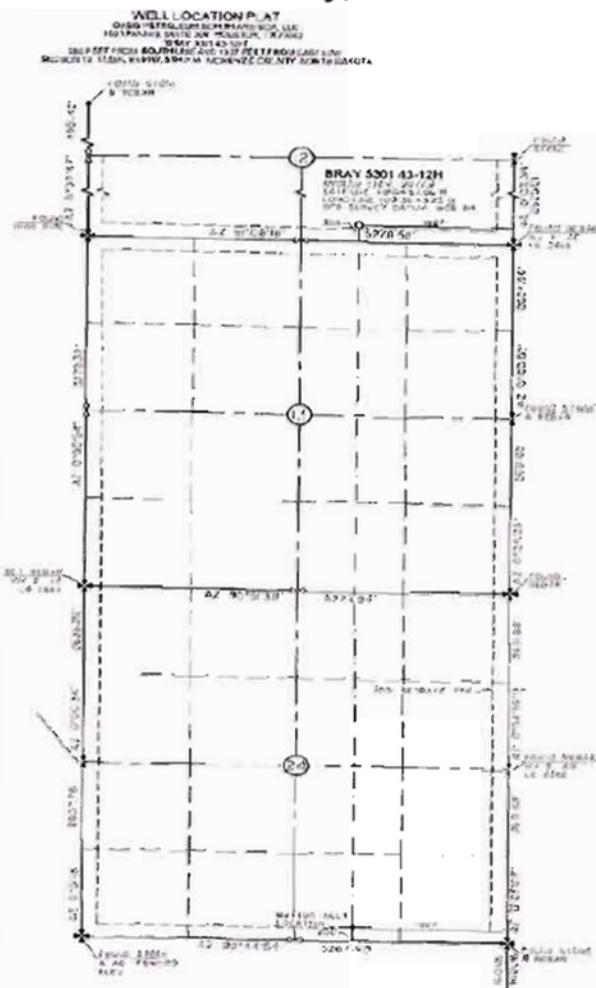
Company Oasis Petroleum North America LLC	Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Brandi Terry	
Title Regulatory Specialist	Date November 8, 2011	
Email Address bterry@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date November 9, 2011	
By 	
Title PETROLEUM ENGINEER	

20864

Oasis Petroleum
Bray 5301 43-12H
250' FSL & 1,927' FEL
SW SE Section 12, T153N, R101W
Wildcat / Bakken
McKenzie County, North Dakota



Oasis Petroleum North America, LLC
Bray 5301 43-12H

WELL EVALUATION



Xtreme Coil Rig 17 drilling for Oasis Petroleum North America in North Dakota during 2011.
(Nathan Gabelman, well site geologist for Sunburst Consulting)

INTRODUCTION

The **Oasis Petroleum North America, LLC Bray 5301 43-12H** [SW SE Section 12 T153N R101W] is located approximately 4 miles south of Williston in McKenzie County, North Dakota. The well is part of Oasis Petroleum's Williston Basin drilling program, targeting the Middle Bakken with two section laterals and utilizing the latest technology in fracture stimulation completions. The well was permitted for a 10,086' lateral drilling south 1,927' from the east line of sections 12, 13 and 24. Directional tools will kick-off from the vertical hole in the Lodgepole Formation, build a curve and land in the Middle Bakken target zone. The proposed lateral would be geo-steered within the ideal target rock, focusing on a higher porosity zone approximately 8 feet from the bottom of the Upper Bakken Shale. The lateral will be directed along an azimuth of 180° to a TD approximately 200' from the south line in the SW ¼ of SE ¼ Section 24.

OFFSET INFORMATION

Three previously completed wells were used as the main offsets to assist in landing the curve build section of the Bray 5301 43-12H. The *Lindvig 1-11H*, initially completed as a vertical well, was drilled on December 12, 1981 and was then re-entered on February 17, 2008 and completed as a horizontal well, located approximately 0.80 miles west of Bray 5301 43-12H in [Sec. 11, T153N, R101W]. The *Lindvig 1-11HR* was initially drilled to produce both the Red River Formation (dry to date) and the Madison Group (producing 201,159 Bbls of oil to date). *Lindvig 1-11HR* was then re-entered and completed as a single section lateral, to focus production in the Mississippian Nesson interval (approximately -7,321' subsea). The initial completion of the lateral showed an increase in production from approximately 200 Bbls of oil a month to 1,600 Bbls of oil a month, which has since tapered off to 400 Bbls of oil a month as of August, 2011. The *SM Energy Company Rosebud 22-11* [Sec. 11, T153N, R101W] is a vertical well targeting the Red River Formation (199,061 Bbls of oil). This well was drilled on September 21, 1985 and is located 1.45 miles northwest of Bray 5301 43-12H. The third offset well is the *Earthstone Energy Edwin M. Dahl 23-1*, which is a vertical well targeting the Red River Formation (producing 26,011 Bbls of oil to date) and the Madison Group (producing 113,393 Bbls of oil to date). *Edwin M. Dahl 23-1* was drilled on June 29, 1980 and is located 2.50 miles southwest of Bray 5301 43-12H in Section 23. The gamma ray signatures through the lower Lodgepole and Bakken observed in the *SM Energy Company Lindvig 1-11HR* provided the best correlation with the MWD gamma ray observed during operations, and provided formation thicknesses consistent with what was observed on Bray 5301 43-12H. Complete tops data are included as an appendix to this report.

ENGINEERING

Professional Directional LTD, provided equipment and personnel for measurement-while-drilling (MWD) and directional drilling services. Sunburst Consulting geologists worked closely throughout the project with Professional Directional personnel to make steering decisions to maximize the amount of borehole in the pay zone

Spud

The *Bray 5301 43-12H* was initially spud on July 24, 2011, with a Reed 13 ½" tri-cone surface bit (bit #1). Bit #1 was used to drill the surface hole with fresh water and drilled 2,040' in 49 hours, reaching the initial surface casing depth on July 25, 2011. The hole was then sealed to be re-entered on August 27, 2011.

Re-Entry: Vertical

Bray 5301 43-12H was then re-entered on August 27, 2011 with a Security 8 ¾" PDC bit (bit #2). Bit #2 was used to drill out of surface casing with a 1.50° Hunting LS fixed motor in invert drilling fluid with a weight between 9.5-9.7 pound per gallon (ppg), with 5" drill pipe. This assembly drilled 8,080' in 79.5 hours to kick-off point (KOP) at 10,220' MD, and then was tripped out on September 02, 2011 to be replaced with the curve assembly.

Curve

Curve building started September 03, 2011 at 10,220' MD (KOP). Diesel invert drilling fluid fluctuated in density between 10.48 and 10.6 ppg. The curve bottom hole assembly (BHA) consisted of a Security 8 ¾" bit (bit #3) and a 2.5° Professional Direction LS fixed mud motor. The BHA also included a Professional Directional MWD tool that recorded survey and gamma ray data. This assembly drilled the entire curve of 862' in 13 hours, achieving exceptional build rates and landing the curve 12 feet into the Middle Bakken Member, reaching the curve TD of 11,082' MD (10,734' TVD). The drill string and BHA were tripped out of the hole while laying down the 5" drill pipe using a lay-down crew. Casing operations were performed by Wyoming Casing Services Inc. The 7" intermediate casing consisted of 182 joints of 29# HCP-110 and 64 joints of 32# HCP-110 set to 11,071' MD. Cementing operations were then performed by Schlumberger.

Lateral

After intermediate casing procedures were completed, 4" drill pipe was picked up, diesel invert drilling fluid was replaced with salt water drilling fluid which fluctuated in density from 10.2-10.6 ppg throughout the lateral. The first lateral BHA consisted of a 6" Smith PDC bit (bit #4), with a Hunting LS 1.5 degree bend motor and a gamma tool 37' from the bit. This assembly drilled to 15,562' MD in 55 hours before a trip was required to replace the motor. The next assembly consisted of a 6" Smith PDC bit (bit #4); with a Hunting LS 1.5 degree bend motor and a gamma tool 37' from the bit. This final BHA reached TD at 20,978' taking 76 hours. The wellbore reached a planned total depth (TD) on October 22, 2011 at 1230 CDT, with a bottom hole location at 10,478.70' south & 2.05' east of surface location or approximately 308.07' FSL & 1,924.95' FEL, SW SE Section 24, T153N, R101W.

GEOLOGIC EVALUATION

Methods

Two well-site geologists contracted by Sunburst Consulting Inc. conducted the geologic analysis for *Bray 5301 43-12H*. Sunburst installed and monitored a digital gas detector and chromatograph interfaced with a Pason Electronic Data Recording System (EDR). The EDR provided depth, drilling rate and pump stroke data to the M-Controller gas-monitoring software which returned gas data in the form of total gas units and hydrocarbon constituent (methane, ethane, propane, butane) concentrations expressed in parts-per-million. Gas samples were pulled through ¼" poly-flow tubing after agitation in Sunburst's gas trap installed in the possum belly. Rig crews caught lagged samples under the supervision of well-site geologists in 30' intervals from 8,240' to 10,880'; 10' intervals from 10,880' to 11,090'; 30' intervals from 11,090' to 20,960'. Wet and dry cuttings were examined under a binocular microscope, complete lithologic descriptions are provided in this evaluation. Cuttings were also evaluated for hydrocarbon "cut" by immersion in Entron and inspected under a UV fluoroscope until samples became contaminated with lateral lubricant at approximately 15,300' MD. One set of dry cuttings were collected and sent to the North Dakota Geological Survey Core Library.

Lithology and Hydrocarbon Shows

Geologic evaluation began at 8,240' in orange to orange brown siltstone with trace amount of white to off white sandstone in the Kibbey Formation. The Kibbey "Lime" was drilled at 8,355' (-6,261'), coming in 3' low to *Lindvig 1-11HR* and was determined based off a decrease in rate of penetration (ROP), due to a 16' layer of anhydrite. Samples from this interval are mostly light gray to brown lime mudstone with a crystalline texture. Below the Kibbey "Lime" marker samples consist of orange brown to brown calcareous siltstone. No significant shows were observed in the Kibbey.



Figure 1: Photograph of limestone from Kibbey Formation.

The First Charles Salt was penetrated at 8,494' (-6,400') and came in even to *Lindvig 1-11HR*, based off ROP breaks. The Base of the Last Charles Salt was drilled at 9,198' (-7,104'), 1' high to *Lindvig 1-11HR*. Samples from this interval were primarily salt which was translucent to a milky white color and typically consisting of firm to hard subhedral crystals, inter-bedded with argillaceous limestone and anhydrite. The lime mudstone was firm to friable, crystalline and primarily light to medium gray to gray-brown in color. The anhydrite was white, soft, and amorphous in texture.

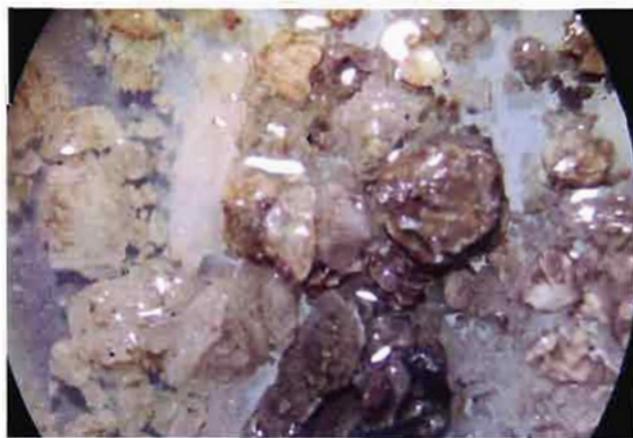


Figure 2: Photograph of limestone, salt, anhydrite, and dolomite in Charles Formation.

The Ratcliffe Interval was penetrated at 9,230' (-7,136'), 1' high to *Lindvig 1-11HR*. This formation consists of dolomitic mudstone, anhydrite, and limestone that were argillaceous in sections. The observed tan, light to medium gray brown dolomite was microcrystalline, firm, and contained a chalky to earthy texture. The anhydrite was a white to off white color, with a microcrystalline texture, and was soft and amorphous. The tan, light to medium gray brown argillaceous lime mudstone-wackestone described was microcrystalline, firm, with an earthy textured and exhibited no visible porosity. This section can contain a significant amount of oil and gas, and was particularly productive in the offset well *Lindvig 1-11HR*. The cuttings and mud gas analysis by a total gas chromatograph, however, did not log productive shows suspected over this interval. These shows, however, were present within the lower unit of the Mississippian Madison Group, the Mission Canyon Formation.

The Mission Canyon Formation [Mississippian Madison Group] was penetrated at 9,416' (-7,322'), 5' high to *Lindvig 1-11HR*. This formation consists predominately of limestone with poor intercrystalline porosity and an earthy texture. The lime mudstone was typically medium to dark gray, microcrystalline, firm and contained sections that were partially argillaceous. Traces of anhydrite were also observed, that were white to off white, soft and amorphous. There was *trace spotty dark brown oil staining observed in cuttings*, which was highlighted by a *gas show of 107 units*, present in the limestone unit.



Figure 3: Photograph of anhydrite and limestone from the Mission Canyon Formation.

The Lodgepole Formation [Mississippian Madison Group] was drilled at 9,978' (-7,884'), 3' high to *Lindvig 1-11HR*. The Lodgepole contains some limestone near the top of the formation, but was dominated primarily by an argillaceous lime mudstone with common traces of pyrite. The limestone samples are tan, light gray to cream, microcrystalline, earthy texture, and friable to firm with no visible porosity or oil show.



Figure 4: Photograph of limestone from the Lodgepole Formation.

The “False Bakken” was penetrated at 10,692’ TVD (-8,598’), 3’ low to *Lindvig 1-11HR*. The False Bakken in this area is particularly thin, and was not observed in the cuttings. The False Bakken consists of very dark gray carbonaceous shale. *Fracture porosity was observed though, present in a gas spike of up to 4000 units*, which is typical of the False Bakken.

The Upper Bakken Shale was drilled at 10,703’ TVD (-8,609’), 6’ low to *Lindvig 1-11HR*. Sample returns were black, carbonaceous and petroliferous shale with common disseminated pyrite and characterized by gamma ray values in excess of 300 API counts.

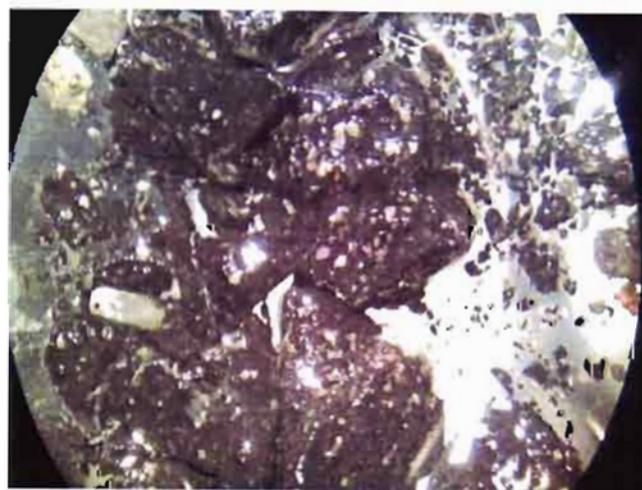


Figure 5: Photograph of black carbonaceous Upper Bakken Shale, displaying disseminated pyrite.

The Bakken Middle Member was penetrated at 10,719’ TVD (-8,625’), 4’ low to *Lindvig 1-11HR*. The middle member is topped by dense, dark gray siltstone with poor intergranular porosity. The bit was landed at 10,732’ TVD, near the center of the target interval.



Figure 6: Photograph of sample from the target zone of the Middle Bakken.

The **target zone** within the Middle Bakken was determined during a casing point meeting prior to horizontal drilling operations. The desired target zone was primarily chosen off of data provided by the *Lindvig 1-11HR* offset log. The 12' interval shaded in red and yellow in Figure 7; set 8' below the base of the Upper Bakken Shale and the base set at ~14' above the top of the Lower Bakken Shale, was defined as the primary target interval. Within the 12' target zone, drilling was focused on the two high gamma spike (112-120 API) right at the top of target, for geo-steering purposes, and this gamma marked an eight foot high porosity zone at the top of target labeled and shaded in yellow in Figure 7. The eight foot zone was distinguishable in cuttings as silty sandstone, having moderate calcite cement, abundant in light to medium brown color, *spotty to even brown oil staining* and occasional light to medium gray color. Directly below this zone was well cemented light gray to medium gray silty sandstone, which showed occasional *spotty brown oil staining*. Above the eight foot high porosity zone consisted of moderately cemented medium to light gray silty sandstone occasional medium to light brown and common dark gray in color, with *occasional spotty brown oil staining*.

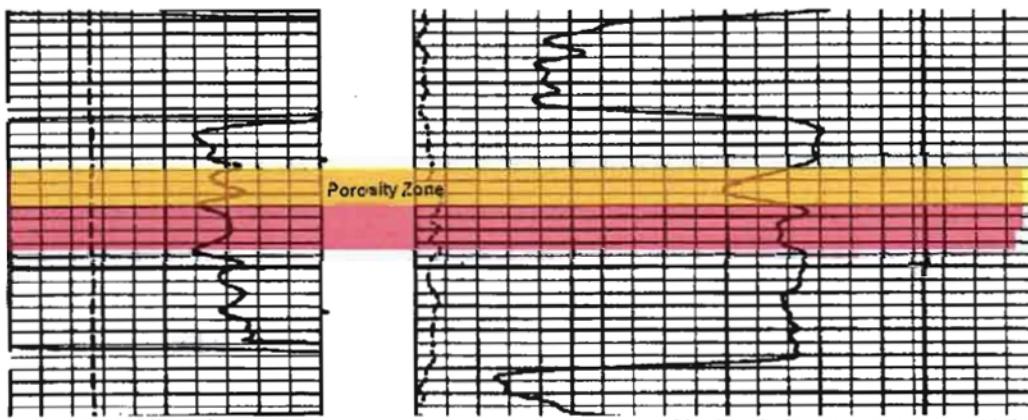


Figure 7: Middle Bakken target zone gamma ray and porosity profile detailed in the *Lindvig 1-11HR* log.

Rate of penetration in the targeted Middle Bakken averaged 100-150 ft/hr while drilling early in the lateral. For the latter half of the lateral, rates dropped to 80-100 ft/hr due to motor and bit wear. In the later half, however, an increase in rate of penetration was witnessed at 19,400'

measured depth, due to the entrance into the porosity zone marked by the high gamma counts of 120 API.

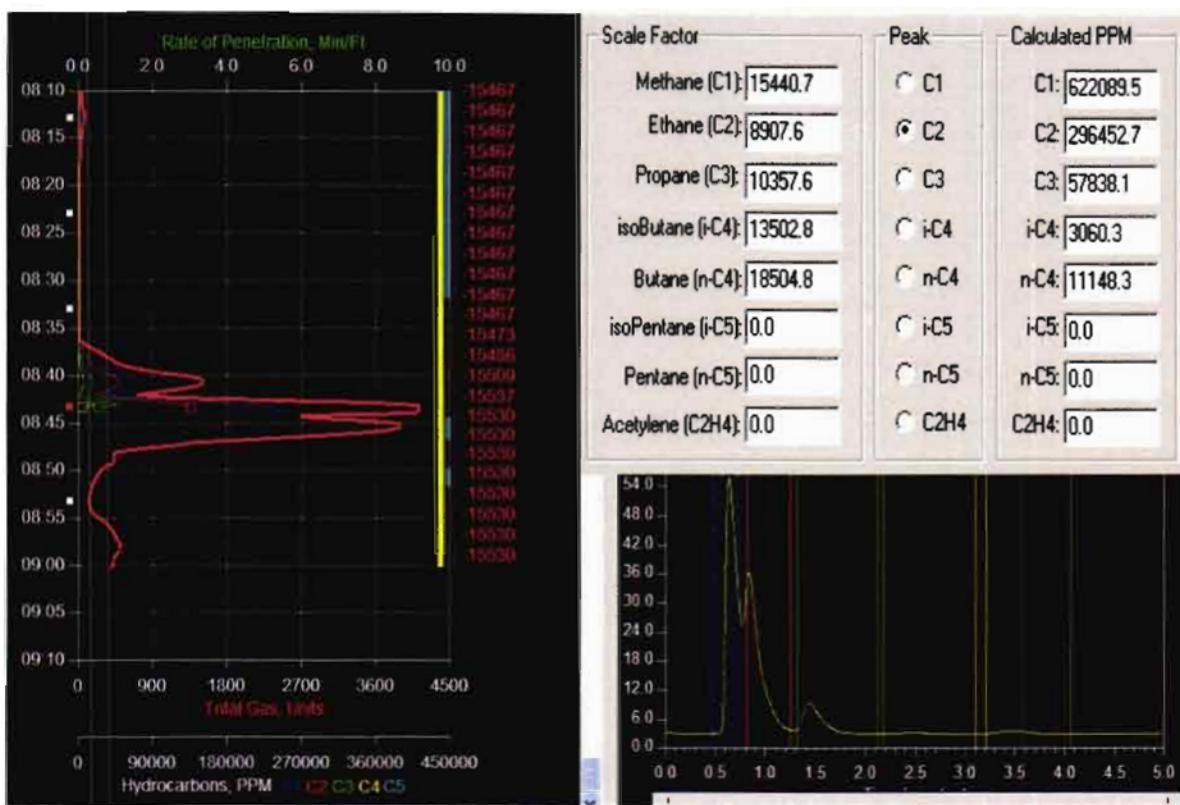


Figure 8: Chromatography of Bray 5301 43-12H gas show at 15,561' MD during tripping operations.

A chromatograph separated the total gas into prospective components, as displayed in *Figure 8*, showing a larger concentration of normal butane relative to iso-butane, which is typical for Bakken crude associated gas. Background gas concentrations observed in the Middle Bakken lateral ranged from approximately 600 units during the curve and at the beginning of lateral with a 10.0 ppg mud weight with shows in the mid 2,500 units. Towards the end of the lateral background gas increased to an excess of 3,000 units with shows in excess of 5,000 units with a 10.8 ppg mud weight. Increased background gas concentrations were witnessed during intervals of high apparent formation dips. These intervals of high dips were between 13,950' MD and 14,350' MD where the dip averaged 0.8 degrees down and then again between 15,750' MD and 20,975' MD where the dip averaged 1.0 degrees up. This increase in gas is likely due to increased fracture porosity, caused by fracturing within the rock from the strain caused by these deformations or a local structural trap. The highest peak value observed was nearly 7,144 units at 20,673' MD with a mud weight of 10.5 ppg. Connection gases within the target zone averaged ~1,500-2,000 units in the beginning of the lateral to ~4,000-6,000 units towards the end. *Greenish brown oil* was observed coming over the shakers and within the sample cuttings throughout the entire lateral. When sample cuttings were submerged in Entron, they emitted a slow to very slow diffuse green fluorescence. Entron submersion was then halted once samples became contaminated with lube. Throughout the lateral a 1-8' intermittent flare was observed, and at points could reach up to 25', as portrayed in *Figure 9*.

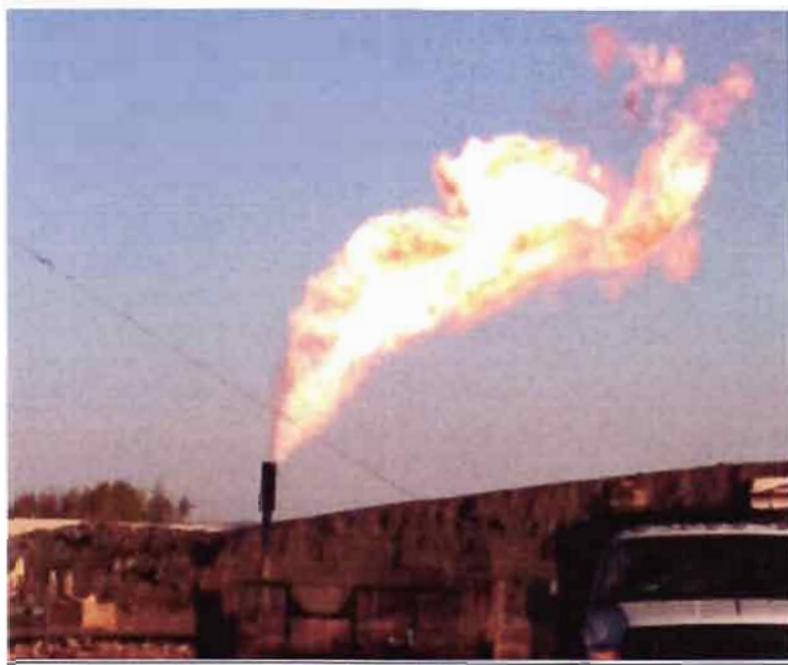


Figure 9: 25' trip flare observed during tripping operations.

Geo-steering

The target zone within the Bakken Middle Member was established using the density porosity logs from the aforementioned offset wells. A 12' zone in the *Lindvig 1-11HR* offset well set the basis for the choice of target interval in the Bray 5301 43-12H project (Figure 7). This 12' section was 8' below the base of the Upper Bakken Shale and 16' above the Lower Bakken Shale. The target displayed two peaks of high gamma (112-120 API), one at the center of target, the other at the top of target. Low gamma points that established points just below the center of target and bottom of the target zone. Within the 12' zone, particular efforts were made to stay in the top eight feet of the target zone which correlated to the high porosity displayed in the *Lindvig 1-11HR* electric logs. The well plan was to land in the center of the Middle Bakken target interval to allow maximum exposure to the target porosity. To accommodate the planned liner run, severe doglegs were to be avoided to obtain the desired vertical section.

Kick off point for the curve was changed to 10,220' based off the observed thickness to target from the Base Last Salt marker. The represented targets are below in Table 1. At this point the Base Last Salt was the most consistent marker throughout the offset wells, allowing for a raise of the target depth approximately 8 feet. This changed the proposed target landing to 10,724' TVD, which remained consistent throughout the vertical hole. Throughout the curve the target approximation remained overly consistent, but began to drop as lower Lodgepole markers were logged. As the lower Lodgepole markers were observed the target landing was moved to 10,730' TVD to account for this thickening to target. Once the Upper Bakken Shale top was reached, the landing point was one foot lower to the initial prognosis. The target landing point was then change back to its initial prognosis of 10,732' TVD, allowing for the curve build to safely land the borehole into the Middle Bakken Member, at approximately 90 degrees to begin the lateral.

TARGET PROXIMATION

Formation/ Zone:

Proposed Top of Target From:

	Lindvig 1-11HR	RoseBud 22-11	Edwin M. Dahl 23-1	Average of Offset Wells
Kibbey "Lime"	10,730'	10,716'	10,726'	10,724'
First Charles Salt	10,727'	10,709'	10,723'	10,720'
UB	10,724'	10,715'	10,728'	10,722'
Base Last Salt	10,726'	10,719'	10,727'	10,724'
Ratcliffe	10,726'	10,719'	10,726'	10,724'
Mission Canyon	10,722'	10,706'	10,725'	10,718'
Lodgepole	10,724'	10,721'	10,724'	10,723'
Lodgepole A	10,724'	10,718'	10,726'	10,723'
Lodgepole B	10,724'	10,700'	10,727'	10,717'
Lodgepole C	10,732'	10,715'	10,727'	10,725'
Lodgepole D	10,724'	10,716'	10,726'	10,722'
Lodgepole E	10,726'	10,721'	10,720'	10,722'
Lodgepole F	10,727'	10,724'	10,731'	10,727'
False Bakken	10,730'	10,731'	10,730'	10,730'
Upper Bakken Shale	10,733'	10,730'	10,732'	10,732'
Middle Bakken	10,731'	10,730'	10,731'	10,731'
Middle Bakken (Target)	10,732'	10,732'	10,732'	10,732'

Table 1. Chart used to determine landing target based on formation thicknesses in the offset wells.

The wellbore landed at a casing point of 11,082' MD (10,733' TVD); approximately 14' TVD into the Middle Bakken Member and 6' into the target zone. Upon drilling out of casing, build tendencies were observed, in that the well bore would build up in rotation, approximately one degree per a hundred feet. Slides were implemented to account for this continuous rotational building. Once out of the casing an inclination of 87.7 was accurately determined by the MWD tool to replace the initial projected inclination of 90 degrees. The lateral assembly was then leveled out to slowly drop in target to obtain the full gamma signature of the targeted zone. By using the cool gamma and hot gamma near the center of target the dip was able to be calculated, and was found to be an overall down dip of approximately 0.5 degrees. By steering the well bore up and down through this sequence of hot and cold gamma signatures multiple times, reliable dip calculations were established until 14,250' MD. After 14,250' MD the dip of formation turned up placing the wellbore near the base of target. In this stratigraphic section there is a low gamma marker at the base of target followed by ratty high gamma above and below the low gamma marker. Using this sequence of gamma markers the well bore was steered within target to 19,477' MD, which showed an overall dip of formation of over 1.0 degrees up. At this point the wellbore ascended back up to the center of target where it was steered, using the hot gamma marker at the center of target, to a total depth of 20,978'. Over the entire vertical section of 10,479' the overall dip of formation was calculate to be 0.39 degrees up, with the well bore over 90 percent within the target interval, and 50 percent of the time the well bore was steered within the ideal porosity zone.

SUMMARY

- 1) The Oasis Petroleum North America, LLC Bray 5301 43-12H was drilled to further develop the Middle Bakken in the northern McKenzie County portion of the Williston Basin.
- 2) The well was re-entered on August 27, 2011 and the vertical hole was drilled to a kick-off point of 10,220'. The well path landed below the Middle Bakken porosity zone at 10,733' TVD. Intermediate casing was set at 11,082' MD in preparation for lateral operations. Lateral operations progressed within the Middle Bakken, with very good hydrocarbon shows to the final bottom hole location when drilling was completed on October 22, 2011.
- 3) The mud program consisted of diesel invert (9.6 – 9.8 ppg) from surface casing and through the curve build, which was successful in maintaining stable hole conditions and minimizing washout through the salt intervals. After landing the curve the diesel invert mud was replaced with salt brine (10.2 - 10.6 ppg) and was successful in preventing loss of pore pressure throughout the lateral.
- 4) The lithology of the Middle Bakken target zone is off white to light brown and gray, very fine grained sandstone and siltstone with poor to fair intergranular porosity and common to occasional spotty to even brown oil stain. Gas was burned as a 1-8' intermittent flare while circulating higher show areas of the formation.
- 5) The Oasis Petroleum North America, LLC Bray 5301 43-12H reached 20,978' TD on October 22, 2011, reaching the proposed TD. The well currently awaits completion as successful Middle Bakken horizontal oil well.

Respectfully Submitted,
Nathan Gabelman
C/o Sunburst Consulting, Inc.
October 25, 2011,

WELL DATA SUMMARY

OPERATOR: Oasis Petroleum North America, LLC

ADDRESS: 1001 Fannin, Suite 1500
Houston, TX 77002

WELL NAME: Bray 5301 43-12H

API #: 33-053-03609

WELL FILE #: 20864

SURFACE LOCATION: 250' FSL & 1,927' FEL
SW SE Section 12, T153N, R101W

FIELD/ PROSPECT: Wildcat / Bakken

COUNTY, STATE McKenzie County, North Dakota

BASIN: Williston

WELL TYPE: Middle Bakken Horizontal

ELEVATION: GL: 2,078'
KB: 2,094'

SPUD/ RE-ENTRY DATE: Spud: 7/23/2011

BOTTOM HOLE LOCATION: 10,478.70' South & 2.05' East of surface location or approx.
308.07' FSL & 1924.95' FEL, SW SE Section 24, T153N, R101W

CLOSURE COORDINATES: Closure Direction Azimuth: 179.99°
Closure Distance: 10,478.71'

TOTAL DEPTH / DATE: 20,978' at 1230 Hrs CDT on 22 October 2011
90% within target interval

TOTAL DRILLING DAYS: 32 days

STATUS OF WELL: Open-hole completion/ preparing to open-hole frac

CONTRACTOR: Xtreme #17

PUMPS: #1 & #2 - Gardner-Denver-PZ-11 (stroke length - 11")

TOOLPUSHERS: Brandon Clampitt, David Bowlby

FIELD SUPERVISORS: Wade Larmer, Bruce Jorgenson

CHEMICAL COMPANY: National Oilwell Varco
Prairie Petro-Chem of America

MUD ENGINEER: Nate Joseph

MUD TYPE: Oil based mud; salt water

MUD LOSSES: Invert Mud: 389 bbls, Salt Water: 0 bbls

PROSPECT GEOLOGIST: John Gillespie, Andy Nelson

WELLSITE GEOLOGISTS: Nathan Gabelman, Kyle Kavalec, Scott Smith

GEOSTEERING SYSTEM: Sunburst Digital Wellsite Geological System

ROCK SAMPLING: 30' from 8,240' - 10,880', 11,070'-20,960'
10' from 10,880'-11,070'

SAMPLE EXAMINATION: Binocular microscope & fluoroscope

SAMPLE CUTS: Entron

GAS DETECTION: Mudlogging Systems Model TGC, Serial #: ML-169

DIRECTIONAL DRILLERS: Professional Directional
Mike Dibble, Nate Linde

MWD: Professional Directional
John Capra, Tim Pile

CASING: Surface: 9 5/8" 52 JTS 36# J-55 set to 2,100'
Intermediate: 7" 182 JTS 29# HCP-110, 64 JTS 32# HCP-110
set to 11,071'

KEY OFFSET WELLS:

SM Energy Company
Lindvig 1-11HR
SE SE Sec. 11, T153N, R101W
McKenzie County, ND

SM Energy Company
RoseBud 22-11
SE NW Sec. 11, T153N, R101W
McKenzie County, ND

Earthstone Energy
Dahl No. 23-1
SW SE Sec. 23, T153N, R101W
Mckenzie County, ND

DISTRIBUTION:

Oasis Petroleum
1001 Fannin St. #1500
Houston, Texas 77002

North Dakota Industrial Commission
Oil and Gas Division
600 East Boulevard Ave, Dept. 405
Bismarck, ND 58505-0840

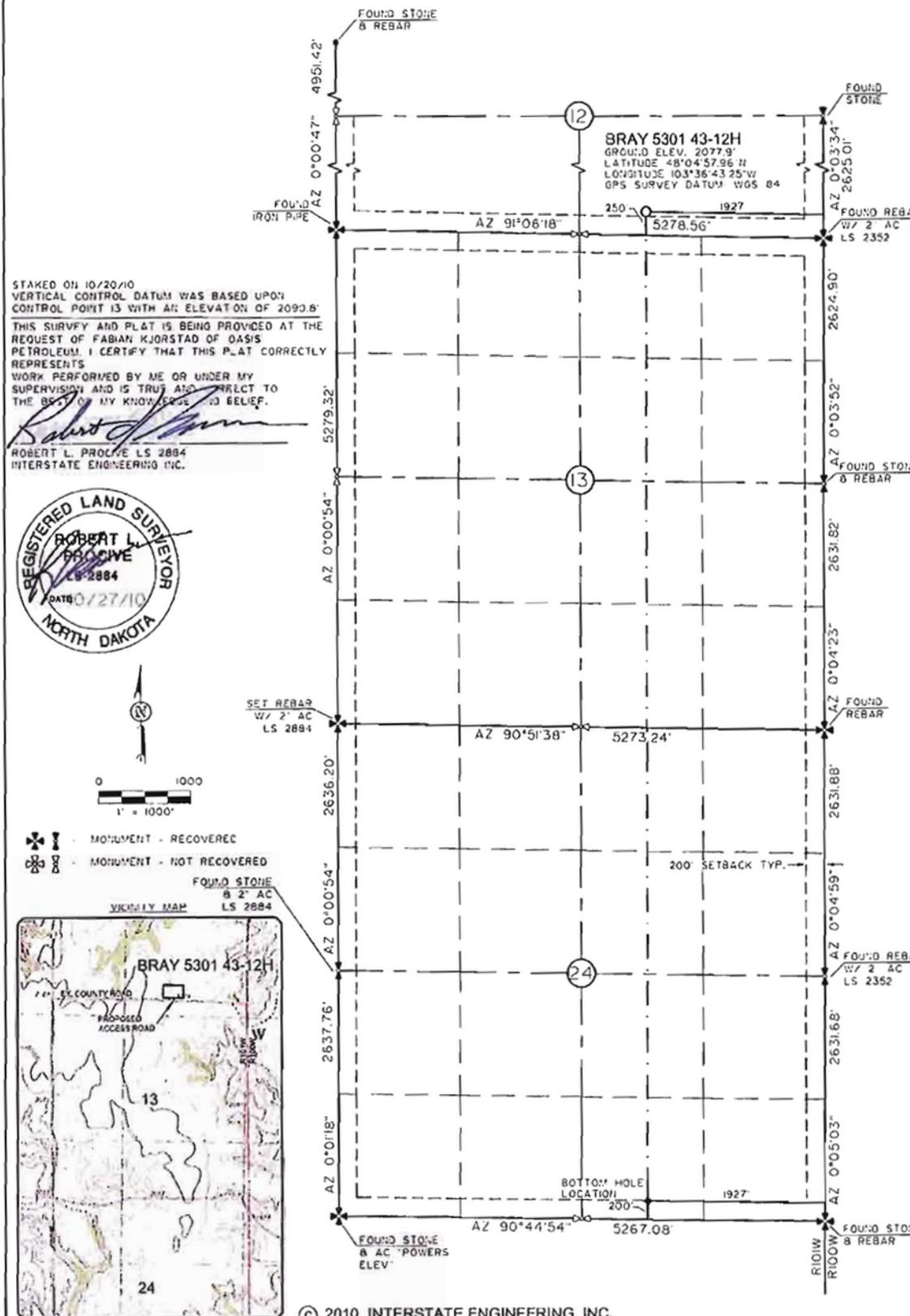
Hunt Oil and Gas
1900 N. Akard St.
Dallas, TX 75201

Golden Eye Resources, LLC
5460 South Quebec Street, Suite 335
Greenwood Village, CO 80111

WELL LOCATION PLAT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002
"88AY 5301 43-12H"

"BRAZ 5301 43-12H"
250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

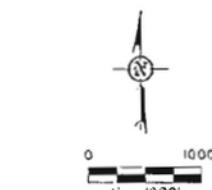


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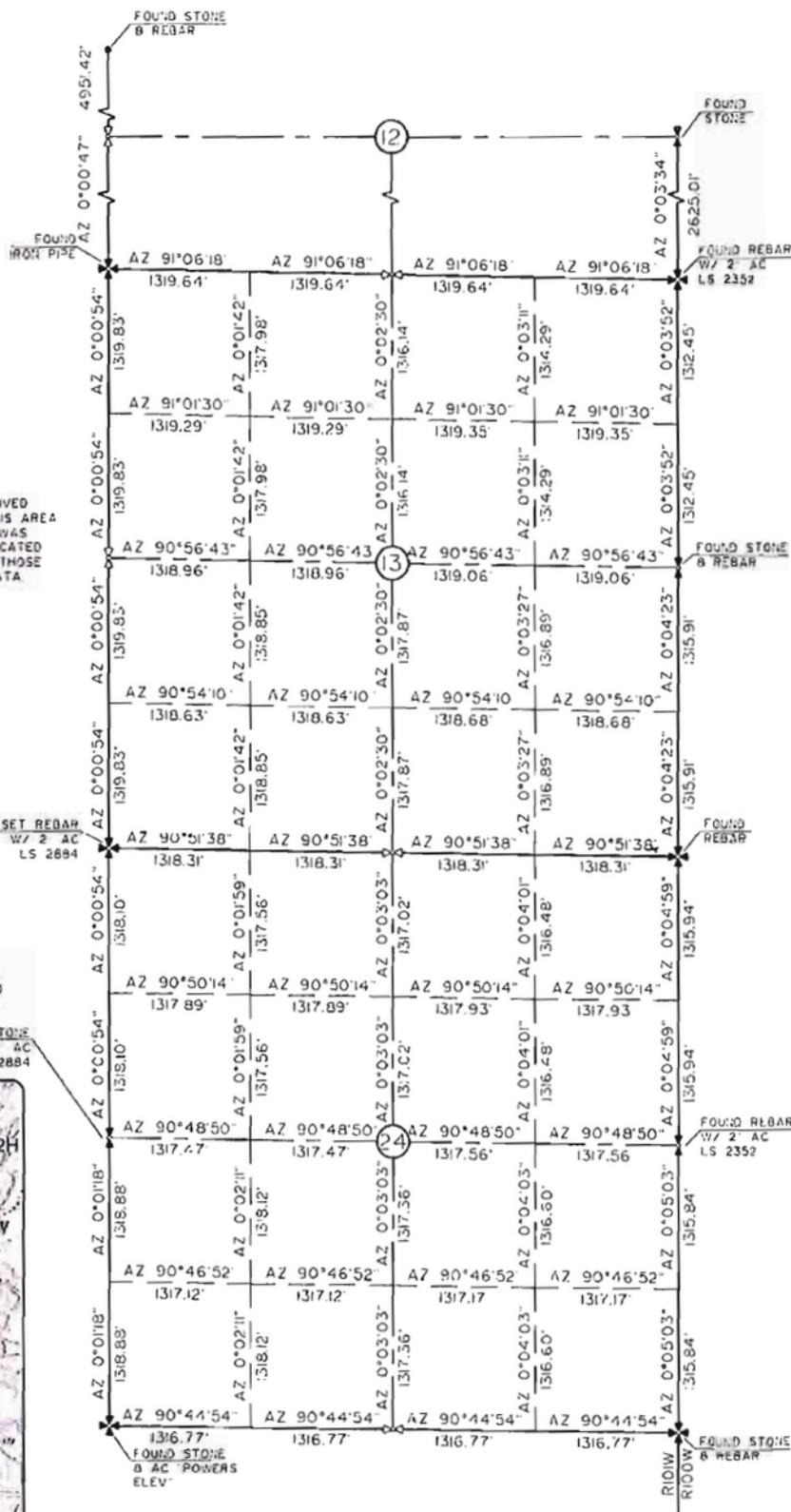
SECTION BREAKDOWN
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002
 "BRAY 5301 43-12H"
 250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
 SECTION 12, T15N, R10W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



ALL BEARINGS ARE BASED ON G.P.S. DERIVED BEARINGS. THE ORIGINAL SURVEY OF THIS AREA FOR THE GENERAL LAND OFFICE (G.L.O.) WAS 1900. THE CORNERS FOUND ARE AS INDICATED AND ALL OTHERS ARE COMPUTED FROM THOSE CORNERS FOUND AND BASED ON G.L.O. DATA.



- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED



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 Suite 2200
 Seattle, WA 98103-2200
 Ph: (425) 433-5517
 Fax: (425) 433-5519
 Email: seattle@interstateinc.com

OASIS PETROLEUM NORTH AMERICA, LLC
 SECTION BREAKDOWN
 SECTIONS 12, 13, 14, 15, 16, 17, 18, 19
 MCKENZIE COUNTY, NORTH DAKOTA

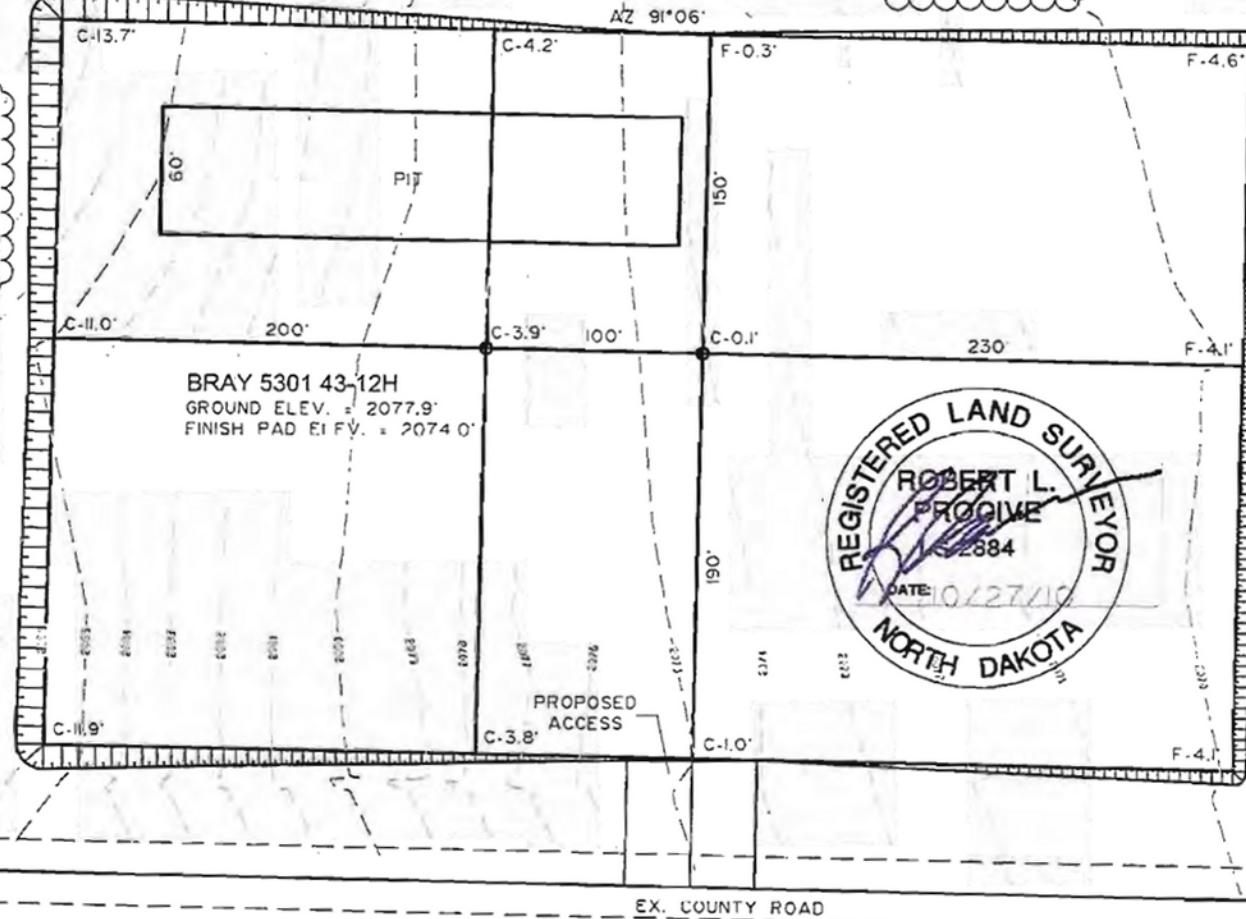
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14	15	10	54'	S 0° 0' 54"	250'	S 0° 0' 54"	1927'
15	15	10	54'	S 0° 0' 54"	250'	S 0° 0' 54"	1927'
16	15	10	54'	S 0° 0' 54"	250'	S 0° 0' 54"	1927'
17	15	10	54'	S 0° 0' 54"	250'	S 0° 0' 54"	1927'
18	15	10	54'	S 0° 0' 54"	250'	S 0° 0' 54"	1927'
19	15	10	54'	S 0° 0' 54"	250'	S 0° 0' 54"	1927'

PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"BRAY 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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

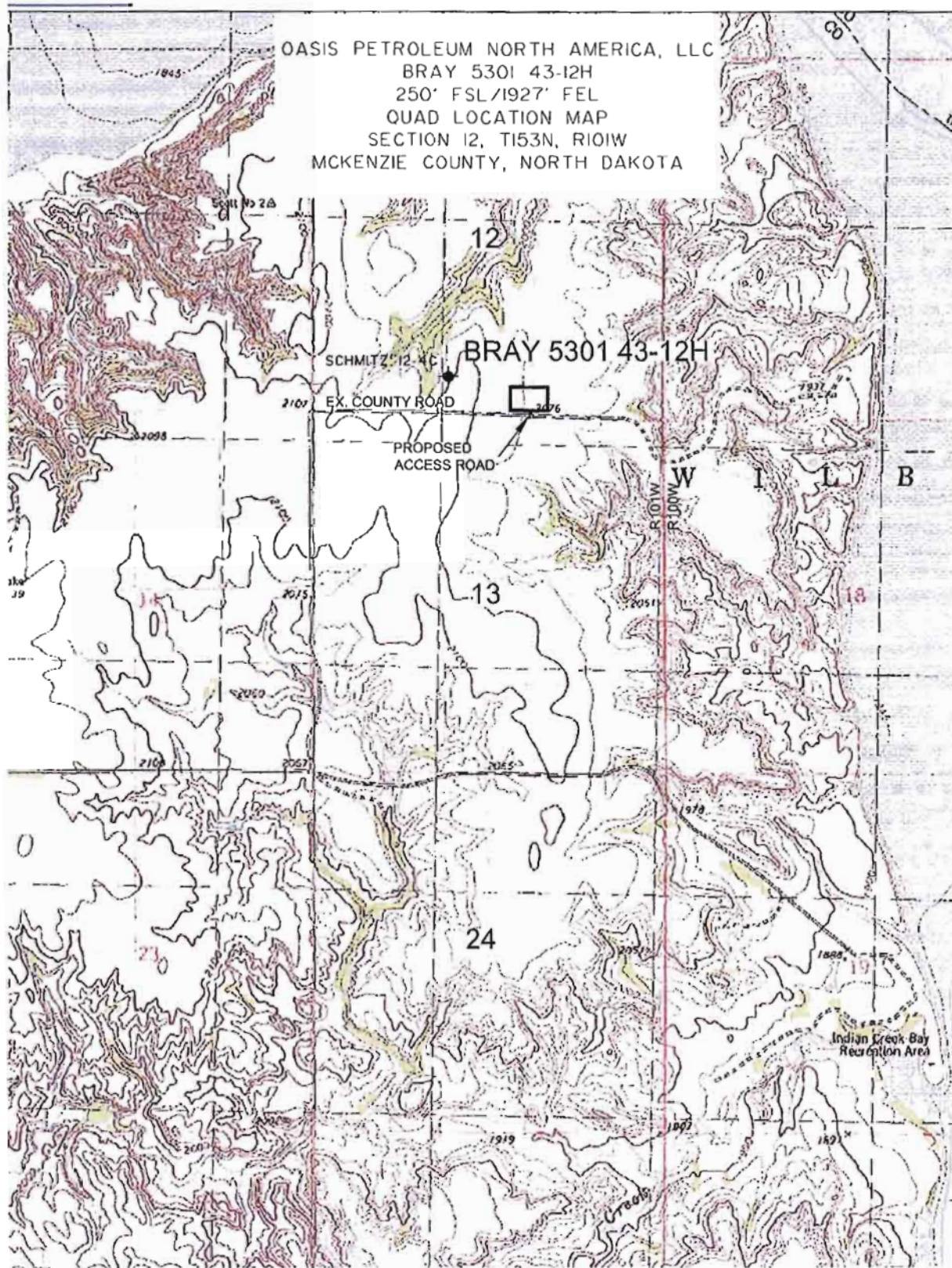
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SCE-113

OASIS PETROLEUM NORTH AMERICA, LLC		PAD LAYOUT	
SECTION 12, T153N, R101W		MCKENZIE COUNTY, NORTH DAKOTA	
Drawn By:	H.J.D.	Project No.:	B102-107
Checked By:	A.H.S.P.	Date:	OCT 2010



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SHEET 1/10

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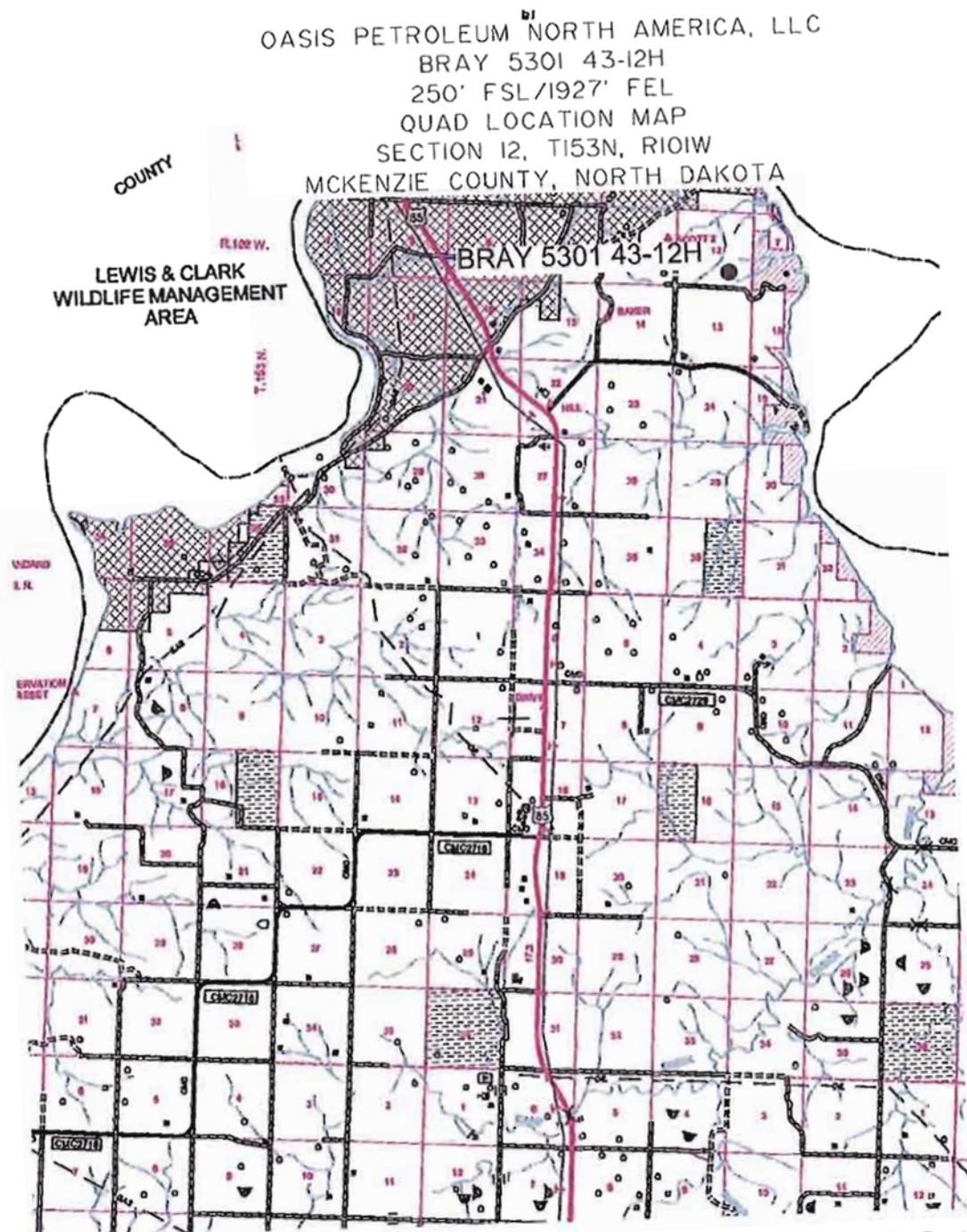
OASIS PETROLEUM NORTH AMERICA, LLC
 QUAD LOCATION MAP
 SECTION 12, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	H.J.D.	Project No.:	510-09-167
Checked By:	A.J.H./R.P.D.	Date:	OCT 2010

Revision No.	Date	By	Description

COUNTY ROAD MAP
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002
 "BRAY 5301 43-12H"
 250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
 SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



SCALE: 1" = 2 MILE

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OASIS PETROLEUM NORTH AMERICA, LLC
 COUNTY ROAD MAP
 SECTION 12, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

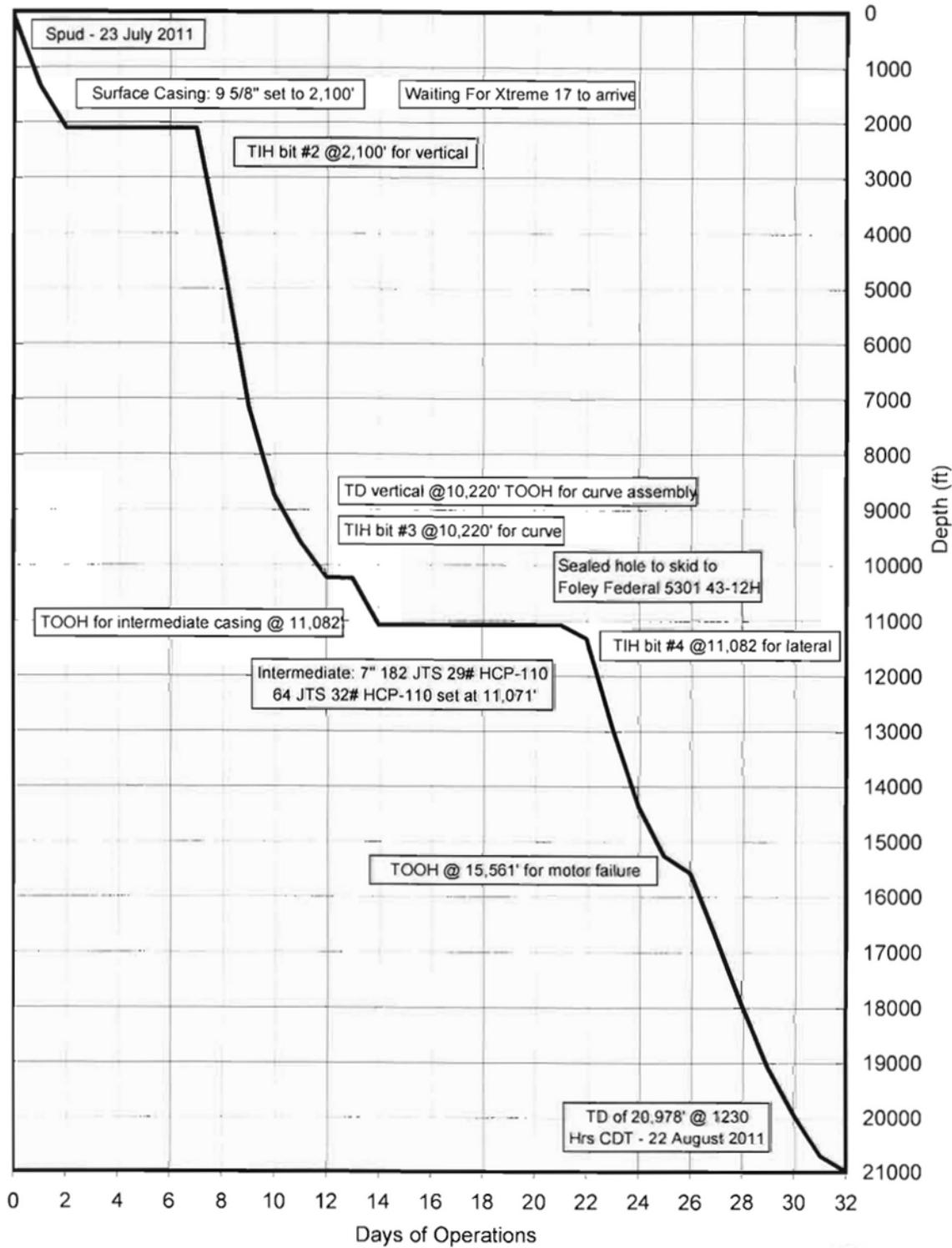
Drawn By: H.J.G. Checked By: A.H.H.R.P. Date: OCT 2010

Party	Date	By	Qualified

TIME VS DEPTH

Oasis Petroleum North America, LLC

Bray 5301 43-12H



DAILY DRILLING SUMMARY

Day	Date 2011	Depth (0600 Hrs)	24 Hr Footage	Bit #	WOB (Klbs) RT	WOB (Klbs) MM	RPM (RT)	RPM (MM)	PP	SPM 1	SPM 2	GPM	24 Hr Activity				Formation
0	7/23	120'	-	1	-	-	100	-	-	-	-	-	Work on pumps, spud-drill 60-120				Surface
1	7/24	1,320'	1200	1	-	-	100	-	-	-	-	-	Circulate, drill, run surveys, circulate hole to thin mud				Surface
2	7/25	2,100'	780	1	30	-	100	-	-	-	-	-	Drill, survey, condition hole, wiper trip				Pierre
3	7/26	2,100'	0	1	-	-	-	-	-	-	-	-	Wiper trip, TOOH, run casing, rig up cementers				Pierre
4	7/27	2,100'	0	1	-	-	-	-	-	-	-	-	Rig down cementers, seal hole to be re-entered by Xtreme 17 drilling rig				Pierre
5	7/28	2,100'	0	-	-	-	-	-	-	-	-	-	-				Pierre
6	8/27	2,100'	0	1	-	-	-	-	-	-	-	-	Rig up, nipple up BOP, rig accepted				Pierre
7	8/28	2,100'	0	1	-	-	-	-	-	-	-	-	Finish testing BOP, make vertical BHA				Pierre
8	8/29	4,398'	2298	2	25	-	45	128	-	-	-	-	Service rig, drill float and shoe, drill vertical				Greenhorn
9	8/30	7,128'	2730	2	12	-	50	-	3100	125	-	483	Drill vertical				Spearfish
10	8/31	8,730'	1602	2	12	-	50	-	3100	125	-	483	Drill actual F/7,128-7,411; Lubricate Rig; Drill Actual F/7,411-8,635'; Lubriacte Rig; Drill Actual 8,635'				Charles Salt
11	9/1	9,575'	845	2	25	-	50	-	3150	125	-	483	Drill actual F/8,729-9,012'; Lubricate Rig; Drill Actual F/9,012-9,160'; Lubriacte Rig; Drill Actual 9,160'				Mission Canyon
12	9/2	10,220'	645	2	25	-	50	-	3150	125	-	483	Drill Vertical				Lodgepole
13	9/3	10,228'	8	3	-	16	-	-	3300	125	-	483	TOOH, TIH, Log BLS and Lodgepole Tops, Slide and Drill				Lodgepole
14	9/4	11,082'	854	3	20	40	20	266	3150	125	-	483	Drill Actual 10,236-10,519'; Install Rot. Rubber; Lubricate Rig; Drill Actual 10,519-11,084'; Condition and Circulate				Middle Bakken
15	9/5	11,082'	0	3	-	-	-	-	-	-	-	-	Condition Mud and Circulate; Trips; Reaming; Trips; Condition mud and Circulate; Repair mud pumps; Condition and Circulate; TOOH; Casing Operations				Middle Bakken
16	9/6	11,082'	0	3	-	-	-	-	-	-	-	-	Pull wear brushing; Change power tongs; Wait on float collar; Run intermediate casing, casing stuck work tight casing				Middle Bakken
17	9/7	11,082'	0	3	-	-	-	-	-	-	-	-	Wait on wire line truck; Wireline logs; Condition and circulate mud; cement; wait on cement, set casing slips and cap well head				Middle Bakken
18	10/9	11,082'	0	-	-	-	-	-	-	-	-	-	Meeting with cased hole solutions, bleed off 1500 PSI, nipple down night cap, skid rig back to Bray				Middle Bakken
19	10/10	11,082'	0	-	-	-	-	-	-	-	-	-	Rig up, test BOP, manual choke failed, rig service, test choke				Middle Bakken
20	10/11	11,082'	0	-	-	-	-	-	-	-	-	-	Pull test plug, rig service top drive, pick up baker tools, TIH fill pipe, displace 35 Bbls Bakken oil, displace mud, circulate, TOOH				Middle Bakken
21	10/12	11,082'	0	3	6	18	50	135	-	-	79	303	TOOH, pick up lateral BHA, TIH, drill lateral and slide as needed				Middle Bakken

DAILY DRILLING SUMMARY

Day	Date 2011	Depth (0600 Hrs)	24 Hr Footage	Bit #	WOB (Klbs) RT	WOB (Klbs) MM	RPM (RT)	RPM (MM)	PP	SPM 1	SPM 2	GPM	24 Hr Activity		
22	10/13	11,315'	233	3	6	18	50	135	-	-	79	303	TOOH, pick up lateral BHA, TIH, drill lateral and slide as needed		Middle Bakken
23	10/14	12,940'	1625	3	6	18	50	160	2245	-	79	303	Drill lateral		Middle Bakken
24	10/15	14,350'	1385	3	13	31	54	139	2990	-	79	303	Drill lateral		Middle Bakken
25	10/16	15,250'	900	4	14	36	52	138	3050	-	78	299	Drill F/14,283-14,823', service rig, repair mud pumps, dril F/14,823-14,837', repair mud pumps, drill F/14,837-15,177', service rig, drill F/15,177-15,190'		Middle Bakken
26	10/17	15,561'	311	4	14	29	50	138	3280	-	78	299	Drill F/15,190-15,276', service rig, drill F/15276-15561', Circulate & condition mud while building dry pill, TOOH, change out BHA, TIH.		Middle Bakken
27	10/18	16,730'	1169	4	12	36	50	136	3760	-	77	296	TIH, service rig, repair mud pumps, circulate out trip gas, drill F/15,561-16,696', service rig, drill F/16,696-		Middle Bakken
28	10/19	17,950'	1220	5	13	39	50	136	3790	-	77	296	Drill F/16,730-17,325', service rig, drill F/17,325-17,841', service rig, drill F/17,841-		Middle Bakken
29	10/20	19,075'	1125	5	14	57	50	136	3640	-	77	296	Drill F/17,950-18,506', service rig, drill F/18,506-19,034'		Middle Bakken
30	10/21	19,950'	875	5	14	59	50	136	3680	-	77	296	Drill F/19,034-19,296', service rig, drill F/19,296-19,819, circulate & condition mud, drill F/19,819-19,838'		Middle Bakken
31	10/22	20,700'	1625	5	14	61	50	136	3540	-	77	296	Drill F/19,838-19,970', service rig, drill F/19,970-20,409', lay down washed out drill pipe, change out saver sub & grabber box dies, service rig, repair grabber box suspension do to broken pin, drill F/20,409-20,582'		Middle Bakken
32	10/23	20,978'	1028	5	14	-	50	136	3720	-	77	296	Drill F/20,582-20,978' (TD), Service rig, circulate & condition mud, pump dry pill, TOOH to KOP, TOOH to 10,427', condition mud & circulate, build slug to 12.6 ppg, cut off drilling line, TOOH		Middle Bakken

DAILY MUD SUMMARY

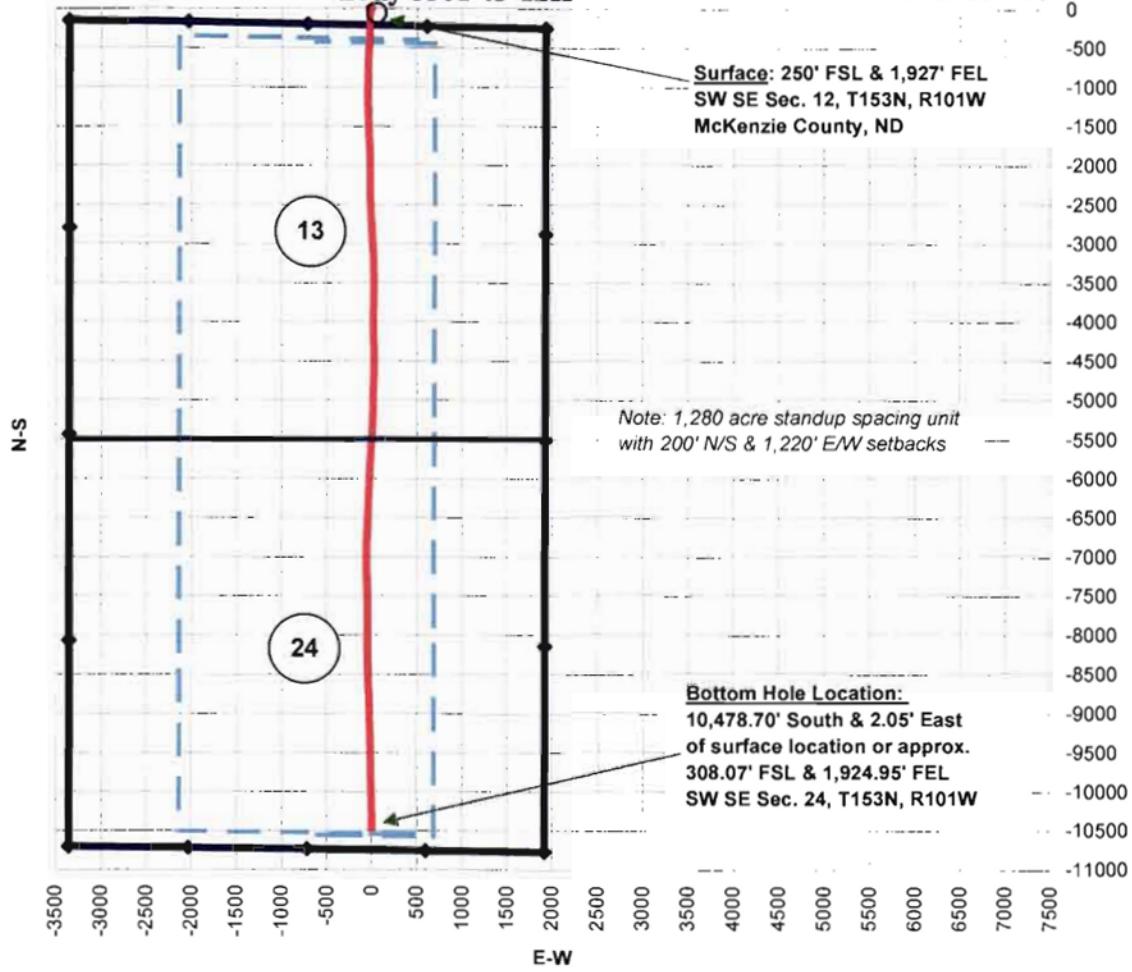
Day	Date 2011	Mud Depth	Wt (ppg):	Vis (sec):	PV (cP):	YP (lbs/100ft ²):	Gels (lbs/100ft ²):	Oil/H2O (ratio):	HTHP Filt.:	Cake (API/HTHP):	Drilled Solid (%):	LGS/HGS (%):	Solids (adj. salt):	ALK (Pom):	Lime Content:	pH:	Cl- (mg/l):	Elec. Stability:
8	08/29	2,089'	9.7	62	23	5	9/12	72.4/27.6	6.8	-	7.7	7.7/2.1	9.8	-	1.9	-	56k	42
9	08/30	7,147'	9.50	57	25	7	9/12/-	61/27	4.4	2	12	6.1/2.3	8.4	2.4	3.1	-	63000	306
10	08/31	7,147'	9.50	57	25	7	9/12/-	61/27	4.4	2	12	6.1/2.3	8.4	2.4	3.1	-	63000	306
11	09/01	8,725'	9.70	48	25	6	9/12/-	65/22	3.8	2	13	7.8/2.3	10.1	2.2	2.8	-	57000	402
12	09/02	10,220'	10.48	56	22	9	8/16/-	63/19	5	3	-	9.7/5.3	15	3.0	3.9	-	63000	496
13	09/03	10,220'	10.48	56	22	9	8/16/-	63/19	5	3	-	9.7/5.3	15	3.0	3.9	-	63000	496
14	09/04	10,513'	10.28	50	24	9	9/17/-	64.5/18.5	5	3	-	10.6/3.9	14.5	2.5	3.2	-	61000	639
15	09/05	11,082'	10.60	53	26	13	13/20/-	66/16.2	5	3	20	9.6/6	15.6	2.6	3.4	-	52000	821
16	09/06	11,082'	10.60	53	26	13	13/20/-	66/16.2	5	3	20	9.6/6	15.6	2.6	3.4	-	52000	821
17	09/07	11,082'	Change over mud from Invert to Salt Water, Seal Hole and skid rig to Foley Federal															
18	10/09	11,082'	10.20	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	10/10	11,082'	10.20	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	10/11	11,082'	10.20	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	10/12	11,082'	10.20	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	10/13	11,763'	10.45	30	3	1	-	3/83	-	-	14	1.4/2.9	-	-	-	9.5	175k	-
23	10/14	14,000'	10.30	28	3	1	-	3/83	-	-	14	1.4/2.9	-	-	-	9.5	175k	-
24	10/15	14,000'	10.30	28	3	1	-	3/83	-	-	14	1.4/2.9	-	-	-	9.5	175k	-
25	10/16	14,707'	10.50	27	3	1	-	3/83	-	-	14	1.9/2.3	4.4	-	-	9	-	-
26	10/17	15,518'	10.25	28	3	1	-	3/83	-	-	14	1.9/2.3	4.4	-	-	9	-	-
27	10/18	15,561'	10.60	31	7	2	-	7/78	-	-	15	2.1/3.4	5.6	-	-	8.5	-	-
28	10/19	17,311'	10.40	29	7	2	-	7/78	-	-	15	2.1/3.4	5.6	-	-	9	-	-
29	10/20	18,209'	10.5	29	7	2	-	7/78	-	-	15	2.1/3.4	5.6	-	-	8	-	-
30	10/21	19,296'	10.35	30	4	1	-	5/81	-	-	14	1.0/3.6	4.6	-	-	9	-	-
31	10/22	20,139'	10.5	29	4	1	-	5/81	-	-	14	1.0/3.6	4.6	-	-	9	-	-
32	10/23	20,878'	10.25	30	5	1	-	4/82.5	-	-	13.5	0.4/2.7	3.1	-	-	7.5	-	-

BIT RECORD

Bit #	Size	Type	Make	Model	Serial #	Jets	Depth In	Depth Out	Footage	Hours	Accum. Hours	Vert. Dev.
1	13 1/2	Tri-cone	Reed	RR		16x18	60'	2,140'	2,080'	33	33.00	Surface
2	8 3/4	PDC	Security	FX65D	11825613	6x14	2,140'	10,220'	8,080'	79.5	112.50	Vertical
3	8 3/4	PDC	Security	FX55D	11762270	5x18	10,220'	11,082'	862'	13	125.50	Curve
4	6	PDC	Smith	MDi613	JE8240	16x22	11,082'	15,561'	4,479'	55	180.50	Lateral
5	6	PDC	Smith	MDi613	JE7181	16x22	15,561'	20,978'	5,417'	76	256.50	Lateral

PLAN VIEW

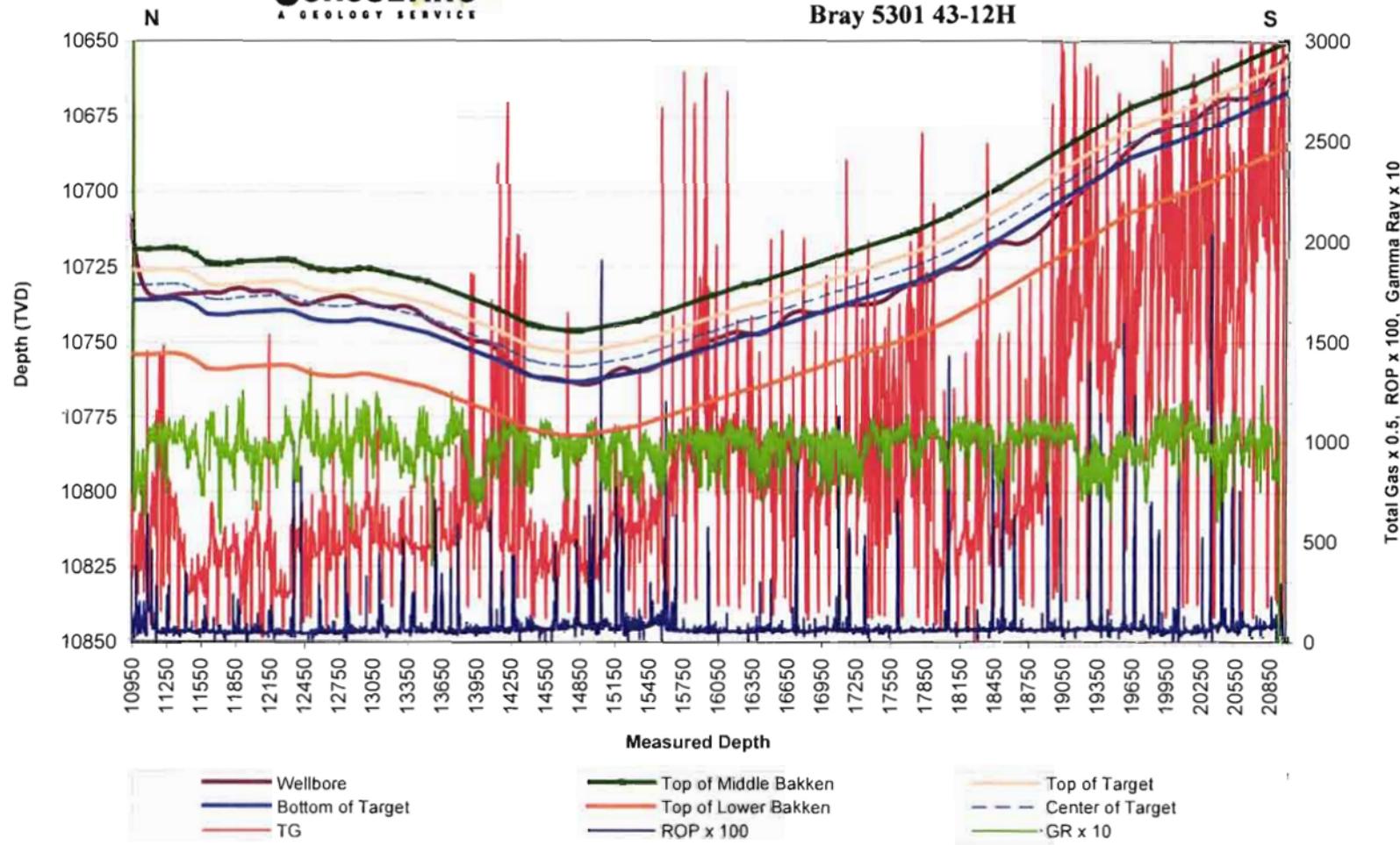
Oasis Petroleum North America, LLC
Bray 5301 43-12H





PROFILE

Oasis Petroleum North America, LLC
Bray 5301 43-12H



FORMATION MARKERS & DIP ESTIMATES

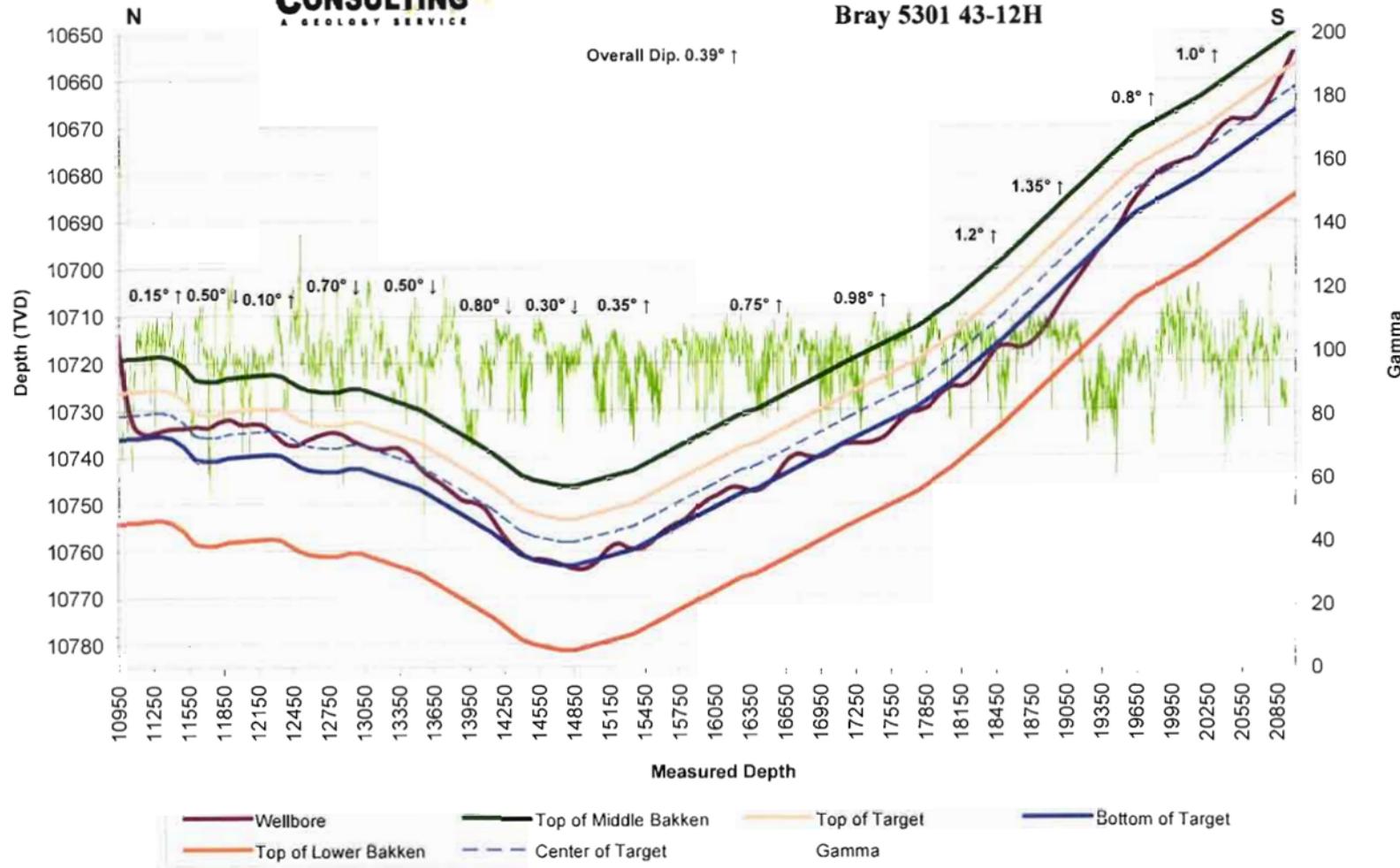
Oasis Petroleum North America, LLC - Bray 5301 43-12H

Dip Change Points	MD	TVD	TVD diff.	MD diff.	Dip	Dipping up/down	Type of Marker
Marker							
Middle Hot Gamma	11,650'	10,735.75					Gamma
	12,288'	10,734.43	-1.32	638.00	0.12	Up	Gamma
	12,500'	10,737.02	2.59	212.00	-0.70	Down	Gamma
	13,434'	10,741.05	4.03	934.00	-0.25	Down	Gamma
	13,831'	10,747.53	6.48	397.00	-0.93	Down	Gamma
Upper Hot Gamma	11,668'	10,733.46					
	11,774'	10,734.00	0.54	106.00	-0.29	Down	Gamma
	11,906'	10,733.40	-0.60	132.00	0.26	Up	Gamma
Middle Cool Gamma	11,059'	10,732.00					
	11,582'	10,734.00	2.00	523.00	-0.22	Down	Gamma
	12,402'	10,737.00	3.00	820.00	-0.21	Down	Gamma
	13,054'	10,738.00	1.00	652.00	-0.09	Down	Gamma
	13,568'	10,744.00	6.00	514.00	-0.67	Down	Gamma
	13,965'	10,747.00	3.00	397.00	-0.43	Down	Gamma
Lower Cool Gamma	11,258'	10,735.50					
	14,450'	10,761.40	25.90	3192.00	-0.46	Down	Gamma
	14,745'	10,763.25	1.85	295.00	-0.36	Down	Gamma
	15,355'	10,759.86	-3.39	610.00	0.32	Up	Gamma
	17,770'	10,729.48	-30.38	2415.00	0.72	Up	Gamma
	18,065'	10,724.44	-5.05	295.00	0.98	Up	Gamma
	18,500'	10,715.33	-9.11	435.00	1.20	Up	Gamma
	19,233'	10,698.06	-17.27	733.00	1.35	Up	Gamma
Gross Dip							
Initial Target Contact	10,950'	10,719.00					
Final Target Contact	20,978'	10,649.98	-69.02	10028.00	0.39	Up	



DIP PROFILE

Oasis Petroleum North America, LLC
Bray 5301 43-12H



<

SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC		
Well :	Bray 5301 43-12H		
County:	McKenzie	State:	ND
QQ:	SW SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	1927	FE/WL:	E

Kick-off:	9/3/2011
Finish:	10/22/2011
Directional Supervision:	Professional Directional

Date: 10/27/2011
 Time: 15:07
F9 to re-calculate

Proposed dir: 180

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative, relative to surface location]

No.	MD	INC	TRUE			N-S	E-W	SECT	DLS/ 100
			AZM	TVD					
Tie	2106.00	0.00	0.00	2106.00					
1	2187.00	0.60	187.70	2187.00	-0.42	-0.06	0.42	0.74	
2	2281.00	0.80	201.60	2280.99	-1.52	-0.36	1.52	0.28	
3	2375.00	1.30	199.10	2374.98	-3.14	-0.95	3.14	0.53	
4	2469.00	1.70	196.40	2468.94	-5.48	-1.70	5.48	0.43	
5	2563.00	1.90	191.40	2562.90	-8.35	-2.40	8.35	0.27	
6	2657.00	1.90	203.90	2656.85	-11.30	-3.34	11.30	0.44	
7	2751.00	2.10	214.60	2750.79	-14.14	-4.95	14.14	0.45	
8	2846.00	1.90	221.60	2845.73	-16.75	-6.98	16.75	0.33	
9	2940.00	2.20	219.30	2939.67	-19.31	-9.16	19.31	0.33	
10	3034.00	2.20	219.30	3033.60	-22.11	-11.44	22.11	0.00	
11	3128.00	1.00	223.60	3127.56	-24.10	-13.15	24.10	1.28	
12	3222.00	1.00	228.30	3221.55	-25.24	-14.33	25.24	0.09	
13	3316.00	0.10	268.70	3315.54	-25.78	-15.03	25.78	0.99	
14	3410.00	0.20	18.30	3409.54	-25.63	-15.06	25.63	0.27	
15	3504.00	0.00	127.00	3503.54	-25.47	-15.00	25.47	0.21	
16	3598.00	0.20	230.90	3597.54	-25.58	-15.13	25.58	0.21	
17	3693.00	0.40	274.10	3692.54	-25.66	-15.59	25.66	0.30	
18	3787.00	0.30	255.50	3786.54	-25.70	-16.16	25.70	0.16	
19	3881.00	0.20	288.50	3880.54	-25.70	-16.55	25.70	0.18	
20	3975.00	0.30	296.10	3974.54	-25.54	-16.93	25.54	0.11	
21	4069.00	0.20	299.40	4068.54	-25.36	-17.29	25.36	0.11	
22	4163.00	0.30	284.20	4162.54	-25.21	-17.67	25.21	0.13	
23	4257.00	0.40	281.30	4256.53	-25.09	-18.23	25.09	0.11	
24	4352.00	0.30	309.00	4351.53	-24.87	-18.75	24.87	0.20	
25	4445.00	0.50	302.90	4444.53	-24.50	-19.28	24.50	0.22	
26	4540.00	0.40	327.60	4539.53	-23.99	-19.81	23.99	0.23	
27	4634.00	0.60	331.70	4633.52	-23.28	-20.22	23.28	0.22	
28	4728.00	0.60	319.80	4727.52	-22.47	-20.77	22.47	0.13	
29	4822.00	0.70	332.00	4821.51	-21.59	-21.35	21.59	0.18	
30	4916.00	0.90	339.40	4915.50	-20.39	-21.88	20.39	0.24	
31	5010.00	1.00	329.20	5009.49	-18.99	-22.56	18.99	0.21	
32	5104.00	1.00	317.70	5103.48	-17.68	-23.54	17.68	0.21	
33	5198.00	0.80	290.60	5197.47	-16.84	-24.70	16.84	0.49	
34	5292.00	0.70	327.40	5291.46	-16.13	-25.63	16.13	0.51	
35	5387.00	0.90	48.10	5386.45	-15.14	-25.38	15.14	1.10	
36	5481.00	0.70	46.80	5480.44	-14.26	-24.41	14.26	0.21	
37	5575.00	0.30	8.30	5574.44	-13.62	-23.96	13.62	0.53	
38	5669.00	0.10	331.00	5668.44	-13.31	-23.97	13.31	0.24	
39	5763.00	0.80	51.20	5762.43	-12.82	-23.49	12.82	0.84	

SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC		
Well :	Bray 5301 43-12H		
County:	McKenzie	State:	ND
QQ:	SW SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
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Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative, relative to surface location]

No.	MD	INC	TRUE			N-S	E-W	SECT	DLS/ 100
			AZM	TVD					
40	5857.00	1.20	83.30	5856.42	-12.30	-22.00	12.30	0.72	
41	5951.00	1.30	69.10	5950.40	-11.80	-20.03	11.80	0.35	
42	6045.00	1.00	26.80	6044.38	-10.69	-18.66	10.69	0.93	
43	6139.00	0.90	343.30	6138.37	-9.25	-18.51	9.25	0.76	
44	6233.00	0.90	323.40	6232.36	-7.95	-19.16	7.95	0.33	
45	6327.00	0.80	325.50	6326.35	-6.82	-19.97	6.82	0.11	
46	6421.00	2.50	319.00	6420.31	-4.73	-21.69	4.73	1.82	
47	6515.00	3.00	311.20	6514.20	-1.56	-24.88	1.56	0.66	
48	6609.00	2.40	304.90	6608.09	1.19	-28.35	-1.19	0.71	
49	6703.00	1.80	289.20	6702.03	2.80	-31.36	-2.80	0.88	
50	6796.00	0.60	249.30	6795.01	3.11	-33.19	-3.11	1.50	
51	6891.00	0.30	314.20	6890.01	3.10	-33.84	-3.10	0.57	
52	6985.00	0.60	316.70	6984.00	3.63	-34.35	-3.63	0.32	
53	7079.00	0.70	296.30	7078.00	4.25	-35.20	-4.25	0.27	
54	7173.00	0.40	114.30	7172.00	4.37	-35.42	-4.37	1.17	
55	7267.00	1.00	138.80	7265.99	3.61	-34.58	-3.61	0.70	
56	7362.00	1.20	135.70	7360.97	2.28	-33.34	-2.28	0.22	
57	7456.00	1.10	134.90	7454.95	0.94	-32.01	-0.94	0.11	
58	7550.00	1.10	128.50	7548.93	-0.26	-30.67	0.26	0.13	
59	7644.00	1.00	119.40	7642.92	-1.23	-29.25	1.23	0.21	
60	7738.00	0.80	129.60	7736.91	-2.05	-28.02	2.05	0.27	
61	7832.00	0.70	104.80	7830.90	-2.61	-26.96	2.61	0.36	
62	7926.00	0.60	91.80	7924.89	-2.77	-25.92	2.77	0.19	
63	8021.00	0.50	84.10	8019.89	-2.75	-25.01	2.75	0.13	
64	8115.00	0.40	82.80	8113.89	-2.66	-24.27	2.66	0.11	
65	8209.00	0.30	52.40	8207.88	-2.47	-23.75	2.47	0.22	
66	8303.00	0.50	72.20	8301.88	-2.20	-23.17	2.20	0.26	
67	8397.00	0.50	51.00	8395.88	-1.81	-22.46	1.81	0.20	
68	8491.00	0.30	30.90	8489.88	-1.35	-22.01	1.35	0.26	
69	8585.00	0.50	55.20	8583.87	-0.90	-21.55	0.90	0.27	
70	8680.00	0.60	55.00	8678.87	-0.38	-20.80	0.38	0.11	
71	8774.00	0.80	66.60	8772.86	0.16	-19.80	-0.16	0.26	
72	8868.00	1.00	69.10	8866.85	0.72	-18.43	-0.72	0.22	
73	8963.00	1.00	75.10	8961.84	1.23	-16.85	-1.23	0.11	
74	9057.00	1.00	70.10	9055.82	1.72	-15.29	-1.72	0.09	
75	9151.00	1.00	66.10	9149.81	2.33	-13.77	-2.33	0.07	
76	9245.00	0.70	70.60	9243.80	2.85	-12.48	-2.85	0.33	
77	9339.00	0.50	71.10	9337.79	3.18	-11.55	-3.18	0.21	
78	9434.00	0.40	64.20	9432.79	3.45	-10.86	-3.45	0.12	
79	9527.00	0.50	39.90	9525.79	3.91	-10.30	-3.91	0.23	

SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC		
Well :	Bray 5301 43-12H		
County:	McKenzie	State:	ND
QQ:	SW SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	1927	FE/WL:	E

Kick-off:	9/3/2011
Finish:	10/22/2011
Directional Supervision:	
Professional Directional	

Date: 10/27/2011
 Time: 15:07
F9 to re-calculate

Proposed dir: 180

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative, relative to surface location]

No.	MD	INC	TRUE			N-S	E-W	SECT	DLS/ 100
			AZM	TVD					
80	9622.00	0.40	29.50	9620.78		4.51	-9.87	-4.51	0.14
81	9716.00	0.50	23.10	9714.78		5.18	-9.55	-5.18	0.12
82	9810.00	0.50	35.20	9808.78		5.89	-9.15	-5.89	0.11
83	9904.00	0.10	84.20	9902.78		6.23	-8.84	-6.23	0.47
84	9999.00	0.20	317.50	9997.78		6.36	-8.87	-6.36	0.29
85	10093.00	0.20	29.00	10091.78		6.63	-8.90	-6.63	0.25
86	10171.00	0.30	329.90	10169.77		6.92	-8.93	-6.92	0.34
87	10187.00	0.30	310.10	10185.77		6.99	-8.99	-6.99	0.64
88	10218.00	0.70	187.40	10216.77		6.85	-9.07	-6.85	2.90
89	10250.00	5.40	193.80	10248.72		5.19	-9.46	-5.19	14.70
90	10281.00	9.50	199.20	10279.45		1.36	-10.65	-1.36	13.40
91	10313.00	15.70	191.90	10310.67		-5.38	-12.41	5.38	19.97
92	10344.00	22.00	189.30	10339.99		-15.22	-14.22	15.22	20.50
93	10376.00	26.50	186.90	10369.16		-28.23	-16.04	28.23	14.39
94	10407.00	27.60	186.20	10396.77		-42.24	-17.65	42.24	3.69
95	10439.00	29.60	186.20	10424.86		-57.47	-19.30	57.47	6.25
96	10470.00	31.80	184.90	10451.52		-73.22	-20.83	73.22	7.41
97	10501.00	33.90	183.30	10477.56		-89.99	-22.02	89.99	7.33
98	10533.00	37.40	180.10	10503.56		-108.62	-22.55	108.62	12.39
99	10564.00	41.40	178.50	10527.51		-128.29	-22.30	128.29	13.31
100	10596.00	45.60	178.60	10550.72		-150.31	-21.75	150.31	13.13
101	10627.00	49.60	179.20	10571.62		-173.19	-21.31	173.19	12.98
102	10658.00	52.90	180.40	10591.02		-197.36	-21.23	197.36	11.06
103	10690.00	55.70	181.60	10609.69		-223.34	-21.69	223.34	9.26
104	10721.00	58.40	181.30	10626.55		-249.34	-22.35	249.34	8.75
105	10752.00	60.00	181.10	10642.42		-275.97	-22.90	275.97	5.19
106	10784.00	61.50	180.80	10658.06		-303.88	-23.37	303.88	4.76
107	10815.00	62.60	181.80	10672.59		-331.26	-23.99	331.26	4.55
108	10846.00	67.20	182.70	10685.73		-359.30	-25.10	359.30	15.07
109	10878.00	71.60	182.70	10696.99		-389.21	-26.51	389.21	13.75
110	10909.00	74.90	182.30	10705.92		-418.87	-27.80	418.87	10.72
111	10941.00	77.30	182.80	10713.61		-449.90	-29.18	449.90	7.65
112	10972.00	78.40	183.30	10720.13		-480.16	-30.80	480.16	3.88
113	11003.00	80.70	182.70	10725.76		-510.60	-32.39	510.60	7.66
114	11033.00	83.80	181.90	10729.80		-540.30	-33.58	540.30	10.67
115	11085.00	87.70	181.80	10733.65		-592.12	-35.26	592.12	7.50
116	11179.00	90.60	182.20	10735.05		-686.04	-38.54	686.04	3.11
117	11273.00	90.00	181.10	10734.56		-780.00	-41.24	780.00	1.33
118	11367.00	90.70	181.20	10733.98		-873.98	-43.13	873.98	0.75
119	11430.00	89.50	181.10	10733.87		-936.96	-44.39	936.96	1.91

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SUNBURST CONSULTING, INC.

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Operator:

Oasis Petroleum North America, LLC		
Bray 5301 43-12H		
County:	McKenzie	State: ND
QQ:	SW SE	Section: 12
Township:	153	N/S: N
Range:	101	E/W: W
Footages:	250	FN/SL: S
	1927	FE/WL: E

Kick-off:

9/3/2011

Finish:

10/22/2011

Directional Supervision:

Professional Directional

Date: 10/27/2011

Time: 15:07

F9 to re-calculate

Proposed dir:

180

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative, relative to surface location]

No.	MD	INC	TRUE			N-S	E-W	SECT	DLS/ 100
			AZM	TVD					
120	11524.00	90.70	181.20	10733.71	-1030.94	-46.28	1030.94	1.28	
121	11619.00	89.60	179.50	10733.46	-1125.93	-46.86	1125.93	2.13	
122	11714.00	90.20	178.90	10733.63	-1220.92	-45.53	1220.92	0.89	
123	11809.00	91.30	178.90	10732.38	-1315.90	-43.71	1315.90	1.16	
124	11904.00	89.20	178.10	10731.97	-1410.86	-41.22	1410.86	2.37	
125	11999.00	89.50	177.60	10733.05	-1505.78	-37.66	1505.78	0.61	
126	12094.00	90.70	177.10	10732.88	-1600.68	-33.27	1600.68	1.37	
127	12189.00	89.00	177.60	10733.13	-1695.57	-28.88	1695.57	1.87	
128	12284.00	88.60	176.70	10735.12	-1790.43	-24.15	1790.43	1.04	
129	12379.00	89.10	179.70	10737.03	-1885.36	-21.17	1885.36	3.20	
130	12474.00	90.40	180.00	10737.44	-1980.35	-20.92	1980.35	1.40	
131	12569.00	91.10	179.30	10736.20	-2075.34	-20.34	2075.34	1.04	
132	12664.00	90.00	180.40	10735.28	-2170.34	-20.09	2170.34	1.64	
133	12759.00	90.70	179.70	10734.70	-2265.33	-20.18	2265.33	1.04	
134	12854.00	88.90	179.80	10735.04	-2360.33	-19.76	2360.33	1.90	
135	12949.00	89.40	178.90	10736.44	-2455.31	-18.68	2455.31	1.08	
136	13044.00	89.30	176.60	10737.52	-2550.22	-14.95	2550.22	2.42	
137	13139.00	89.80	178.10	10738.27	-2645.12	-10.56	2645.12	1.66	
138	13234.00	90.30	177.00	10738.19	-2740.03	-6.50	2740.03	1.27	
139	13329.00	90.00	176.70	10737.94	-2834.88	-1.28	2834.88	0.45	
140	13424.00	88.30	177.50	10739.35	-2929.75	3.52	2929.75	1.98	
141	13519.00	88.40	177.40	10742.08	-3024.61	7.75	3024.61	0.15	
142	13613.00	89.10	176.80	10744.13	-3118.47	12.50	3118.47	0.98	
143	13708.00	89.10	178.10	10745.62	-3213.36	16.73	3213.36	1.37	
144	13803.00	88.60	179.50	10747.53	-3308.32	18.72	3308.32	1.56	
145	13898.00	89.30	179.80	10749.27	-3403.30	19.30	3403.30	0.80	
146	13993.00	90.10	179.40	10749.77	-3498.30	19.96	3498.30	0.94	
147	14088.00	88.30	178.80	10751.10	-3593.27	21.45	3593.27	2.00	
148	14183.00	87.60	180.20	10754.49	-3688.20	22.28	3688.20	1.65	
149	14278.00	88.50	181.50	10757.73	-3783.14	20.87	3783.14	1.66	
150	14373.00	88.70	181.40	10760.05	-3878.08	18.47	3878.08	0.24	
151	14468.00	89.40	180.40	10761.62	-3973.05	16.98	3973.05	1.28	
152	14563.00	90.40	178.90	10761.79	-4068.04	17.56	4068.04	1.90	
153	14658.00	89.10	179.50	10762.20	-4163.03	18.89	4163.03	1.51	
154	14753.00	89.80	178.60	10763.12	-4258.01	20.46	4258.01	1.20	
155	14847.00	89.30	178.80	10763.85	-4351.98	22.59	4351.98	0.57	
156	14943.00	90.60	179.10	10763.94	-4447.97	24.35	4447.97	1.39	
157	15038.00	91.10	180.40	10762.53	-4542.95	24.77	4542.95	1.47	
158	15132.00	92.20	180.50	10759.82	-4636.91	24.03	4636.91	1.18	
159	15228.00	89.40	182.40	10758.48	-4732.86	21.60	4732.86	3.52	

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SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC		
Well :	Bray 5301 43-12H		
County:	McKenzie	State:	ND
QQ:	SW SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	1927	FE/WL:	E

Kick-off:	9/3/2011
Finish:	10/22/2011
Directional Supervision:	Professional Directional

Date: 10/27/2011
 Time: 15:07
F9 to re-calculate

Proposed dir: 180

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative, relative to surface location]

No.	MD	TRUE				N-S	E-W	SECT	DLS/ 100
		INC	AZM	TVD					
160	15323.00	89.40	182.20	10759.48	-4827.77	17.79	4827.77	0.21	
161	15418.00	90.50	181.10	10759.56	-4922.73	15.05	4922.73	1.64	
162	15513.00	91.20	180.10	10758.15	-5017.71	14.06	5017.71	1.28	
163	15608.00	91.40	180.00	10755.99	-5112.69	13.98	5112.69	0.24	
164	15703.00	90.40	182.20	10754.50	-5207.65	12.15	5207.65	2.54	
165	15797.00	90.90	182.40	10753.44	-5301.57	8.38	5301.57	0.57	
166	15892.00	91.80	182.60	10751.20	-5396.45	4.24	5396.45	0.97	
167	15987.00	90.60	183.30	10749.21	-5491.30	-0.65	5491.30	1.46	
168	16082.00	90.80	183.80	10748.05	-5586.11	-6.53	5586.11	0.57	
169	16177.00	90.90	183.80	10746.64	-5680.90	-12.83	5680.90	0.11	
170	16272.00	89.10	182.10	10746.64	-5775.76	-17.72	5775.76	2.61	
171	16367.00	90.00	182.00	10747.38	-5870.70	-21.12	5870.70	0.95	
172	16462.00	90.90	181.90	10746.64	-5965.64	-24.35	5965.64	0.95	
173	16557.00	91.80	182.50	10744.40	-6060.54	-27.99	6060.54	1.14	
174	16652.00	92.20	182.20	10741.08	-6155.40	-31.89	6155.40	0.53	
175	16748.00	89.70	182.20	10739.49	-6251.31	-35.57	6251.31	2.60	
176	16843.00	89.70	181.90	10739.99	-6346.25	-38.97	6346.25	0.32	
177	16938.00	90.10	182.60	10740.16	-6441.17	-42.70	6441.17	0.85	
178	17033.00	91.30	182.30	10739.00	-6536.08	-46.76	6536.08	1.30	
179	17128.00	90.50	182.90	10737.50	-6630.97	-51.07	6630.97	1.05	
180	17223.00	89.90	181.40	10737.17	-6725.90	-54.63	6725.90	1.70	
181	17317.00	90.10	181.10	10737.17	-6819.87	-56.68	6819.87	0.38	
182	17412.00	90.40	179.30	10736.76	-6914.87	-57.01	6914.87	1.92	
183	17507.00	91.10	179.60	10735.51	-7009.86	-56.10	7009.86	0.80	
184	17602.00	92.00	179.90	10732.94	-7104.82	-55.69	7104.82	1.00	
185	17697.00	90.50	179.30	10730.87	-7199.79	-55.02	7199.79	1.70	
186	17792.00	90.30	178.70	10730.21	-7294.77	-53.37	7294.77	0.67	
187	17887.00	91.10	178.90	10729.05	-7389.75	-51.38	7389.75	0.87	
188	17982.00	91.90	178.80	10726.56	-7484.69	-49.47	7484.69	0.85	
189	18077.00	89.80	179.30	10725.15	-7579.66	-47.90	7579.66	2.27	
190	18172.00	90.30	179.60	10725.07	-7674.66	-46.99	7674.66	0.61	
191	18267.00	91.70	180.30	10723.41	-7769.64	-46.90	7769.64	1.65	
192	18362.00	92.20	180.10	10720.18	-7864.59	-47.23	7864.59	0.57	
193	18457.00	91.60	180.40	10717.03	-7959.53	-47.65	7959.53	0.71	
194	18551.00	89.20	180.80	10716.37	-8053.52	-48.63	8053.52	2.59	
195	18647.00	90.20	179.00	10716.88	-8149.51	-48.46	8149.51	2.14	
196	18742.00	90.90	178.90	10715.96	-8244.49	-46.72	8244.49	0.74	
197	18837.00	92.00	179.80	10713.56	-8339.45	-45.65	8339.45	1.50	
198	18932.00	92.20	178.90	10710.08	-8434.38	-44.57	8434.38	0.97	
199	19027.00	92.30	178.00	10706.35	-8529.27	-42.00	8529.27	0.95	

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SUNBURST CONSULTING, INC.

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Operator:

Oasis Petroleum North America, LLC		
Bray 5301 43-12H		
County:	McKenzie	State: ND
QQ:	SW SE	Section: 12
Township:	153	N/S: N
Range:	101	E/W: W
Footages:	250	FN/SL: S
	1927	FE/WL: E

Kick-off:

9/3/2011

Finish:

10/22/2011

Directional Supervision:

Professional Directional

Date: 10/27/2011

Time: 15:07

F9 to re-calculate

Proposed dir:

180

Minimum Curvature Method (SPE-3362)

[North and East are positive and South and West are negative, relative to surface location]

No.	MD	INC	AZM	TVD	TRUE		DLS/	
					N-S	E-W	SECT	100
200	19122.00	91.70	177.30	10703.03	-8624.13	-38.11	8624.13	0.97
201	19217.00	92.20	177.20	10699.80	-8718.97	-33.55	8718.97	0.54
202	19312.00	91.70	177.40	10696.57	-8813.81	-29.08	8813.81	0.57
203	19406.00	91.30	179.20	10694.11	-8907.73	-26.29	8907.73	1.96
204	19501.00	92.40	179.50	10691.04	-9002.67	-25.22	9002.67	1.20
205	19596.00	92.70	179.00	10686.81	-9097.57	-23.97	9097.57	0.61
206	19690.00	91.20	178.10	10683.61	-9191.48	-21.60	9191.48	1.86
207	19785.00	92.00	178.60	10680.96	-9286.40	-18.86	9286.40	0.99
208	19881.00	90.20	178.90	10679.12	-9382.36	-16.77	9382.36	1.90
209	19976.00	91.10	179.10	10678.04	-9477.34	-15.11	9477.34	0.97
210	20071.00	89.90	178.80	10677.21	-9572.32	-13.37	9572.32	1.30
211	20165.00	91.40	180.00	10676.15	-9666.30	-12.39	9666.30	2.04
212	20261.00	91.80	179.20	10673.47	-9762.26	-11.72	9762.26	0.93
213	20356.00	91.80	178.80	10670.48	-9857.20	-10.06	9857.20	0.42
214	20450.00	90.50	178.20	10668.60	-9951.14	-7.60	9951.14	1.52
215	20545.00	89.50	177.90	10668.60	-10046.09	-4.37	10046.09	1.10
216	20640.00	90.80	178.80	10668.35	-10141.05	-1.63	10141.05	1.66
217	20735.00	92.00	179.40	10666.03	-10236.00	-0.14	10236.00	1.41
218	20829.00	92.80	179.30	10662.09	-10329.91	0.93	10329.91	0.86
219	20929.00	93.10	179.70	10656.94	-10429.78	1.80	10429.78	0.50
220	20978.00	93.10	179.70	10654.29	-10478.70	2.05	10478.70	0.00

FORMATION TOPS & STRUCTURAL RELATIONSHIPS

Operator: Well Name: Location: Elevation:	Subject Well:								Offset Wells:		
	Oasis Petroleum North America, LLC Bray 5301 43-12H 250' FSL & 1,927' FEL SW SE Section 12, T153N, R101W										
Formation/ Zone	Prog. Top	Prog. Datum (MSL)	Est. Top (ROP)	MWD GR Top	Datum (MSL)	Interval	Thickness	Dip To Prognosis	Dip To Lindvig 1-11HR	Dip To RoseBud 22-11	Dip To Dahl No. 23-1
Kibbey "Lime"	8,353'	-6,259'	8,355'		-6,261'	139'	2,379'	-2'	-3'	-39'	-34'
First Charles Salt	8,499'	-6,405'	8,494'		-6,400'	626'	2,240'	5'	0'	-32'	-31'
UB	9,123'	-7,029'	9,120'		-7,026'	78'	1,614'	3'	3'	-38'	-36'
Base Last Salt	9,199'	-7,105'	9,198'		-7,104'	32'	1,536'	1'	1'	-42'	-35'
Ratcliffe	9,247'	-7,153'	9,230'		-7,136'	186'	1,504'	17'	1'	-42'	-34'
Mission Canyon	9,423'	-7,329'	9,416'		-7,322'	562'	1,318'	7'	5'	-29'	-33'
Lodgepole	9,998'	-7,904'	9,978'		-7,884'	128'	756'	20'	3'	-44'	-32'
Lodgepole A			10,106'	10,106'	-8,012'	56'	628'		3'	-41'	-34'
Lodgepole B			10,162'	10,162'	-8,068'	54'	572'		3'	-23'	-35'
Lodgepole C			10,216'	10,216'	-8,122'	179'	518'		-5'	-38'	-35'
Lodgepole D			10,395'	10,395'	-8,301'	139'	339'		3'	-39'	-34'
Lodgepole E			10,534'	10,534'	-8,440'	113'	200'		1'	-44'	-28'
Lodgepole F			10,647'	10,647'	-8,553'	45'	87'		0'	-47'	-39'
False Bakken	10,703'	-8,609'	10,693'	10,692'	-8,598'	11'	42'		-3'	-54'	-38'
Upper Bakken Shale	10,713'	-8,619'	10,703'	10,703'	-8,609'	16'	31'	10'	-6'	-53'	-40'
Middle Bakken	10,727'	-8,633'	10,719'	10,719'	-8,625'	12'	15'	8'	-4'	-53'	-39'
Middle Bakken (Target)	10,734'	-8,640'	10,731'	10,731'	-8,637'	24'		3'	-4'	-54'	-39'
Lower Bakken Shale	10,763'	-8,669'									

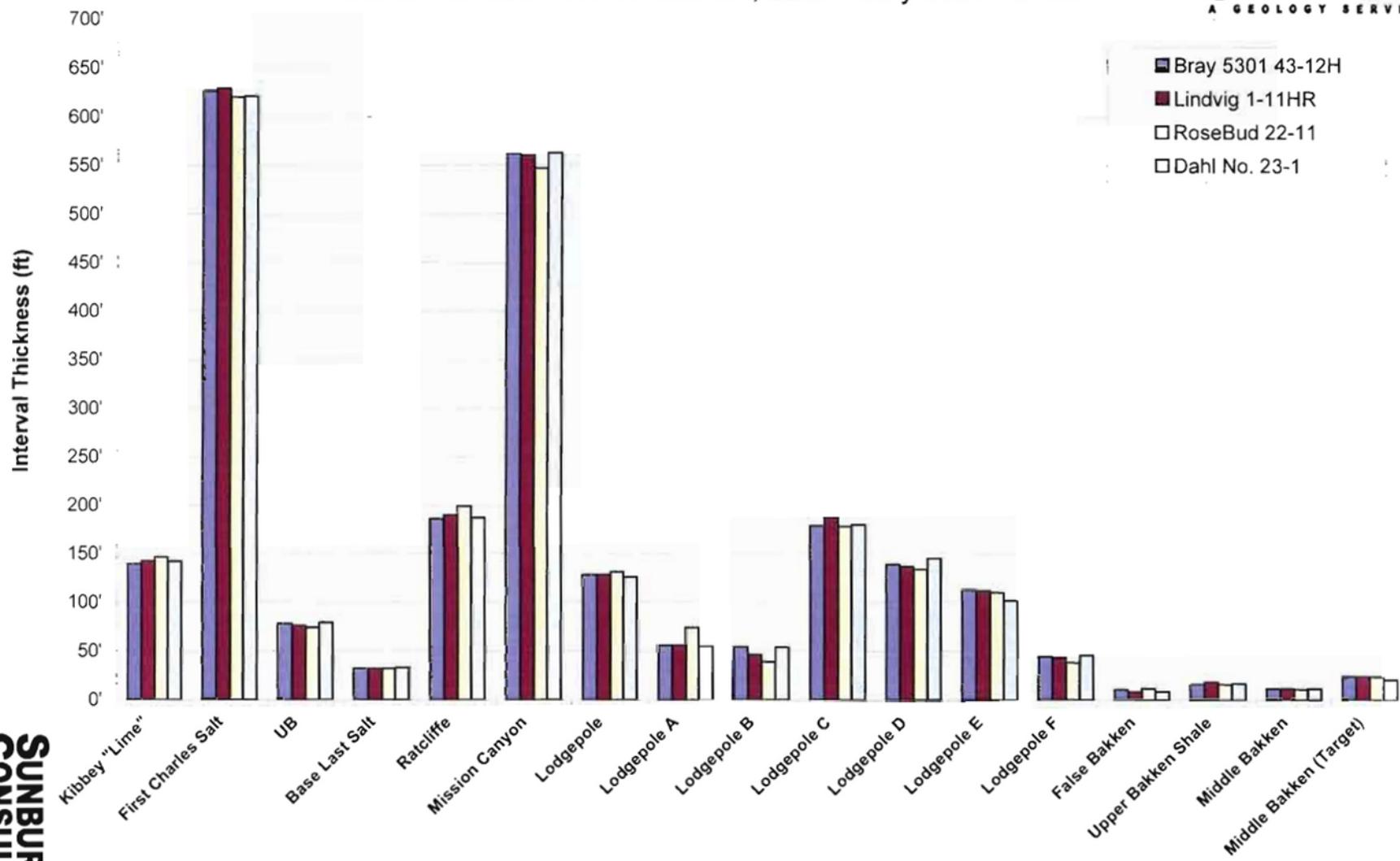
CONTROL DATA

Operator:	SM Energy Company Lindvig 1-11HR				SM Energy Company RoseBud 22-11				Earthstone Energy Dahl No. 23-1			
Well Name:												
Location:	SE SE Sec. 11, T153N, R101W McKenzie County, ND 0.80 mi. W of Bray 5301 43-12H				SE NW Sec. 11, T153N, R101W McKenzie County, ND 1.45 mi. NW of Bray 5301 43-12H				SW SE Sec. 23, T153N, R101W Mckenzie County, ND 2.50 mi. SW of Bray 5301 43-12H			
Elevation:	KB: 2,105'				KB: 1,872'				KB: 2,035'			
Formation/ Zone	E-Log Top	Datum KB:	Interval Thickness	Thickness to Target	E-Log Top	Datum (MSL)	Interval Thickness	Thickness to Target	E-Log Top	Datum (MSL)	Interval Thickness	Thickness to Target
Kibbey "Lime"	8,363'	-6,258'	142'	2,375'	8,094'	-6,222'	146'	2,361'	8,262'	-6,227'	142'	2,371'
First Charles Salt	8,505'	-6,400'	629'	2,233'	8,240'	-6,368'	620'	2,215'	8,404'	-6,369'	621'	2,229'
UB	9,134'	-7,029'	76'	1,604'	8,860'	-6,988'	74'	1,595'	9,025'	-6,990'	79'	1,608'
Base Last Salt	9,210'	-7,105'	32'	1,528'	8,934'	-7,062'	32'	1,521'	9,104'	-7,069'	33'	1,529'
Ratcliffe	9,242'	-7,137'	190'	1,496'	8,966'	-7,094'	199'	1,489'	9,137'	-7,102'	187'	1,496'
Mission Canyon	9,432'	-7,327'	560'	1,306'	9,165'	-7,293'	547'	1,290'	9,324'	-7,289'	563'	1,309'
Lodgepole	9,992'	-7,887'	128'	746'	9,712'	-7,840'	131'	743'	9,887'	-7,852'	126'	746'
Lodgepole A	10,120'	-8,015'	56'	618'	9,843'	-7,971'	74'	612'	10,013'	-7,978'	55'	620'
Lodgepole B	10,176'	-8,071'	46'	562'	9,917'	-8,045'	39'	538'	10,068'	-8,033'	54'	565'
Lodgepole C	10,222'	-8,117'	187'	516'	9,956'	-8,084'	178'	499'	10,122'	-8,087'	180'	511'
Lodgepole D	10,409'	-8,304'	137'	329'	10,134'	-8,262'	134'	321'	10,302'	-8,267'	145'	331'
Lodgepole E	10,546'	-8,441'	112'	192'	10,268'	-8,396'	110'	187'	10,447'	-8,412'	102'	186'
Lodgepole F	10,658'	-8,553'	42'	80'	10,378'	-8,506'	38'	77'	10,549'	-8,514'	46'	84'
False Bakken	10,700'	-8,595'	8'	38'	10,416'	-8,544'	12'	39'	10,595'	-8,560'	9'	38'
Upper Bakken Shale	10,708'	-8,603'	18'	30'	10,428'	-8,556'	16'	27'	10,604'	-8,569'	17'	29'
Middle Bakken	10,726'	-8,621'	12'	12'	10,444'	-8,572'	11'	11'	10,621'	-8,586'	12'	12'
Middle Bakken (Target)	10,738'	-8,633'	24'	0'	10,455'	-8,583'	24'	0'	10,633'	-8,598'	21'	0'
Lower Bakken Shale	10,762'	-8,657'			10,479'	-8,607'		-24'	10,654'	-8,619'		-21'



INTERVAL THICKNESS

Oasis Petroleum North America, LLC. - Bray 5301 43-12H

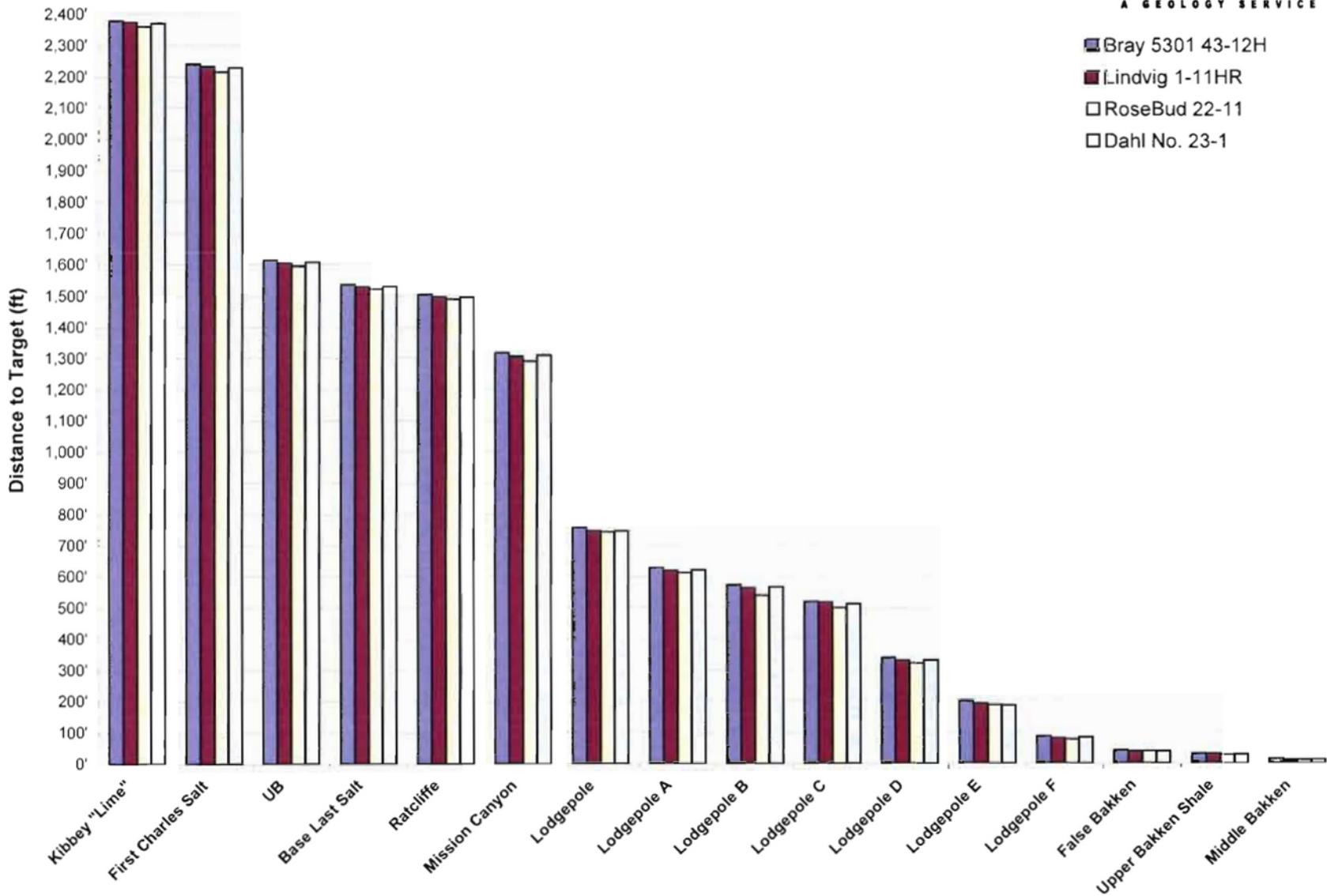


TARGET PROXIMATION

Formation/ Zone:	Proposed Top of Target From:			
	Lindvig 1-11HR	RoseBud 22-11	Dahl No. 23-1	Average of Offset Wells
Kibbey "Lime"	10,730'	10,716'	10,726'	10,724'
First Charles Salt	10,727'	10,709'	10,723'	10,720'
UB	10,724'	10,715'	10,728'	10,722'
Base Last Salt	10,726'	10,719'	10,727'	10,724'
Ratcliffe	10,726'	10,719'	10,726'	10,724'
Mission Canyon	10,722'	10,706'	10,725'	10,718'
Lodgepole	10,724'	10,721'	10,724'	10,723'
Lodgepole A	10,724'	10,718'	10,726'	10,723'
Lodgepole B	10,724'	10,700'	10,727'	10,717'
Lodgepole C	10,732'	10,715'	10,727'	10,725'
Lodgepole D	10,724'	10,716'	10,726'	10,722'
Lodgepole E	10,726'	10,721'	10,720'	10,722'
Lodgepole F	10,727'	10,724'	10,731'	10,727'
False Bakken	10,731'	10,732'	10,731'	10,731'
Upper Bakken Shale	10,733'	10,730'	10,732'	10,732'
Middle Bakken	10,731'	10,730'	10,731'	10,731'
Middle Bakken (Target)	10,731'	10,731'	10,731'	10,731'

ISOPACH TO TARGET

Oasis Petroleum North America, LLC. - Bray 5301 43-12H



Vertical Hole Lithology Descriptions

Oasis Bray 5301 43-12H

Rig crew caught samples in 30' intervals. Formation tops and markers are based off rate of penetration and offset interval thickness projections. No MWD gamma or open-hole logs used while in the vertical.

Drilling vertical hole in Mississippian Kibbey Formation (Big Snowy Group)

8240-8270 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted no visible porosity

8270-8300 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted no visible porosity

8300-8330 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted, no visible porosity; SILTY SANDSTONE: off white to gray, soft to friable, sub blocky, calcareous cement, moderately cemented

Kibbey "Lime" Marker	8,355' TVD (6,261' MSL)
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8330-8360 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

8360-8390 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

8390-8420 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted, no visible porosity; LIMESTONE: mudstone, light to medium gray, microcrystalline, firm, laminated, earthy, no visible porosity; rare ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

8420-8450 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted, no visible porosity; rare ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

8450-8480 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted no visible porosity

First Charles Salt	8,494' TVD (-6,400' MSL)
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8480-8510 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture; trace SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, partially cemented, well sorted, no visible porosity

8510-8540 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture; trace ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous; occasional LIMESTONE: mudstone, light to medium gray, firm, earthy texture

8540-8570 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

8570-8600 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

8600-8630 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

8630-8660 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

8660-8690 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

8690-8720 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture, occasional ARGILLACEOUS LIMESTONE: gray, grained to brown, microcrystalline, hard, crystalline, dense, no visible porosity

8720-8750 ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous, occasional SALT; clear to milky, crystalline, hard, euhedral, crystalline texture; occasional ARGILLACEOUS LIMESTONE: gray, grained to brown, microcrystalline, hard, crystalline, dense, no visible porosity

8750-8780: SALT; clear to milky, crystalline, hard, euhedral, crystalline texture; occasional ARGILLACEOUS LIMESTONE: gray, grained to brown, microcrystalline, hard, crystalline, dense, no visible porosity

8780-8810: ARGILLACEOUS LIMESTONE: mudstone gray, grained to brown, microcrystalline, hard, crystalline, dense, no visible porosity; common ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous; trace SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

8810-8840: SALT; clear to milky, crystalline, hard, euhedral, crystalline texture; occasional ARGILLACEOUS LIMESTONE: mudstone gray, grained to brown, microcrystalline, hard, crystalline, dense, no visible porosity; trace ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

8840-8870: SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

8870-8900 LIMESTONE: wackestone gray, grained brown, microcrystalline, hard, dense, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, amorphous

8900-8930 DOLOMitic LIMESTONE: wackestone light gray, tan to cream, microcrystalline, hard, dense, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, amorphous; trace SALT: clear to milky, crystalline, hard, euhedral, crystalline texture

8930-8960 SALT: clear to milky, crystalline, hard, euhedral, crystalline texture; occasional ANHYDRITE: white to off white, microcrystalline, soft, amorphous; occasional ARGILLACEOUS LIMESTONE: mudstone gray to gray brown, microcrystalline, hard

8960-8990 ARGILLACEOUS LIMESTONE: mudstone, gray, gray brown, microcrystalline, hard, crystalline, dense, no visible porosity; common ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous; occasional SALT: clear to milky, crystalline, hard, euhedral, crystalline texture

8990-9020 ARGILLACEOUS LIMESTONE: mudstone, gray, gray brown, microcrystalline, hard, crystalline, dense, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

9020-9050 ARGILLACEOUS LIMESTONE: mudstone, gray, gray brown, microcrystalline, hard, crystalline, dense, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

9050-9080 ARGILLACEOUS LIMESTONE: mudstone, medium to dark gray, gray brown, microcrystalline, hard, crystalline, dense, no visible porosity

9080-9110 ARGILLACEOUS LIMESTONE: mudstone, gray, gray brown, microcrystalline, hard, crystalline, dense, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

Upper Berenton

9,120' TVD (-7,026' MSL)

9110-9140 ARGILLACEOUS LIMESTONE: mudstone, gray, gray brown, microcrystalline, hard, crystalline, dense, no visible porosity

9140-9170 SALT: clear to milky, crystalline, hard, euhedral, crystalline texture; trace ARGILLACEOUS LIMESTONE: mudstone gray to gray brown, microcrystalline, hard; trace ANHYDRITE: white to off white, microcrystalline, soft, amorphous

Base Last Salt **9,198' TVD (-7,104' MSL)**

9170-9200 DOLOMITE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity; rare ANHYDRITE: white to off white, microcrystalline, soft, amorphous

Ratcliffe **9,230' TVD (-7,136' MSL)**

9200-9230 DOLOMITE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity; LIMESTONE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, amorphous

9230-9260 LIMESTONE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity, trace spotty oil stain; occasional DOLOMITE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity

9260-9290 LIMESTONE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity, trace spotty oil stain; occasional ANHYDRITE: white to off white, microcrystalline, soft, amorphous

9290-9320 LIMESTONE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, amorphous

9320-9350 ARGILLACEOUS LIMESTONE: mudstone, light to dark gray, microcrystalline, firm, dense, earthy texture, trace spotty brown oil stain; rare ANHYDRITE: white to off white, microcrystalline, soft, amorphous

9350-9380 ARGILLACEOUS LIMESTONE: mudstone, light to dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity; rare ANHYDRITE: white to off white, microcrystalline, soft, amorphous

9380-9410 ARGILLACEOUS LIMESTONE: mudstone, light to dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, no visible porosity

Mission Canyon **9,416' TVD (-7,322' MSL)**

9410-9440 LIMESTONE: mudstone, light gray to light tan, trace white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, argillaceous in part, no visible porosity

9440-9470 LIMESTONE: mudstone, light gray to light tan, trace white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, argillaceous in part, no visible porosity

9470-9500 ARGILLACEOUS LIMESTONE: mudstone, light gray to light tan, trace white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, argillaceous in part, no visible porosity, trace spotty oil stain

9500-9530 LIMESTONE: mudstone, light gray to light tan, trace white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, argillaceous in part, no visible porosity, occasional spotty to even oil stain

9530-9560 ARGILLACEOUS LIMESTONE: mudstone, light gray to light tan, trace white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, argillaceous in part, no visible porosity, occasional spotty brown oil stain

9560-9590 ARGILLACEOUS LIMESTONE: mudstone, light gray to light tan, trace white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, argillaceous in part, no visible porosity, rare spotty oil stain

9590-9620 ARGILLACEOUS LIMESTONE: mudstone, light gray to light tan, trace white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, argillaceous in part, no visible porosity, rare spotty oil stain

9620-9650 ARGILLACEOUS LIMESTONE: mudstone, light gray, light to medium brown, trace white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, argillaceous in part, no visible porosity, trace spotty oil stain

9650-9680 ARGILLACEOUS LIMESTONE: mudstone, light gray to light tan, trace white, occasional dark gray, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, rare spotty oil stain

9680-9710 LIMESTONE: mudstone, light gray to light tan, common white, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, trace spotty oil stain

9710-9740 LIMESTONE: mudstone, light gray to light tan, common white, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, trace spotty oil stain

9740-9770 LIMESTONE: mudstone, light gray to light tan, common white, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, rare spotty brown oil stain

9770-9800 LIMESTONE: mudstone, light gray to light tan, common white, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, rare spotty to even brown oil stain

9800-9830 LIMESTONE: mudstone, light gray to light tan, occasional white, rare dark gray, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, common spotty to even brown oil stain

9830-9860 LIMESTONE: mudstone, light gray to light tan, occasional white, occasional dark gray, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, common spotty to even brown oil stain

9860-9890 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, trace white, abundant dark gray, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, common spotty to even brown oil stain

9890-9920 LIMESTONE: mudstone, light gray to light tan, common white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, trace spotty brown oil stain

9920-9950 LIMESTONE: mudstone, light to medium gray, light tan, occasional white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite, argillaceous in part, no visible porosity, trace spotty brown oil stain

Lodgepole

9,978' TVD (-7,884' MSL)

9950-9980 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, light tan, occasional white, common dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite, argillaceous in part, no visible porosity, trace spotty brown oil stain

9980-10010 LIMESTONE: mudstone, dark gray, light to medium brown to brown gray, trace white, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite, argillaceous in part, no visible porosity, trace spotty brown oil stain

10010-10040 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, light tan, occasional white, common dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite, no visible porosity

10040-10070 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, light tan, occasional white, common dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite, no visible porosity

10070-10100 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, light tan, occasional white, common dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite, no visible porosity

10100-10130 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, light tan, occasional white, common dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite, no visible porosity

10130-10160 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, light tan, common dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, no visible porosity

10160-10190 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, light tan, common dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, no visible porosity

10190-10220 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, light tan, common dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, no visible porosity

Begin Curve and Lateral Sample Descriptions

Rig crew caught samples in 30' intervals from 10,220'-10,880' and 11,090'-TD
10' Samples from 10,880'-11,090'

Note: Formation tops and markers are based off MWD gamma

10220-10250 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10250-10280 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10280-10310 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10310-10340 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10340-10370 ARGILLACEOUS LIMESTONE: mudstone, medium gray, trace dark gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite

10370-10400 ARGILLACEOUS LIMESTONE: mudstone, medium gray, trace dark gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, rare disseminated pyrite

10400-10430 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, trace dark gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10430-10460 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, trace dark gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10460-10490 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10490-10520 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, trace white to off white, common dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite

10520-10550 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, trace white to off white, common dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite

10550-10580 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, rare white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite

10580-10610 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, rare white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10610-10640 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, occasional white to off white, rare dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10640-10670 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, rare white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10670-10700 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, rare white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10700-10730 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, rare white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10730-10760 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, trace white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10760-10790 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, trace white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10790-10820 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, rare white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

10820-10850 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, occasional white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

False Bakken **10,859' MD 10,692' TVD (-8,598')**

10850-10880 ARGILLACEOUS LIMESTONE: mudstone, medium to light gray, occasional white to off white, trace dark gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

Upper Bakken Shale **10,888' MD 10,703' TVD (-8,609')**

10880-10910 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

10910-10920 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

10920-10930 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

10930-10940 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

10940-10950 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

10950-10960 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

Middle Bakken

10,965' MD 10,719' TVD (-8,625')

10960-10970 SILTSTONE: dark gray, occasional medium gray, firm, blocky, well to moderately calcareous cement, occasional disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain; trace SHALE: as above

10970-10980 SILTSTONE: medium gray to tan, trace dark gray, firm, blocky, well to moderately calcareous cemented, occasional disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain

10980-10990 SILTSTONE: medium gray to tan, trace dark gray, firm, blocky, well to moderately calcareous cemented, occasional disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain

10990-11000 SILTSTONE: medium gray to tan, trace dark gray, firm, blocky, well to moderately calcareous cemented, occasional disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain

11000-11010 SILTSTONE: medium gray to tan, trace dark gray, firm, blocky, well to moderately calcareous cemented, occasional disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain

11010-11020 SILTSTONE: medium gray to tan, trace dark gray, firm, blocky, well to moderately calcareous cemented, occasional disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain

11020-11030 SILTSTONE: medium gray to tan, trace dark gray, firm, blocky, well to moderately calcareous cemented, occasional disseminated pyrite, trace intergranular porosity, trace light brown spotty oil stain

11030-11040 SILTY SANDSTONE: medium brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty to even oil stain; rare SILTSTONE: as above

11040-11050 SILTY SANDSTONE: medium brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty to even oil stain; rare SILTSTONE: as above

11050-11060 SILTY SANDSTONE: medium brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty to even oil stain; trace SILTSTONE: as above

11060-11070 SILTY SANDSTONE: medium brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty to even oil stain; trace SILTSTONE: as above

11070-11080 SILTY SANDSTONE: medium brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty to even oil stain

11080-11090 SILTY SANDSTONE: medium brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty to even oil stain

11090-11120 SILTY SANDSTONE: light gray to light gray brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty oil stain, sample contaminated with cement

11120-11150 SILTY SANDSTONE: light gray to light gray brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty oil stain, sample contaminated with cement

11150-11180 SILTY SANDSTONE: light gray to light gray brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty oil stain

11180-11210 SILTY SANDSTONE: light gray to light gray brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace nodular and disseminated pyrite; trace intergranular porosity, trace brown spotty oil stain

11210-11240 SILTY SANDSTONE: light gray to light gray brown, fine grained, friable to firm, sub rounded, vitreous, moderately calcareous cemented, trace disseminated pyrite; trace intergranular porosity, trace brown spotty oil stain

11240-11270 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11270-11300 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11300-11330 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11330-11360 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11360-11390 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11390-11420 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11420-11450 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

11450-11480 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11480-11510 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11510-11540 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

11540-11570 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11570-11600 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11600-11630 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, very slow green diffuse cut fluorescence

11630-11660 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11660-11690 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11690-11720 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

11720-11750 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11750-11780 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11780-11810 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

11810-11840 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11840-11870 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11870-11900 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

11900-11930 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11930-11960 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

11960-11990 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

11990-12020 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12020-12050 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12050-12080 No Sample

12080-12110 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12110-12140 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12140-12170 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12170-12200 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12200-12230 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12230-12260 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12260-12290 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic

cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12290-12320 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12320-12350 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12350-12380 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12380-12410 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12410-12440 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12440-12470 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12470-12500 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12500-12530 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12530-12560 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12560-12590 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12590-12620 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12620-12650 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub rounded to rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12650-12680 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub rounded to rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12680-12710 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub rounded to rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12710-12740 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub rounded to rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, contaminated cut

12740-12770 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12770-12800 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12800-12830 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12830-12860 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12860-12890 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12890-12920 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

12920-12950 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

12950-12980 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, contaminated with lube

12980-13010 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, slow green diffuse cut fluorescence

13010-13040 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

13040-13070 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

13070-13100 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, common dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

13100-13130 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, common dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, very slow green diffuse cut fluorescence

13130-13160 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

13160-13190 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample

13190-13220 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, occasional oil in sample, very slow green diffuse cut fluorescence

13220-13250 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13250-13280 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13280-13310 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

13310-13340 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13340-13370 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13370-13400 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

13400-13430 SILTY SANDSTONE: light gray, occasional medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13430-13460 SILTY SANDSTONE: light gray, occasional medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13460-13490 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

13490-13520 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13520-13550 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13550-13580 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

13580-13610 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13610-13640 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13640-13670 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

13670-13700 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13700-13730 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13730-13760 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

13760-13790 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13790-13820 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13820-13850 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

13850-13880 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13880-13910 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13910-13940 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

13940-13970 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

13970-14000 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14000-14030 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

14030-14060 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14060-14090 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, trace off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14090-14120 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, trace off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

14120-14150 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, trace off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14150-14180 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, trace off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14180-14210 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, trace off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14210-14240 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, trace off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14240-14270 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, trace off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14270-14300 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, trace off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14300-14330 SILTY SANDSTONE: light gray, common medium gray to brown, common dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

14330-14360 SILTY SANDSTONE: light gray, common medium gray to brown, common dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14360-14390 SILTY SANDSTONE: light gray, common medium gray to brown, common dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14390-14420 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14420-14450 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14450-14480 SILTY SANDSTONE: light gray, common medium gray to brown, common dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

14480-14510 SILTY SANDSTONE: light gray, common medium gray to brown, common dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14510-14540 SILTY SANDSTONE: light gray, common medium gray to brown, common dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14540-14570 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14570-14600 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14600-14630 SILTY SANDSTONE: light gray, common medium gray to brown, rare dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic

cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample, slow green diffuse cut fluorescence

14630-14660 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14660-14690 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, common oil in sample

14690-14720 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain

14720-14750 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, samples moderately contaminated with lube

14750-14780 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, samples moderately contaminated with lube

14780-14810 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, samples moderately contaminated with lube

14810-14840 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, slow green diffuse cut fluorescence

14840-14870 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain

14870-14900 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain

14900-14930 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, slow green diffuse cut fluorescence

14930-14960 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain

14960-14990 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain

14990-15020 SILTY SANDSTONE: light gray, common medium gray to brown, occasional dark gray, occasional off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain, slow green diffuse cut fluorescence

15020-15050 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain

15050-15080 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, rare light brown spotty to even oil stain

15080-15110 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

15110-15140 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15140-15170 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15170-15200 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15200-15230 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15230-15260 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15260-15290 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15290-15320 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15320-15350 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15350-15380 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic

cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15380-15410 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15410-15440 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15440-15470 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15470-15500 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15500-15530 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15530-15560 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15560-15590 SILTY SANDSTONE: light gray, occasional medium gray to brown, common off white, common dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15590-15620 SILTY SANDSTONE: light gray, occasional medium gray to brown, common off white, common dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15620-15650 SILTY SANDSTONE: light gray, occasional medium gray to brown, common off white, common dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15650-15680 SILTY SANDSTONE: light gray, occasional medium gray to brown, common off white, common dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15680-15710 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15710-15740 SILTY SANDSTONE: light gray, common medium gray to brown, common off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic

cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, heavily contaminated with lube

15740-15770 SILTY SANDSTONE: light gray, occasional medium gray to brown, rare off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

15770-15800 SILTY SANDSTONE: light gray, occasional medium gray to brown, rare off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15800-15830 SILTY SANDSTONE: light gray, occasional medium gray to brown, rare off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15830-15860 SILTY SANDSTONE: light gray, occasional medium gray to brown, rare off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

15860-15890 SILTY SANDSTONE: light gray, occasional medium gray to brown, rare off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15890-15920 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15920-15950 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

15950-15980 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

15980-16010 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16010-16040 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

16040-16070 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16070-16100 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16100-16130 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

16130-16160 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16160-16190 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16190-16220 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

16220-16250 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16250-16280 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16280-16310 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

16310-16340 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16340-16370 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional dark gray, rare off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16370-16400 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional dark gray, rare off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

16400-16430 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional dark gray, rare off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16430-16460 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional dark gray, rare off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

16460-16490 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional dark gray, rare off white, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, slow green diffuse cut fluorescence

17750-17780 SILTY SANDSTONE: light gray, occasional off white, trace medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

17780-17810 SILTY SANDSTONE: light gray, occasional off white, trace medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

17810-17840 SILTY SANDSTONE: light gray, common off white, trace medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

17840-17870 SILTY SANDSTONE: light gray, occasional off white, trace medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

17870-17900 SILTY SANDSTONE: light gray, occasional off white, trace medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

17900-17930 SILTY SANDSTONE: light gray, occasional off white, trace medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

17930-17960 SILTY SANDSTONE: light gray, occasional off white, trace medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain

17960-17990 SILTY SANDSTONE: light gray, occasional off white, occasional medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, moderately contaminated with lube

17990-18020 SILTY SANDSTONE: light gray, occasional off white, occasional medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, moderately contaminated with lube

18020-18050 SILTY SANDSTONE: light gray, occasional off white, occasional medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, moderately contaminated with lube

18050-18080 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, moderately contaminated with lube

18080-18110 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, moderately contaminated with lube

18110-18140 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic

18530-18560 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18560-18590 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18590-18620 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18620-18650 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

18650-18680 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18680-18710 SILTY SANDSTONE: light gray, occasional off white, common medium gray to brown, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18710-18740 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18740-18770 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample heavily contaminated with lube

18770-18800 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample heavily contaminated with lube

18800-18830 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

18830-18860 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18860-18890 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18890-18920 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18920-18950 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18950-18980 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, common oil in sample

18980-19010 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample heavily contaminated with lube

19010-19040 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19040-19070 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19070-19100 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19100-19130 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19130-19160 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19160-19190 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19190-19220 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19220-19250 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19250-19280 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement,

trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19280-19310 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19310-19340 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19340-19370 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19370-19400 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19400-19430 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19430-19460 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19460-19490 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19490-19520 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19520-19550 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19550-19580 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19580-19610 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement,

trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19610-19640 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19640-19670 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19670-19700 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19700-19730 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19730-19760 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19760-19790 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19790-19820 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19820-19850 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19850-19880 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, sample contaminated with lube

19880-19910 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

19910-19940 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement,

trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

19940-19970 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

19970-20000 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20000-20030 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20030-20060 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20060-20090 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20090-20120 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20120-20150 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20150-20180 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20180-20210 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20210-20240 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20240-20270 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement,

trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20270-20300 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20300-20330 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20330-20360 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20360-20390 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20390-20420 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20420-20450 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20450-20480 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20480-20510 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20510-20540 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20540-20570 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20570-20600 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement,

trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20600-20630 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20630-20660 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20660-20690 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20690-20720 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20720-20750 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20750-20780 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20780-20810 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20810-20840 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20840-20870 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20870-20900 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20900-20930 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement,

trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

20930-20960 SILTY SANDSTONE: light gray, abundant medium gray to brown, trace off white, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, trace disseminated and nodular pyrite, occasional light brown spotty to even oil stain, trace oil in sample, sample contaminated with lube

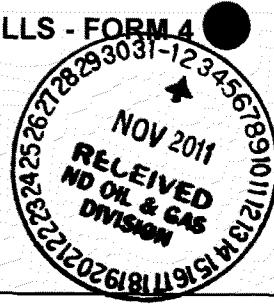


SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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.

20864



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date November 7, 2011
<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 type="checkbox"/> Other	Reserve pit reclamation

Well Name and Number
Bray 5301 43-12H

Footages 250 F S L	Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 W
Field Wildcat	Pool Bakken	County McKenzie		

24-HOUR PRODUCTION RATE

	Before	After
Oil	Bbls	Oil
Water	Bbls	Water
Gas	MCF	Gas

Name of Contractor(s)
Excel Industries, Inc.

Address P.Box 159	City Miles City	State MT	Zip Code 59301
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DETAILS OF WORK

Oasis Petroleum North America LLC plans to reclaim the reserve pit for the above referenced well as follows:

NDIC field inspector, Mark Binns and the landowner were notified on 11/1/2011

Landowner: Larry P Heen, 14033 45th Street NW, Williston, ND 58801

Fluids will be hauled to the Oasis Petroleum, Belle SWD 5503 43-1 (NDIC 90147)

Cuttings will be mixed with clay to solidify. Slope and contour wellsite to ensure proper drainage.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Brandi Terry	
Title Regulatory Specialist	Date November 1, 2011	
Email Address bterry@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 11-2-11	
By 	
Title KM	



5125 Carroll Court, Suite 200
Evansville, WY 82636
307-233-8550

Survey Certification Sheet

Date Submitted:	October 24, 2011
Operator Name:	Oasis Petroleum North America LLC
Well Name:	Bray 5301 43-12H
NDIC File No.	20864
Location:	Section 12-T153N-R101W
County/State:	McKenzie County, ND
Surveyed From a Depth of:	2,187' MD to 20,929' MD
Type of Survey:	Magnetic MWD
Name(s) of MWD Supervisor(s):	Brandon Ramirez / Brent Peterson
	Mark Hamrick / John Capra /Lukman Ajijoayla

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Professional Directional Ltd. This report represents a true and correct Directional Survey of this well based on the original data obtained at the well site. The survey was calculated using the minimum curvature method.

A handwritten signature in black ink that reads "Robert D. Hays".

Robert D. Hays / Well Planner

Oasis Petroleum North America LLC



Project: McKenzie County, ND
Site: Sec 12-T153N-R101W
Well: Bray 5301 43-12H
Wellbore: Original Hole
 Final Surveys
Rig: Xtreme XCT-17



Surface Location:
 SHL 250' FSL & 1927' FEL Sec 12-T153N-R101W

US State Plane 1983

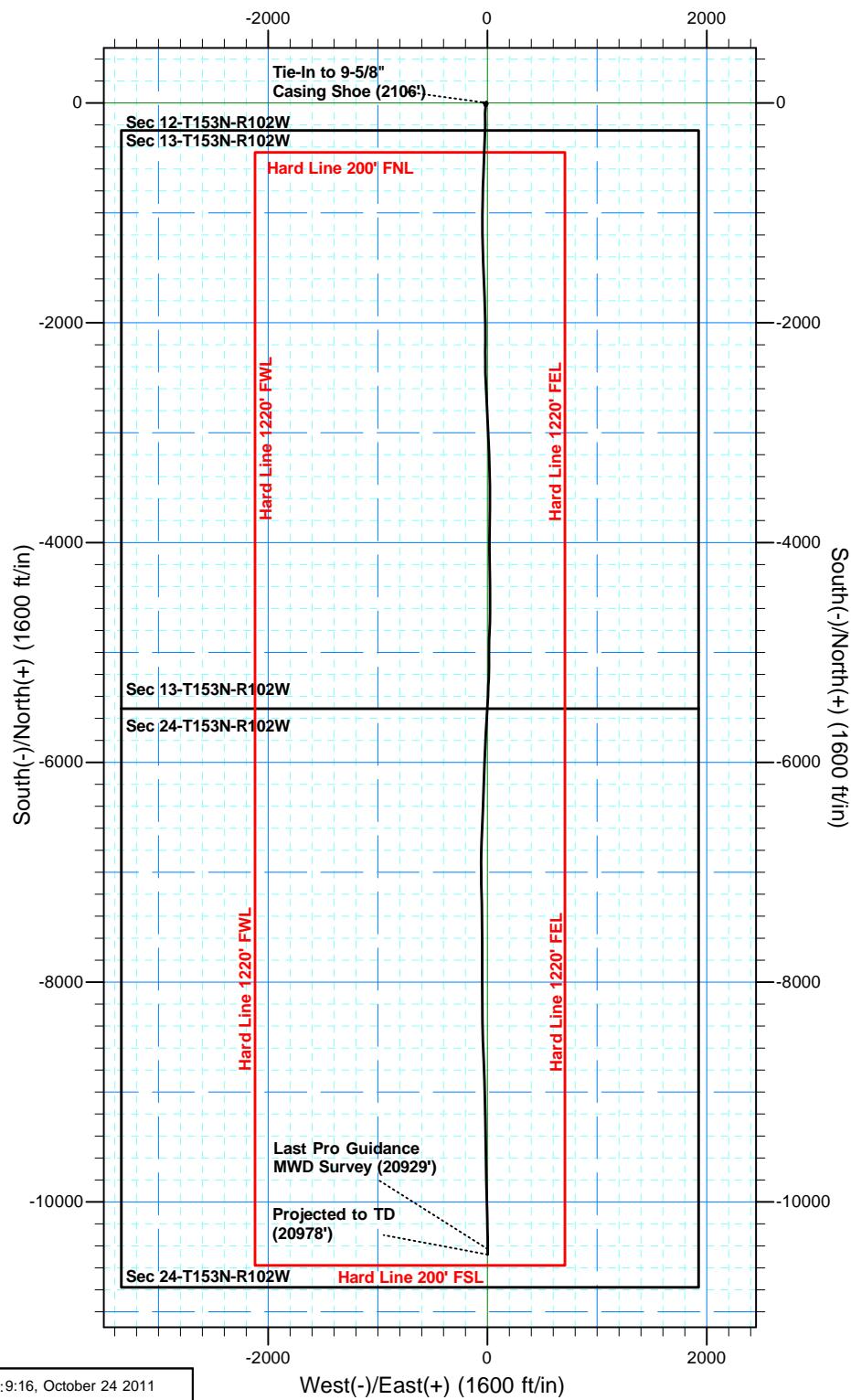
North Dakota Northern Zone

Elevation: 2074GL + 16.5' KB @ 2090.50ft (Xtreme XCT-17)
Northing 410326.97 **Easting** 1208053.03 **Latitude** 48° 4' 57.960 N **Longitude** 103° 36' 43.250 W

To convert a Magnetic Direction to a True Direction, Add 8.61° East

Magnetic Model: IGRF200510 Date: 22-Aug-11

Azimuths & Coordinates to True North



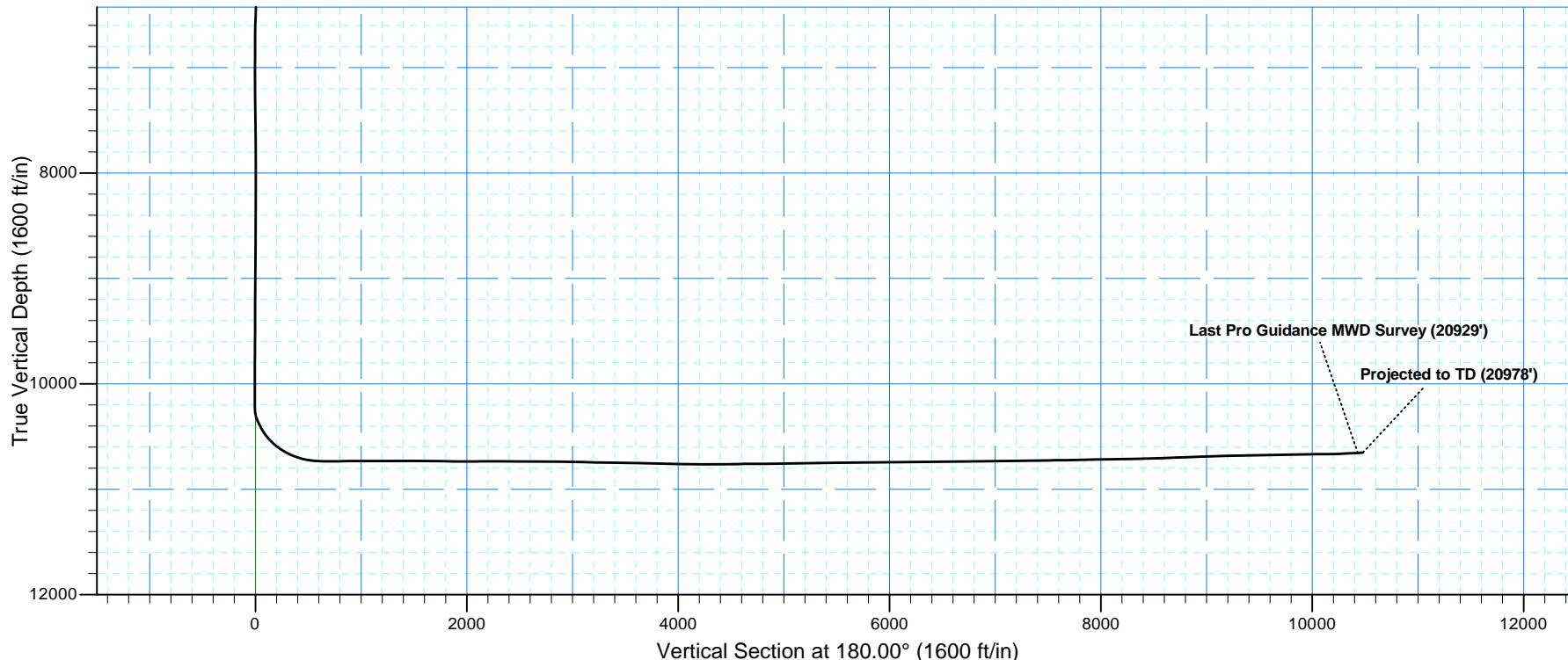
Oasis Petroleum North America LLC



Project: McKenzie County, ND
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Elevation: 2074GL + 16.5' KB @ 2090.50ft (Xtreme XCT-17)
Northing Easting Latitude Longitude
410326.97 1208053.03 48° 4' 57.960 N 103° 36' 43.250 W





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f OASIS DIRECTIONAL LTD



Cm	McKenzCn, LLC	Lc-f	f		
j	McKenzCn, LLC	TV-f			
c	cT	Mf			
W		Nh f			
W	gn	ChMh			
F	Fn		EDM	ng	Udb

McKenzCn, LLC					
M	Un 98	m	m	m	m
G	A	m	m	m	m
M	Z	Dk	Nz		

cT					
N	6.97 f	L	8° 7.96		
E	8, 8 f	L	9 6		
W	f	G	7 °		

W					
+N/-	f	N	6.97 f	L	8° 7.96
+E/-W	f	E	8, 8 f	L	9 6
U	f	W	E	G	7 ° f

gn					
M	Nm	m	m	A	h
			(°)	(°)	(T)
IG	F	8/	8.6	7	6,76

Fn					
A	N				
V		h	ACTUAL	T	
V	h(m(TV))	(f)	+N/-	+E/W	(°)
		(f)	(f)	(f)	
					8

m					
m	T				
(f)	(f)	(W)	TNm		
6.00	9.00	GdncM D (gn)	M D	M D	
978.00	978.00	jd(TD (gn))	jd	jd	

V									
M	I	Az	V	V	B	T			
(f)	(°)	(°)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
87.00	6	87.70	87.00	6	7	7	7	7	7
88.00	8	86.00	88.99	6	8	8	8	8	79
77.00	7	99.00	77.98	7	9	9	9	9	66
69.00	7	96.00	68.90	8	8	8	8	8	87
61.00	9	90.00	69.00	8	7	7	7	7	71
T-19-5/8" Ch(6')									
87.00	6	87.70	87.00	6	7	7	7	7	7
88.00	8	86.00	88.99	6	8	8	8	8	79
77.00	7	99.00	77.98	7	9	9	9	9	66
69.00	7	96.00	68.90	8	8	8	8	8	87
61.00	9	90.00	69.00	8	7	7	7	7	71



C	m	o	o	o	o	o	o	o	o	o	o
o	j	o	o	o	o	o	o	o	o	o	o
o	o	o	o	o	o	o	o	o	o	o	o
W	o	o	o	o	o	o	o	o	o	o	o
W	o	o	o	o	o	o	o	o	o	o	o
o	o	o	o	o	o	o	o	o	o	o	o
F	n	o	o	o	o	o	o	o	o	o	o
L	o	o	o	o	o	o	o	o	o	o	o
T	V	o	o	o	o	o	o	o	o	o	o
N	o	o	o	o	o	o	o	o	o	o	o
o	o	o	o	o	o	o	o	o	o	o	o
EDM	o	o	o	o	o	o	o	o	o	o	o
o	o	o	o	o	o	o	o	o	o	o	o

M	h	I	Az	m	h	V	+N/-	+E/-W	V	o	B	T
(f)	(°)	(°)	(°)	(f)	(f)	(f)	(f)	(f)	(f)	(°/°f)	(°/°f)	(°/°f)
6,7.00	90	9.00	6,6.80	6.00	10.00	6.00	6.00	6.00	6.00	0.00	0.00	0.00
7,00.00	00	6.00	7,00.79	00.00	9.00	00.00	00.00	00.00	00.00	0.00	0.00	0.08
8,6.00	90	6.00	8,00.70	6.70	6.98	6.70	6.70	6.70	6.70	0.00	0.00	7.07
9,00.00	00	9.00	9,9.67	9.00	9.06	9.00	9.00	9.00	9.00	0.00	0.00	0.00
0,00.00	00	9.00	0,00.60	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,08.00	00	6.00	0,07.6	00.00	00.00	00.00	00.00	00.00	00.00	0.08	0.08	0.07
0,00.00	00	8.00	0,00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.09	0.09	0.00
0,06.00	00	68.70	0,00.00	00.78	00.00	00.78	00.00	00.00	00.99	0.96	0.96	0.98
0,00.00	00	8.00	0,09.00	00.60	00.6	00.60	00.00	00.00	00.00	0.07	0.00	0.60
0,00.00	00	7.00	0,00.00	00.07	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,98.00	00	9.00	0,97.00	00.08	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,69.00	00	7.00	0,69.00	00.66	00.09	00.66	00.00	00.00	00.00	0.00	0.00	0.07
0,787.00	00	00.00	0,786.00	00.70	00.06	00.70	00.00	00.00	00.00	0.00	0.00	0.979
0,88.00	00	88.00	0,88.00	00.70	00.60	00.70	00.00	00.00	00.00	0.00	0.00	0.00
0,97.00	00	96.00	0,97.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.09
0,69.00	00	99.00	0,68.00	00.06	00.09	00.06	00.00	00.00	00.00	0.00	0.00	0.00
0,6.00	00	8.00	0,6.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.60
0,07.00	00	8.00	0,06.00	00.09	00.00	00.09	00.00	00.00	00.00	0.00	0.00	0.09
0,00.00	00	9.00	0,00.00	00.87	00.00	00.87	00.00	00.00	00.00	0.00	0.00	0.906
0,00.00	00	9.00	0,00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.606
0,00.00	00	7.60	0,09.00	00.99	00.00	00.99	00.00	00.00	00.00	0.00	0.00	0.600
0,6.00	00	6.00	0,6.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.06
0,7.8.00	00	6.00	0,9.80	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,8.00.00	00	7.00	0,8.00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,9.6.00	00	9.00	0,9.00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,00.00	00	9.00	0,09.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,00.00	00	7.7.00	0,00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,98.00	00	8.00	0,9.6.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,00.00	00	7.00	0,07.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,9.0.00	00	7.00	0,09.0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,87.00	00	9.00	0,86.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,8.0.00	00	7.00	0,08.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,71.00	00	8.00	0,7.0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,669.00	00	00.00	0,668.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,76.00	00	8.00	0,76.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,87.00	00	8.00	0,86.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
0,9.00.00	00	69.00	0,9.00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
6,00.00	00	6.80	6,00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
6,09.00	00	9.00	6,08.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
6,00.00	00	9.00	6,09.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
6,07.00	00	8.00	6,06.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
6,00.00	00	9.00	6,00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
6,00.00	00	9.00	6,00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
6,00.00	00	9.00	6,00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00



C m o o o	A c L C	L C f o r e	o o o o
j o o	McK on D	TV f o r e	7 GL +6. K @ 9. f (X C T 7)
o o o	c T o o o	M f o r e	7 GL +6. K @ 9. f (X C T 7)
W o o	o o o	N h f o r e	T o o
W o o	g n o o	C M h o r e	M n o C o r e
o o o	F o o o	o o o o	EDM o ng U Db

M	h	V	V	B	T				
(f)	(°)	Az.m	h	+N/-	+E/-W	(f)	(°/m)	(°/m)	(°/m)
(f)	(°)	(f)	(f)	(f)	(f)	(f)	(°/m)	(°/m)	(°/m)
6,69.00	0.00	0.90	6,68.09	0.9	0.8.00	0.9	0.70	0.60	6.70
6,70.00	0.80	089.00	6,70.00	0.80	0.6.06	0.80	0.88	0.60	6.70
6,796.00	0.60	09.00	6,79.00	0.00	0.9.09	0.100	0.00	0.10	0.90
6,89.00	0.00	00.00	6,89.00	0.00	0.80	0.100	0.07	0.100	68.00
6,98.00	0.60	06.70	6,98.00	0.60	0.00	0.60	0.00	0.00	0.66
7,079.00	0.70	096.00	7,078.00	0.00	0.00	0.100	0.07	0.00	0.70
7,070.00	0.00	000.00	7,070.00	0.07	0.00	0.07	0.07	0.00	089.06
7,067.00	0.00	08.80	7,069.99	0.60	0.08	0.60	0.70	0.60	06.06
7,06.00	0.00	00.70	7,06.97	0.8	0.00	0.8	0.00	0.00	0.06
7,006.00	0.00	00.90	7,009.00	0.90	0.00	0.90	0.00	0.00	0.80
7,000.00	0.00	08.00	7,008.90	0.06	0.67	0.06	0.00	0.00	0.80
7,600.00	0.00	09.00	7,600.90	0.00	0.90	0.00	0.00	0.00	0.968
7,708.00	0.80	09.60	7,706.90	0.00	0.80	0.00	0.07	0.00	0.80
7,800.00	0.70	00.80	7,800.90	0.60	0.696	0.60	0.6	0.00	06.08
7,906.00	0.60	09.80	7,900.89	0.77	0.00	0.90	0.77	0.00	0.00
8,000.00	0.00	08.00	8,009.89	0.07	0.00	0.70	0.00	0.00	0.00
8,000.00	0.00	08.80	8,000.89	0.66	0.07	0.66	0.00	0.00	0.08
8,009.00	0.00	00.00	8,007.88	0.07	0.00	0.07	0.00	0.00	0.00
8,000.00	0.00	07.00	8,000.88	0.00	0.07	0.00	0.06	0.00	0.06
8,097.00	0.00	00.00	8,090.88	0.80	0.00	0.6	0.00	0.00	0.00
8,090.00	0.00	00.90	8,089.88	0.00	0.00	0.00	0.06	0.00	0.08
8,080.00	0.00	00.00	8,080.87	0.90	0.00	0.90	0.07	0.00	0.08
8,680.00	0.60	00.00	8,678.87	0.08	0.00	0.80	0.00	0.00	0.00
8,770.00	0.80	66.60	8,770.86	0.6	0.980	0.16	0.16	0.00	0.00
8,868.00	0.00	69.00	8,866.80	0.70	0.00	0.70	0.00	0.00	0.66
8,960.00	0.00	70.00	8,960.80	0.00	0.680	0.00	0.00	0.00	0.00
9,007.00	0.00	71.00	9,000.80	0.70	0.00	0.70	0.09	0.00	0.00
9,000.00	0.00	66.00	9,009.80	0.00	0.77	0.00	0.07	0.00	0.06
9,000.00	0.70	70.60	9,000.80	0.80	0.00	0.80	0.00	0.00	0.79
9,009.00	0.00	70.00	9,007.79	0.80	0.00	0.80	0.00	0.00	0.00
9,000.00	0.00	60.00	9,000.79	0.00	0.86	0.00	0.00	0.00	0.00
9,007.00	0.00	09.90	9,000.79	0.90	0.00	0.90	0.00	0.00	0.00
9,600.00	0.00	09.00	9,600.78	0.00	0.987	0.00	0.00	0.00	0.00
9,706.00	0.00	00.00	9,700.78	0.08	0.900	0.08	0.00	0.00	0.00
9,800.00	0.00	00.00	9,800.78	0.89	0.900	0.89	0.00	0.00	0.00
9,900.00	0.00	08.00	9,900.78	6.00	0.880	6.00	0.07	0.00	0.00
9,999.00	0.00	07.00	9,997.78	6.06	0.887	6.06	0.09	0.00	0.00
00,900.00	0.00	09.00	00,090.78	6.60	0.890	6.60	0.00	0.00	0.00
00,700.00	0.00	09.90	00,069.77	6.90	0.890	6.90	0.00	0.00	0.00
00,87.00	0.00	00.00	00,080.77	6.99	0.899	6.99	0.00	0.00	0.00
00,80.00	0.70	087.00	00,066.77	6.80	0.907	6.80	0.09	0.00	0.00
00,000.00	0.00	09.80	00,08.70	0.90	0.906	0.90	0.07	0.00	0.00



C o m o j o o W o m W o m o m	A o c o LLC McKenz C o n , D c T o g F o m	L o o o C - o o o o o f TV o o f M o o f N o o h f o o o C o o o M o h o o o o	o o o o 7 o GL + 6. K @ 9 o f (X XCT 7) 7 o GL + 6. K @ 9 o f (X XCT 7) T M o o o EDM o o U o o o D b
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M										
h (f)	I (°)	Az m h (°)	h (f)	V + N / E W (f)	V + E / W (f)	V + N / E W (f)	B (°/ °/ °) (f)	T (°/ °/ °) (f)		
8.00	9.00	99.00	79.00	6	6	6	0.00	7.00		
7.00	7.00	9.90	66.67	8	0.00	8	9.97	8.80		
8.00	8.00	89.00	9.99	0.00	0.00	0.00	0.00	8.9		
76.00	6.00	86.90	69.6	8.00	6.00	8.00	0.9	7.00		
7.00	7.60	86.00	96.77	0.00	7.60	0.00	69	1.6		
9.00	9.60	86.00	86.86	7.7	9.00	7.7	6.00	1.00		
7.00	8.00	8.90	0.00	7.00	8.00	7.00	7.00	1.9		
8.00	9.00	8.00	77.6	89.99	0.00	89.99	7.00	6.77		
7.00	7.00	8.00	6.6	8.60	0.00	8.60	9.0	0.00		
6.00	1.00	78.00	7.00	8.9	0.00	8.9	0.00	1.6		
96.00	6.00	78.60	7.00	0.00	7.00	0.00	0.00	1.00		
6.7.00	9.60	79.00	7.60	7.09	0.00	7.09	98	0.90		
6.8.00	9.00	8.00	9.00	97.06	0.00	97.06	0.00	0.87		
69.00	7.00	8.60	69.69	0.00	69	0.00	9.06	0.70		
7.00	8.00	8.60	6.00	9.00	0.00	9.00	8.70	0.97		
7.00	6.00	8.00	6.00	7.97	9.00	7.97	0.9	0.60		
78.00	6.00	8.80	68.6	0.88	7.07	88	0.76	0.69		
8.00	6.00	8.80	67.9	0.06	99	0.06	0.00	0.00		
8.6.00	67.00	8.07	68.70	9.00	0.00	9.00	0.07	0.80		
878.00	7.60	8.70	696.99	89.00	6.00	89.00	7.00	0.00		
9.9.00	7.90	8.00	7.90	8.87	7.80	8.87	7.00	6.00		
9.00	77.00	8.80	7.60	9.90	9.08	9.90	7.60	0.6		
97.00	78.00	8.00	7.00	8.06	8.00	8.06	88	0.60		
8.00	8.70	8.70	7.76	0.60	9.09	60	7.66	0.90		
8.00	8.90	8.90	7.98	0.00	1.8	67	0.00	0.67		
8.00	87.70	8.80	7.66	9.00	6	9.00	7.00	0.9		
79.00	9.60	8.00	7.00	686.00	8.00	686.00	0.00	0.9		
7.00	9.00	8.00	7.06	78.00	0.00	78.00	0.00	0.7		
67.00	9.70	8.00	7.98	87.98	0.00	87.98	7.00	0.00		
89.00	89.00	8.00	7.087	9.69	9.09	9.69	9.00	0.6		
9.00	9.70	8.00	7.070	0.90	6.8	0.90	8.00	0.00		
6.9.00	89.60	79.00	7.06	0.90	6.86	0.90	0.00	0.79		
7.00	9.00	78.90	7.06	0.90	0.00	0.90	0.89	0.60		
8.00	9.00	78.90	7.08	0.90	7.0	0.90	0.6	0.00		
9.00	89.00	78.00	7.097	0.86	0.00	0.86	0.07	0.80		
999.00	89.00	77.60	7.00	7.66	0.00	7.68	6.00	0.00		
9.00	9.70	77.00	7.088	6.68	7.07	6.68	7.00	0.6		
89.00	89.00	77.60	7.000	69.07	8.88	69.07	87	0.79		
8.00	88.60	76.70	7.000	79.00	0.00	79.00	0.00	0.90		
79.00	89.00	79.70	7.070	88.06	0.07	88.06	0.00	0.6		
7.00	9.00	8.00	7.070	98.00	0.90	98.00	0.00	0.7		
69.00	9.00	79.00	7.06	7.00	0.00	7.00	0.00	0.70		



C o m p a r t e r y	McKenzie Construction LLC	L o n g C o n s t r u c t i o n s	o n e s t r u c t i o n s
o n e s t r u c t i o n s	McKenzie Construction LLC	T V e r t i c a l s	o n e s t r u c t i o n s
W o r k s	McKenzie Construction LLC	M o d e l l i n g	o n e s t r u c t i o n s
W o r k s o n e s t r u c t i o n s	McKenzie Construction LLC	N o n e s t r u c t i o n s	o n e s t r u c t i o n s
o n e s t r u c t i o n s	McKenzie Construction LLC	C o n s t r u c t i o n s M o d e l l i n g	o n e s t r u c t i o n s

M o d e l l i n g (f)	I n c l u s t i o n (°)	Az m e r h (°)	V e r t i c a l (f)		+N/-S (f)	+E/-W (f)	V e r t i c a l (f)		B o r d e r (°/±f)	T r u c t i o n (°/±f)
			V e r t i c a l (f)	+N/-S (f)			V e r t i c a l (f)	+E/-W (f)		
66.00	9.00	8.00	7.8	7.00	7.00	9.0	7.00	6.0	6.0	6.0
79.00	9.70	79.70	7.00	7.00	6.00	8.0	6.00	0.00	7.0	7.0
8.00	88.90	79.80	7.00	6.00	9.76	6.00	9.00	89.00	0.00	0.00
9.00	89.00	78.90	7.00	6.00	8.68	9.00	8.00	0.00	9.00	0.00
9.00	89.00	76.60	7.00	6.00	9.00	9.00	0.00	0.00	0.00	0.00
9.00	89.80	78.00	7.00	6.00	6.00	6.00	6.00	66.00	0.00	0.08
9.00	9.00	77.00	7.00	6.00	6.00	7.00	7.00	0.00	6.00	0.00
0.00	9.00	76.70	7.00	6.00	8.00	8.00	8.00	0.00	0.00	0.00
0.00	88.00	77.00	7.00	6.00	9.97	0.00	9.97	98.00	0.79	0.80
0.00	88.00	77.00	7.00	6.00	7.70	0.00	7.70	0.00	0.00	0.00
0.00	89.00	76.80	7.00	6.00	8.07	0.00	8.07	98.00	0.70	0.60
0.00	78.00	78.00	7.00	6.00	6.70	0.00	6.70	0.00	0.00	0.07
0.00	88.60	79.00	7.00	6.00	8.70	0.00	8.70	0.00	0.00	0.07
0.00	898.00	79.80	7.00	6.00	9.00	0.00	9.00	0.00	0.00	0.00
0.00	99.00	79.00	7.00	6.00	9.96	0.00	9.96	0.00	0.00	0.00
0.00	88.00	78.80	7.00	6.00	9.07	0.00	9.07	0.00	0.00	0.00
0.00	87.60	80.00	7.00	6.00	688.00	0.00	688.00	0.00	0.00	0.00
0.00	78.00	80.00	7.00	6.00	8.87	0.00	8.87	0.00	0.00	0.00
0.00	87.00	80.00	7.00	6.00	878.00	0.00	878.00	0.00	0.00	0.00
0.00	68.00	80.00	7.00	6.00	970.00	0.00	970.00	0.00	0.00	0.00
0.00	66.00	80.00	7.00	6.00	68.00	0.00	68.00	0.00	0.00	0.00
0.00	68.00	79.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	78.00	78.60	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	87.00	78.80	7.00	6.00	99.00	0.00	99.00	0.00	0.00	0.00
0.00	9.00	79.00	7.00	6.00	7.97	0.00	7.97	0.00	0.00	0.00
0.00	8.00	80.00	7.00	6.00	9.00	0.00	9.00	0.00	0.00	0.00
0.00	9.00	80.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	80.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.80	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	7.00	0.00	7.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	6.00	0.00	6.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00	6.00	8.00	0.00	8.00	0.00	0.00	0.00
0.00	89.00	78.00	7.00							



C m o n i c o	McKenz C on, D	L o o k C o - f o r m a t i o n	o o n e
o o j o o	o o c o T o o o o	M o o f o o	o o n e
W o o	o o o o o o o o	N o o h o f o o	o o n e
W o o o o o o	o o g n o o o	o o o o o C o o o o M o h o o	o o n e
o o o o o o	F n o o o o o o	o o o o o	EDM o o o o o n g o o U o o D b

M o o	I o o o o o	Az m o h	V o o	+N/-o	+E/-W	V o o	o o o	B o o	T o o
(f)	(°)	(°)	(f)	(f)	(f)	(f)	(°/ o o f)	(°/ o o f)	(°/ o o f)
6,6 o o o	9 o o o	8 o o o	7,0 o o .8	6, o o o o	89	6, o o o o	o o o	o o o	o o o
6,7 o 8. o o	89.7 o	8 o o o	7,9 o o .9	6, o o o o	7	6, o o o o	6 o	6 o	6 o
6,8 o o o o	89.7 o	8 o o .9	7,9 o o .99	6, o o o o	8.97	6, o o o o	o o o	o o o	o o o
6,9 o 8. o o	9 o o o	8 o o .6	7,9 o o .6	6, o o o o	7	6, o o o o	8 o	8 o	7 o
7, o o o o	9 o o o	8 o o o	7,9 o o .8	6, o o o o	6.76	6, o o o o	o o o	6 o	6 o
7, o o 8. o o	9 o o o	8 o o .9	7,9 o o .8	6, o o o o	97	6, o o o o	o o o	8 o	6 o
7, o o o o	89.9 o	8 o o o	7,9 o o .7	6, o o o o	16	6, o o o o	7 o	6 o	8 o
7, o o 7. o o	9 o o o	8 o o o	7,9 o o .7	6, o o o o	6.68	6, o o o o	8 o	8 o	8 o
7, o o o o	9 o o o	79. o o	7,9 o o .76	6, o o o o	7	6, o o o o	9 o	9 o	89
7, o o 7. o o	9 o o o	79.6 o	7,9 o o .8	6, o o o o	6.00	7, o o o o	8 o	7 o	8 o
7,6 o o o o	9 o o o	79.9 o	7,9 o o .9	7, o o o o	69	7, o o o o	o o o	9 o	o o o
7,697. o o	9 o o o	79. o o	7,9 o o .87	7, o o o o	99.79	7, o o o o	7 o	8 o	6 o
7,79 o o o	9 o o o	78.7 o	7,9 o o .87	7, o o o o	7	7, o o o o	67	8 o	6 o
7,887. o o	9 o o o	78.9 o	7,9 o o .87	7, o o o o	8	7, o o o o	87	8 o	8 o
7,98 o o o	9 o o .9	78.8 o	7,9 o o .86	7, o o o o	9.07	7, o o o o	8 o	8 o	8 o
8, o o 77. o o	89.8 o	79. o o	7,9 o o .86	7, o o o o	7.9 o	7, o o o o	o o o	o o o	o o o
8, o o 7 o o	9 o o o	79.6 o	7,9 o o .7	7, o o o o	6.99	7, o o o o	6 o	o o o	o o o
8, o o 67. o o	9 o o .7	8 o o o	7,9 o o .8	7, o o o o	769.6 o	7, o o o o	6 o	7 o	7 o
8, o o 6 o o	9 o o o	8 o o o	7,9 o o .8	7, o o o o	86. o9	7, o o o o	7 o	o o o	o o o
8, o o 7. o o	9 o o .6	8 o o o	7,9 o o .8	7, o o o o	9. o9	7, o o o o	7 o	6 o	6 o
8, o o o o	89. o o	8 o o .8	7,9 o o .7	8, o o o o	8.6 o	8, o o o o	9 o	o o o	o o o
8,6 o 7. o o	9 o o o	79. o o	7,9 o o .88	8, o o o o	8.9 o	8, o o o o	o o o	o o o	88
8,7 o o o o	9 o o .9	78.9 o	7,9 o o .96	8, o o o o	6.7 o	8, o o o o	7 o	7 o	8 o
8,8 o 7. o o	9 o o o	79.8 o	7,9 o o .6	8, o o o o	16	8, o o o o	o o o	6 o	9 o
8,9 o o o o	9 o o o	78.9 o	7,9 o o .8	8, o o o o	7	8, o o o o	97	o o o	9 o
9, o o 7. o o	9 o o o	78. o o	7,9 o o .6	8, o o o o	9. o7	8, o o o o	9 o	o o o	9 o
9, o o o o	9 o o .7	77. o o	7,9 o o .6	8, o o o o	6.00	8, o o o o	97	6 o	7 o
9, o o 7. o o	9 o o o	77. o o	699.8 o	8, o o o o	7.897	8, o o o o	8.97	o o o	o o o
9, o o o o	9 o o .7	77. o o	696. o7	8, o o o o	8. o8	8, o o o o	97	o o o	o o o
9, o o 6. o o	9 o o o	79. o o	69 o o o	8, o o o o	9. o7.7 o	8, o o o o	96	o o o	9 o
9, o o o o	9 o o o	79. o o	69 o o o	9, o o o o	6.67	9, o o o o	o o o	6 o	o o o
9, o o 96. o o	9 o o .7	79. o o	686.8 o	9, o o o o	97. o7	9, o o o o	6 o	o o o	o o o
9, o o 69 o o	9 o o o	78. o o	68 o o .6	9, o o o o	9. o8	9, o o o o	86	6 o	96
9, o o 78 o o	9 o o o	78.6 o	68 o o .96	9, o o o o	86. o	9, o o o o	99	8 o	8 o
9, o o 88 o o	9 o o o	78.9 o	679. o o	9, o o o o	8. o7.6 o	9, o o o o	88	8 o	8 o
9,976. o o	9 o o o	79. o o	678. o o	9, o o o o	77. o o	9, o o o o	97	9 o	o o o
89. o o	89.9 o	78.8 o	677. o o	9, o o o o	7	9, o o o o	o o o	6 o	o o o
89. o o	9 o o o	8 o o o	676. o o	9, o o o o	666. o	9, o o o o	o o o	6 o	8 o
89. o o	9 o o .8	79. o o	67 o o .7	9, o o o o	76. o6	9, o o o o	9 o	o o o	8 o
89. o o	9 o o .8	78.8 o	67 o o .8	9, o o o o	87. o o	9, o o o o	o o o	o o o	o o o
89. o o	9 o o o	78. o o	668.6 o	9, o o o o	7.6 o	9, o o o o	9 o	8 o	6 o
89. o o	89. o o	77.9 o	668.6 o	9, o o o o	7	9, o o o o	o o o	8 o	6 o



C ompany	McKenzie Construction LLC	L ocation	C -facing
P roject	C-7 GL + C-6.0 K @ 9' f(X) 7' 7)	T V	facing
R oute	C-7 GL + C-6.0 K @ 9' f(X) 7' 7)	M ethod	facing
W ell	T 7' 7)	N orth	facing
W ell Number	Min 1 C	C onstruction	M ethod
F unction	EDM	M aterials	U sing Db

Survey Data									
Magnetic North		Vertical		Azimuth		Vertical		Borehole	
h	(f)	h	(f)	h	(f)	h	(f)	B	T
6.000	9.80	78.80	668.00	6.000	6.000	6.000	6.000	66	7
7.000	9.00	79.00	666.00	6.000	6.000	6.000	6.000	66	6
8.9.00	9.80	79.00	66.90	6.000	9.90	6.000	9.90	86	80
9.9.00	9.00	79.70	66.90	6.000	9.78	6.000	9.78	00	00
L ocation G eneral M odel W ell (9'9')									
978.00	9.00	79.70	66.90	6.000	78.70	6.000	78.70	00	00
J unction T o (978')									

Survey Data A					
Magnetic North		Vertical		Location	
h	(f)	h	(f)	+N/-	+E/-W
6.00	6.00	6.00	6.00	0.00	T 1n 9 /8" C long (6')
9.9.00	6.90	9.78	6.00	8.00	L G d n c M D (9'9')
978.00	6.90	78.70	6.00	0.00	O j c d T D (978')



SUNDY NOTICES AND REPORTS ON WELLS

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

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date August 24, 2011
<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 Waiver to rule Rule 43-02-03-31	

Well Name and Number
Bray 5301 43-12H

Footages		Qtr-Qtr	Section	Township	Range
250 F S L	1927 F E L	SWSE	12	153 N	101 W
Field	Pool	County			
Wildcat	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 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 #20344) located within a half mile of the subject well
Kline Federal 5300-11-18H (NDIC #20275)

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 281-404-9491
---	---

Address
1001 Fannin, Suite 1500

City Houston	State TX	Zip Code 77002
------------------------	--------------------	--------------------------

Signature:	
	Printed Name Brandi Terry

Title Regulatory Specialist	Date August 24, 2011
Email Address bterry@oasispetroleum.com	

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date	9-1-2011
By	
Title	Richard A. Suggs Geologist

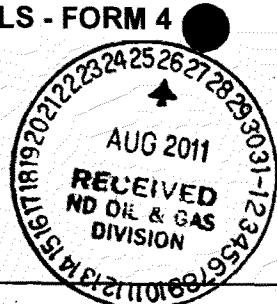


SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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.
20864



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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date August 27, 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	suspend drilling operations

Well Name and Number Bray 5301 43-12H					
Footages	250 F S L	Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 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

We respectfully request permission to suspend drilling operations for the subject well. Oasis intends to have XTC-17 drill the 8-3/4" hole and run and cement 7" casing. While waiting on cement, we will skid the rig 100' to the east onto the Foley Federal 5301 43-12H with 5" drill pipe in the derrick to begin drilling operations in the 8-3/4" hole for this well. Once we run and cement the 7" casing, we will continue with operations and drill our 6" lateral to TD. We will run our liner and packers and finish operations on the Foley Federal 5301 43-12H before skidding back to the Bray 5301 43-12H to do the same. This method of drilling will save Oasis several days of rig time which results in cost savings for our operations.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature <i>Brandi Terry</i>	Printed Name Brandi Terry	
Title Regulatory Specialist	Date August 25, 2011	
Email Address bterry@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 8-30-2011	
By <i>David Tabon</i>	
Title Engineering Technician	



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.

20864

AUG 29 2011
PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Notice of Intent

Approximate Start Date

August 27, 2011

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

suspend drilling operations

Well Name and Number

Bray 5301 43-12H

Footages	250 F S L	1927 F E L	Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 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	Gas	MCF

Name of Contractor(s)

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

DETAILS OF WORK

We respectfully request permission to suspend drilling operations for the subject well. Oasis intends to have XTC-17 drill the 8-3/4" hole and run and cement 7" casing. While waiting on cement, we will skid the rig 100' to the east onto the Foley Federal 5301 43-12H with 5" drill pipe in the derrick to begin drilling operations in the 8-3/4" hole for this well. Once we run and cement the 7" casing, we will continue with operations and drill our 6" lateral to TD. We will run our liner and packers and finish operations on the Foley Federal 5301 43-12H before skidding back to the Bray 5301 43-12H to do the same. This method of drilling will save Oasis several days of rig time which results in cost savings for our operations.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Brandi Terry	
Title Regulatory Specialist	Date August 25, 2011	
Email Address bterry@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 8-30-2011	
By David Tabor	
Title Engineering Technician	



SUNDRY NOTICES & 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.

20864



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

 Notice of IntentApproximate Start Date
June 30, 2011 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 **Offsite Battery**

Well Name and Number

Bray 5301 43-12H

Footages 250 F S L 1927 F E L Qtr-Qtr SWSE Section 12 Township 153 N Range 101 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 Petroleum respectfully request to build an offsite tank battery in the SESW of Section 12 T153N R101W (plat attached). This tank battery will be used for the Kline 5300 11-18H (NDIC 20275), Bray 5301 43-12H (NDIC 20864)/Foley Federal 5301 43-12H (NDIC 20863). The production will not be commingled, the facilities will just be in one central location.

Company Oasis Petroleum North America LLC		Telephone Number 281-404-9491	
Address 1001 Fannin, Suite 1500			
City Houston		State TX	Zip Code 77002
Signature 		Printed Name Brandi Terry	
Title Regulatory Specialist		Date June 30, 2011	
Email Address bterry@oasispetroleum.com			

FOR STATE USE ONLY

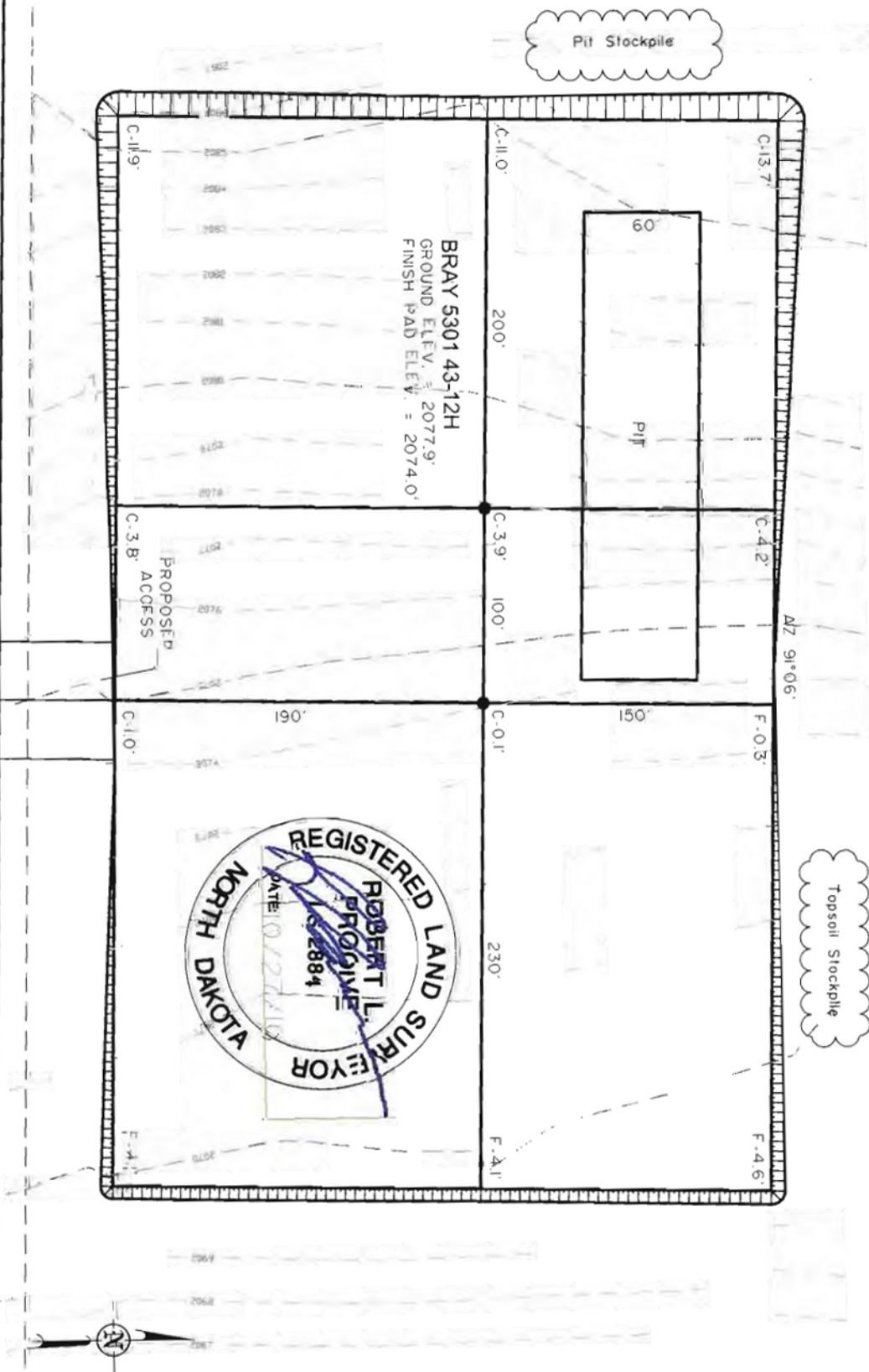
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date 7-19-2011	
By 	
Title GLENN L. WOLLAN	
Field Supervisor	

PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"BRAY 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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

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3

SHEET NO.

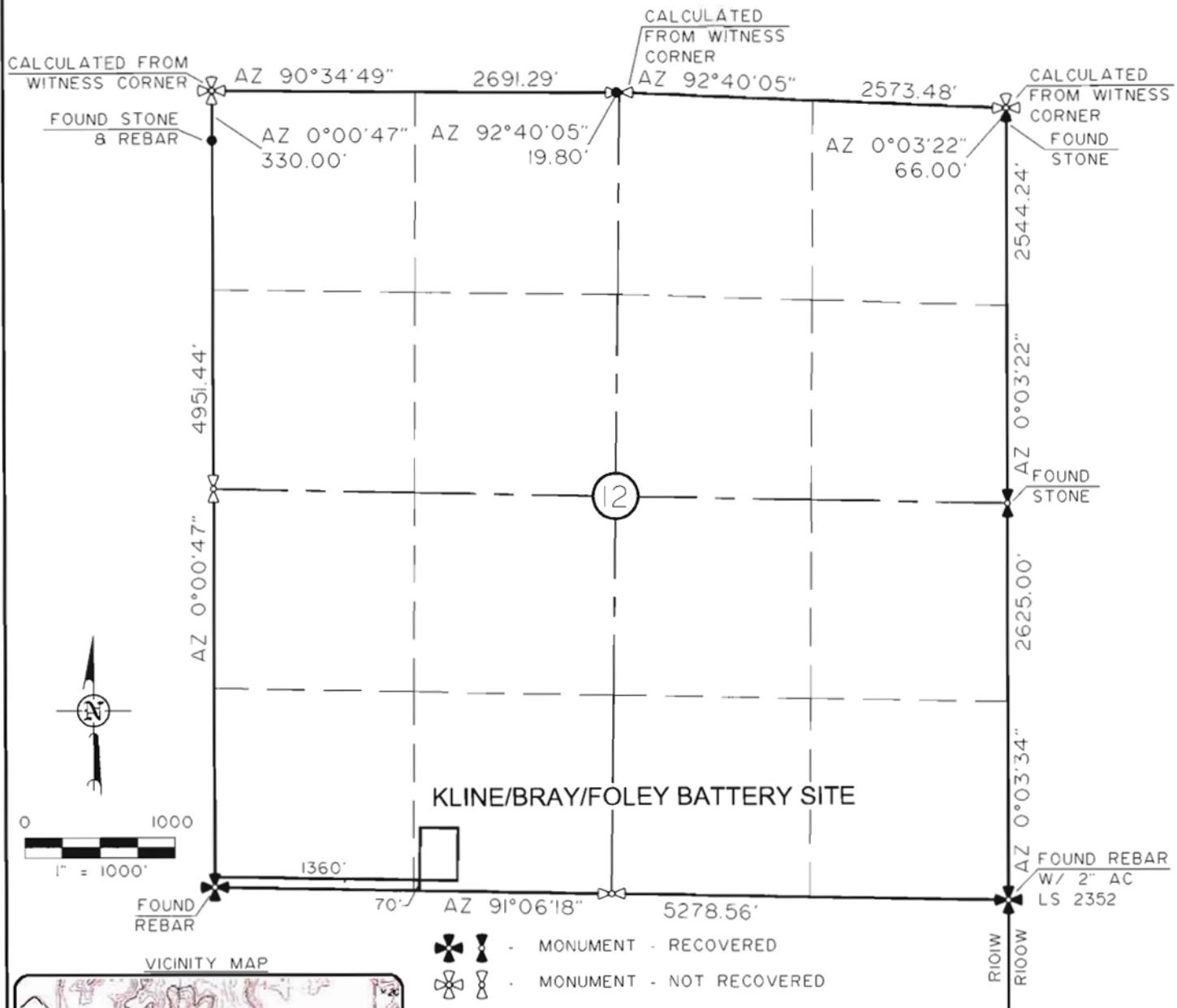
Interstate Engineering, Inc.
P.O. Box 648
425 East Main Street
Sidney, Montana 59270
Ph (406) 433-5617
Fax (406) 433-5618
www.ieng.com
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 12, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: H.J.G. Project No.: S10-9-167
Checked By: A.I.H.R.L.P. Date: OCT 2010

Revision No.	Date	By	Description

BATTERY LOCATION PLAT
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002
 "KLINE/BRAY/FOLEY BATTERY SITE"
 SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



THIS SURVEY AND PLAT IS BEING PROVIDED AT THE REQUEST OF FABIAN KJORSTAD 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.

Carl S. Vender

CARL S. VENDER LS #222
INTERSTATE ENGINEERING INC.



1/7

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Sidney, Montana 59270
Ph. (406) 433-5617
Fax (406) 433-5618
www.jengl.com

Oasis Petroleum North America and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
WELL LOCATION PLAT
SECTION 12, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

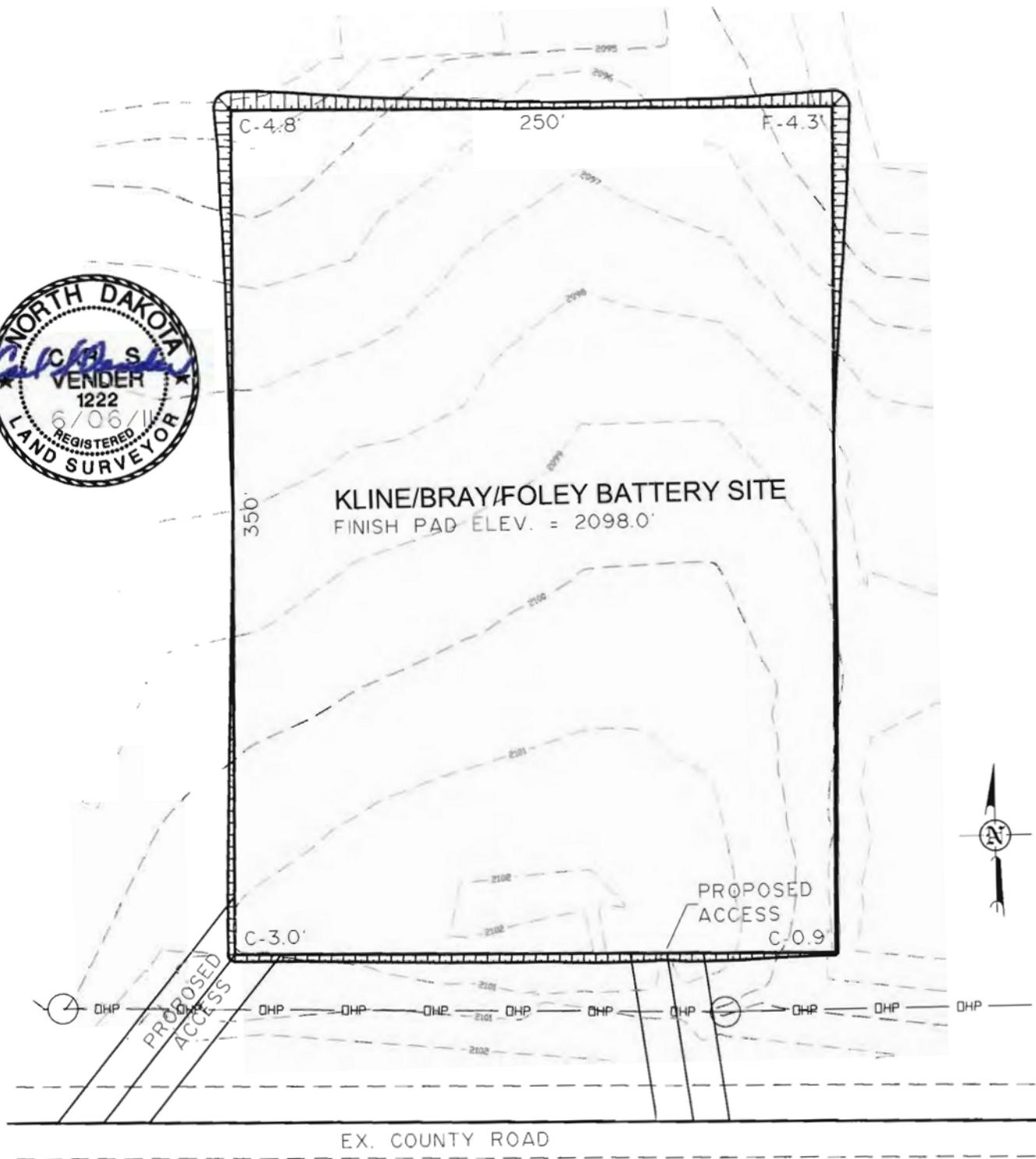
Drawn By:	H.J.G.	Project No.:	S11-09-137
Checked By:	A.J.H./C.S.V.	Date:	JUNE 2011

Revision No.	Date	By	Description
REV 1	6/06/11	H.J.G.	BATTERY NAME CHANGE

PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002
"KLINE/BRAY/FOLEY BATTERY SITE"

SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



0 80
1" = 80'

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

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Ph: (406) 433-5617
Fax (406) 433-5618
www.ieni.com
Other offices in Montana, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 12, T153N, R101W

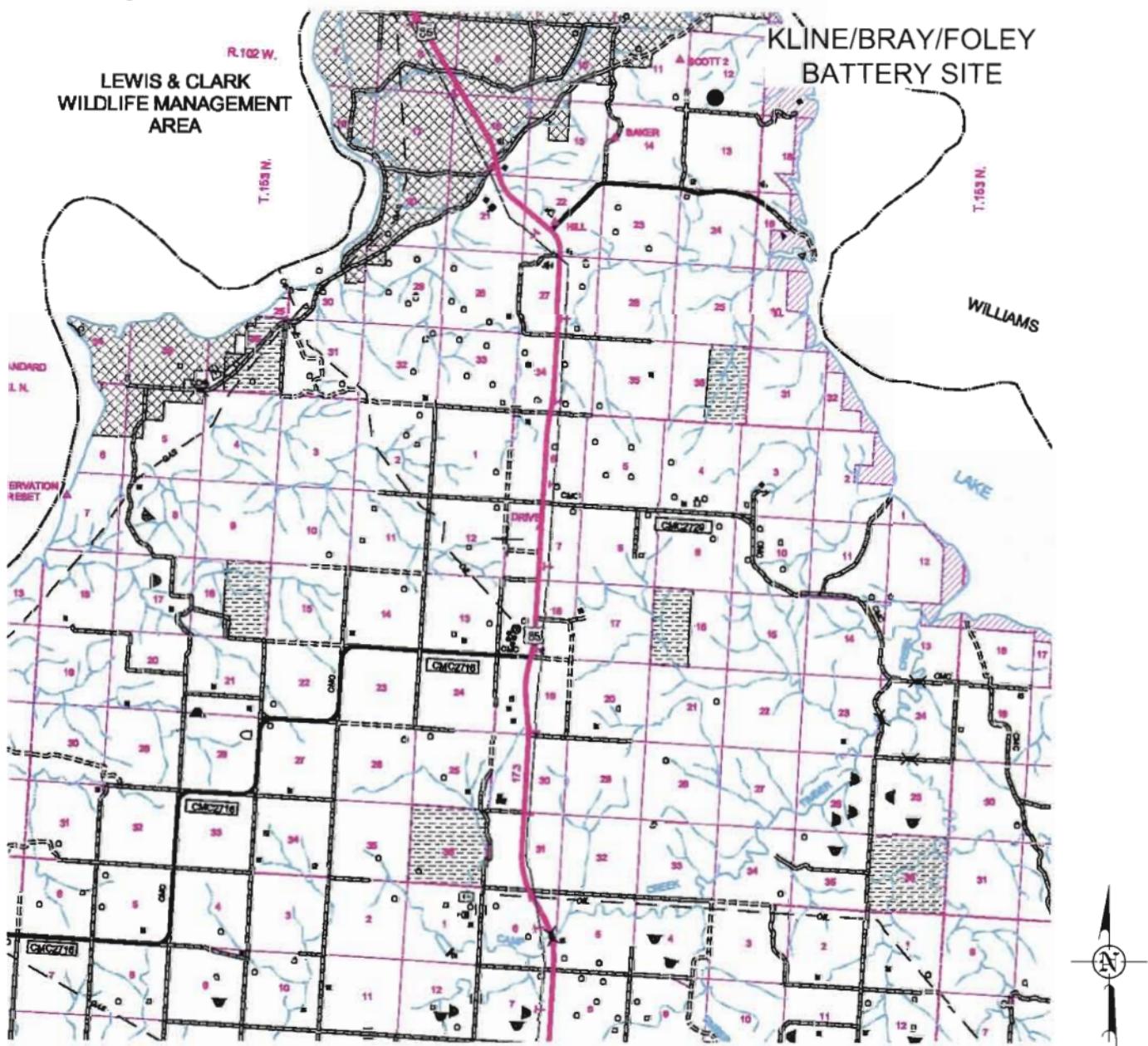
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: H.J.G. Project No: S11-9-137
Checked By: A.J.H./C.S.V. Date: JUNE 2011

Revision No	Date	By	Description
REV 1	6/06/11	H.J.G.	BATTERY NAME CHANGE

COUNTY ROAD MAP
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002
 "KLINE/BRAY/FOLEY BATTERY SITE"
 SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

51
 OASIS PETROLEUM NORTH AMERICA, LLC
 KLINE/BRAY/FOLEY BATTERY SITE
 QUAD LOCATION MAP
 SECTION 12, T153N, R101W
 MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

5/7

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ENGINEERING

SHEET NO.

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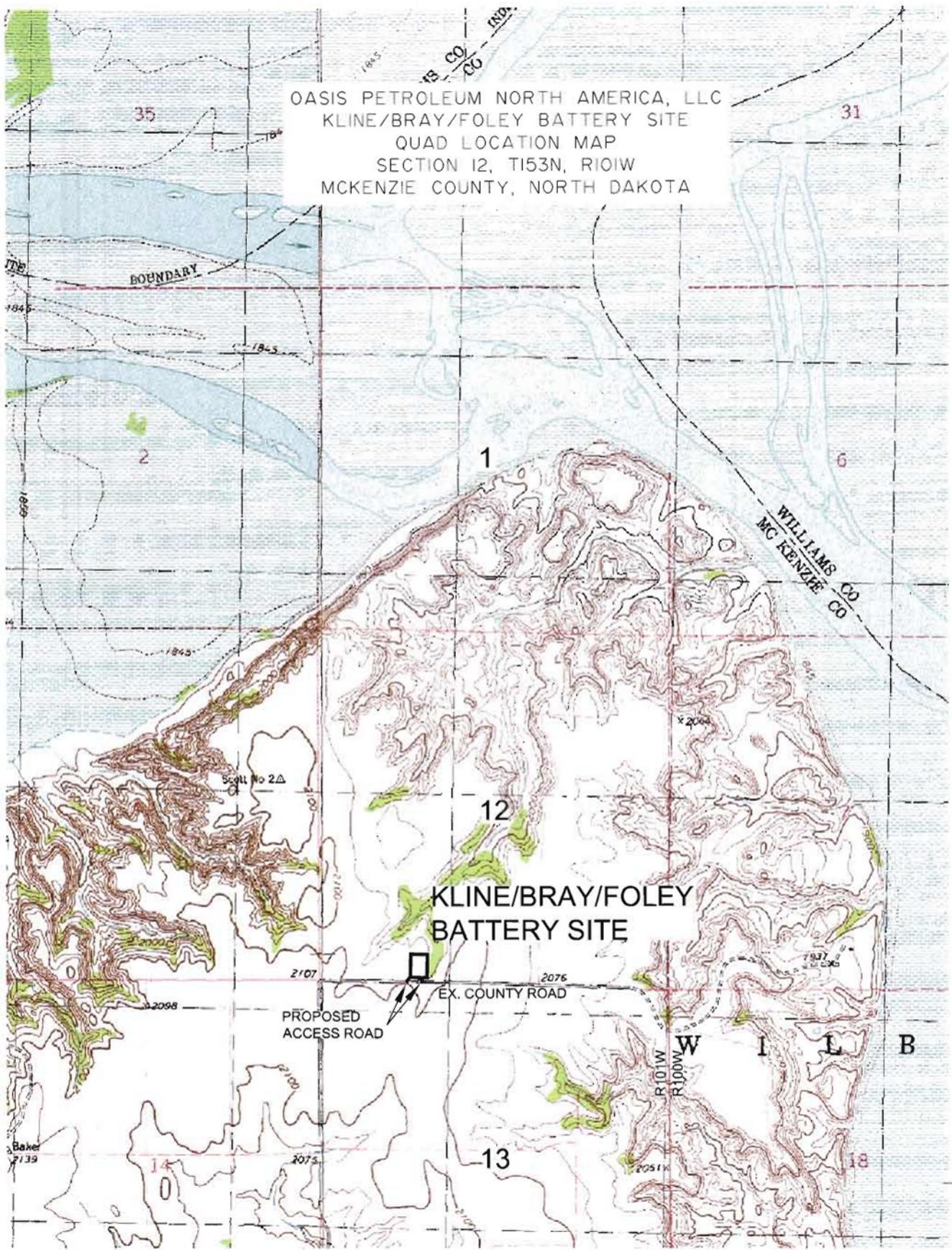
Interstate Engineering, Inc.
 P.O. Box 648
 425 East Main Street
 Sidney, Montana 59270
 Ph: (406) 433-5617
 Fax (406) 433-5618
www.iengi.com
Other offices in Montana, North Dakota, and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
 COUNTY ROAD MAP
 SECTION 12, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn by:	H.U.G.	Proj. No.:	511-09-137
Checked by:	A.J.H/C.S.V.	Date:	JUNE 2011

Revision No.	Date	By	Description
REV. I	6/06/11	HJD	BATTERY NAME CHANGE



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4/7



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ENGINEERING

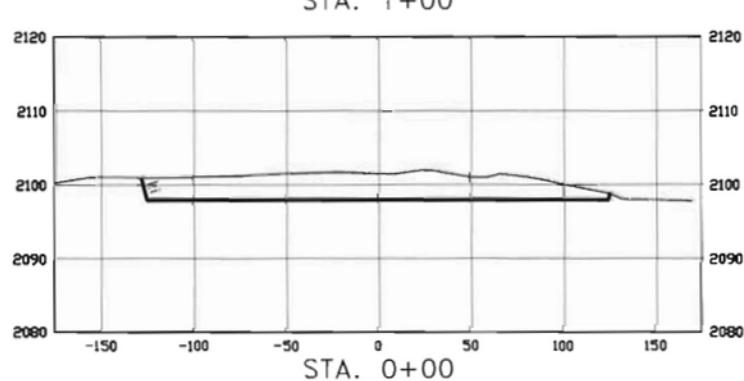
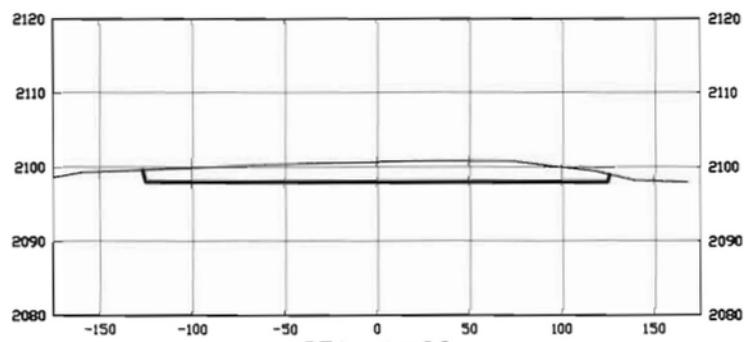
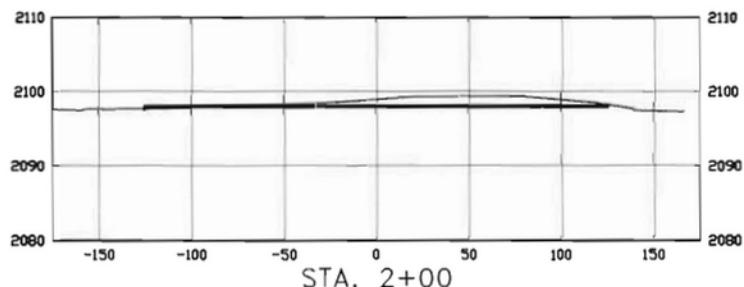
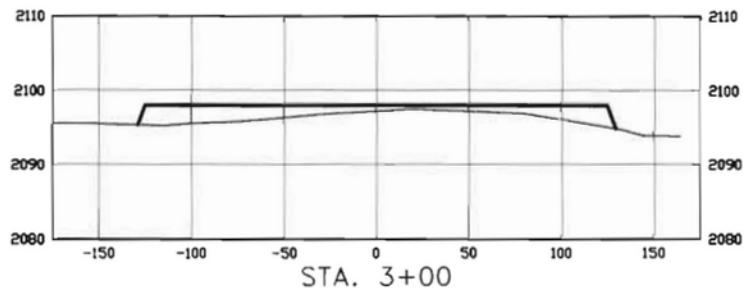
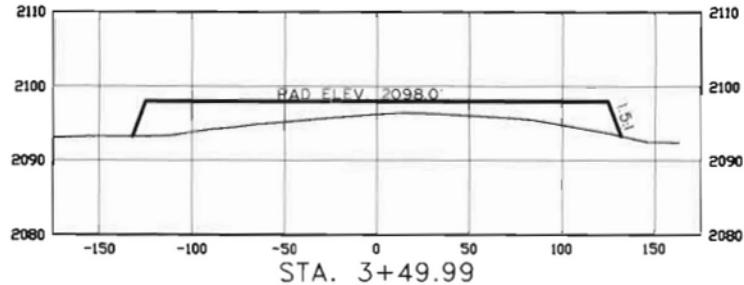
SHEET NO.

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

OASIS PETROLEUM NORTH AMERICA, LLC
 QUAD LOCATION MAP
 SECTION 12, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Revision No.	Date	By	Description
REV 1	6/06/11	HJC	BATTERY NAME CHANGE

CROSS SECTIONS



SCALE
HORIZ 1' = 100'
VERT 1' = 25'

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Ph (406) 433-5617
Fax (406) 433-5618
www.engi.com

OASIS PETROLEUM NORTH AMERICA, LLC			
PAD CROSS SECTIONS			
SECTION 12, T153N, R101W			
MCKENZIE COUNTY, NORTH DAKOTA			
Drawn By:	H.J.G.	Project No.:	S11-9-137
Checked By:	A.J.H./C.S.V.	Date:	JUNE 2011

Revision No.	Date	By	Description
REV. I	6/05/01	HJS	BATTERY NAME CHANGE

WELL LOCATION SITE QUANTITIES
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002
 "KLINE/BRAY/FOLEY BATTERY SITE"
 SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

PAD ELEVATION 2098.0

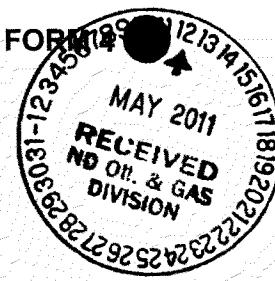
EXCAVATION	4,494
EMBANKMENT	1,672
PLUS SHRINKAGE (30%)	501
	2,174
STOCKPILE TOP SOIL (6")	1,683
STOCKPILE FROM PAD	637
DISTURBED AREA FROM PAD	2.09 ACRES

NOTE: ALL QUANTITIES ARE IN CUBIC YARDS (UNLESS NOTED)
 CUT END SLOPES AT 1:1
 FILL END SLOPES AT 1.5:1



SUNDY NOTICES AND REPORTS ON WELLS - FORM 43-02-03-55

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.
20864

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date June, 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.		<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	Suspension of Drilling

Well Name and Number Bray 5301 43-12H				
Footages 250 F S L	Qtr-Qtr 1927 F E L	Section SWSE	Township 12	Range 153 N 101 W
Field Wildcat	Pool Dakota	County McKenzie		

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

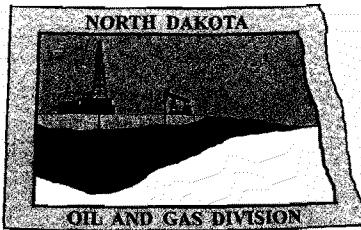
Name of Contractor(s)			
Address		City	State
			Zip Code

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.

Company Oasis Petroleum North America LLC		Telephone Number 281.404.9488	
Address 1001 Fannin, Suite 1500			
City Houston		State TX	Zip Code 77002
Signature 		Printed Name Laura Strong	
Title Drilling Engineer		Date May 11, 2011	
Email Address Lstrong@oasispetroleum.com			

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 5/27/11	
Title J. M. L-H	
Resources Permit Manager	



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

20864

ROBIN E. HESKETH
OASIS PETROLEUM NORTH AMERICA LLC
1001 FANNIN, SUITE 1500
HOUSTON, TX 77002 USA

Date: 5/16/2011

RE: CORES AND SAMPLES

Well Name: **BRAY 5301 43-12H** Well File No.: **20864**
Location: **SWSE 12-153-101** County: **MCKENZIE**
Permit Type: **Wildcat - HORIZONTAL**
Field: **WILDCAT** Target Horizon: **BAKKEN**

Dear ROBIN E. HESKETH:

North Dakota Century Code (NDCC) 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 the NDCC Section 38-08-04 and North Dakota Administrative Code 43-02-03-38.1.
- 2) Samples shall include all cuttings from:

Base of the Last Charles Salt

Samples of cuttings shall be taken at 30' maximum intervals through all vertical, build and horizontal sections. Samples must be washed, dried, packed in sample envelopes in correct order with labels showing operator, well name, location and depth, and forwarded in standard boxes to the State Geologist within 30 days of the completion of drilling operations.

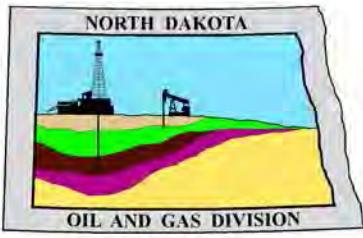
- 3) Cores: ALL CORES cut shall be preserved in correct order, properly boxed, and forwarded to the State Geologist within 90 days of completion of drilling operations. Any extension of time must have written approval from the State Geologist.
- 4) All cores, core chips, and samples must be shipped, prepaid, to the State Geologist at the following address:

**ND Geological Survey Core Library
Campus Road and Cornell
Grand Forks, ND 58202**

- 5) NDCC 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

Richard A. Suggs
Geologist



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

May 11, 2011

Brandi Terry
Engineering Tech
OASIS PETROLEUM NORTH AMERICA LLC
1001 Fannin Suite 202
Houston, TX 77002

**RE: HORIZONTAL WELL
BRAY 5301 43-12H
SWSE Section 12-153N-101W
McKenzie County
Well File # 20864**

Dear Brandi :

Pursuant to Commission Order No. 14007, 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 **200' setback** (per ICO 14498) from the north & south boundaries and **1220' setback** (per Commission policy) from the east & west boundaries within the 1280 acre drilling unit consisting of Section 13 & 24 T153N R101W.

PERMIT STIPULATIONS: A Closed Mud System is required on multi-well pads, although the disposal of drill cuttings is contingent upon site specific conditions to be determined by an NDIC Field Inspector. In cases where a spacing unit is accessed from an off-site drill pad, an affidavit must be provided affirming that the surface owner of the multi-well pad agrees to accept burial on their property of the cuttings generated from drilling the well(s) into an offsite spacing/drilling unit. OASIS PETRO NO AMER must contact NDIC Field Inspector Kevin Connors at 701-220-5989 prior to location construction. OASIS PETROLEUM NORTH AMERICA LLC must ensure the pit is not constructed in fill dirt.

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.

Brandi Terry
May 11, 2011
Page 2

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.

Reserve pit

Please be advised that conditions may be imposed on the use and reclamation of a drilling reserve pit on this site if specific site conditions warrant.

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 a Cement Bond Log from which the presence of cement can be determined in every well in which production or intermediate casing has been set and a Gamma Ray Log must be run from total depth to ground level elevation of the well bore. All logs must be submitted as one paper copy and one digital copy in LAS (Log ASCII) format, or a format approved by the Director. Image logs that include, but are not limited to, Mud Logs, Cement Bond Logs, and Cyberlook Logs, cannot be produced in their entirety as LAS (Log ASCII) files. To create a solution and establish a standard format for industry to follow when submitting image logs, the Director has given approval for the operator to submit an image log as a TIFF (*.tif) formatted file. The TIFF (*.tif) format will be accepted only when the log cannot be produced in its entirety as a LAS (Log ASCII) file format. The digital copy may be submitted on a 3.5" floppy diskette, a standard CD, or attached to an email sent to digitallogs@nd.gov

Thank you for your cooperation.

Sincerely,

Nathaniel Erbele
Petroleum Resource Specialist



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 06 / 01 / 2011	Confidential Status No
Operator OASIS PETROLEUM NORTH AMERICA LLC		Telephone Number 281-404-9491	
Address 1001 Fannin Suite 202		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 BRAY			Well Number 5301 43-12H				
Surface Footages 250 F S L		Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 W	County McKenzie	
Longstring Casing Point Footages 242 F N L		Qtr-Qtr NWNE	Section 13	Township 153 N	Range 101 W	County McKenzie	
Longstring Casing Point Coordinates From Well Head 492 S From WH 0 E From WH		Azimuth 180.0 °	Longstring Total Depth 11021 Feet MD 10734 Feet TVD				
Bottom Hole Footages From Nearest Section Line 201 F S L		Qtr-Qtr SWSE	Section 24	Township 153 N	Range 101 W	County McKenzie	
Bottom Hole Coordinates From Well Head 10578 S From WH 0 E From WH		KOP Lateral 1 10256 Feet MD	Azimuth Lateral 1 180.0 °	Estimated Total Depth Lateral 1 21107 Feet MD 10709 Feet TVD			
Latitude of Well Head 48 ° 04 ' 57.96 "	Longitude of Well Head -103 ° 36 ' 43.25 "	NAD Reference WGS84		Description of Drilling Unit: Section 13 & 24 T153N R101W (Subject to NDIC Approval)			
Ground Elevation 2078 Feet Above S.L.	Acres in Spacing/Drilling Unit 1280	Spacing/Drilling Unit Setback Requirement 200 Feet N/S 1220 Feet E/W		Industrial Commission Order 14007			
North Line of Spacing/Drilling Unit 5279 Feet		South Line of Spacing/Drilling Unit 5267 Feet		East Line of Spacing/Drilling Unit 10520 Feet		West Line of Spacing/Drilling Unit 10553 Feet	
Objective Horizons Bakken						Pierre Shale Top 1941	
Proposed Surface Casing	Size 9 - 5/8 "	Weight 36 Lb./Ft.	Depth 2045 Feet	Cement Volume 611 Sacks	NOTE: Surface hole must be drilled with fresh water and surface casing must be cemented back to surface.		
Proposed Longstring Casing	Size 7 - "	Weight(s) 29/32 Lb./Ft.	Longstring Total Depth 11021 Feet MD 10734 Feet TVD		Cement Volume 771 Sacks	Cement Top 4933 Feet	Top Dakota Sand 5433 Feet
Base Last Charles Salt (If Applicable) 9199 Feet		NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.					
Proposed Logs Triple Combo: KOP-KibbyGR/RES-BSCGR-SurfCBL/GR-TOC/GR-BSCMWD GR-KOP-TD							
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

Additional Attachments: Drill Plan with geological tops/mud Well Summary with casing and cement plans Directional plan/plot and surveyor's 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

04 / 21 / 2011

ePermit

Printed Name
Brandi Terry

Title

Engineering Tech**FOR STATE USE ONLY**

Permit and File Number 20864	API Number 33 - 053 - 03609
Field WILDCAT	
Pool BAKKEN	Permit Type WILDCAT

FOR STATE USE ONLY

Date Approved 5 / 11 / 2011
By Nathaniel Erbele
Title Petroleum Resource Specialist

**Oasis Petroleum
Well Summary
Bray 5301 43-12H
Section 12 T153N R101W
McKenzie County, ND**

SURFACE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
9-5/8"	0' to 2,045'	36	J-55	LTC	8.921"	8.765"	3400	4530	5660

Interval	Description	Collapse	Burst	Tension	Cost per ft
		(psi) a	(psi) b	(1000 lbs) c	
0' to 2,045'	9-5/8", 36#, J-55, LTC, 8rd	2020 / 2.11	3520 / 3.67	453 / 2.77	

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.0 ppg fluid on backside (2045' setting depth).
- b) Burst pressure based on 9 ppg fluid with no fluid on backside (2045' setting depth).
- c) Based on string weight in 9.0 ppg fluid at 2045' TVD plus 100k# overpull.
(Buoyed weight equals 63k lbs.)

Cement volumes are based on 9-5/8" casing set in 13-1/2" hole with 55% excess to circulate cement back to surface.
Mix and pump the following slurry.

Pre-flush (Spacer): 20 bbls fresh water

Lead Slurry: 386 sks (219 bbls) 11.2 lb/gal class "C" conventional system with 94 lb/sk cement, 4% extender, 2% expanding agent, 2% CaCl₂ and 0.25 lb/sk lost circulation control agent

Tail Slurry: 225 sks (60 bbls) 14.2 lb/gal class "C" conventional system with 94 lb/sk cement, 3% NaCl, and .25 lb/sk lost circulation control agent

**Oasis Petroleum
Well Summary
Bray 5301 43-12H
Section 12 T153N R101W
McKenzie County, ND**

INTERMEDIATE CASING AND CEMENT DESIGN

Intermediate Casing Design

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
7"	0' – 6,700'	29	P-110	LTC	6.184"	6.059"	5,980	7,970	8,770
7"	6,700' – 9,400'	32	HCP-110	LTC	6.094"	6.000***	6,730	8,970	9,870
7"	9,400' – 11,021'	29	P-110	LTC	6.184"	6.059"	5,980	7,970	8,770

**Special Drift

Interval	Length	Description	Collapse	Burst	Tension
			(psi) a	(psi) b	(1000 lbs) c
0' – 6,700'	6,700'	7", 29#, P-110, LTC, 8rd	8,530 / 2.44	11,220 / 1.19	797 / 2.11
6,700' – 9,400'	2,700'	7", 32#, HCP-110, LTC, 8rd	11,820 / 1.08	12,460 / 1.29	
9,400' – 11,021'	1,620'	7", 29 lb, P-110, LTC, 8rd	8,530 / 1.52	11,220 / 1.16	

API Rating & Safety Factor

- a) Collapse Strength Reduction Factor = .963 @ 7,900' & negligible below 9470'. Assume full casing evacuation with 10 ppg fluid on backside (from 0 to 6,700' & 9,400' to 11,021'). And assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals (from 6,700' to 9,400' TVD).
- b) Burst pressure based on 9,000 psig max press for stimulation plus 10.2 ppg fluid in casing and 9.0 ppg fluid on backside—to 10,734' TVD.
- c) Based on string weight in 10 ppg fluid, (278k lbs) plus 100k#.

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

Pre-flush (Spacer):
170 bbls Saltwater
20 bbls CW8 System
10 bbls Fresh Water

Lead Slurry: **126 sks** (58 bbls) 11.6 lb/gal class "G" conventional system with 47 lb/sk cement, 10% NaCl, 34 lb/sk extender, 10% D020 extender, 1% D079 extender, 1% anti-settling agent, 1% fluid loss agent, 0.2% anti-foam agent, 0.7% retarder, 0.25 lb/sk lost circulation control agent, and 0.3% dispersant

Tail Slurry: **645 sks** (190 bbls) 15.6 lb/gal class "G" conventional system with 94 lb/sk cement, 10% NaCl, 35% Silica, 0.2% fluid loss agent, 0.8% dispersant, 0.25 lb/sk lost circulation control agent and 0.3% retarder

Oasis Petroleum
Well Summary
Bray 5301 43-12H
Section 12 T153N R101W
McKenzie County, ND

PRODUCTION LINER

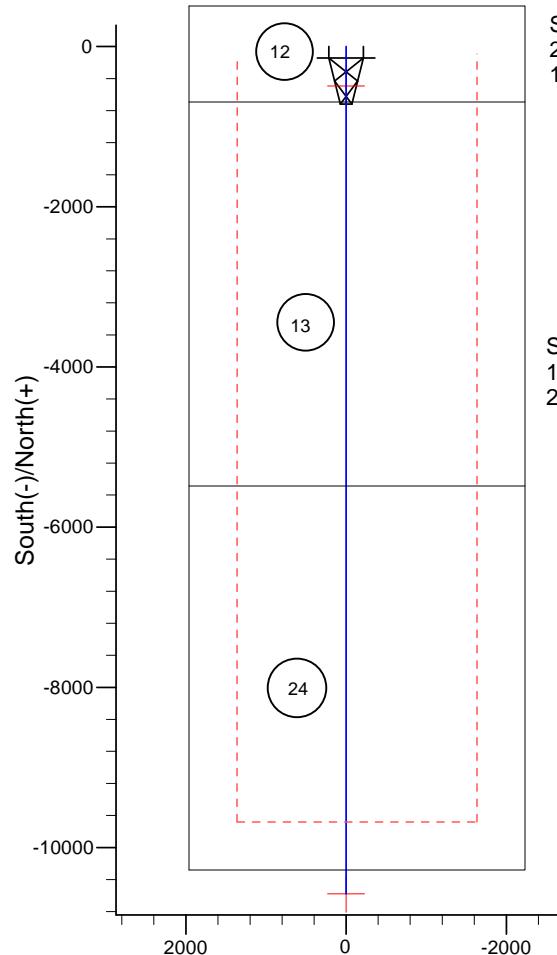
Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
4-1/2"	10,210' to 21,107'	11.6	P-110	LTC	4.000"	3.875"	2,270	3,020	3,780

Interval	Length	Description	Collapse	Burst	Tension
			(psi) a	(psi) b	(1000 lbs) c
10,210' to 21,107'	10,897	4-1/2", 11.6 lb, P-110, LTC, 8rd	7,580 / 1.42	10,690 / 1.10	277 / 1.33

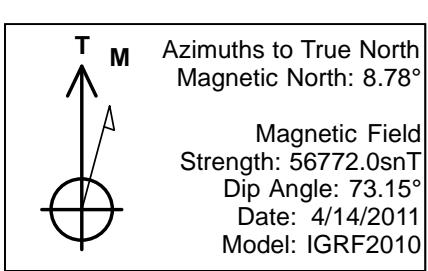
API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10,734' TVD.
- b) Burst pressure based on 9,000 psi Stimulation pressure with 10.2 ppg internal fluid gradient with 9.0 ppg gradient on backside at 10,734' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 108k lbs.) plus 100k lbs overpull.

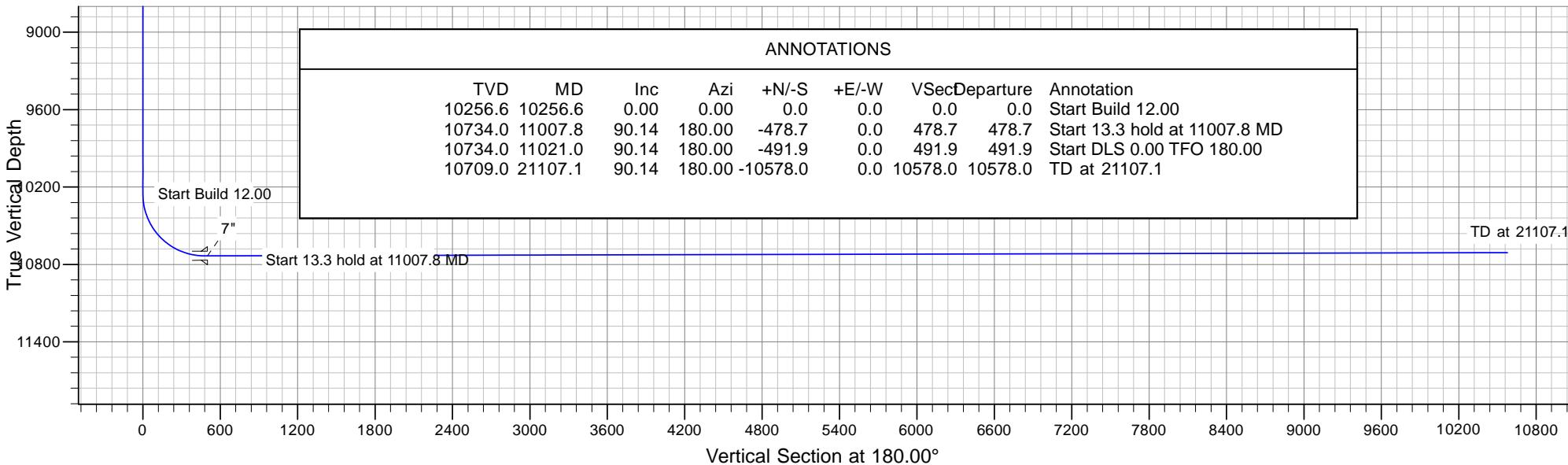
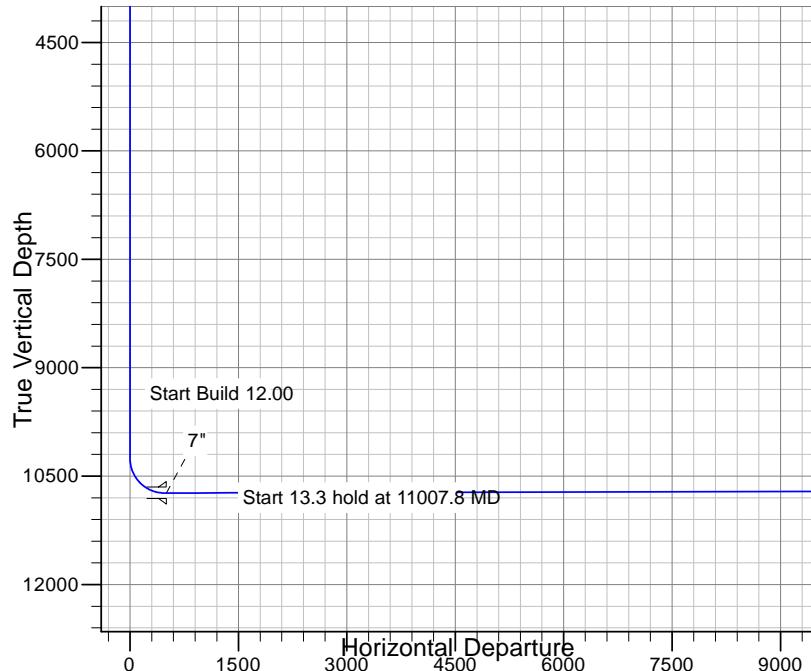
DRILLING PLAN									
PROSPECT/FIELD	Indian Hills	Horizontal Middle Bakken		COUNTY/STATE	McKenzie Co., ND				
OPERATOR	Oasis Operating			RIG	XTC-17				
WELL NO.	5301 43-12H			LEASE	Bray				
LOCATION	SWSE 12-153N-101W	Surface Location (survey plat): 250' frl		1927' fel					
EST. T.D.	21,107'			GROUND ELEV:	2074	Finished Pad Elev.			
TOTAL LATERAL:	10,086' (est)			KB ELEV:	2090.5	Sub Hieght: 16.5			
PROGNOSIS:	Based on 2,091' KB(est)		LOGS:	Type	Interval				
MARKER	DEPTH (Surf Loc)	DATUM (Surf Loc)	OH Logs: Triple Combo KOP to Kirby (or min run of 1800' whichever is greater); GR/Res to BSC; GR to surf CBL/GR: Above top of cement/GR to base of casing MWD GR: KOP to lateral TD						
Pierre	NDIC MAP	1,941	150'						
Greenhorn		4,606	-2,516'						
Mowry		5,002	-2,912'						
Dakota		5,433	-3,343'						
Rierdon		6,350	-4,259'	Surf:	3 deg. max., 1 deg / 100'; svry every 500'				
Dunham Salt		6,869	-4,778'	Prod:	5 deg. max., 1 deg / 100'; svry every 1000'				
Dunham Salt Base		6,936	-4,845'						
Spearfish		6,941	-4,850'						
Pine Salt		7,184	-5,094'						
Pine Salt Base		7,310	-5,219'						
Opeche Salt		7,337	-5,247'						
Opeche Salt Base		7,416	-5,326'						
Broom Creek (Top of Minnelusa Gp.)		7,598	-5,507'	DST'S:					
Amsden		7,640	-5,550'	None planned					
Tyler		7,816	-5,726'						
Otter (Base of Minnelusa Gp.)		8,004	-5,913'						
Kibbey		8,353	-6,262'						
Charles Salt		8,499	-6,409'	CORES:					
UB		9,123	-7,032'	None planned					
Base Last Salt		9,199	-7,109'						
Ratcliffe		9,247	-7,157'						
Mission Canyon		9,423	-7,333'	MUDLOGGING:					
Lodgepole		9,998	-7,907'	Two-Man:	8,299'				
False Bakken		10,713	-8,613'	~200' above the Charles (Kibbey) to Casing point; Casing point to TD					
Upper Bakken		10,727	-8,622'	30' samples at direction of wellsite geologist; 10' through target @ curve land					
Middle Bakken		10,734	-8,637'						
Middle Bakken Sand Target		10,734	-8,644'						
Base Middle Bakken Sand Target		10,743	-8,653'						
Lower Bakken		10,763	-8,673'						
Three Forks		10,791	-8,700'	BOP:					
Dip Rate:	+0.16° or .25° /100' up		11" 5000 psi blind, pipe & annular						
Max. Anticipated BHP:	5709		Surface Formation: Glacial till						
MUD:	Interval	Type	WT	Vis	WL	Remarks			
Surface	0' -	2,045'	FW/Gel - Lime Sweeps	8.6 - 8.9	28-34	NC			
Intermediate	2,045' -	11,021'	Invert	9.6-10.4	40-60	30+(HPHT)			
Liner	11,021' -	21,107'	Salt Water	9.3-10.4	28-34	NC			
CASING:	Size	Wt pcf	Hole	Depth	Cement	WOC	Remarks		
Surface:	9-5/8"	36#	13-1/2"	2,045'	To Surface	12	100' into Pierre		
Intermediate:	7"	29/32#	8-3/4"	11,021'	4933	24	500' above Dakota		
Production:	4.5"	11.6#	6"	21,107'	TOL @ 10,211'		50' above KOP		
Production Liner:									
PROBABLE PLUGS, IF REQ'D:									
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI			
Surface:	N/A	N/A	250'FSL	1927'FEL	12-T153N-R101W		Survey Company:		
KOP:	10,256'	10,266'	250'FSL	1927'FEL	12-T153N-R101W		Build Rate: 12 deg /100'		
EOC	11,008'	10,734'	229'FNL	1927'FEL	13-T153N-R101W	180.0			
Casing Point:	11,021'	10,734'	242'FNL	1927'FEL	13-T153N-R101W	180.0			
Middle Bakken Lateral TD:	21,107'	10,709'	200'FSL	1927'FEL	24-T153N-R101W	180.0			
Comments:									
DRILL TO KOP AND LOG.									
DRILL CURVE TO 90 DEG AND 7" CASING POINT									
SET 7" CASING. DRILL MIDDLE BAKKEN LATERAL.									
MWD Surveys will be taken every 100' in vertical hole, and a minimum of every 30' while building curve and every 90' while drilling lateral.									
MWD GR to be run from KOP to Lateral TD.									
GR must be run to ground surface.									
Geology: ACN 11-17-2010	Prepared by: BT_4-14-2011		Engineering: L. Strong 4/18/2011						



Project: McKenzie County, ND
Site: Sec. 12 T153N R101W
Well: Bray 5301 43-12H
Wellbore: OH
Design: Plan #1



SITE DETAILS: Sec. 12 T153N R101W	
Site Centre Latitude:	48° 4' 57.960 N
Longitude:	103° 36' 43.250 W
Positional Uncertainty:	0.0
Convergence:	-2.32
Local North:	True



Oasis

**McKenzie County, ND
Sec. 12 T153N R101W
Bray 5301 43-12H**

OH

Plan: Plan #1

Standard Planning Report

21 April, 2011

Planning Report

Database:	EDM Network	Local Co-ordinate Reference:	Well Bray 5301 43-12H
Company:	Oasis	TVD Reference:	WELL @ 2090.5ft (Original Well Elev)
Project:	McKenzie County, ND	MD Reference:	WELL @ 2090.5ft (Original Well Elev)
Site:	Sec. 12 T153N R101W	North Reference:	True
Well:	Bray 5301 43-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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	Sec. 12 T153N R101W				
Site Position:		Northing:	125,065.82 m	Latitude:	48° 4' 57.940 N
From:	Lat/Long	Easting:	368,244.93 m	Longitude:	103° 36' 41.780 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-2.32 °

Well	Bray 5301 43-12H				
Well Position	+N/S +E/W	0.0 ft -100.0 ft	Northing: Easting:	125,067.05 m 368,214.48 m	Latitude: Longitude:
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:
					2,074.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/14/2011	8.78	73.15	56,772

Design	Plan #1				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (ft)	+N/S (ft)	+E/W (ft)	Direction (°)
		0.0	0.0	0.0	180.00

Plan Sections										
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	
10,256.6	0.00	0.00	10,256.6	0.0	0.0	0.00	0.00	0.00	0.00	
11,007.8	90.14	180.00	10,734.0	-478.7	0.0	12.00	12.00	0.00	180.00	
11,021.0	90.14	180.00	10,734.0	-491.9	0.0	0.00	0.00	0.00	0.00	Interp @ 10743.0 (Bray 5301 43-12H PB)
21,107.1	90.14	180.00	10,709.0	-10,578.0	0.0	0.00	0.00	0.00	180.00	Bray 5301 43-12H PB

Planning Report

Database:	EDM Network	Local Co-ordinate Reference:	Well Bray 5301 43-12H
Company:	Oasis	TVD Reference:	WELL @ 2090.5ft (Original Well Elev)
Project:	McKenzie County, ND	MD Reference:	WELL @ 2090.5ft (Original Well Elev)
Site:	Sec. 12 T153N R101W	North Reference:	True
Well:	Bray 5301 43-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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
1,941.0	0.00	0.00	1,941.0	0.0	0.0	0.0	0.00	0.00	0.00
Pierre									
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,045.0	0.00	0.00	2,045.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"									
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
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	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,606.0	0.00	0.00	4,606.0	0.0	0.0	0.0	0.00	0.00	0.00
Greenhorn									

Planning Report

Database:	EDM Network	Local Co-ordinate Reference:	Well Bray 5301 43-12H
Company:	Oasis	TVD Reference:	WELL @ 2090.5ft (Original Well Elev)
Project:	McKenzie County, ND	MD Reference:	WELL @ 2090.5ft (Original Well Elev)
Site:	Sec. 12 T153N R101W	North Reference:	True
Well:	Bray 5301 43-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,002.0	0.00	0.00	5,002.0	0.0	0.0	0.0	0.00	0.00	0.00
Mowry									
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,433.0	0.00	0.00	5,433.0	0.0	0.0	0.0	0.00	0.00	0.00
Dakota									
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,350.0	0.00	0.00	6,350.0	0.0	0.0	0.0	0.00	0.00	0.00
Rierdon									
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,869.0	0.00	0.00	6,869.0	0.0	0.0	0.0	0.00	0.00	0.00
Dunham Salt									
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,936.0	0.00	0.00	6,936.0	0.0	0.0	0.0	0.00	0.00	0.00
Dunham Salt Base									
6,941.0	0.00	0.00	6,941.0	0.0	0.0	0.0	0.00	0.00	0.00
Spearfish									
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,184.0	0.00	0.00	7,184.0	0.0	0.0	0.0	0.00	0.00	0.00
Pine Salt									
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,310.0	0.00	0.00	7,310.0	0.0	0.0	0.0	0.00	0.00	0.00
Pine Salt Base									
7,337.0	0.00	0.00	7,337.0	0.0	0.0	0.0	0.00	0.00	0.00
Opeche Salt									
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,416.0	0.00	0.00	7,416.0	0.0	0.0	0.0	0.00	0.00	0.00
Opeche Salt Base									
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,598.0	0.00	0.00	7,598.0	0.0	0.0	0.0	0.00	0.00	0.00
Broom Creek (Top of Minnelusa Gp.)									
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,640.0	0.00	0.00	7,640.0	0.0	0.0	0.0	0.00	0.00	0.00

Planning Report

Database:	EDM Network	Local Co-ordinate Reference:	Well Bray 5301 43-12H
Company:	Oasis	TVD Reference:	WELL @ 2090.5ft (Original Well Elev)
Project:	McKenzie County, ND	MD Reference:	WELL @ 2090.5ft (Original Well Elev)
Site:	Sec. 12 T153N R101W	North Reference:	True
Well:	Bray 5301 43-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
Amunden									
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,816.0	0.00	0.00	7,816.0	0.0	0.0	0.0	0.00	0.00	0.00
Tyler									
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,004.0	0.00	0.00	8,004.0	0.0	0.0	0.0	0.00	0.00	0.00
Otter (Base of Minnelusa Gp.)									
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,353.0	0.00	0.00	8,353.0	0.0	0.0	0.0	0.00	0.00	0.00
Kibbey									
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,499.0	0.00	0.00	8,499.0	0.0	0.0	0.0	0.00	0.00	0.00
Charles Salt									
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00
9,123.0	0.00	0.00	9,123.0	0.0	0.0	0.0	0.00	0.00	0.00
UB									
9,199.0	0.00	0.00	9,199.0	0.0	0.0	0.0	0.00	0.00	0.00
Base Last Salt									
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00
9,247.0	0.00	0.00	9,247.0	0.0	0.0	0.0	0.00	0.00	0.00
Ratcliffe									
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00
9,423.0	0.00	0.00	9,423.0	0.0	0.0	0.0	0.00	0.00	0.00
Mission Canyon									
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00
9,998.0	0.00	0.00	9,998.0	0.0	0.0	0.0	0.00	0.00	0.00
Lodgepole									
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	0.00
10,100.0	0.00	0.00	10,100.0	0.0	0.0	0.0	0.00	0.00	0.00
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	0.00
10,256.6	0.00	0.00	10,256.6	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 12.00									
10,275.0	2.21	180.00	10,275.0	-0.4	0.0	0.4	12.00	12.00	0.00
10,300.0	5.21	180.00	10,299.9	-2.0	0.0	2.0	12.00	12.00	0.00
10,325.0	8.21	180.00	10,324.8	-4.9	0.0	4.9	12.00	12.00	0.00
10,350.0	11.21	180.00	10,349.4	-9.1	0.0	9.1	12.00	12.00	0.00
10,375.0	14.21	180.00	10,373.8	-14.6	0.0	14.6	12.00	12.00	0.00
10,400.0	17.21	180.00	10,397.9	-21.4	0.0	21.4	12.00	12.00	0.00

Planning Report

Database:	EDM Network	Local Co-ordinate Reference:	Well Bray 5301 43-12H
Company:	Oasis	TVD Reference:	WELL @ 2090.5ft (Original Well Elev)
Project:	McKenzie County, ND	MD Reference:	WELL @ 2090.5ft (Original Well Elev)
Site:	Sec. 12 T153N R101W	North Reference:	True
Well:	Bray 5301 43-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
10,425.0	20.21	180.00	10,421.5	-29.4	0.0	29.4	12.00	12.00	0.00
10,450.0	23.21	180.00	10,444.8	-38.6	0.0	38.6	12.00	12.00	0.00
10,475.0	26.21	180.00	10,467.5	-49.1	0.0	49.1	12.00	12.00	0.00
10,500.0	29.21	180.00	10,489.6	-60.7	0.0	60.7	12.00	12.00	0.00
10,525.0	32.21	180.00	10,511.1	-73.5	0.0	73.5	12.00	12.00	0.00
10,550.0	35.21	180.00	10,531.9	-87.4	0.0	87.4	12.00	12.00	0.00
10,575.0	38.21	180.00	10,551.9	-102.3	0.0	102.3	12.00	12.00	0.00
10,600.0	41.21	180.00	10,571.1	-118.3	0.0	118.3	12.00	12.00	0.00
10,625.0	44.21	180.00	10,589.5	-135.2	0.0	135.2	12.00	12.00	0.00
10,650.0	47.21	180.00	10,607.0	-153.1	0.0	153.1	12.00	12.00	0.00
10,675.0	50.21	180.00	10,623.5	-171.9	0.0	171.9	12.00	12.00	0.00
10,700.0	53.21	180.00	10,638.9	-191.5	0.0	191.5	12.00	12.00	0.00
10,725.0	56.21	180.00	10,653.4	-211.9	0.0	211.9	12.00	12.00	0.00
10,750.0	59.21	180.00	10,666.7	-233.1	0.0	233.1	12.00	12.00	0.00
10,775.0	62.21	180.00	10,679.0	-254.9	0.0	254.9	12.00	12.00	0.00
10,800.0	65.21	180.00	10,690.0	-277.3	0.0	277.3	12.00	12.00	0.00
10,825.0	68.21	180.00	10,699.9	-300.2	0.0	300.2	12.00	12.00	0.00
10,833.5	69.23	180.00	10,703.0	-308.1	0.0	308.1	12.00	12.00	0.00
False Bakken									
10,850.0	71.21	180.00	10,708.6	-323.7	0.0	323.7	12.00	12.00	0.00
10,864.3	72.93	180.00	10,713.0	-337.3	0.0	337.3	12.00	12.00	0.00
Upper Bakken									
10,875.0	74.21	180.00	10,716.0	-347.6	0.0	347.6	12.00	12.00	0.00
10,900.0	77.21	180.00	10,722.2	-371.8	0.0	371.8	12.00	12.00	0.00
10,924.5	80.15	180.00	10,727.0	-395.8	0.0	395.8	12.00	12.00	0.00
Middle Bakken									
10,925.0	80.21	180.00	10,727.1	-396.3	0.0	396.3	12.00	12.00	0.00
10,950.0	83.21	180.00	10,730.7	-421.0	0.0	421.0	12.00	12.00	0.00
10,975.0	86.21	180.00	10,733.0	-445.9	0.0	445.9	12.00	12.00	0.00
11,000.0	89.21	180.00	10,734.0	-470.9	0.0	470.9	12.00	12.00	0.00
11,000.8	89.21	180.00	10,734.0	-471.7	0.0	471.7	0.00	0.00	0.00
Middle Bakken Sand Target									
11,007.8	90.14	180.00	10,734.0	-478.7	0.0	478.7	13.32	13.32	0.00
Start 13.3 hold at 11007.8 MD									
11,021.0	90.14	180.00	10,734.0	-491.9	0.0	491.9	0.00	0.00	0.00
Start DLS 0.00 TFO 180.00									
11,030.0	90.14	180.00	10,734.0	-500.9	0.0	500.9	0.00	0.00	0.00
7"									
11,100.0	90.14	180.00	10,733.8	-570.9	0.0	570.9	0.00	0.00	0.00
11,200.0	90.14	180.00	10,733.6	-670.9	0.0	670.9	0.00	0.00	0.00
11,300.0	90.14	180.00	10,733.3	-770.9	0.0	770.9	0.00	0.00	0.00
11,400.0	90.14	180.00	10,733.1	-870.9	0.0	870.9	0.00	0.00	0.00
11,500.0	90.14	180.00	10,732.8	-970.9	0.0	970.9	0.00	0.00	0.00
11,600.0	90.14	180.00	10,732.6	-1,070.9	0.0	1,070.9	0.00	0.00	0.00
11,700.0	90.14	180.00	10,732.3	-1,170.9	0.0	1,170.9	0.00	0.00	0.00
11,800.0	90.14	180.00	10,732.1	-1,270.9	0.0	1,270.9	0.00	0.00	0.00
11,900.0	90.14	180.00	10,731.8	-1,370.9	0.0	1,370.9	0.00	0.00	0.00
12,000.0	90.14	180.00	10,731.6	-1,470.9	0.0	1,470.9	0.00	0.00	0.00
12,100.0	90.14	180.00	10,731.3	-1,570.9	0.0	1,570.9	0.00	0.00	0.00
12,200.0	90.14	180.00	10,731.1	-1,670.9	0.0	1,670.9	0.00	0.00	0.00
12,300.0	90.14	180.00	10,730.8	-1,770.9	0.0	1,770.9	0.00	0.00	0.00
12,400.0	90.14	180.00	10,730.6	-1,870.9	0.0	1,870.9	0.00	0.00	0.00
12,500.0	90.14	180.00	10,730.3	-1,970.9	0.0	1,970.9	0.00	0.00	0.00

Planning Report

Database:	EDM Network	Local Co-ordinate Reference:	Well Bray 5301 43-12H
Company:	Oasis	TVD Reference:	WELL @ 2090.5ft (Original Well Elev)
Project:	McKenzie County, ND	MD Reference:	WELL @ 2090.5ft (Original Well Elev)
Site:	Sec. 12 T153N R101W	North Reference:	True
Well:	Bray 5301 43-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
12,600.0	90.14	180.00	10,730.1	-2,070.9	0.0	2,070.9	0.00	0.00	0.00
12,700.0	90.14	180.00	10,729.8	-2,170.9	0.0	2,170.9	0.00	0.00	0.00
12,800.0	90.14	180.00	10,729.6	-2,270.9	0.0	2,270.9	0.00	0.00	0.00
12,900.0	90.14	180.00	10,729.3	-2,370.9	0.0	2,370.9	0.00	0.00	0.00
13,000.0	90.14	180.00	10,729.1	-2,470.9	0.0	2,470.9	0.00	0.00	0.00
13,100.0	90.14	180.00	10,728.8	-2,570.9	0.0	2,570.9	0.00	0.00	0.00
13,200.0	90.14	180.00	10,728.6	-2,670.9	0.0	2,670.9	0.00	0.00	0.00
13,300.0	90.14	180.00	10,728.3	-2,770.9	0.0	2,770.9	0.00	0.00	0.00
13,400.0	90.14	180.00	10,728.1	-2,870.9	0.0	2,870.9	0.00	0.00	0.00
13,500.0	90.14	180.00	10,727.8	-2,970.9	0.0	2,970.9	0.00	0.00	0.00
13,600.0	90.14	180.00	10,727.6	-3,070.9	0.0	3,070.9	0.00	0.00	0.00
13,700.0	90.14	180.00	10,727.3	-3,170.9	0.0	3,170.9	0.00	0.00	0.00
13,800.0	90.14	180.00	10,727.1	-3,270.9	0.0	3,270.9	0.00	0.00	0.00
13,900.0	90.14	180.00	10,726.8	-3,370.9	0.0	3,370.9	0.00	0.00	0.00
14,000.0	90.14	180.00	10,726.6	-3,470.9	0.0	3,470.9	0.00	0.00	0.00
14,100.0	90.14	180.00	10,726.3	-3,570.9	0.0	3,570.9	0.00	0.00	0.00
14,200.0	90.14	180.00	10,726.1	-3,670.9	0.0	3,670.9	0.00	0.00	0.00
14,300.0	90.14	180.00	10,725.8	-3,770.9	0.0	3,770.9	0.00	0.00	0.00
14,400.0	90.14	180.00	10,725.6	-3,870.9	0.0	3,870.9	0.00	0.00	0.00
14,500.0	90.14	180.00	10,725.3	-3,970.9	0.0	3,970.9	0.00	0.00	0.00
14,600.0	90.14	180.00	10,725.1	-4,070.9	0.0	4,070.9	0.00	0.00	0.00
14,700.0	90.14	180.00	10,724.8	-4,170.9	0.0	4,170.9	0.00	0.00	0.00
14,800.0	90.14	180.00	10,724.6	-4,270.9	0.0	4,270.9	0.00	0.00	0.00
14,900.0	90.14	180.00	10,724.3	-4,370.9	0.0	4,370.9	0.00	0.00	0.00
15,000.0	90.14	180.00	10,724.1	-4,470.9	0.0	4,470.9	0.00	0.00	0.00
15,100.0	90.14	180.00	10,723.8	-4,570.9	0.0	4,570.9	0.00	0.00	0.00
15,200.0	90.14	180.00	10,723.6	-4,670.9	0.0	4,670.9	0.00	0.00	0.00
15,300.0	90.14	180.00	10,723.4	-4,770.9	0.0	4,770.9	0.00	0.00	0.00
15,400.0	90.14	180.00	10,723.1	-4,870.9	0.0	4,870.9	0.00	0.00	0.00
15,500.0	90.14	180.00	10,722.9	-4,970.9	0.0	4,970.9	0.00	0.00	0.00
15,600.0	90.14	180.00	10,722.6	-5,070.9	0.0	5,070.9	0.00	0.00	0.00
15,700.0	90.14	180.00	10,722.4	-5,170.9	0.0	5,170.9	0.00	0.00	0.00
15,800.0	90.14	180.00	10,722.1	-5,270.9	0.0	5,270.9	0.00	0.00	0.00
15,900.0	90.14	180.00	10,721.9	-5,370.9	0.0	5,370.9	0.00	0.00	0.00
16,000.0	90.14	180.00	10,721.6	-5,470.9	0.0	5,470.9	0.00	0.00	0.00
16,100.0	90.14	180.00	10,721.4	-5,570.9	0.0	5,570.9	0.00	0.00	0.00
16,200.0	90.14	180.00	10,721.1	-5,670.9	0.0	5,670.9	0.00	0.00	0.00
16,300.0	90.14	180.00	10,720.9	-5,770.9	0.0	5,770.9	0.00	0.00	0.00
16,400.0	90.14	180.00	10,720.6	-5,870.9	0.0	5,870.9	0.00	0.00	0.00
16,500.0	90.14	180.00	10,720.4	-5,970.9	0.0	5,970.9	0.00	0.00	0.00
16,600.0	90.14	180.00	10,720.1	-6,070.9	0.0	6,070.9	0.00	0.00	0.00
16,700.0	90.14	180.00	10,719.9	-6,170.9	0.0	6,170.9	0.00	0.00	0.00
16,800.0	90.14	180.00	10,719.6	-6,270.9	0.0	6,270.9	0.00	0.00	0.00
16,900.0	90.14	180.00	10,719.4	-6,370.9	0.0	6,370.9	0.00	0.00	0.00
17,000.0	90.14	180.00	10,719.1	-6,470.9	0.0	6,470.9	0.00	0.00	0.00
17,100.0	90.14	180.00	10,718.9	-6,570.9	0.0	6,570.9	0.00	0.00	0.00
17,200.0	90.14	180.00	10,718.6	-6,670.9	0.0	6,670.9	0.00	0.00	0.00
17,300.0	90.14	180.00	10,718.4	-6,770.9	0.0	6,770.9	0.00	0.00	0.00
17,400.0	90.14	180.00	10,718.1	-6,870.9	0.0	6,870.9	0.00	0.00	0.00
17,500.0	90.14	180.00	10,717.9	-6,970.9	0.0	6,970.9	0.00	0.00	0.00
17,600.0	90.14	180.00	10,717.7	-7,070.9	0.0	7,070.9	0.00	0.00	0.00
17,700.0	90.14	180.00	10,717.4	-7,170.9	0.0	7,170.9	0.00	0.00	0.00
17,800.0	90.14	180.00	10,717.2	-7,270.9	0.0	7,270.9	0.00	0.00	0.00
17,900.0	90.14	180.00	10,716.9	-7,370.9	0.0	7,370.9	0.00	0.00	0.00

Planning Report

Database:	EDM Network	Local Co-ordinate Reference:	Well Bray 5301 43-12H
Company:	Oasis	TVD Reference:	WELL @ 2090.5ft (Original Well Elev)
Project:	McKenzie County, ND	MD Reference:	WELL @ 2090.5ft (Original Well Elev)
Site:	Sec. 12 T153N R101W	North Reference:	True
Well:	Bray 5301 43-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
18,000.0	90.14	180.00	10,716.7	-7,470.9	0.0	7,470.9	0.00	0.00	0.00
18,100.0	90.14	180.00	10,716.4	-7,570.9	0.0	7,570.9	0.00	0.00	0.00
18,200.0	90.14	180.00	10,716.2	-7,670.9	0.0	7,670.9	0.00	0.00	0.00
18,300.0	90.14	180.00	10,715.9	-7,770.9	0.0	7,770.9	0.00	0.00	0.00
18,400.0	90.14	180.00	10,715.7	-7,870.9	0.0	7,870.9	0.00	0.00	0.00
18,500.0	90.14	180.00	10,715.4	-7,970.9	0.0	7,970.9	0.00	0.00	0.00
18,600.0	90.14	180.00	10,715.2	-8,070.9	0.0	8,070.9	0.00	0.00	0.00
18,700.0	90.14	180.00	10,714.9	-8,170.9	0.0	8,170.9	0.00	0.00	0.00
18,800.0	90.14	180.00	10,714.7	-8,270.9	0.0	8,270.9	0.00	0.00	0.00
18,900.0	90.14	180.00	10,714.4	-8,370.9	0.0	8,370.9	0.00	0.00	0.00
19,000.0	90.14	180.00	10,714.2	-8,470.9	0.0	8,470.9	0.00	0.00	0.00
19,100.0	90.14	180.00	10,713.9	-8,570.9	0.0	8,570.9	0.00	0.00	0.00
19,200.0	90.14	180.00	10,713.7	-8,670.9	0.0	8,670.9	0.00	0.00	0.00
19,300.0	90.14	180.00	10,713.5	-8,770.9	0.0	8,770.9	0.00	0.00	0.00
19,400.0	90.14	180.00	10,713.2	-8,870.9	0.0	8,870.9	0.00	0.00	0.00
19,500.0	90.14	180.00	10,713.0	-8,970.9	0.0	8,970.9	0.00	0.00	0.00
19,600.0	90.14	180.00	10,712.7	-9,070.9	0.0	9,070.9	0.00	0.00	0.00
19,700.0	90.14	180.00	10,712.5	-9,170.9	0.0	9,170.9	0.00	0.00	0.00
19,800.0	90.14	180.00	10,712.2	-9,270.9	0.0	9,270.9	0.00	0.00	0.00
19,900.0	90.14	180.00	10,712.0	-9,370.9	0.0	9,370.9	0.00	0.00	0.00
20,000.0	90.14	180.00	10,711.7	-9,470.9	0.0	9,470.9	0.00	0.00	0.00
20,100.0	90.14	180.00	10,711.5	-9,570.9	0.0	9,570.9	0.00	0.00	0.00
20,200.0	90.14	180.00	10,711.2	-9,670.9	0.0	9,670.9	0.00	0.00	0.00
20,300.0	90.14	180.00	10,711.0	-9,770.9	0.0	9,770.9	0.00	0.00	0.00
20,400.0	90.14	180.00	10,710.7	-9,870.9	0.0	9,870.9	0.00	0.00	0.00
20,500.0	90.14	180.00	10,710.5	-9,970.9	0.0	9,970.9	0.00	0.00	0.00
20,600.0	90.14	180.00	10,710.2	-10,070.9	0.0	10,070.9	0.00	0.00	0.00
20,700.0	90.14	180.00	10,710.0	-10,170.9	0.0	10,170.9	0.00	0.00	0.00
20,800.0	90.14	180.00	10,709.8	-10,270.9	0.0	10,270.9	0.00	0.00	0.00
20,900.0	90.14	180.00	10,709.5	-10,370.9	0.0	10,370.9	0.00	0.00	0.00
21,000.0	90.14	180.00	10,709.3	-10,470.9	0.0	10,470.9	0.00	0.00	0.00
21,107.1	90.14	180.00	10,709.0	-10,578.0	0.0	10,578.0	0.00	0.00	0.00
TD at 21107.1									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/S (ft)	+E/W (ft)	Northing (m)	Easting (m)	Latitude	Longitude
Bray 5301 43-12H PBHL - hit/miss target - Shape	0.00	0.00	10,709.0	-10,578.0	0.0	121,845.51	368,084.20	48° 3' 13.546 N	103° 36' 43.253 W
Interp @ 10743.0 (Bray) - plan hits target center - Point	0.00	0.00	10,734.0	-491.9	0.0	124,917.23	368,208.42	48° 4' 53.085 N	103° 36' 43.253 W

Planning Report

Database:	EDM Network	Local Co-ordinate Reference:	Well Bray 5301 43-12H
Company:	Oasis	TVD Reference:	WELL @ 2090.5ft (Original Well Elev)
Project:	McKenzie County, ND	MD Reference:	WELL @ 2090.5ft (Original Well Elev)
Site:	Sec. 12 T153N R101W	North Reference:	True
Well:	Bray 5301 43-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,045.0	2,045.0 9 5/8"		9.625	13.500	
11,030.0	10,734.0 7"		7.000	8.750	

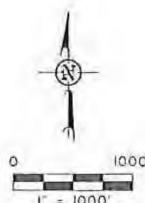
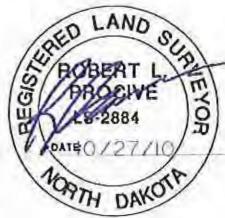
Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,941.0	1,941.0	Pierre			
4,606.0	4,606.0	Greenhorn			
5,002.0	5,002.0	Mowry			
5,433.0	5,433.0	Dakota			
6,350.0	6,350.0	Rierdon			
6,869.0	6,869.0	Dunham Salt			
6,936.0	6,936.0	Dunham Salt Base			
6,941.0	6,941.0	Spearfish			
7,184.0	7,184.0	Pine Salt			
7,310.0	7,310.0	Pine Salt Base			
7,337.0	7,337.0	Opeche Salt			
7,416.0	7,416.0	Opeche Salt Base			
7,598.0	7,598.0	Broom Creek (Top of Minnelusa Gp.)			
7,640.0	7,640.0	Amsden			
7,816.0	7,816.0	Tyler			
8,004.0	8,004.0	Otter (Base of Minnelusa Gp.)			
8,353.0	8,353.0	Kibbey			
8,499.0	8,499.0	Charles Salt			
9,123.0	9,123.0	UB			
9,199.0	9,199.0	Base Last Salt			
9,247.0	9,247.0	Ratcliffe			
9,423.0	9,423.0	Mission Canyon			
9,998.0	9,998.0	Lodgepole			
10,833.5	10,703.0	False Bakken			
10,864.3	10,713.0	Upper Bakken			
10,924.5	10,727.0	Middle Bakken			
11,000.8	10,734.0	Middle Bakken Sand Target			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/S (ft)	+E/-W (ft)		
10,256.6	10,256.6	0.0	0.0	Start Build 12.00	
11,007.8	10,734.0	-478.7	0.0	Start 13.3 hold at 11007.8 MD	
11,021.0	10,734.0	-491.9	0.0	Start DLS 0.00 TFO 180.00	
21,107.1	10,709.0	-10,578.0	0.0	TD at 21107.1	

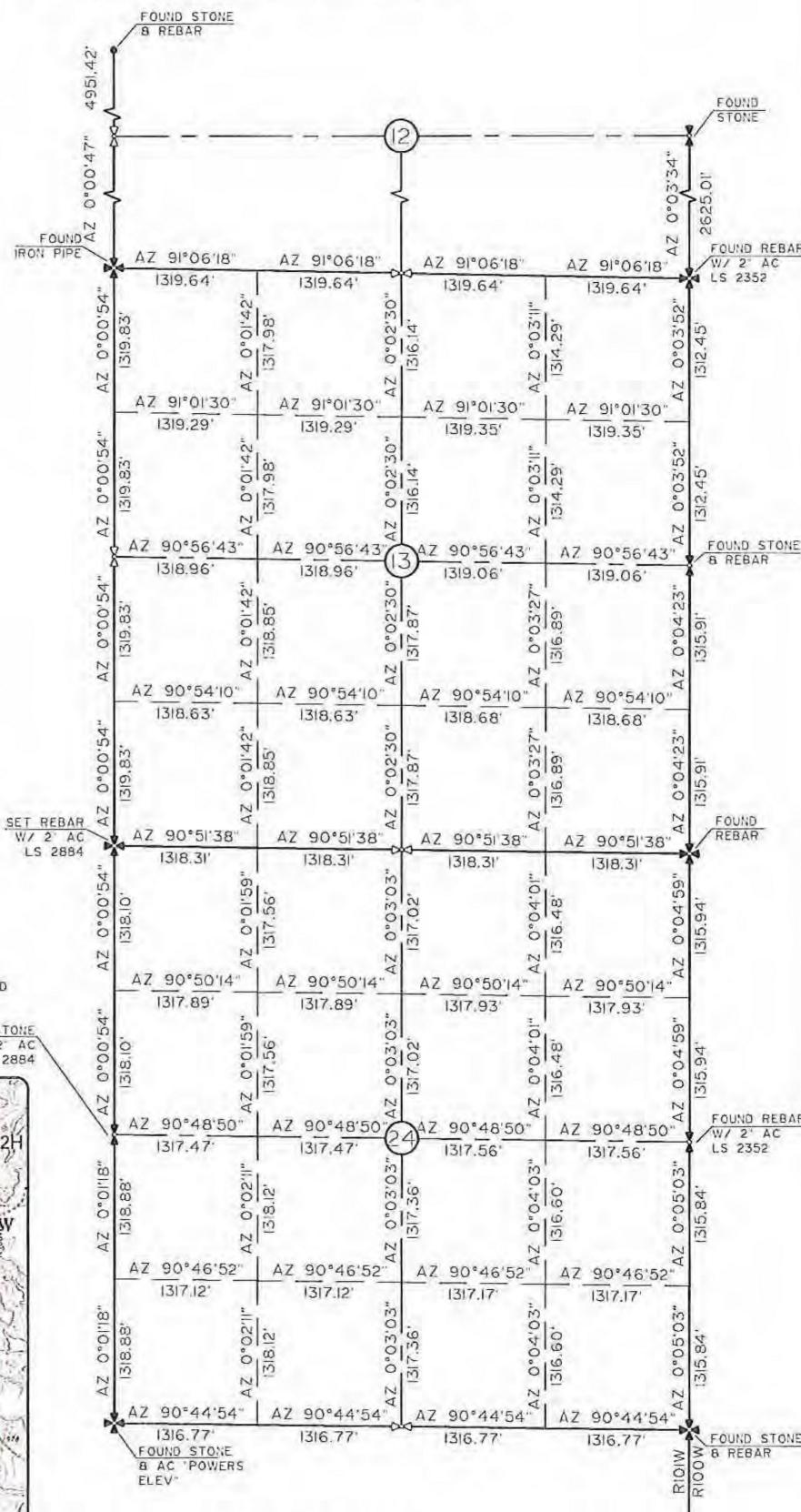
SECTION BREAKDOWN

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"BRAY 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED



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Sister, Montana 59270
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Fax: (406) 433-5518
www.krg.com

OASIS PETROLEUM NORTH AMERICA, LLC
SECTION BREAKDOWN
SECTIONS 12, 13 & 18, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: H.J.G. Checked By: A.J.H. R.L.P.

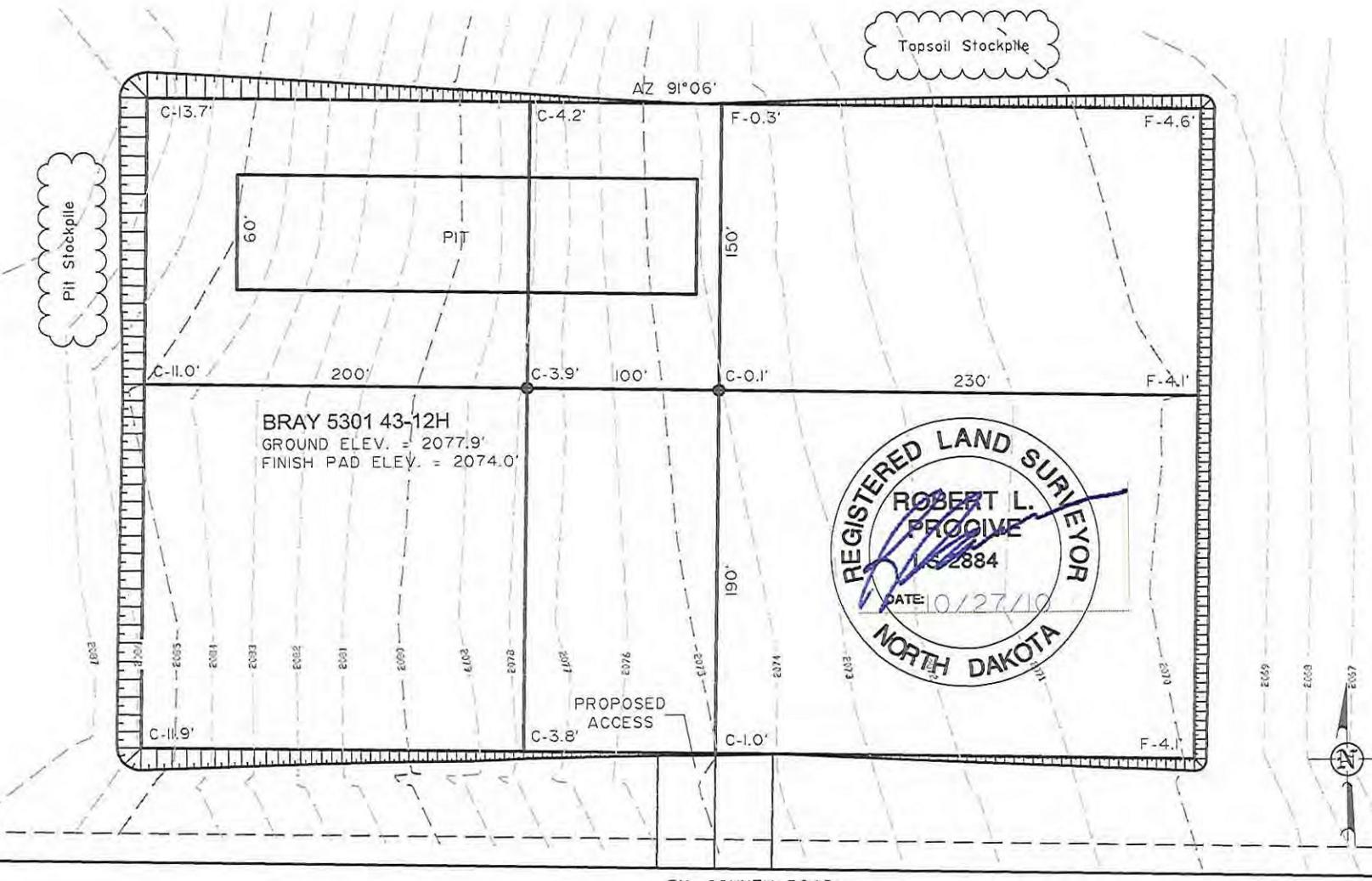
Date: OCT 2010

Point No.	Date	By	Description

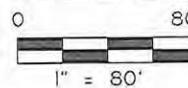
PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002
"BRAY 5301 43-12H"

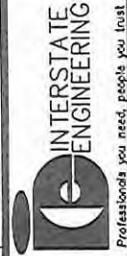
250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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



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Diseases in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC		Project No.: 01-9	Date: 05-25-2017
PAD LAYOUT			
SECTION 12, T153N, R101W			
MCKENZIE COUNTY, NORTH DAKOTA		Project No.: S 01-67	Date: OCT 2019
H.Q.	A.I.H.R.L.P.		
Prepared by: _____ Approved by: _____			

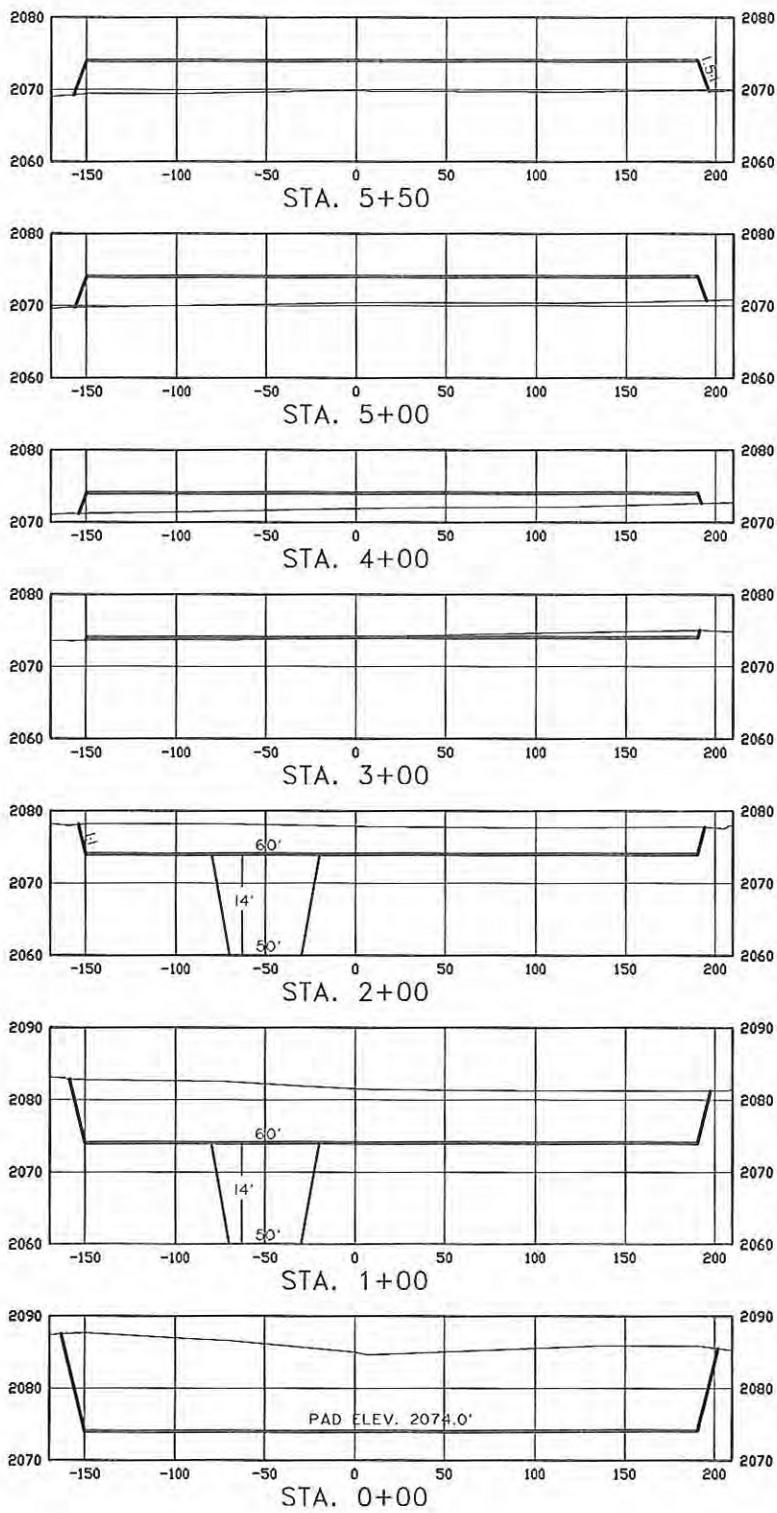
33

CROSS SECTIONS

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"BRAY 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



SCALE

HORIZ 1'=100'
VERT 1'=20'

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Other offices in Montana, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC

PAD CROSS SECTIONS

SECTION 12, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: H.J.G. Project No.: S10-9-167

Checked By: R.L.P. Date: OCT 2010

Rev. Edition No.	Date	By	Description

WELL LOCATION SITE QUANTITIES

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"BRAY 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL SITE ELEVATION	2077.9
WELL PAD ELEVATION	2074.0
EXCAVATION	23,860
PLUS PIT	<u>3,150</u>
	27,010
EMBANKMENT	7,965
PLUS SHRINKAGE (30%)	<u>2,390</u>
	10,355
STOCKPILE PIT	3,150
STOCKPILE TOP SOIL (6")	3,695
STOCKPILE FROM PAD	9,810
DISTURBED AREA FROM PAD	4.58 ACRES

NOTE: ALL QUANTITIES ARE IN CUBIC YARDS (UNLESS NOTED)

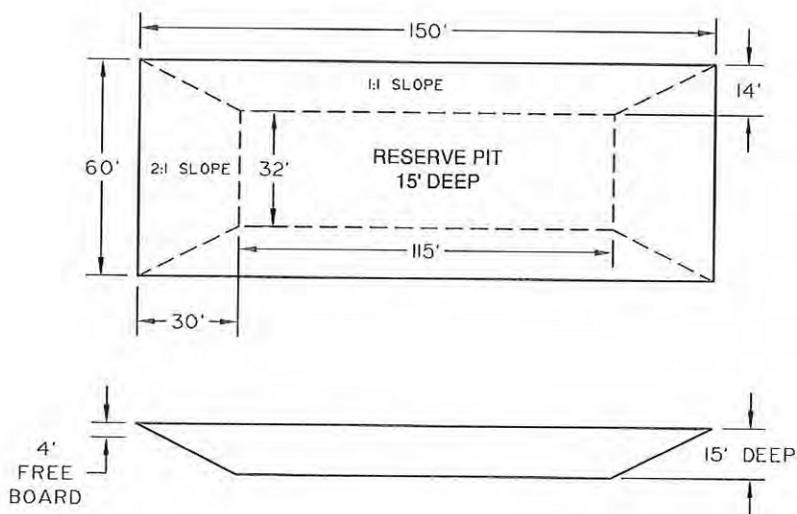
CUT END SLOPES AT 1:1

FILL END SLOPES AT 1.5:1

WELL SITE LOCATION

1927' FEL

250' FSL



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**ANSCHUTZ EXPLORATION
QUANTITIES
SECTION 8, T141N, R96W
DUNN COUNTY, ND**

Revision No.	Date	By	Description

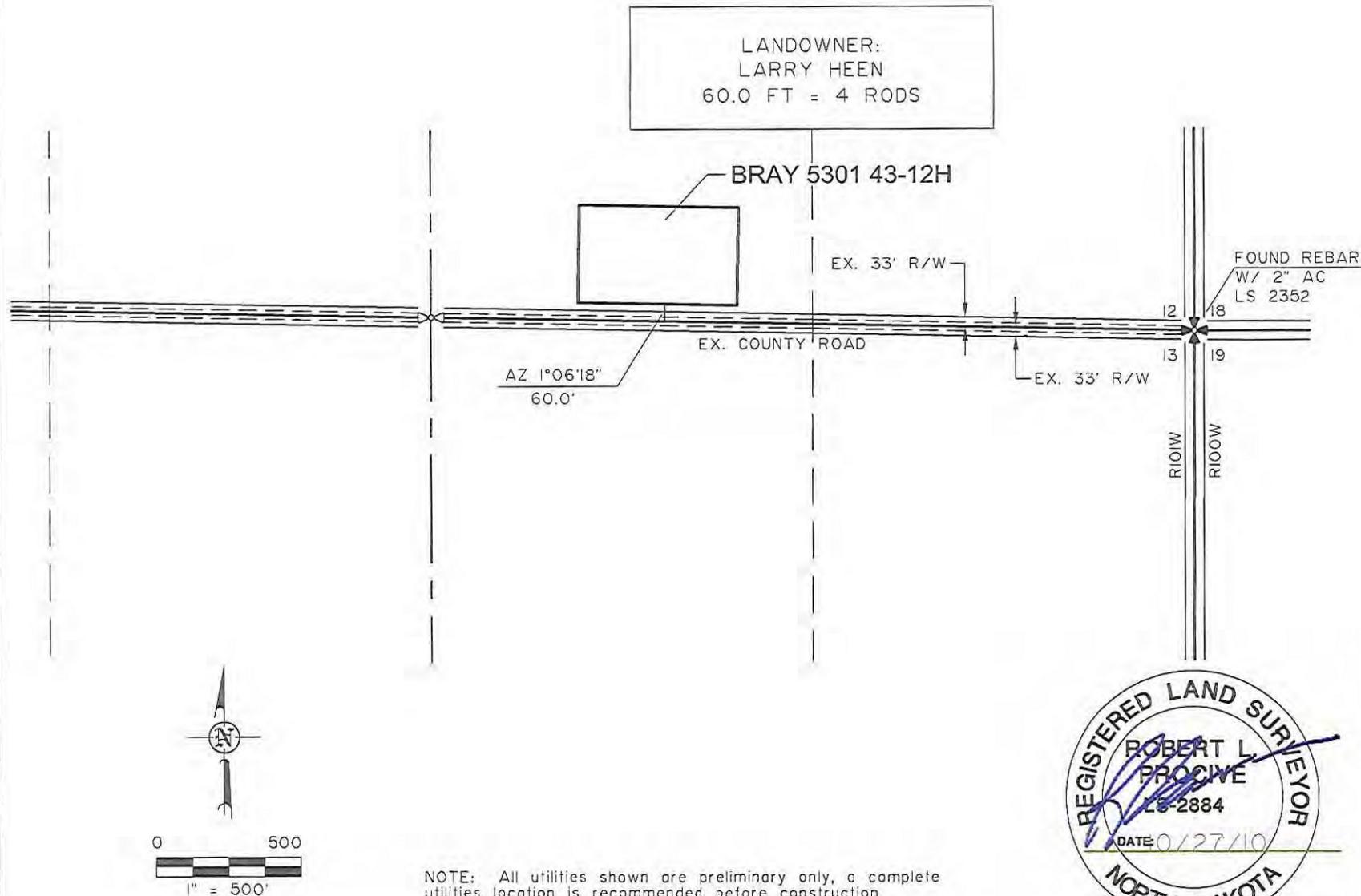
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Checked By: A.S.F. Date: OCT 2010

ACCESS APPROACH

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"BRAY 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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ACCESS APPROACH	Date: OCT 2010
SECTION 12, T153N, R101W	
MCKENZIE COUNTY, NORTH DAKOTA	
Drawn By: H.J.G.	
Checked By: A.J.H.R.P.	

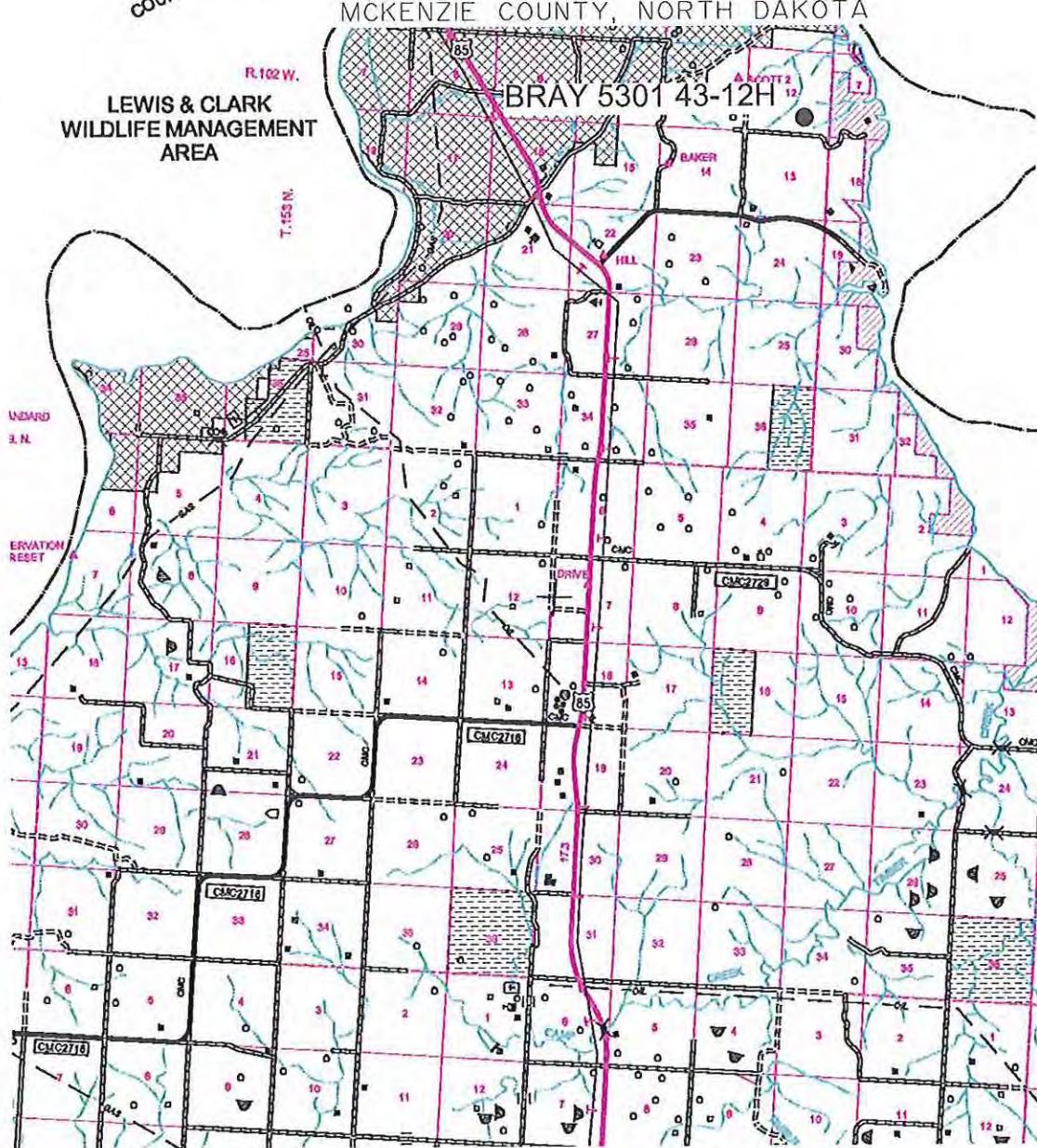
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COUNTY ROAD MAP
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 202 HOUSTON, TX 77002
"BRAY 5301 43-12H"
250 FEET FROM SOUTH LINE AND 1927 FEET FROM EAST LINE
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

OASIS PETROLEUM NORTH AMERICA, LLC
BRAY 530I 43-I2H
250' FSL/1927' FEL
QUAD LOCATION MAP
SECTION I2, T153N, R101W
MONTANA COUNTY, NORTH DAKOTA



SCALE: 1" = 2 MILE

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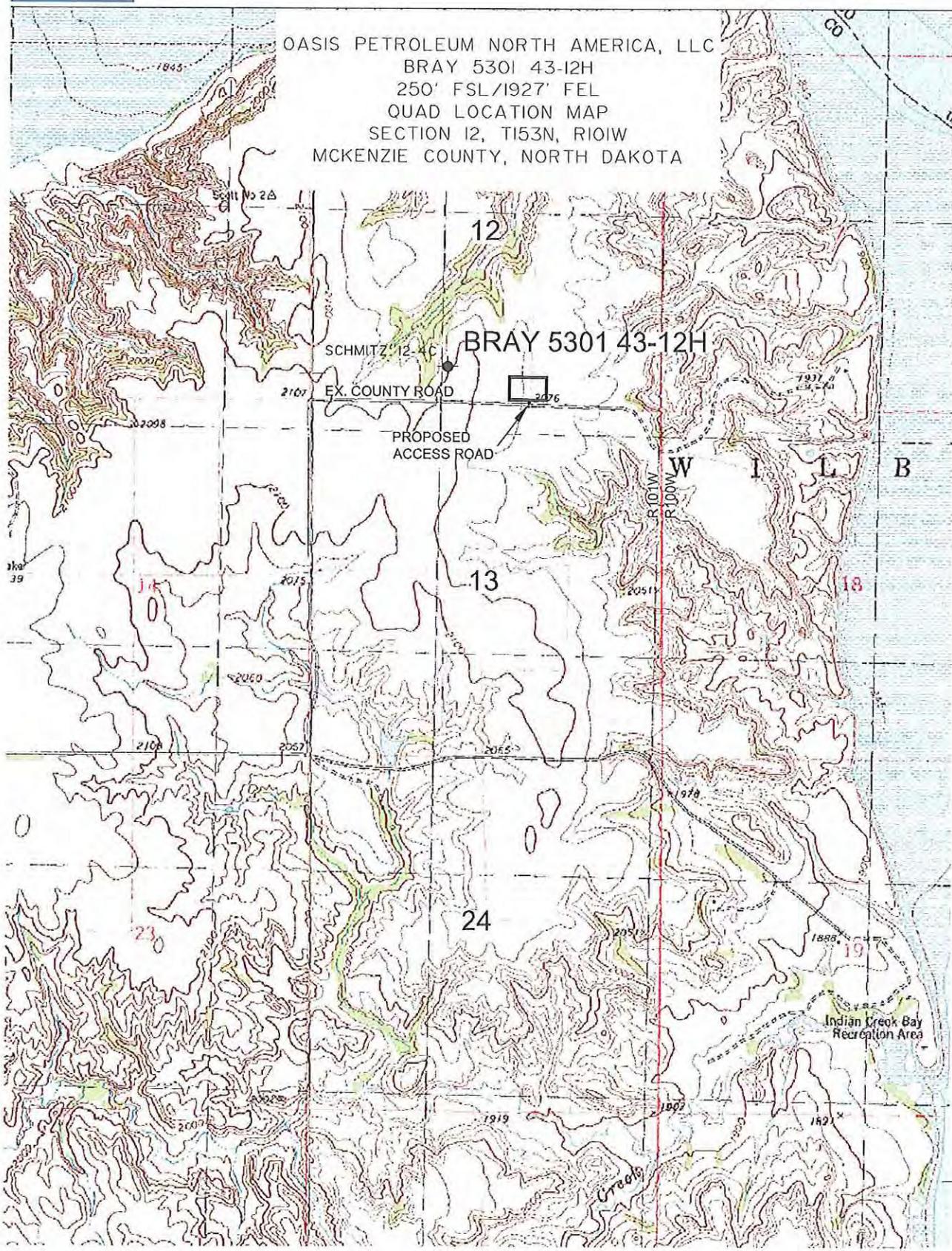
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
COUNTY ROAD MAP
SECTION 12, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Prepared By: H.J.G. Project No.: S10-02-167
Reviewed By: A.I.H/B.P. Date: OCT 2010

checked By: A.J.A/RCP Date: OCT 2010



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OASIS PETROLEUM NORTH AMERICA, LLC
 QUAD LOCATION MAP
 SECTION 12, T153N, R10W
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: H.J.G. Project No.: S10-09-167
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