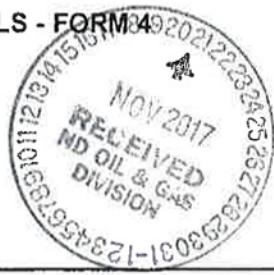




## SUNDRY NOTICES AND REPORTS ON WELLS - FORM 34

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

Well File No.  
**20863**



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 <b>July 29, 2017</b>	<input type="checkbox"/> Redrilling or Repair	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	Acidizing
		<input type="checkbox"/> Plug Well	Fracture Treatment
		<input type="checkbox"/> Supplemental History	Change Production Method
		<input type="checkbox"/> Temporarily Abandon	Reclamation
		<input checked="" type="checkbox"/> Other	<b>Well is now on rod pump</b>

Well Name and Number  
**Foley Federal 43-12H**

Footages	Qtr-Qtr	Section	Township	Range
250 F S L	1827 F E L	SWSE	12	153 N 101 W
Field <b>Baker</b>	Pool <b>Bakken</b>	County <b>McKenzie</b>		

### 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

Effective 07/29/2017, the above referenced well was equipped with a rod pump.

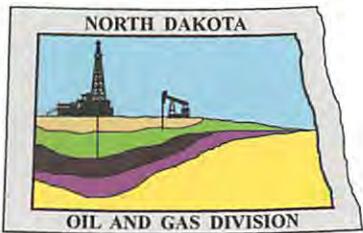
End of Tubing: 2-7/8" L-80 tubing @ 10109'

Pump: 2-1/2" x 2.0" x 24' insert pump @ 10081'

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281 404-9494</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature 	Printed Name <b>Sadie Goodrum</b>	
Title <b>Regulatory Specialist</b>	Date <b>October 23, 2017</b>	
Email Address <b>sgoodrum@oasispetroleum.com</b>		

### FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>11-17-2017</b>	
By 	
Title <b>JARED THUNE</b>	
Engineering Technician	



# Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

## Department of Mineral Resources

Lynn D. Helms - Director

## North Dakota Industrial Commission

[www.dmr.nd.gov/oilgas/](http://www.dmr.nd.gov/oilgas/)

September 21, 2017

OASIS PETRO NORTH AMERICA  
ATTENTION: MICHAEL KUKUK  
1001 FANNIN, STE 1500  
HOUSTON, TX 77002

RE:

FOLEY FEDERAL 5301 43-12H  
SWSE 12-153N-101W  
MCKENZIE COUNTY  
WELL FILE NO.: 20863

DAHL 15-11H  
SWSE 11-153N-101W  
MCKENZIE COUNTY  
WELL FILE NO.: 21266

DAHL FEDERAL 2-15H  
NWNE 15-153N-101W  
MCKENZIE COUNTY  
WELL FILE NO.: 21796

Dear Michael Kukuk:

A Sundry notice (Form 4) is needed for the above wells, detailing the changeover from flowing to well now on rod pump. If you have any questions, feel free to contact our office.

Sincerely,

*Tom Delling*  
Tom Delling  
Petroleum Engineer - Field Inspector

TKD/RSD/RLR

# North Dakota Industrial Commission Follow-up Spill Report

API Number  
33 - 053 - 03608

Well File or Facility No.  
20863

Operator <b>Oasis Petroleum North America, LLC</b>						Telephone Number (701)557-17-37
Address <b>6205 16th Avenue West</b>		City <b>Williston</b>	State <b>ND</b>	Zip Code <b>58801</b>		
Well Name and Number or Facility Name <b>FOLEY FEDERAL 5301 43-12H</b>		Field <b>BAKER</b>				
Location of Well or Facility	Footages <b>250 F S L 1827 F E L</b>	Qtr-QE <b>SE</b>	Section <b>SW SW</b>	Township <b>12</b>	Range <b>153 N</b>	County <b>MCKENZIE</b>

Description of Spill Location if not on Well or Facility Site and/or Distance and Direction from Well or Facility

**Directions to Site**

**South on US 85, left Co Rd4 1.9 mi, left unnamed road 1.7 miles**

Release Discovered By <b>Oasis Employee</b>	Date Release Discovered <b>October 6, 2016</b>	Time Release Discovered <b>9 : 30 AM</b>	Date Release Controlled <b>October 6, 2016</b>	Time Release Controlled <b>9 : 30 AM</b>
Company Personnel Notified <b>Dustin Anderson</b>	How Notified <b>Verbally</b>		Date Notified <b>October 6, 2016</b>	Time Notified <b>9 : 30 AM</b>

Type of Incident <b>Treater Leak</b>	Root Cause of Release <b>Equipment Failure/Malfunction</b>	Date Clean up Activities Concluded <b>October 7, 2016</b>
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Distance to Nearest Residence or Occupied Building <b>1 Miles</b>	Distance to Nearest Fresh Water Well <b>1 Miles</b>
--	--

Piping Specifics (If Applicable)	Size (Decimal Format) "	Type	Location of Piping
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Volume of Release	Oil	Saltwater <b>5.00 Barrels</b>	Other
-------------------	-----	----------------------------------	-------

Volume of Release Recovered	Oil	Saltwater <b>5.00 Barrels</b>	Other
-----------------------------	-----	----------------------------------	-------

Was Release Contained Within Dike <b>Yes</b>	If No, Was Release Contained on Well Site	If No, Was Release Contained on Facility Site or Pipeline ROW
---	---	---

Areal Extent of Release if not Within Dike	Affected Medium <b>Well/Facility Soil</b>	General Land Use <b>Well/Facility Site</b>
--	--	---

Describe Cause of Release or Fire and Other Type of Incidents, Root Causes of Release, Land Uses, and Released Substances

**Release Due to treater leak/failure**

Action Taken to Control Release and Clean Up Action Undertaken

**Shut well down and secure well head, drain treater. All water was contained within the dike around the treater and was recovered on site.**

Potential Environmental Impacts  
**minimal**

Planned Future Action and/or Action Taken to Prevent Reoccurrence

**Replace treater gaskets more frequently**

Where Were Recovered Liquids Disposed <b>Production Tank</b>	Where Were Recovered Solids Disposed <b>Indian Hills Disposal</b>
---	--

Weather Conditions	Wind Speed MPH	Wind Direction	Temperature ° F	Skies	Estimated Cleanup Cost \$	Damage Value \$
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Regulatory Agencies/Others Notified <b>NDIC/NDDH</b>	Person Notified	Date Notified	Time Notified :	Notified By
---	-----------------	---------------	--------------------	-------------

Fee Surface Owner			:	
-------------------	--	--	---	--

Federal Agency Lease Number <b>BLM</b>			:	
---	--	--	---	--

USFS			:	
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Report Originator <b>Dustin Anderson</b>	Title <b>Environmental</b>	Date <b>January 2, 2017</b>
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Signature 	Date <b>1/2/17</b>
--	-----------------------

# North Dakota Industrial Commission Follow-up Spill Report

API Number  
33 - 053 - 03608

Well File or Facility No.  
20863

Operator <b>Oasis Petroleum North America, LLC</b>						Telephone Number <b>701-577-1600</b>
Address <b>6205 16th Avenue W</b>				City <b>Williston</b>	State <b>ND</b>	Zip Code <b>58801</b>

Well Name and Number or Facility Name <b>FOLEY FEDERAL 5301 43-12H</b>				Field <b>BAKER</b>			
---	--	--	--	-----------------------	--	--	--

Location of Well or Facility	Footages F L	F L	Qtr-Qtr	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>MCKENZIE</b>
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Description of Spill Location if not on Well or Facility Site and/or Distance and Direction from Well or Facility

Directions to Site  
**South on HWY85 to CR4, east 2 miles, north 1 mile, east 3/4 mile**

Release Discovered By <b>Oasis Employee</b>	Date Release Discovered <b>January 12, 2016</b>	Time Release Discovered <b>6 : 30 AM</b>	Date Release Controlled <b>January 12, 2016</b>	Time Release Controlled <b>6 : 35 AM</b>
--	--	---	--	---

Company Personnel Notified <b>Todd Hanson</b>	How Notified <b>Phone Call</b>	Date Notified <b>January 12, 2016</b>	Time Notified <b>6 : 45 AM</b>
--	-----------------------------------	--	-----------------------------------

Type of Incident <b>Valve/Piping Connections Leak</b>	Root Cause of Release <b>Human Error</b>	Date Clean up Activities Concluded <b>January 13, 2016</b>
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Distance to Nearest Residence or Occupied Building <b>1 Miles</b>	Distance to Nearest Fresh Water Well <b>1 Miles</b>
--	--

Piping Specifics (If Applicable)	Size (Decimal Format) "	Type	Location of Piping
-------------------------------------	----------------------------	------	--------------------

Volume of Release	Oil	Saltwater <b>1.00 Barrels</b>	Other
-------------------	-----	----------------------------------	-------

Volume of Release Recovered	Oil	Saltwater <b>1.00 Barrels</b>	Other
-----------------------------	-----	----------------------------------	-------

Was Release Contained Within Dike <b>Yes</b>	If No, Was Release Contained on Well Site	If No, Was Release Contained on Facility Site or Pipeline ROW
---	---	---

Areal Extent of Release if not Within Dike	Affected Medium <b>Well/Facility Soil</b>	General Land Use <b>Well/Facility Site</b>
--	--	---

Describe Cause of Release or Fire and Other Type of Incidents, Root Causes of Release, Land Uses, and Released Substances

**Release was caused by a hammer union connection that was not completely secured. The release remained on the location.**

Action Taken to Control Release and Clean Up Action Undertaken

Vaccum trucks were used to suck up the water and place the water back into production waste tanks.

Potential Environmental Impacts

Low environmental impacts, all released water was recovered from the location. Minimal impacts may have affected soil on location.

Planned Future Action and/or Action Taken to Prevent Reoccurrence

Be sure to check all hammer unions and connecting hoses before operations.

Where Were Recovered Liquids Disposed <b>Production tanks</b>	Where Were Recovered Solids Disposed
--	--------------------------------------

Weather Conditions	Wind Speed MPH	Wind Direction	Temperature °F	Skies	Estimated Cleanup Cost \$	Damage Value \$
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Regulatory Agencies/Others Notified <b>NDIC/NDDH</b>	Person Notified	Date Notified	Time Notified :	Notified By
---	-----------------	---------------	--------------------	-------------

<b>Fee Surface Owner</b>			:	
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Federal Agency	Lease Number		:	
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<b>BLM</b>			:	
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<b>USFS</b>			:	
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Report Originator <b>Michelle Haynes</b>	Title <b>Environmental Technician</b>	Date <b>March 7, 2016</b>
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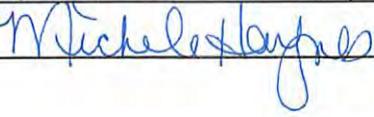
Signature <i>Michelle Haynes</i>	Date <b>March 7, 2016</b>
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# North Dakota Industrial Commission Follow-up Spill Report

API Number  
33 - 053 - 03608

Well File or Facility No.  
20863

Operator <b>Oasis Petroleum North America, LLC</b>		MAR 2016 <b>RECEIVED</b> ND OIL & GAS DIVISION				Telephone Number (701)557-17-37			
Address <b>6205 16th Avenue West</b>				City <b>Williston</b>		State <b>ND</b>		Zip Code <b>58801</b>	
Well Name and Number or Facility Name <b>Foley Federal 5301 43-12H</b>				Field <b>Baker</b>					
Location of Well or Facility	Footages	F      L	F      L	Qtr-Qtr <b>SWSE</b>	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>Mckenzie</b>	
Description of Spill Location if not on Well or Facility Site and/or Distance and Direction from Well or Facility									
Directions to Site <b>Us-85 S 6.7mi. Turn left onto Co Rd 4 1.9mi. Turn feft 1.9mi. Slight right .7mi location is on the left.</b>									
Release Discovered By <b>Oasis employee</b>		Date Release Discovered <b>August 21, 2014</b>		Time Release Discovered <b>5 : 00 AM</b>		Date Release Controlled <b>August 21, 2014</b>		Time Release Controlled <b>5 : 10 AM</b>	
Company Personnel Notified <b>Todd Hanson</b>		How Notified <b>Verbal</b>				Date Notified <b>August 21, 2014</b>		Time Notified <b>5 : 25 AM</b>	
Type of Incident <b>Treater Leak</b>		Root Cause of Release <b>Equipment Failure/Malfunction</b>				Date Clean up Activities Concluded <b>September 2, 2014</b>			
Distance to Nearest Residence or Occupied Building <b>1 Miles</b>			Distance to Nearest Fresh Water Well <b>1 Miles</b>						
Piping Specifics (If Applicable)	Size (Decimal Format) "	Type					Location of Piping		
Volume of Release	Oil <b>30.00 Barrels</b>	Saltwater					Other		
Volume of Release Recovered	Oil <b>30.00 Barrels</b>	Saltwater					Other		
Was Release Contained Within Dike <b>Yes</b>		If No, Was Release Contained on Well Site		If No, Was Release Contained on Facility Site or Pipeline ROW					
Areal Extent of Release if not Within Dike			Affected Medium			General Land Use <b>Well/Facility Site</b>			
Describe Cause of Release or Fire and Other Type of Incidents, Root Causes of Release, Land Uses, and Released Substances <b>Treater Leak</b>									
Action Taken to Control Release and Clean Up Action Undertaken <b>Removed impacted soil and disposed.</b>									
Potential Environmental Impacts <b>No</b>									
Planned Future Action and/or Action Taken to Prevent Reoccurrence <b>Inspect pressure valves and pop off valve to insure they work.</b>									
Where Were Recovered Liquids Disposed					Where Were Recovered Solids Disposed <b>IDH</b>				
Weather Conditions	Wind Speed MPH	Wind Direction	Temperature ° F	Skies	Estimated Cleanup Cost \$		Damage Value \$		
Regulatory Agencies/Others Notified <b>NDIC/NDHH</b>		Person Notified		Date Notified	Time Notified :	Notified By			
<b>Fee Surface Owner</b>					:				
Federal Agency Lease Number					:				
<b>BLM</b>					:				
<b>USFS</b>					:				
Report Originator <b>Michelle Haynes</b>			Title <b>Environmental Technician</b>			Date <b>March 4, 2016</b>			
Signature 						Date <b>March 4, 2016</b>			

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

Date/Time Reported : Jan 12 2016 / 08:23

State Agency person :

Responsible Party : OASIS PETROLEUM NORTH AMERICA LLC

Well Operator : OASIS PETROLEUM NORTH AMERICA LLC

Date/Time of Incident : 1/12/2016 12:00:00 AM

NDIC File Number : 20863

Facility Number :

Well or Facility Name : FOLEY FEDERAL 5301 43-12H

Type of Incident : Valve/Piping Connection Leak

Field Name : BAKER

County : MCKENZIE

Section : 12

Township : 153

Range : 101

Quarter-Quarter :

Quarter :

Distance to nearest residence : 1 Mile

Distance to nearest water well : 1 Mile

Release Oil :

Release Brine : 1 Barrels

Release Other :

Recovered Oil :

Recovered Brine : 1 Barrels

Recovered Other :

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

Was release contained : Yes - on Facility Site

Description of other released substance :

Immediate risk evaluation : none

Followup Report Requested Y/N : N

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

Date/Time Reported : Aug 22 2014 / 08:56

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 : 20863

Facility Number :

Well or Facility Name : FOLEY FEDERAL 5301 43-12H

Type of Incident : Treater 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 : 30 Barrels

Release Brine :

Release Other :

Recovered Oil : 30 Barrels

Recovered Brine :

Recovered Other :

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

Was release contained : Yes - Within Dike

Description of other released substance :

Immediate risk evaluation : none

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.

20863



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

 Notice of Intent

Approximate Start Date  
**October 26, 2012**

 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**Install Lact Meter**

## Well Name and Number

**Foley Federal 5301 43-12H**

Footages <b>250 F S L</b>	<b>1827 F E L</b>	Qtr-Qtr <b>SWSE</b>	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>
Field <b>Wildcat</b>	Pool <b>Bakken</b>	County <b>McKenzie</b>			

## 24-HOUR PRODUCTION RATE

Before	After
Oil	Bbls
Water	Bbls
Gas	MCF

## Name of Contractor(s)

Address	City	State	Zip Code
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## DETAILS OF WORK

Oasis Petroleum intends to install a Smith Model C2-S3 LACT Meter on the subject well. The meter will be tied into the Banner Pipeline. Estimated startup December 6th.

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9491</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature 	Printed Name <b>Brandi Terry</b>	
Title <b>Regulatory Specialist</b>	Date <b>November 26, 2012</b>	
Email Address <b>bterry@oasispetroleum.com</b>		

## FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>1-29-13</b>	
By 	
Title <b>Regulatory Specialist</b>	



**WELL COMPLETION OR RECOMPLETION REPORT - FORM 6**

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



Well File No.  
**20863**

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

**Designate Type of Completion**

Oil Well       EOR Well       Recompletion       Deepened Well       Added Horizontal Leg       Extended Horizontal Leg  
 Gas Well       SWD Well       Water Supply Well       Other:

Well Name and Number <b>Foley Federal 5301 43-12H</b>			Spacing Unit Description <b>Sec. 12 T153N R101W</b>
Operator <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9500</b>		Field <b>Baker</b>
Address <b>1001 Fannin, Suite 1500</b>			Pool <b>Bakken</b>
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>	Permit Type <input type="checkbox"/> Wildcat <input checked="" type="checkbox"/> Development <input type="checkbox"/> Extension

### **LOCATION OF WELL**

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

## PERFORATION & OPEN HOLE INTERVALS

## PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft) <b>Lateral 1 - 10994'-20440'</b>								Name of Zone (If Different from Pool Name)	
Date Well Completed (SEE INSTRUCTIONS) 11/15/2011				Producing Method <b>Pumping</b>		Pumping-Size & Type of Pump <b>2.5"x2"x24' RHBM</b>			Well Status (Producing or Shut-In) <b>Producing</b>
Date of Test <b>12/8/2011</b>	Hours Tested <b>24</b>	Choke Size <b>28 /64</b>	Production for Test		Oil (Bbls) <b>1167</b>	Gas (MCF) <b>1216</b>	Water (Bbls) <b>982</b>	Oil Gravity-API (Corr.) <b>39.2 °</b>	Disposition of Gas <b>Sold</b>
Flowing Tubing Pressure (PSI) <b>1400</b>		Flowing Casing Pressure (PSI)		Calculated 24-Hour Rate	Oil (Bbls) <b>1167</b>	Gas (MCF) <b>1216</b>	Water (Bbls) <b>982</b>	Gas-Oil Ratio <b>1042</b>	

## GEOLOGICAL MARKERS

## PLUG BACK INFORMATION

## CORES CUT

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

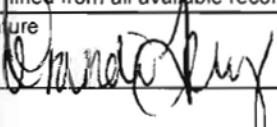
## Drill Stem Test

**Well Specific Stimulations**

Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units		
11/6/2011	Bakken		10162	20440	Cased Hole	74475	Barrels		
Type Treatment									
Sand Frac									
Details									
40/70 white- 1825104 20/40 white- 2694188									
Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units		
Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)		Maximum Treatment Rate (BBLS/Min)				
Details									
Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units		
Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)		Maximum Treatment Rate (BBLS/Min)				
Details									
Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units		
Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)		Maximum Treatment Rate (BBLS/Min)				
Details									
Date Stimulated	Stimulated Formation		Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units		
Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)		Maximum Treatment Rate (BBLS/Min)				
Details									

**ADDITIONAL INFORMATION AND/OR LIST OF ATTACHMENTS**

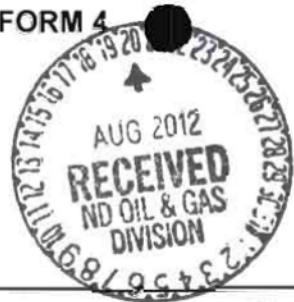
This is a revised completion report with the date well completed corrected.

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 8/24/2012
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)



Well File No.  
**20863**

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 <b>August 15, 2012</b>
<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"/> Redrilling or Repair <input type="checkbox"/> Casing or Liner <input type="checkbox"/> Plug Well <input type="checkbox"/> Supplemental History <input type="checkbox"/> Temporarily Abandon <input type="checkbox"/> Other <b>Reserve pit reclamation</b>	
<input type="checkbox"/> Spill Report <input type="checkbox"/> Shooting <input type="checkbox"/> Acidizing <input type="checkbox"/> Fracture Treatment <input type="checkbox"/> Change Production Method <input checked="" type="checkbox"/> Reclamation	

Well Name and Number  
**Foley Federal 5301 43-12H**

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

## 24-HOUR PRODUCTION RATE

	Before	After
Oil	Bbls	Oil
Water	Bbls	Water
Gas	MCF	Gas

Name of Contractor(s)  
**Excel Industries, Inc**

Address <b>P.O. Box 159</b>	City <b>Miles City</b>	State <b>MT</b>	Zip Code <b>59301</b>
--------------------------------	---------------------------	--------------------	--------------------------

## DETAILS OF WORK

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

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

## FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>8-27-12</b>	
By <b>Brandi Terry</b>	
Title <b>Regulatory Specialist</b>	



## **WELL COMPLETION OR RECOMPLETION REPORT - FORM 6**

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

**Well File No.**  
**20863**

**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	Other:				
Well Name and Number <b>Foley Federal 5301 43-12H</b>				Spacing Unit Description <b>Sec. 12 T153N R101W <i>and sec.</i></b>			
Operator <b>Oasis Petroleum North America LLC</b>		Telephone Number <b>281-404-9500</b>		Field <b>Baker</b>			
Address <b>1001 Fannin, Suite 1500</b>				Pool <b>Bakken</b>			
City <b>Houston</b>		State <b>TX</b>	Zip Code <b>77002</b>	Permit Type <input type="checkbox"/> Wildcat <input checked="" type="checkbox"/> Development <input type="checkbox"/> Extension			

## **LOCATION OF WELL**

At Surface	250 F S L	1827 F E L	Qtr-Qtr SWSE	Section 12	Township 153 N	Range 101 W	County McKenzie
Spud Date 7/27/2011	Date TD Reached 10/6/2011	Drilling Contractor and Rig Number Xtreme 17	KB Elevation (Ft) 2202	Graded Elevation (Ft) 2074			

**Type of Electric and Other Logs Run (See Instructions)**

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

#### **PERFORATION & OPEN HOLE INTERVALS**

## **PRODUCTION**

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft) <b>Lateral 1 - 10994'-20440'</b>					Name of Zone (If Different from Pool Name)			
Date Well Completed (SEE INSTRUCTIONS) 11/11/2011		Producing Method <b>Pumping</b>	Pumping-Size & Type of Pump <b>2.5"x2"x24' RHBM</b>			Well Status (Producing or Shut-In) <b>Producing</b>		
Date of Test <b>12/8/2011</b>	Hours Tested <b>24</b>	Choke Size <b>28 /64</b>	Production for Test	Oil (Bbls) <b>1167</b>	Gas (MCF) <b>1216</b>	Water (Bbls) <b>982</b>	Oil Gravity-API (Corr.) <b>39.2 °</b>	Disposition of Gas <b>Sold</b>
Flowing Tubing Pressure (PSI) <b>1400</b>		Flowing Casing Pressure (PSI)		Calculated 24-Hour Rate	Oil (Bbls) <b>1167</b>	Gas (MCF) <b>1216</b>	Water (Bbls) <b>982</b>	Gas-Oil Ratio <b>1042</b>

## **GEOLOGICAL MARKERS**

#### **PLUG BACK INFORMATION**

## **CORES CUT**

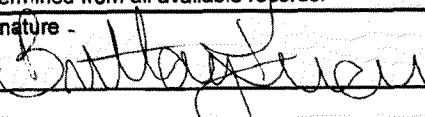
Top (Ft)	Bottom (Ft)	Formation	Top (Ft)	Bottom (Ft)	Formation

## Drill Stem Test

**Well Specific Stimulation**

Date Stimulated 11/6/2011	Stimulated Formation Bakken		Top (Ft) 10162	Bottom (Ft) 20440	Stimulation Stages 36	Volume 74475	Volume Units Barrels
Type Treatment Sand Frac	Acid %	Lbs Proppant 4519292	Maximum Treatment Pressure (PSI) 8877		Maximum Treatment Rate (BBLS/Min) 43.6		
Details 40/70 white- 1825104 20/40 white- 2694188							
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 bkunnemann@oasispetroleum.com	Date 12/15/2011
Signature - 	Printed Name Brittany Kunnemann	Title Operations Assistant



# SUNDY 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.  
**20863**



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

Notice of Intent

Approximate Start Date

Report of Work Done

Date Work Completed

**January 17, 2012**

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

**Change of status - well now on artificial lift**

## Well Name and Number

**Foley Federal 5301 43-12H**

Footages	Qtr-Qtr	Section	Township	Range
250 F S L	1827 F E L	SWSE	12	153 N 101 W
Field <b>Baker</b>	Pool <b>Bakken</b>		County <b>McKenzie</b>	

## 24-HOUR PRODUCTION RATE

Before	After
Oil	Bbls
Water	Bbls
Gas	MCF

Name of Contractor(s)

Address	City	State	Zip Code
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## DETAILS OF WORK

**Effective 1-17-2012, the above referenced well is on pump:**

**Tubing: 2-7/8" L-80 tubing assembly @ 10,141'**

**Pump: 2-1/2" x 2" x 24' pump @ 10,093'**

*Please submit Completion Report - Form 6. pm*

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281 404-9491</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature <i>Brandi Terry</i>	Printed Name <b>Brandi Terry</b>	
Title <b>Regulatory Specialist</b>	Date <b>February 28, 2012</b>	
Email Address <b>bterry@oasispetroleum.com</b>		

## FOR STATE USE ONLY

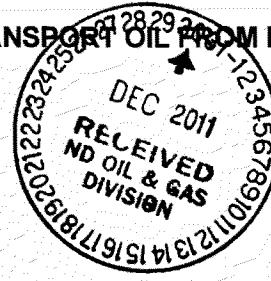
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <i>March 14, 2012</i>	
By <i>Brandi Terry</i>	
Title <b>PETROLEUM ENGINEER</b>	



## AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

7H

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.  
**20863**  
NDIC CTB No.  
**120863**

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

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

Name of First Purchaser <b>OASIS PETROLEUM MARKETING LLC</b>	Telephone Number <b>(281) 404-9435</b>	% Purchased <b>100</b>	Date Effective <b>January 1, 2012</b>
Principal Place of Business <b>1001 FANNIN, STE 1500</b>	City <b>HOUSTON</b>	State <b>TX</b>	Zip Code <b>77002</b>
Field Address	City	State	Zip Code
Name of Transporter <b>GRIZZLY MOUNTAIN TRUCKING</b>	Telephone Number <b>(406) 377-6831</b>	% Transported <b>75</b>	Date Effective <b>January 1, 2012</b>
Address <b>54 HWY 16</b>	City <b>GLENDIVE</b>	State <b>MT</b>	Zip Code <b>59330</b>

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 <b>CONCORD ENERGY TRANSPORT</b>	% Transported <b>25</b>	Date Effective <b>January 1, 2012</b>
Other Transporters Transporting From This Lease	% Transported	Date Effective
Comments <b>REVISED 1ST PURCHASER EFFECTIVE 1/1/2012</b>		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.		Date <b>December 21, 2011</b>
Signature 	Printed Name <b>DINA BARRON</b>	Title <b>MARKETING CONTRACTS ADMINISTRATOR</b>
Above Signature Witnessed By		
Witness Signature 	Witness Printed Name <b>GARY BURLESON</b>	Witness Title <b>MARKETING DIRECTOR</b>

FOR STATE USE ONLY

Date Approved <b>JAN - 4 2012</b>
By 
Title <b>Oil &amp; Gas Production Analyst</b>

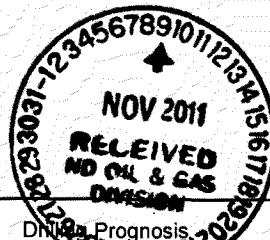
**ORIGINAL**



# 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.  
**20863**



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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date <b>November 8, 2011</b>	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<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"/> Acidizing
		<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Reclamation
<input checked="" type="checkbox"/> Other		<b>Change well status to CONFIDENTIAL</b>

Well Name and Number <b>Foley Federal 5301 43-12H</b>				
Footages <b>250 F S L</b>	Qtr-Qtr <b>1827 F E L</b>	Section <b>SWSE</b>	Township <b>12</b>	Range <b>153 N 101 W</b>
Field <b>Wildcat</b>	Pool <b>Bakken</b>	County <b>McKenzie</b>		

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

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

Industrial Commission of North Dakota  
Oil and Gas Division

Well or Facility No  
**20863**

Verbal Approval To Purchase and Transport Oil

Tight Hole Yes

**OPERATOR**

Operator  
**OASIS PETROLEUM NORTH AMERICA LL**

Representative  
**Kelly Johnson**

Rep Phone

**WELL INFORMATION**

Well Name  
**FOLEY FEDERAL 5301 43-12H**

Well Location QQ Sec Twp Rng  
**SWSE 12 153 N 101 W**

Footages 250 Feet From the S Line  
1827 Feet From the E Line

Inspector  
**Marc Binns**

County  
**MCKENZIE**

Field  
**WILDCAT**  
Pool  
**BAKKEN**

Date of First Production Through Permanent Wellhead **11/14/2011** This Is The First Sales

**PURCHASER / TRANSPORTER**

Purchaser  
**HIGH SIERRA CRUDE OIL MARKETING, L**

Transporter  
**GRIZZLY MOUNTAIN TRUCKING LLC**

**TANK BATTERY**

Single Well Tank Battery Number :

**SALES INFORMATION** This Is The First Sales

ESTIMATED BARRELS TO BE SOLD

ACTUAL BARRELS SOLD

DATE

**5000**

BBLS

**DETAILS**

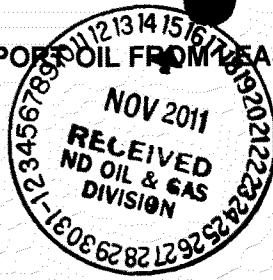
Will call back with first oil sales and rates.

Start Date **11/15/2011**  
Date Approved **11/15/2011**  
Approved By **John Axtman**



**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.  
**20863**  
NDIC CTB No.

**PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.**

**PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES**

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

Name of First Purchaser <b>High Sierra Crude Oil &amp; Marketing, LLC</b>	Telephone Number <b>(303) 319-3259</b>	% Purchased <b>75</b>	Date Effective <b>November 14, 2011</b>
Principal Place of Business <b>3773 CHERRY CREEK NORTH, STE 1000</b>	City <b>DENVER</b>	State <b>CO</b>	Zip Code <b>80209</b>
Field Address	City	State	Zip Code
Name of Transporter <b>GRIZZLY MOUNTAIN TRUCKING</b>	Telephone Number <b>(406) 377-6831</b>	% Transported <b>75</b>	Date Effective <b>November 14, 2011</b>
Address <b>54 HWY 16</b>	City <b>GLENDIVE</b>	State <b>MT</b>	Zip Code <b>59330</b>

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 <b>CONCORD ENERGY LLC</b>	% Purchased <b>25</b>	Date Effective <b>November 14, 2011</b>
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease <b>CONCORD ENERGY TRANSPORT</b>	% Transported <b>25</b>	Date Effective <b>November 14, 2011</b>
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
Signature	Printed Name <b>DINA BARRON</b>	Title <b>MARKETING CONTRACTS ADMINISTRATOR</b>

Above Signature Witnessed By

Witness Signature 	Witness Printed Name <b>GARY BURLESON</b>	Witness Title <b>MARKETING DIRECTOR</b>
--	--	--

*[Handwritten signature]*

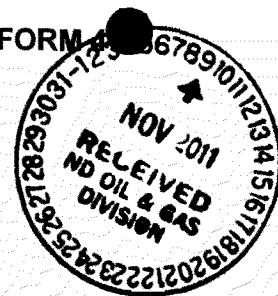
FOR STATE USE ONLY	
Date Approved	NOV 17 2011
By	
Title	Oil & Gas Production Analyst



# SUNDRY NOTICES AND REPORTS ON WELLS - FORM 43-02-03-21

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.  
**20863**



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

**Foley Federal 5301 43-12H**

Footages	Qtr-Qtr	Section	Township	Range
<b>250 F S L 1827 F E L</b>	<b>SWSE</b>	<b>12</b>	<b>153 N</b>	<b>101 W</b>
Field <b>Wildcat</b>	Pool <b>Bakken</b>	County <b>McKenzie</b>		

## 24-HOUR PRODUCTION RATE

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

## Name of Contractor(s)

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

## DETAILS OF WORK

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

## FOR STATE USE ONLY

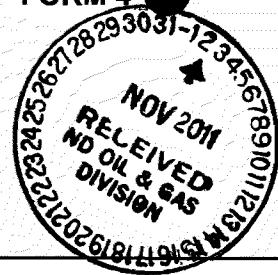
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>November 9, 2011</b>	
By 	
Title <b>PETROLEUM ENGINEER</b>	



# SUNDY 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.  
**20863**



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

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

Well Name and Number

**Foley Federal 5301 43-12H**

Footages	Qtr-Qtr	Section	Township	Range
250 F S L	1827 F E L	SWSE	12	153 N 101 W
Field <b>Wildcat</b>	Pool <b>Bakken</b>	County <b>McKenzie</b>		

## 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 <b>P.Box 159</b>	City <b>Miles City</b>	State <b>MT</b>	Zip Code <b>59301</b>
-----------------------------	---------------------------	--------------------	--------------------------

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

## FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>11-2-11</i>	
By <i>Brandi Terry</i>	
Title <i>Regulatory Specialist</i>	

20843



## Oasis Petroleum North America, LLC

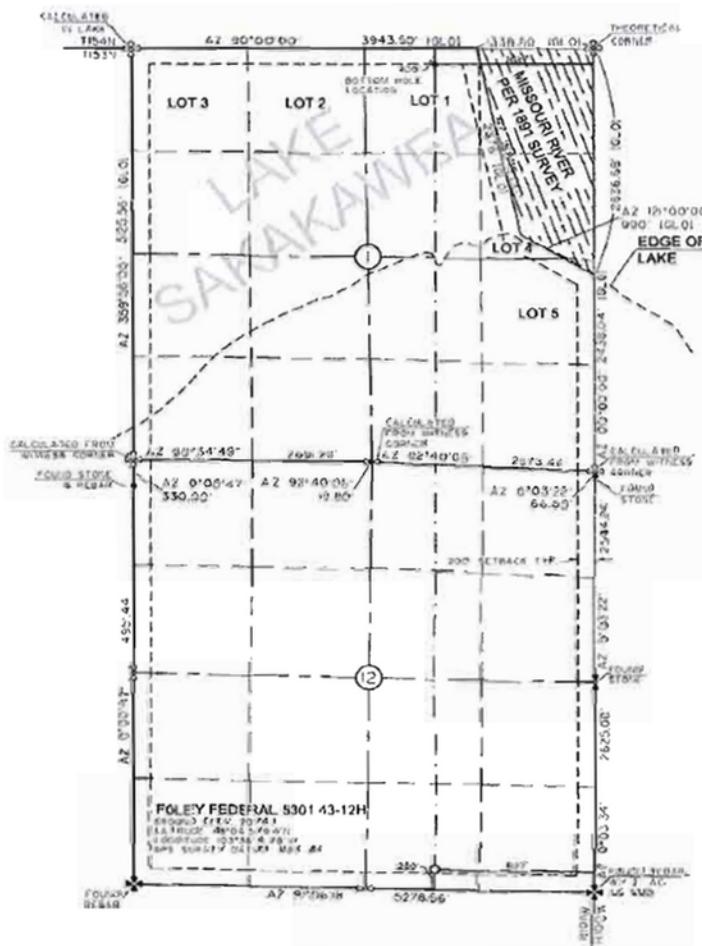
**Foley Federal 5301 43-12H**

**250' FSL & 1,827' FEL**

**SW SE Section 12, T153N-R101W**

## **Wildcat / Bakken**

## **McKenzie County, North Dakota**



**BOTTOM HOLE LOCATION:**

9,918.59' North & 42.61' West of surface location or approx.  
275.37' FNL & 1869.61' FEL, Lot 1 Section 1, T153N-R101W

Prepared for:

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Oasis Petroleum North America, LLC  
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Houston, TX 77002

Prepared by:

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**Oasis Petroleum North America LLC, Inc**  
**Foley Federal 5301 43-12H**

**Well Evaluation**



**Figure 1.** Xtreme Rig 17 drilling the Oasis Petroleum North America LLC, Inc Foley Federal 5301 43-12H in McKenzie County, North Dakota during September 2011. (Kyle Kavalec, Sunburst well-site geologist)

***INTRODUCTION***

**Oasis Petroleum North America LLC, Inc. Foley Federal 42-12H** [SW SE Section 12, T153N, R101W] is located approximately 10 miles south of Williston in McKenzie County, North Dakota. The Foley Federal 5301 43-12H is a horizontal Middle Bakken well within the Williston Basin consisting of one ~9,425' long lateral drilled towards the north (360°). The vertical hole was drilled to a depth of 10,257' measured depth (MD). Plans called for a 12°/100' built rate in the curve to ensure landing within the Middle Bakken silty sandstone. To isolate the targeted reservoir and meet legal requirements, intermediate casing was set after drilling to 11,015' MD (Figure 2). After intermediate casing had been set, directional drilling and geo-steering techniques were employed to maintain maximum exposure to the target reservoir.

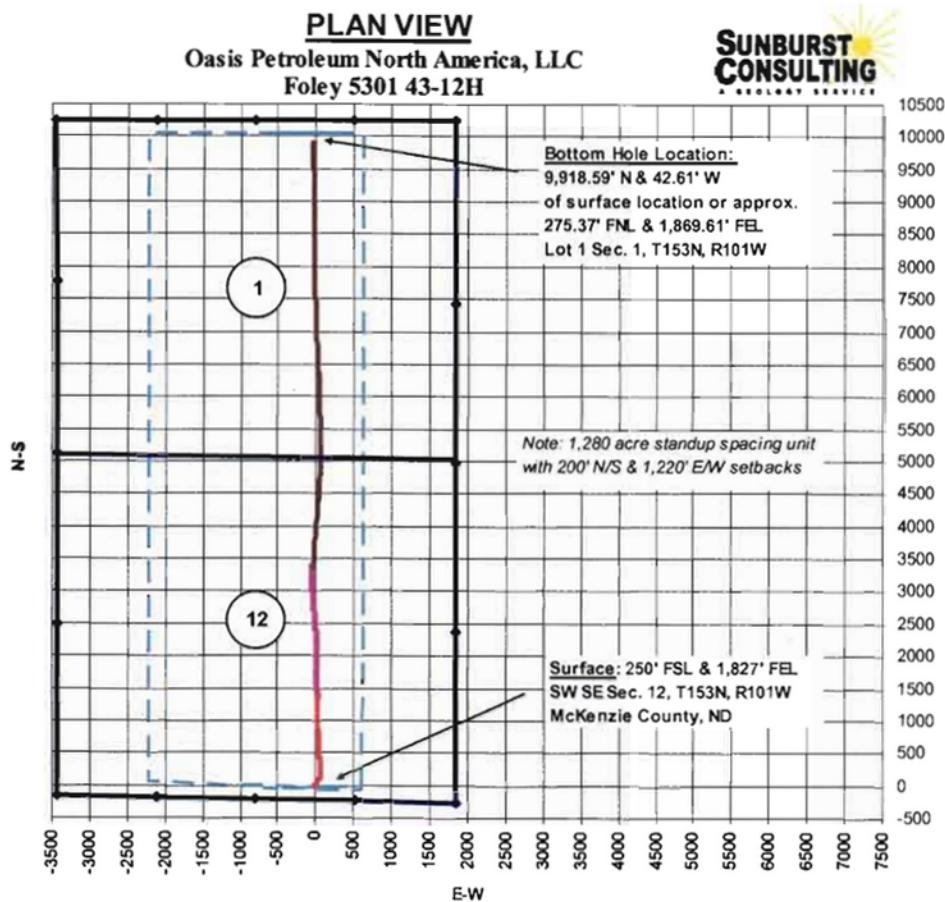
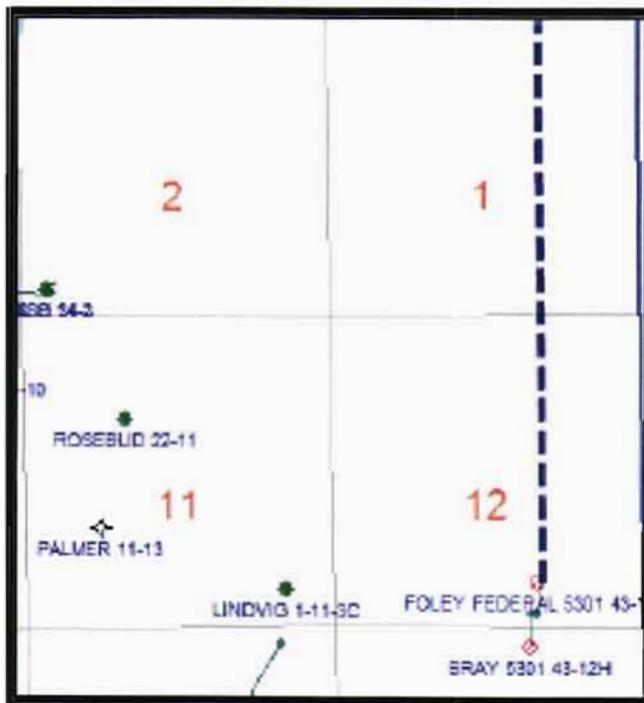


Figure 2. Plan view of Foley Federal 5301 43-12H spacing unit and well path in McKenzie County, ND.

### OFFSET WELLS

Similar offset wells were used as primary controls while drilling the *Foley Federal 5301 43-12H*. They were the *Oasis Petroleum North America, LLC. Bray 5301 43-12H* [SW SE Sec. 12, T153N, R101W], located 100' west of the subject well; *SM Energy Company Lindvig 1-11HR* [SE SE Sec. 11, T153N, R101W], located 0.8 miles west of the subject well; and the *SM Energy Company Rosebud 22-11* [SE NW Sec. 11, T153N, R101W], located 1.45 miles northwest of the subject well (Figure 3). The above wells were selected based on their proximity to the subject well. Data including rate of penetration (ROP), and lagged samples were used to determine marker and formation tops during the vertical hole. MWD gamma ray data was utilized during the curve build and lateral sections. During both the vertical and curve-build sections, tops were compared to primary offset wells to ensure successful landing within the target zone. The true vertical depth (TVD) of the landing target was calculated by assuming comparable formation thicknesses to the closest offset wells, the *Bray 5301 43-12H* and *Lindvig 1-11HR*. Target was adjusted as necessary until landing (Table 1).



**Figure 3.** Map of subject well and correlating offset wells in McKenzie County, North Dakota. (Source Oasis Petroleum well files).

### Formation Tops and Thicknesses

Operator: Well Name: Location:  Elevation:	Subject Well: Oasis Petroleum North America, LLC Foley Federal 5301 43-12H 250 FSL & 1.827' FEL SW SE Section 12, T153N, R101W										Offset Wells:			
	GL: 2,074'	sub: 16.5'	KB: 2,051'	Prog. Top	Prog. Datum (MSL)	Est. Top (ROP)	E-Log Top	MWD GR Top	Datum (MSL)	Interval Thickness	Thickness to Target	Dip To Prognosis	Dip To Bray 5301 43-12H	Dip To Lindvig 1-11HR
Kibbey Lime	8,363'	-8,282'	8,356'	-	-	-	-	-8,235'	134'	2,376	-2'	-1'	-7'	-43'
Charles	8,499'	-8,408'	8,490'	-	-	-	-	-8,359	708'	2,242'	5'	4'	1'	-31'
UB	9,123'	-7,032'	9,120'	-	-	-	-	-7,029	110	1,812'	3'	-8	0	-41
Base Lias Salt	9,199'	-7,103'	9,198'	-	-	-	-	-7,107	32'	1,532'	1'	0'	-2'	-45'
Ratcliffe	9,247'	-7,156'	9,230'	-	-	-	-	-7,139'	185'	1,502'	17'	0	-2	-45'
Mission Canyon	9,423'	-7,332'	9,418'	-	-	-	-	-7,327'	557	1,314'	5'	-2	0	-34'
Lodgepole	9,598'	-7,507'	9,975'	-	-	-	-	-7,854'	131'	757	23	3'	3	-44'
Lodgepole A	-5,005'	10,108'	-	-	-	-	-	-8,015'	68	626	-10'	0'	0	-44'
Lodgepole B	-8,091'	10,162'	-	-	-	-	-	-10,162'	54'	570'	20'	0	0	-26'
Lodgepole C	-8,137'	10,216'	-	-	-	-	-	-10,216'	180	516'	12'	0'	-8'	-41'
Lodgepole D	-8,324'	10,396'	-	-	-	-	-	-10,396'	140'	336	19'	-1'	-1'	-43'
Lodgepole E	-8,457'	10,538'	-	-	-	-	-	-10,536'	156'	196	12	-2	-4	-49
Lodgepole F	-8,573'	10,650'	-	-	-	-	-	-10,650'	53	82	14'	-3'	-5'	-53'
False Bakken	10,703'	-8,612'	10,692'	-	-	-	-	-10,692'	11	40'	11'	0	-6'	-57'
Upper Bakken Shale	10,713'	-8,622'	10,703'	-	-	-	-	-10,703'	16	29'	10	0	-5'	-56'
Middle Bakken	10,727'	-8,638'	10,719'	-	-	-	-	-10,719'	13	13	8'	0	-7'	-58'
Middle Bakken (Target)	10,734'	-8,643'	10,732'	-	-	-	-	-10,732'	24'	0'	2'	0	-8'	-58'
Lower Bakken Shale	10,756'	-8,685'	10,750'	-	-	-	-	-10,756'	#REF!	10,732	0	0	-8	-58'

**Table 1.** Chart showing formation thicknesses, dip to offsets and estimated thickness to target. (Kyle Kavalec, Sunburst well-site geologist)

## **ENGINEERING**

### **Vertical Operations**



The *Oasis Petroleum North America LLC, Inc. Foley Federal 5301 43-12H* was spud on August 27, 2011 and surface casing was pre-set at 2,085' MD. On September 13, 2011 an 8  $\frac{3}{4}$ " Smith PDC MDSI616 bit (bit #2) was used in front of a 1.5° fixed mud motor to re-enter the vertical hole with 5" drill pipe. This assembly drilled 8,157' to kick-off point (KOP) at 10,257' MD in 97 hours using diesel invert drilling fluid with a density of 9.5-9.9 pounds per gallon (ppg). KOP was reached at 13:30 hours CDT September 15, 2011.

### **Curve Build**



Curve building started September 16, 2011 at 10,257' MD. Diesel invert drilling fluid fluctuated in density between 10.3 and 10.5 ppg. The curve was drilled with a Security PDC FXD55M bit, (bit #3), in front of a 2.5° fixed mud motor. Drilling progressed efficiently with this assembly until total depth (TD) of the curve was reached at 11,015' MD at 0900 CDT on September 17, 2011. The bottom hole assembly (BHA) included a Professional Directional MWD tool that recorded survey and gamma ray data. The wellbore successfully penetrated the Middle Bakken silty sandstone target at 10,976' MD (10,732' TVD, -8,641' MSL). 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 208 joints of 29# HCP-110 and 66 joints of 32# HCP-110. Cementing operations were 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 9.2-9.5+ ppg throughout the lateral. Bit #4, a 6" Security PDC FX64 was run in front of a 1.5° fixed motor. Drilling progressed efficiently until 12,417' MD when the wellbore encountered the Upper Bakken Shale after a violent bounce upward where two downward slides did not remediate the ascension of the bit. The decision was made to open-hole sidetrack starting at 12,041' MD. The first attempt at sidetracking was successful; however the MWD tool failed necessitating a trip. The mud motor was replaced with another 1.5° fixed motor in front of a 6" Security PDC FX64, (bit #5). Drilling progressed until the inclination took another bounce up and another Upper Bakken Shale strike occurred at 14,603' MD. The decision was made for another open-hole sidetrack starting at 13,940' MD. The first attempt at sidetracking failed due to the ledge having collapsed. The second attempt at sidetracking was successful. Drilling progressed efficiently with this assembly until a MWD tool failure necessitating a trip. The mud motor was replaced with another 1.5° fixed

motor in front of a 6" Security PDC FX64, (bit #6). This assembly progressed until another MWD tool failure necessitating a trip. The mud motor was replaced with another 1.5° fixed motor in front of a 6" Security PDC MDI613, (bit#7). This assembly progressed efficiently until TD was reached at 04:30 CDT on October 6, 2011 at a depth of 20,440' MD (10,786.16' TVD) with an inclination of 92.0°, closure angle of 359.75° and closure distance of 9,918.69'. The bottom hole location (BHL) is estimated to be 9,918.59' north and 42.61' west of the surface location or approximately 275.37' FNL and 1,869.61' FEL, Lot 1 Sec. 1, T153N, R101W.

## **GEOLOGY**

### **Methods**

Two well-site geologists contracted by Sunburst Consulting Inc. conducted the geologic analysis for *Foley Federal 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 10,820'; 10' intervals from 10,820' to 11,020'; 30' intervals from 11,020' to 20,440' TD. 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 14,600' MD. One set of dry cuttings were collected and sent to the North Dakota Geological Survey Core Library.

### **Lithology**

Geologic evaluation began at 8,240' in orange to orange brown siltstone with trace amount of white to off white sandstone in the Mississippian Kibbey Formation (Big Snowy Group).

The Kibbey "Lime" Marker was logged at 8,536' TVD (-6,265 MSL, 1' low to the Bray 5301 43-12H offset). The top of the Kibbey "Lime" was determined based off a decrease in rate of penetration (ROP), due to a 14' 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 interbedded white to off white calcareous shale and orange brown to brown calcareous siltstone.

Unconformably below the Kibbey is the Mississippian Charles Formation (Madison Group). Samples from this interval were primarily salt which was translucent to a milky white color and typically consisted 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. The Charles Salt was logged here at 8,490' TVD (-6,399' MSL, 4' high to Bray

5301 43-12H offset). Intermittent salt beds were present until the Base Last Salt Marker (Charles Formation), logged at 9,198' TVD (-7,107' MSL, 0' to the Bray 5301 43-12H and 2' low to the Lindvig 1-11HR offsets). Within the salts, the UB Marker was penetrated at 9,120' TVD (-7,029' MSL 6' low to the Bray 5301 43-12H and 0' to the Lindvig 1-11HR offsets). The Ratcliffe interval is a lower member of the Charles Formation found below the Base Last Salt. The Ratcliffe was logged at 9,230' TVD (-7,139' MSL 0' to the Bray 5301 43-12H offset).

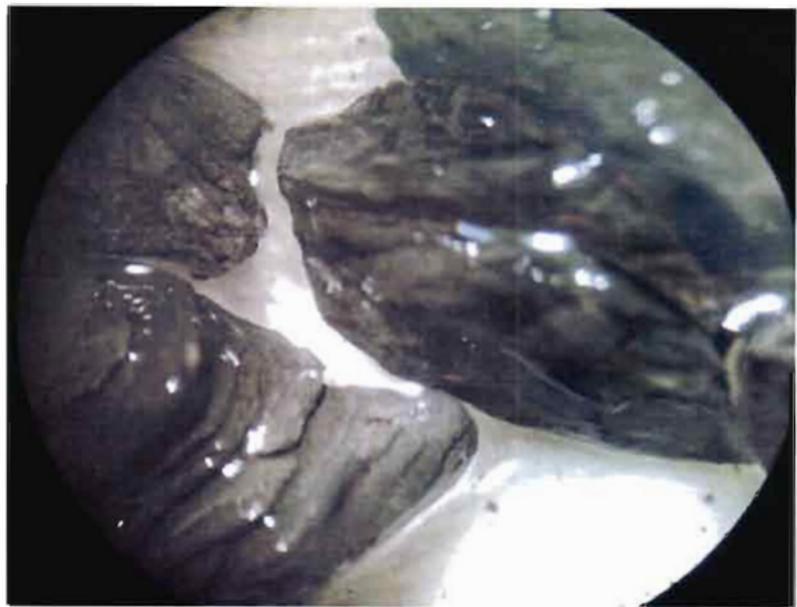
The Mission Canyon Formation (Mississippian Madison Group) was penetrated at 9,418' TVD (-7,327 MSL, 2' low to the Bray 5301 43-12H and 0' to the Lindvig 1-11HR offsets). This formation consists predominately of limestone with poor intercrystalline porosity and an earthy texture. The lime mudstone is typically; medium to dark gray, microcrystalline, firm and contained sections that are partially argillaceous. Trace quantities of anhydrite were also observed, that were white to off white, soft and amorphous.

The Lodgepole Formation (Mississippian Madison Group) was encountered at 9,975' TVD (-7,884' MSL, 3' high to the Bray 5301 43-12H and 3' high to the Lindvig 1-11HR offsets). The Lodgepole contain some limestone near the top of the formation, but is dominated primarily by an argillaceous lime mudstone with common traces of pyrite. The limestone samples observed were tan, light gray to cream, microcrystalline, earthy texture, and friable to firm with no visible porosity is typically described as a light to medium gray to gray-brown dense fossiliferous argillaceous limestone with some chert present.

The “False Bakken” Marker (Mississippian Lodgepole Formation) was logged at 10,815' MD, 10,692' TVD (-8,601' MSL, 0' to the Bray 5301 43-12H and 6' low to the Lindvig 1-11HR offsets) Typically, The False Bakken facies consisted of very dark gray carbonaceous shale that is soft to friable with an earthy texture. There is usually common disseminated pyrite and no visible porosity.

The Mississippian-Devonian Bakken Formation is comprised of two beds of black carbonaceous petroliferous shale bounding a silty sandstone Middle Member with some intergranular porosity. The Upper Shale Member was logged at 10,832' MD, 10,703' TVD (-8,612' MSL, 0' to the Bray 5301 43-12H and 9' low to the Lindvig 1-11HR offsets). Sample returns were black, carbonaceous and petroliferous shale with common disseminated pyrite and characterized by gamma ray values in excess of ~300 API counts.

The Middle Bakken Member was logged at 10,876' MD, 10,719' TVD (-8,628' MSL, 0' to the Bray 5301 43-12H and 7' low to the Lindvig 1-11HR offsets). This member is typically comprised of three distinct lithologies. The first facies encountered was a siltstone characterized by a high gamma signature. This lithology is located directly below the Upper Shale Member. A typical description of this zone is a well to moderately sorted dark gray to gray siltstone with possible intergranular porosity.

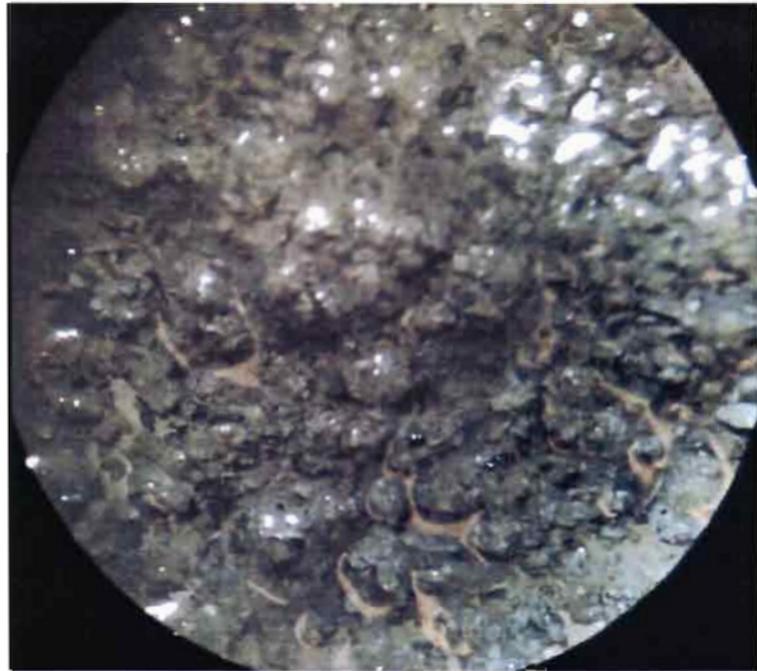


**Figure 4.** Middle Bakken siltstone. Sample depth 10,930' MD viewed under 20x magnification. (Kyle Kavalec, Sunburst well-site geologist)

The second distinct lithology of the Middle Bakken Member was a fossiliferous limestone (packstone) with a characteristically low gamma signature ~20 API units. It has a variable thickness throughout the Williston Basin and lies directly below the siltstone; however this facies was absent in the Foley Federal 5301 43-12H.

The third lithology of the Middle Bakken Member is silty sandstone usually located below the packstone. The lithologic description is a light gray to off white to cream with trace medium gray silty sandstone that is very fine grained to fine grained. This silty sandstone is moderately sorted with dolomite and calcite cements. In zone a *spotty to even oil stain* was present.

The top of this zone exhibited a higher gamma signature than the bottom portion. At the top 1'-2' of zone gamma signatures ranged from 100's to 120's. The middle 1'-2' of the zone exhibited a lower gamma count ~60 API units. The lower portion of zone displayed counts in the 90's to 100's with very little character. The oil staining observed in sample displayed similar concentrations throughout the target zone. Within the zone oil stain was described as common to trace light brown spotty to even.



**Figure 5.** Middle Bakken silty sandstone exhibiting trace oil staining and visible intergranular porosity. Sample depth 11,420' MD viewed under 20x magnification. (Kyle Kavalec, Sunburst well-site geologist)



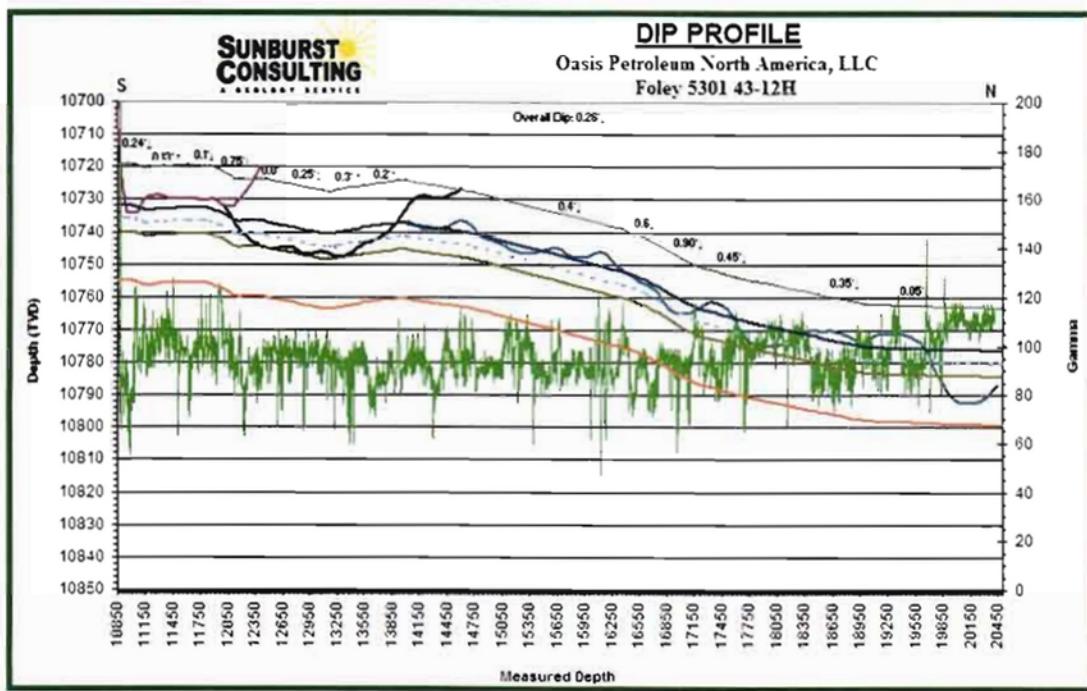
**Figure 6.** Chromatography of Foley Federal 5301 43-12H gas show at 17,252' MD. (Kyle Kavalec, Sunburst well-site geologist)

### Hydrocarbon Shows

Background gas concentrations observed in the Middle Bakken lateral ranged from approximately 400 units at the beginning of lateral with a 9.9 ppg mud weight and ~5,000 units towards the end of the lateral with an 10.5 ppg mud weight. Increased background gas concentrations were most likely due to greater exposure of the wellbore to the target porosity zone in addition to a lighter mud weight. The highest peak values were observed towards the second half of the lateral while drilling in the upper portion of the target zone. The highest peak value observed was 4,477 units at 17,252' MD with a mud weight of 10.5 ppg. Connection gases within the target zone averaged ~500-2,000 units in the beginning of the lateral and increased to ~3,000-4,000 units towards the end. The highest connection gas observed throughout the lateral was 1,539 units at 16,988' MD. Gas was circulated through the gas buster throughout the second half of the lateral following a 3,000 unit gas peak during the middle of the lateral. The Middle Bakken trip gas was the highest trip gas value of 6,421 units observed throughout the well. *Light brown spotty oil stain* was observed throughout the target zone lithology. Oil stained samples were immersed in Entron. The samples exhibited predominantly moderate diffuse pale yellow to green fluorescence. As the samples became contaminated with lateral lubricant they were not longer evaluated for hydrocarbon cut due to fact that the lubricant fluid is hydrocarbon based which would cause false fluorescence in the sample and thus give an inaccurate picture of the amount of hydrocarbons present within the cuttings. *Greenish brown oil* was observed coming over the shakers the entire lateral. Throughout the lateral sidetrack a 4-8' intermittent flare was observed.

### Geo-steering

Professional Directional provided well site supervision. Professional Directional was utilized for directional drilling services and for MWD services. Oasis' office in Houston, directional drillers and Sunburst geologists worked closely throughout the well to make steering decisions to maximize the amount of borehole exposure to the pay zone. The Middle Bakken Member of the *Foley Federal 5301 43-12H* is estimated at ~36' thick. The initial target interval chosen for this well was located 7' below the upper shale at 10,732' TVD. After two Upper Bakken Shale strikes from wild bounces near the top of the zone and the tendency of the mud motor to build heavily in rotation our target interval dropped to 13' below the Upper Bakken Shale. This was for preventing anymore "hard streaks" from bouncing the wellbore up and out of the zone. The original target zone was chosen based on density porosity logs from other wells. Stratigraphic location within the target zone was based on gamma ray values, sample observations, gas shows, and drill rates. Gamma signatures at the very top of target zone ranged in value from ~100-120 API units. The middle of the target gamma signatures were consistently in the 60's. Upon descent into the lower portion of the target, gamma values observed averaged ~90 API units with very little character. The lowest gamma lithology was encountered when crossing the center target zone at roughly 12,226' MD in the lateral. The presence of repeatable gamma markers provided excellent mechanisms for steering. A dip calculation along the length of the well bore indicated an overall 0.26° down formation apparent dip.



**Figure 7.** Cross-sectional interpretation of the *Foley Federal 5301 43-12H* borehole based on lithology and MWD gamma ray. The overall formation dip of  $0.26^\circ$  down resulted in a structural position at TD that was ~35' lower in TVD than initial contact with the target zone (Kyle Kavalec, Sunburst well-site geologist)

## SUMMARY

- 1) The **Oasis Petroleum North America LLC, Inc. Foley Federal 5301 43-12H** is a continuation of exploratory efforts in McKenzie County, North Dakota targeting the Middle Bakken porosity within the Miss.-Devonian Bakken Formation
- 2) The well was spud on July 27, 2011 and re-entered September 13, 2011. The vertical hole was drilled to a kick-off point of 10,257' on September 15, 2011. Intermediate casing was set at 10,995' MD in preparation for lateral operations. Lateral drilling operations concluded on October 6, 2011.
- 3) The lateral was drilled with four 6" PDC bits.
- 4) A diesel invert mud program was used through the vertical and curve. Salt water drilling fluid was used for the remainder of drilling operations. The weight of both fluids was (~9.5-10.6 ppg) to maintain hydrostatic balance.
- 5) Samples from the Middle Bakken porosity consisted of silty sandstone and very fine grained to fine grained sandstone with dolomite and calcite cement in part.

- 6) Hydrocarbon shows in the Middle Bakken were very common. Samples containing oil stain fluoresced when immersed in Entron producing moderate to diffuse becoming streaming green to yellow fluorescence. Gas shows reached a peak value of ~4,477 units at 17,252' MD.
- 7) Geo-steering was accomplished via sample evaluation and gamma markers. Dip estimations were based on intersections with repeat markers by the well bore. Dip projections were utilized to maintain contact between the well bore and the target porosity zones.
- 8) The **Foley Federal 5301 43-12H** awaits completion operations to determine its ultimate production potential.

Respectfully submitted,

Kyle Kavalec  
c/o Sunburst Consulting, Inc.  
8 October 2011

## WELL DATA SUMMARY

OPERATOR: Oasis Petroleum North America, LLC

ADDRESS: 1001 Fannin, Suite 1500  
Houston, TX 77002

WELL NAME: Foley Federal 5301 43-12H

API #: 33-053-03608

WELL FILE #: 20863

SURFACE LOCATION: 250' FSL & 1,827' 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: 2,074'  
KB: 2,091'

RE-ENTRY DATE: September 8, 2011

BOTTOM HOLE LOCATION: 9,918.59' North & 42.61' West of surface location or approx.  
275.37' FNL & 1869.61' FEL, Lot 1 Section 1, T153N-R101W

CLOSURE COORDINATES: Closure Direction Azimuth: 359.75°  
Closure Distance: 9,918.68'

TOTAL DEPTH / DATE: 20,440' at 0430 Hrs CDT on 6 October 2011  
82% within target interval

TOTAL DRILLING DAYS: 28 days

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

CONTRACTOR: Xtreme #17

PUMPS: Gardner 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: 514 bbls, Salt Water: 0 bbls

PROSPECT GEOLOGIST: Andy Nelson and John Gillespie

WELLSITE GEOLOGISTS: Kyle Kavalec, Nathan Gabelman

GEOSTEERING SYSTEM: Sunburst Digital Wellsite Geological System

ROCK SAMPLING: 30' from 8,240'-10,820'; 11,020' - 20,440' (TD)  
10' from 10,820'-11,020'

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 2,085'  
Intermediate: 7" 208 JTS 29# HCP-110, 66 JTS 32# HCP-110  
set to 10,995'

**KEY OFFSET WELLS:**

Oasis Petroleum North America, LLC  
**Bray 5301 43-12H**  
SW SE Sec. 12, T153N, R101W  
McKenzie County, ND

**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

**DISTRIBUTION:**

Golden Eye Resources, LLC  
5460 South Quebec Street, Suite 335  
Greenwood Village, CO 80111  
303-832-1994 (phone)

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  
ccenter@huntoil.com

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1001 Fannin St. #1500  
Houston, Texas 77002

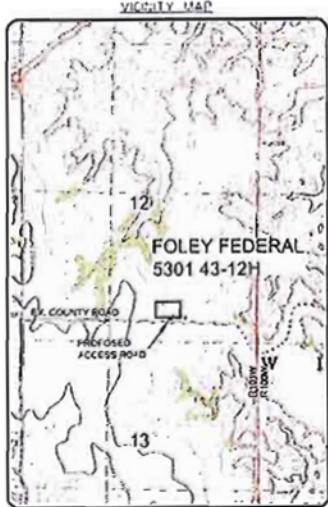
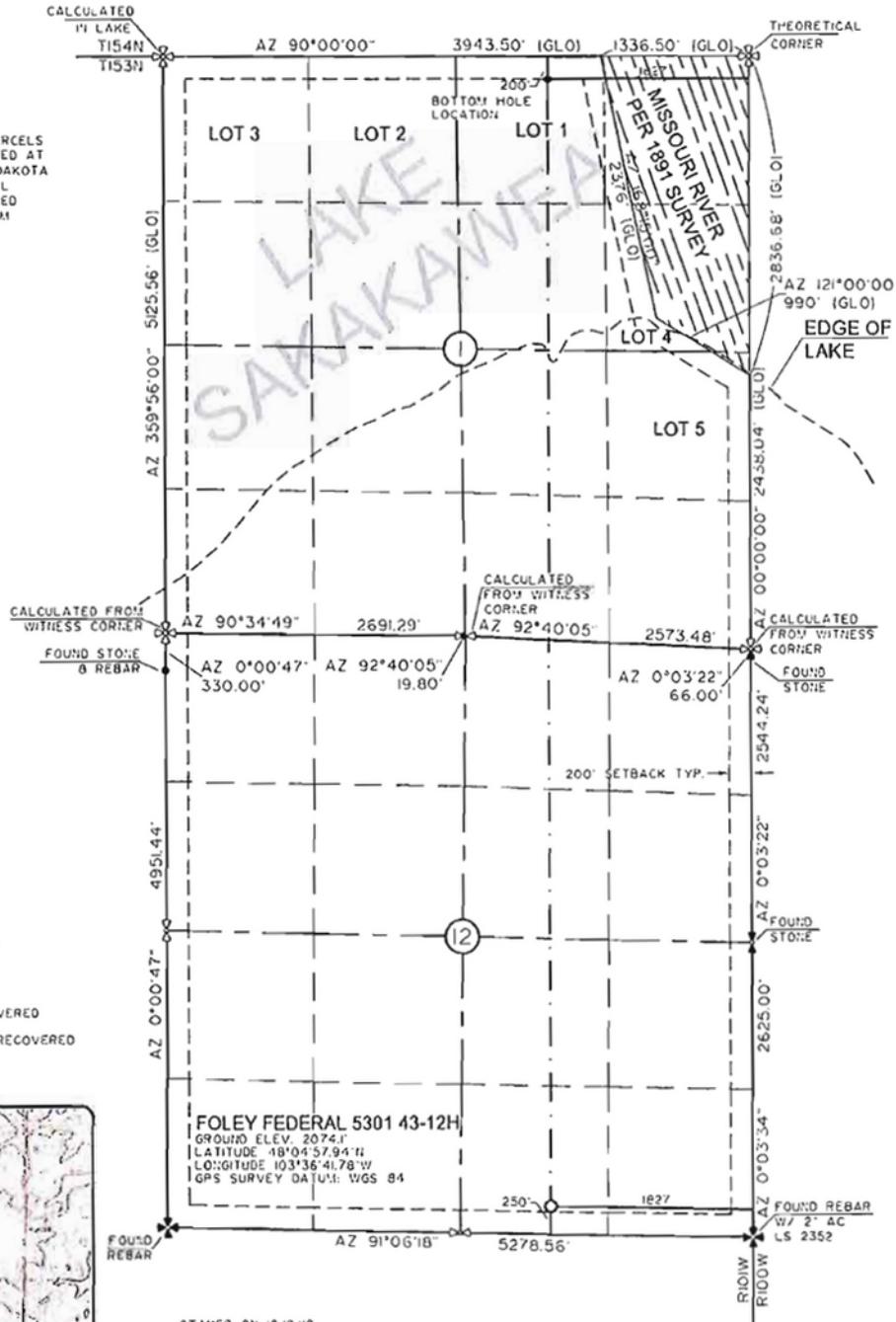
WELL LOCATION PLAT  
SIS PETROLEUM NORTH AMERICA, LLC  
FANNIN, SUITE 202, HOUSTON, TX 77002

OASIS PETROLEUM NORTH AMERICA, LLC

1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"FOLEY FEDERAL 5301 43-12H"  
250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

THE THEORETICAL 40 ACRE PARCELS UNDER THE RIVER WERE CREATED AT THE REQUEST OF THE NORTH DAKOTA OIL AND GAS DIVISION FOR WELL SPACING AND WERE NOT CREATED ACCORDING TO ANY GLO OR BLM RULES.



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CARL S. VENDER LS #222  
INTERSTATE ENGINEERING INC.

A circular seal for North Dakota Land Surveyors. The outer ring contains the words "NORTH DAKOTA" at the top and "LAND SURVEYOR" at the bottom. Inside the ring, the word "PRACTICING" is written vertically along the left side, and "REGISTERED" is written vertically along the right side. In the center, it says "PRACTICING SURVEYOR" above "REGISTERED" and "4/21/11" below it.

Primer No	CW	BZ	Conc. Rat
PR-1	2-670	0-05	40-100
PR-2	4-220	1-5	2-63-84-100

**SECTION BREAKDOWN**

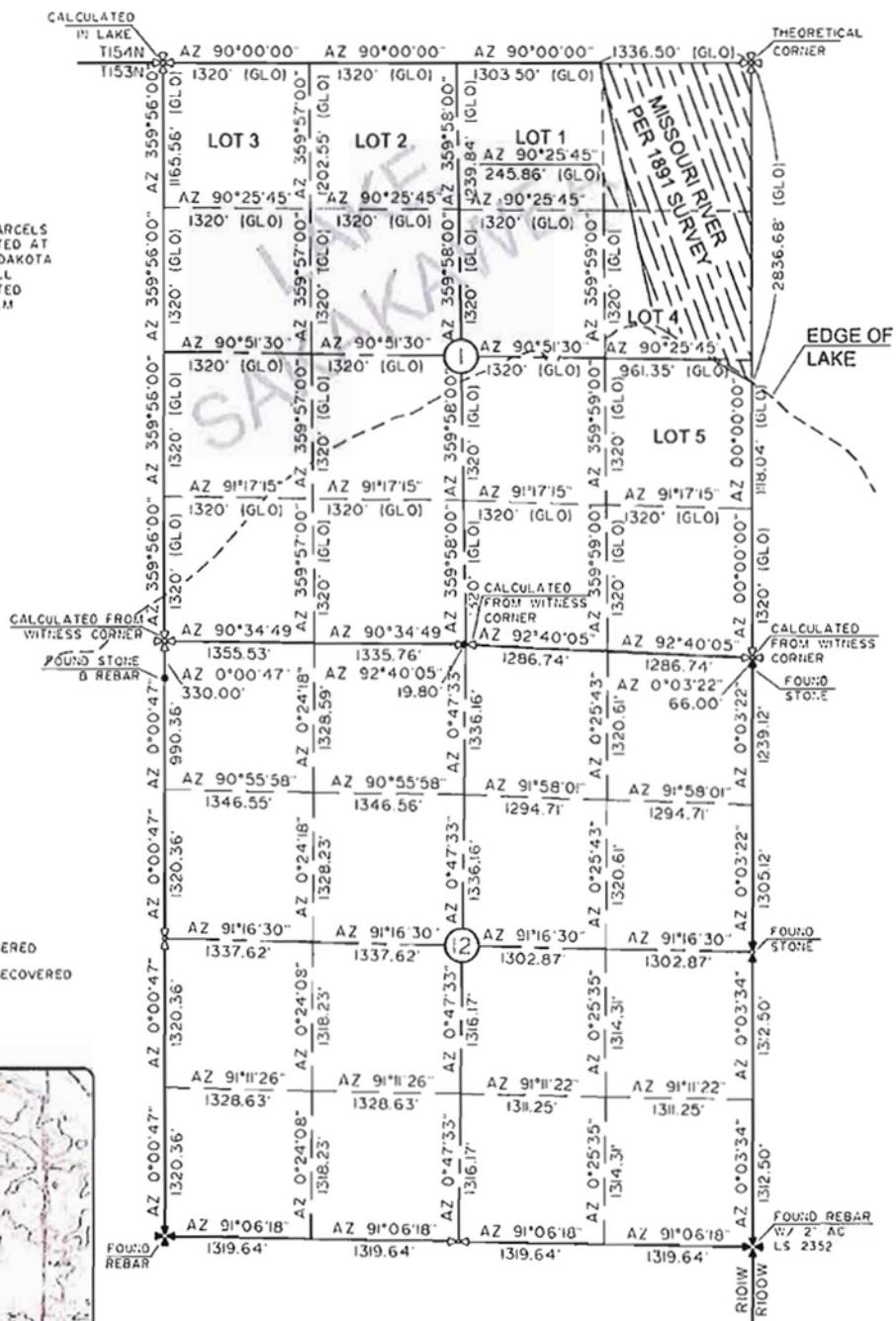
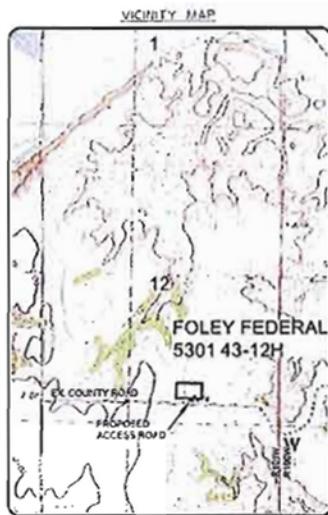
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 202 HOUSTON, TX 77002

'FOLEY FEDERAL 530143-12H'

250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
SECTIONS 1 & 12, T15N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

THE THEORETICAL 40 ACRE PARCELS  
UNDER THE RIVER WERE CREATED AT  
THE REQUEST OF THE NORTH DAKOTA  
OIL AND GAS DIVISION FOR WELL  
SPACING AND WERE NOT CREATED  
ACCORDING TO ANY GLO OR BLM  
RULES.

- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED



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



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2



Interstate Engineering, Inc.  
P.O. Box 1222  
401 1/2 Main Street  
Suite 100, Bismarck, ND 58501  
Ph: (701) 223-5817  
Fax: (701) 223-5818  
[www.interstate.com](http://www.interstate.com)

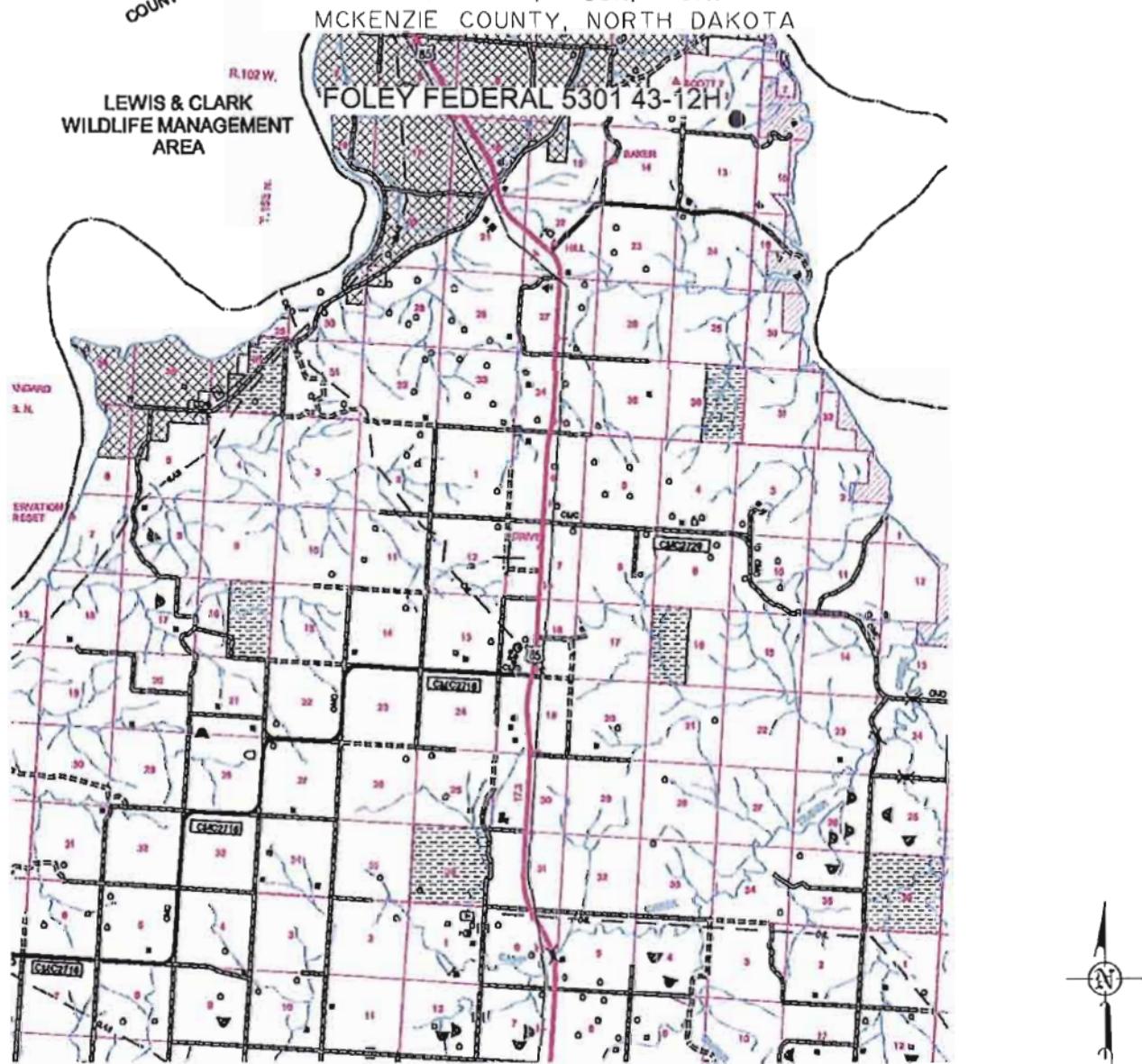
OASIS PETROLEUM NORTH AMERICA, LLC  
SECTION BREAKDOWN  
SECTIONS 1 & 12, T15N, R101W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn by: JJB  
Checked by: BCB  
Approved by: SAN

Page No.	Rev.	Revised	Effective
Page 1	Rev. A	Rev. A	Rev. A
Page 2	Rev. B	Rev. B	Rev. B
Page 3	Rev. C	Rev. C	Rev. C
Page 4	Rev. D	Rev. D	Rev. D

COUNTY ROAD MAP  
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 202 HOUSTON, TX 77002  
"FOLEY FEDERAL 5301 43-12H"  
250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

b1  
OASIS PETROLEUM NORTH AMERICA, LLC  
FOLEY FEDERAL 530I 43-I2H  
250' FSL/1827' FEL  
QUAD LOCATION MAP  
SECTION I2, T153N, R10IW  
MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE



6

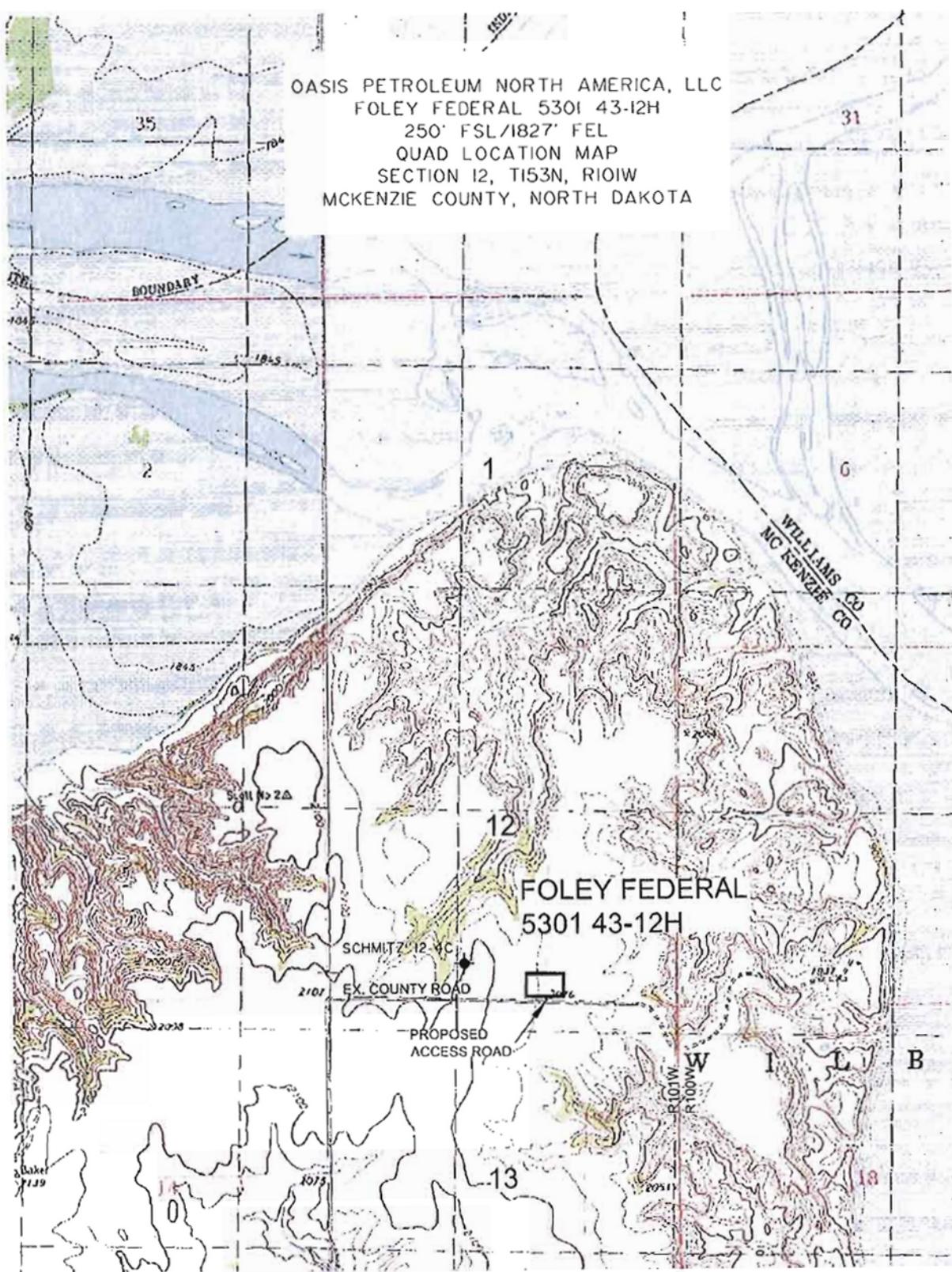
卷之四

Interstate Engineering, Inc.  
P.O. Box 648  
425 East Main Street  
Sidney, Montana 59270  
Ph (406) 433-5617  
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[www.ieng.com](http://www.ieng.com)  
Montana's Preferred Supplier

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

Prepared By: J.J.S. Project No.: S10-C-164  
Checked By: A J H-RIP Date: DEC. 2010

OASIS PETROLEUM NORTH AMERICA, LLC  
FOLEY FEDERAL 530I 43-I2H  
250' FSL/1827' FEL  
QUAD LOCATION MAP  
SECTION I2, T153N, R101W  
MCKENZIE COUNTY, NORTH DAKOTA



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5



 INTERSTATE  
ENGINEERING

SHEET 12

**Interstate Engineering, Inc.**  
P.O. Box 648  
425 East Main Street  
Sidney, Montana 59270  
Ph (406) 433-5617  
Fax (406) 433-5618  
[www.leng.com](http://www.leng.com)

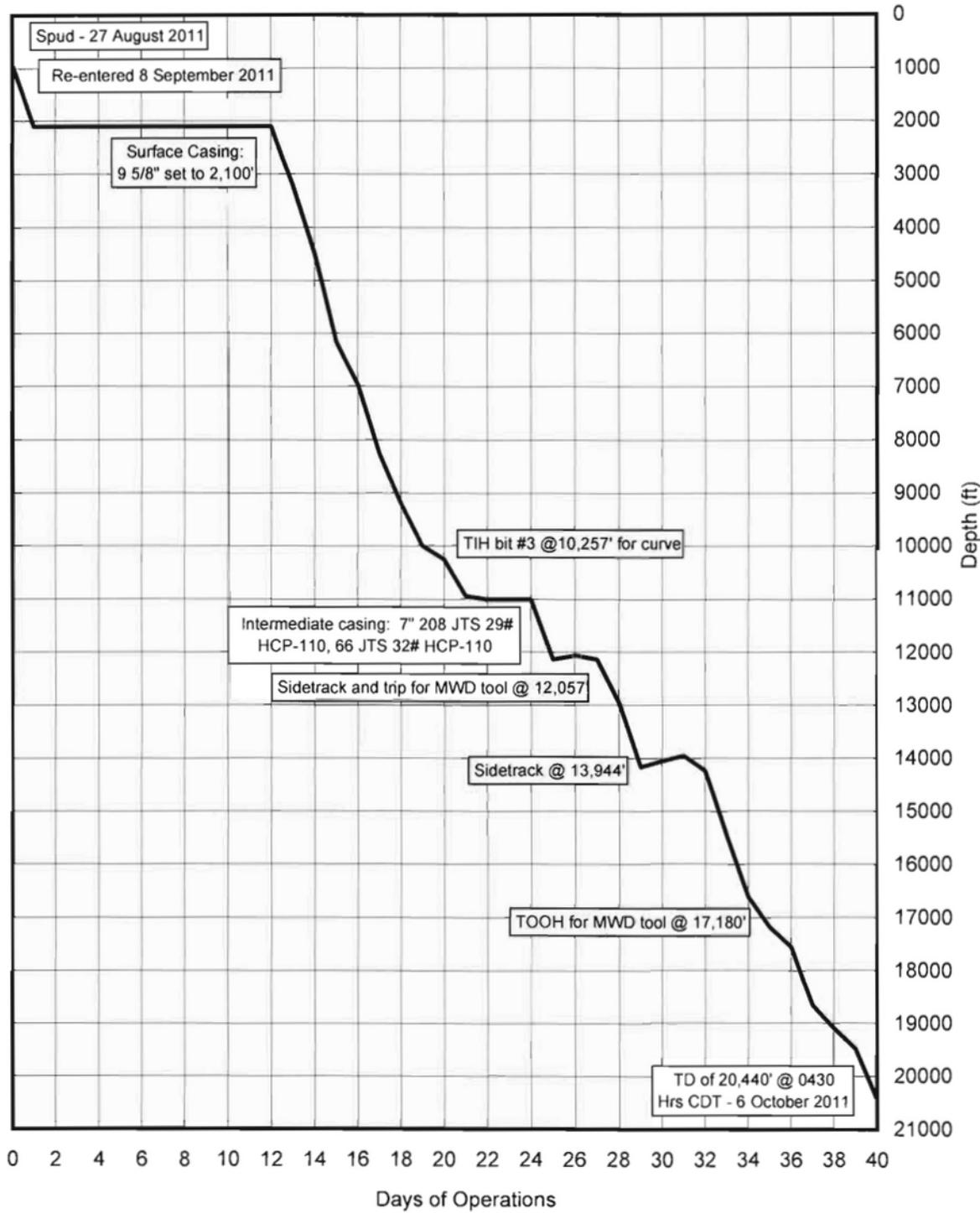
OASIS PETROLEUM NORTH AMERICA, LLC  
QUAD LOCATION MAP  
SECTION 12, T153N, R101W  
MONTIE COUNTY, NORTH DAKOTA

Reason No.	Date	By	Description
REV 1	3/8/84	HJD	NAME CHANGE

# TIME VS DEPTH

Oasis Petroleum North America, LLC

Foley Federal 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	8/27	930'	-	1	-	-	100	-	-	-	-	-	Drill surface	Surface
1	8/28	2,100'	1170	1	-	-	100	-	500	100	90	359	Drill surface, TD surface	Pierre
2	8/29	2,100'	0	1	-	-	-	-	-	-	-	-	TOOH, Cement	Pierre
3	8/30	2,100'	0	1	-	-	-	-	-	-	-	-	Rig Down, Seal to be re-entered	Pierre
4	8/31	2,100'	0	1	-	-	-	-	-	-	-	-	-	Pierre
5	9/1	2,100'	0	1	-	-	-	-	-	-	-	-	-	Pierre
6	9/2	2,100'	0	1	-	-	-	-	-	-	-	-	-	Pierre
7	9/3	2,100'	0	1	-	-	-	-	-	-	-	-	-	Pierre
8	9/4	2,100'	0	1	-	-	-	-	-	-	-	-	-	Pierre
9	9/5	2,100'	0	1	-	-	-	-	-	-	-	-	-	Pierre
10	9/6	2,100'	0	1	-	-	-	-	-	-	-	-	-	Pierre
11	9/7	2,100'	0	1	-	-	-	-	-	-	-	-	-	Pierre
12	9/8	2,100'	0	2	-	-	-	-	-	-	-	-	Skid Rig, Prepare to drill out of casing	Pierre
13	9/9	3,186'	1086	2	9	-	76	264	2962	126	-	480	Drill 3835-4306, TOOH for MWD, TIH, Drill vertical	Pierre
14	9/10	4,492'	1306	2	13	-	50	264	3050	126	-	480	Sliding. Relog gamma. Sliding. Trip out of hole @ 8458'. Replace gamma tool. Trip into hole.	Pierre
15	9/11	6,149'	1657	2	14	4	50	264	2900	-	121	480	Work, TIH at Shoe and Every 20 stand, Wash Down Last 100' Drill Vertical	Rierdon
16	9/12	6,959'	810	2	10	4	60	255	3025	-	120	464	Repair Rig and Derrick Board, Drill Vertical	Salt
17	9/13	8,258'	1299	2	12	16	60	255.2	2640	-	120	464	Slide, Drill Vertical	Otter
18	9/14	9,200'	942	2	14	11	60	255	2788	-	121	464	Slide, Drill Vertical	BLS
19	9/15	10,000'	800	2	19	10	60	255.2	3251	-	121	464	Slide, Drill Vertical	Lodgepole
20	9/16	10,257'	257	2	25		60	255	2859	-	120	464	Drill Vertical, Condition and Circulate Mud, TOOH, BHA Change, TIH	Lodgepole
21	9/17	10,940'	683	3	9	28	18	255	3307	-	120	464	Trip in hole, Drill curve	Upper Bakken
22	9/18	11,015'	75	3	-	-	-	-	-	-	-	-	Run Casing, Condition Mud, Cement	Middle Bakken
23	9/19	11,015'	0	3	-	-	-	-	-	-	-	-	Run Casing, Condition Mud, Cement	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	Formation
24	9/20	11,015'	0	3	-	-	-	-	-	-	-	-	Test BOP, Pick up pipe, Directional Work, TIH	Middle Bakken
25	9/21	12,141'	1126	4	9	21	40	255	2656	-	76	464	Drill Rotate/Slide, Rig Service, Drill Rotate/Slide	Middle Bakken
26	9/22	12,057'	-84	4	10	7	40	255	2417	-	76	464	Shale Strike, Slide, Condition Mud, Trip 4 Stands, Time Drill	Middle Bakken
27	9/23	12,139'	82	5	14	23	40	255	2807	-	76	464	Sidetrack, Drill 12065-12140', TOOH fo MWD failure, TIH	Middle Bakken
28	9/24	12,950'	811	5	17	36	40	161	3230	-	76	292	TIH, Condition and Circulate, Slide, Drill	Middle Bakken
29	9/25	14,160'	1210	5	17	36	40	161	3230	-	76	292	Drill, Slide as Needed, Circulate Gas, Drill, Slide as Needed	Middle Bakken
30	9/26	14,047'	-113	5	16	27	60	161	2632	-	76	292	Drill, Condition Circulate mud, Trip 7 Stands for Sidetrack, Build Trough for Sidetrack, Time Drill	Middle Bakken
31	9/27	13,944'	-103	5	16	12	16	161	2554	-	76	292	Time Drill, Sidetrack Failed, Re-Trough, Time Drill	Middle Bakken
32	9/28	14,230'	286	5	22	55.4	61	161	2587	-	76	292	Time Drill, Rotate and Slide as needed	Middle Bakken
33	9/29	15,465'	1235	5	11	40	60	161	2684	-	76	292	Rotate/Slide as needed	Middle Bakken
34	9/30	16,603'	1138	5	10	53	60	161	3419	-	76	292	Rotate/Slide as needed	Middle Bakken
35	10/1	17,180'	577	5	12	30	60	161	2989	-	76	292	Rotate/Slide as needed, TOOH due to MWD failure	Middle Bakken
													Change out BHA, TIH, Circulate and Condition Mud, Rotate/Slide as Needed	
36	10/2	17,548'	368	6	11	31	60	161	3206	-	76	292		Middle Bakken
37	10/3	18,648'	1100	6	8	45	60	161	3507	-	76	292	Rotate/Slide as Needed	Middle Bakken
38	10/4	19,092'	444	6	9	46	60	161	3065	-	76	292	Drill, Lubricate Rig, Change out Rotating Rubber, TOOH for MWD Failure; Lay down BHA; TIH	Middle Bakken
39	10/5	19,485'	393	7	10	24	60	161	3975	-	76	292	TIH, Circulate Trip Gas, Rotate/Slide	Middle Bakken
40	10/6	20,440'	955	7	11	65	60	161	3539	-	76	292	Rotate/Slide when needed, TD Lateral, Circulate, TOOH	Middle Bakken

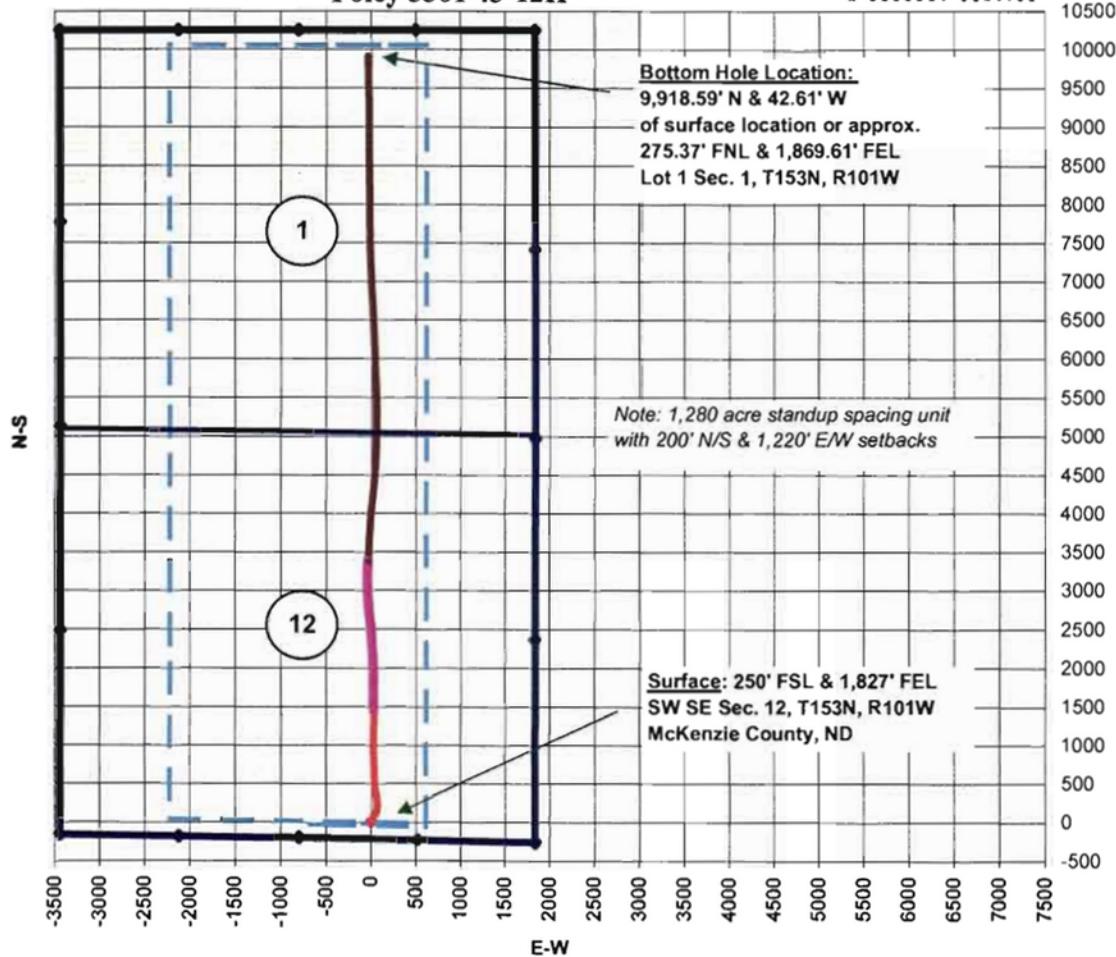
## DAILY MUD SUMMARY

## 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	Re-Tip	-	16/16/18	60'	2,100'	2,040'	33	33.00	Surface
2	8 3/4	PDC	Smith	MDSI616	JE9732	6x14	2,100'	10,257'	8,157'	97	130.00	Vertical
3	8 3/4	PDC	Security	FXD55M	11730824	5x18	10,257'	11,015'	758'	11.9	141.90	Curve
4	6	PDC	Security	FX64	117457912	6x18	11,015'	12,139'	1,124'	33	174.90	Lateral
5	6	PDC	Security	FX64	1144139	6x18	12,139'	17,180'	5,721'	113	287.90	Lateral
6	6	PDC	Security	FX64	11741344	6x18	17,180'	19,092'	1,912'	31	318.90	Lateral
7	6	PDC	Security	MDi613	JE8240	6x18	19,092'	20,440'	1,348'	19	337.90	Lateral

## PLAN VIEW

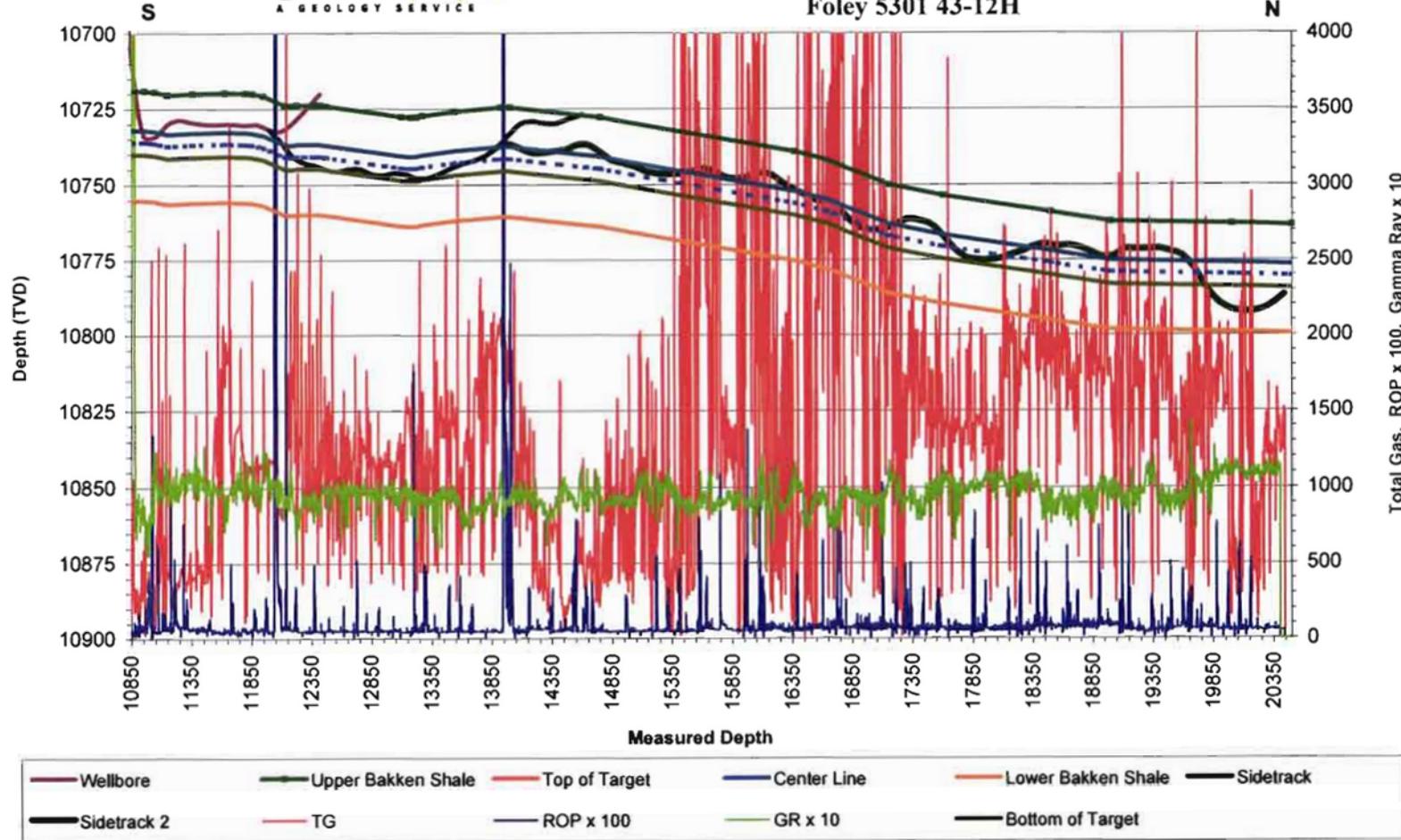
Oasis Petroleum North America, LLC  
Foley 5301 43-12H





## PROFILE

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



## FORMATION MARKERS & DIP ESTIMATES

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

Dip Change Points	MD	TVD	TVD diff.	MD diff.	Dip	Dipping up/down	Type of Marker
Middle Bakken markers							
	10,246'	10,719.00					Gamma
	11,148'	10,722.00	3.00	902.00	<b>-0.19</b>	Down	Gamma
	11,355'	10,721.53	-0.47	207.00	<b>0.13</b>	Up	Gamma
	11,626'	10,721.25	-0.28	271.00	<b>0.06</b>	Up	Gamma
	11,858'	10,721.68	0.43	232.00	<b>-0.11</b>	Down	Gamma
	11,950'	10,720.70	-0.98	92.00	<b>0.61</b>	Up	Gamma
	12,125'	10,723.75	3.05	175.00	<b>-1.00</b>	Down	Gamma
	12,175'	10,724.00	0.25	50.00	<b>-0.29</b>	Down	Gamma
	12,470'	10,724.00	0.00	295.00	<b>0.00</b>	Flat	Gamma
	13,222'	10,727.62	3.62	752.00	<b>-0.28</b>	Down	Gamma
	13,539'	10,725.79	-1.83	317.00	<b>0.33</b>	Up	Gamma
	14,000'	10,724.45	-1.34	461.00	<b>0.17</b>	Up	Gamma
	14,751'	10,727.73	3.28	751.00	<b>-0.25</b>	Down	Gamma
	16,368'	10,739.08	11.35	1617.00	<b>-0.40</b>	Down	Gamma
	16,645'	10,741.98	2.90	277.00	<b>-0.60</b>	Down	Gamma
	17,158'	10,750.03	8.05	513.00	<b>-0.90</b>	Down	Gamma
	17,603'	10,753.52	3.49	445.00	<b>-0.45</b>	Down	Gamma
	18,500'	10,759.00	5.48	897.00	<b>-0.35</b>	Down	Gamma
	19,000'	10,762.05	3.05	500.00	<b>-0.35</b>	Down	Gamma
	20,500'	10,763.36	1.31	1500.00	<b>-0.05</b>	Down	Gamma
<b>Gross Dip</b>							
Initial Target Contact	10,957'	10,719.00					
Final Target Contact	20,500'	10,763.00	44.00	9543.00	<b>-0.26</b>	Down	

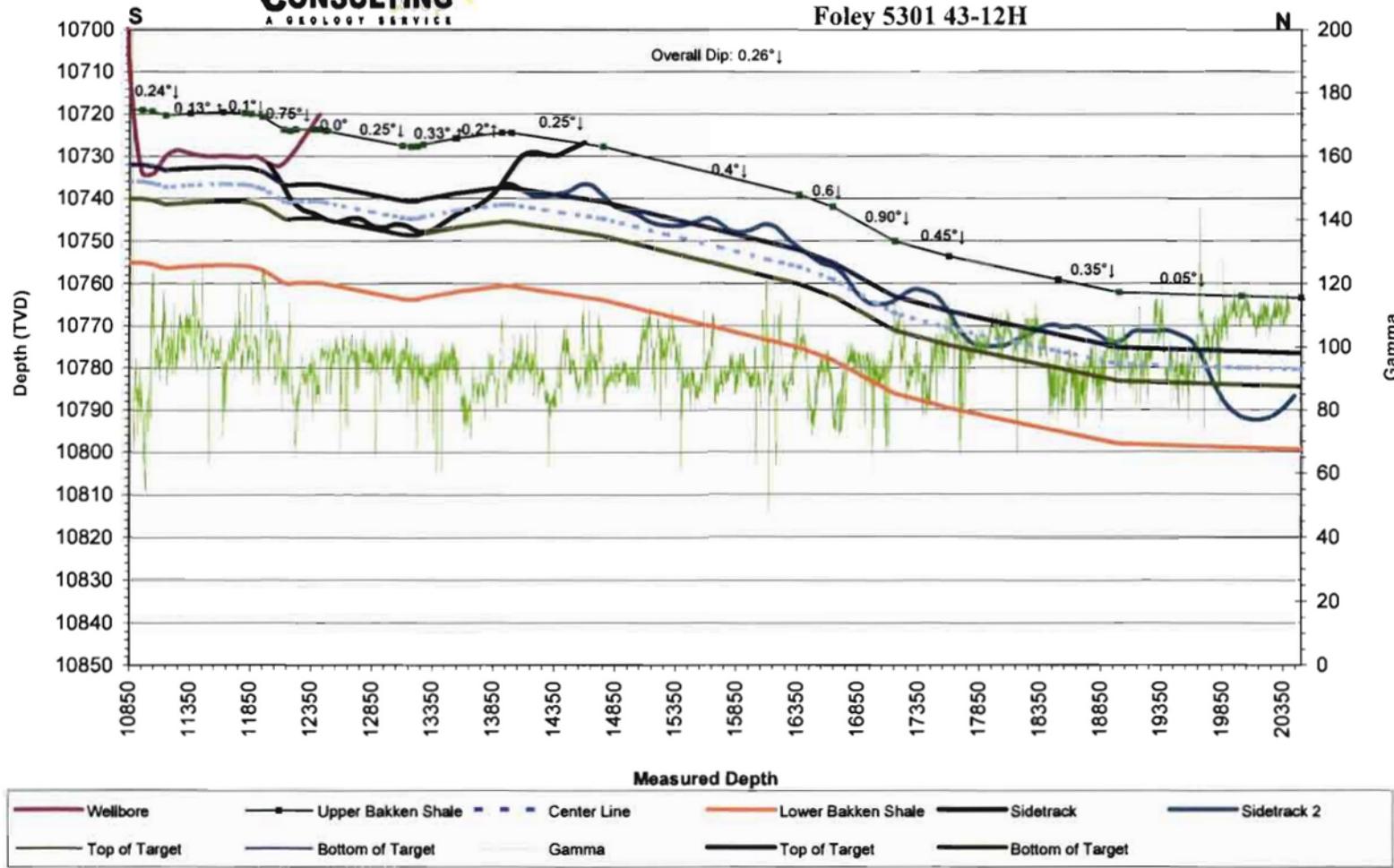
\* = GR / electric log confirmation

Other markers based on natural deflections & drill rate changes



## DIP PROFILE

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



**SUNBURST CONSULTING, INC.**

&lt;

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Foley 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
	1827	FE/WL:	E

Kick-off:	9/16/2011
Finish:	9/21/2011
Directional Supervision:	
Professional Directional	

Date: 10/11/2011

Time: 9:50

**F9 to re-calculate**

Proposed dir:

360

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				
Tie	2099.00	0.00	0.00	2099.00	0.00	0.00	0.00	0.00
1	2186.00	1.00	196.80	2186.00	-0.73	-0.22	-0.73	1.15
2	2281.00	1.20	194.30	2280.98	-2.48	-0.70	-2.48	0.22
3	2375.00	1.30	190.20	2374.96	-4.49	-1.14	-4.49	0.14
4	2469.00	1.50	197.60	2468.93	-6.71	-1.70	-6.71	0.29
5	2563.00	1.50	201.90	2562.90	-9.02	-2.53	-9.02	0.12
6	2657.00	1.50	218.30	2656.86	-11.13	-3.75	-11.13	0.46
7	2751.00	1.50	222.20	2750.83	-13.01	-5.34	-13.01	0.11
8	2846.00	1.70	227.40	2845.79	-14.88	-7.21	-14.88	0.26
9	2940.00	1.20	193.60	2939.77	-16.78	-8.47	-16.78	1.03
10	3034.00	1.30	167.20	3033.74	-18.78	-8.46	-18.78	0.62
11	3128.00	1.40	158.30	3127.72	-20.89	-7.80	-20.89	0.25
12	3222.00	1.20	131.90	3221.69	-22.61	-6.65	-22.61	0.66
13	3316.00	1.10	71.50	3315.68	-22.98	-5.06	-22.98	1.23
14	3411.00	1.10	4.60	3410.66	-21.78	-4.12	-21.78	1.28
15	3505.00	1.40	357.00	3504.64	-19.74	-4.11	-19.74	0.36
16	3599.00	1.30	10.50	3598.62	-17.54	-3.97	-17.54	0.35
17	3693.00	1.10	0.90	3692.60	-15.59	-3.77	-15.59	0.30
18	3787.00	1.20	0.50	3786.58	-13.71	-3.74	-13.71	0.11
19	3881.00	1.00	5.40	3880.56	-11.90	-3.66	-11.90	0.23
20	3975.00	0.90	1.30	3974.55	-10.35	-3.56	-10.35	0.13
21	4070.00	0.90	356.00	4069.54	-8.86	-3.60	-8.86	0.09
22	4164.00	0.80	351.80	4163.52	-7.47	-3.74	-7.47	0.13
23	4258.00	0.60	342.40	4257.52	-6.36	-3.99	-6.36	0.24
24	4352.00	0.80	347.30	4351.51	-5.25	-4.28	-5.25	0.22
25	4446.00	0.70	349.40	4445.50	-4.04	-4.53	-4.04	0.11
26	4540.00	0.80	343.70	4539.49	-2.85	-4.82	-2.85	0.13
27	4634.00	0.80	334.00	4633.49	-1.63	-5.29	-1.63	0.14
28	4728.00	0.90	343.80	4727.48	-0.33	-5.78	-0.33	0.19
29	4822.00	1.00	349.30	4821.46	1.19	-6.14	1.19	0.14
30	4916.00	1.00	350.10	4915.45	2.80	-6.44	2.80	0.01
31	5011.00	1.30	343.00	5010.43	4.65	-6.89	4.65	0.35
32	5105.00	0.30	303.80	5104.42	5.80	-7.41	5.80	1.15
33	5199.00	0.50	217.10	5198.42	5.61	-7.86	5.61	0.60
34	5293.00	0.80	187.20	5292.41	4.64	-8.19	4.64	0.47
35	5387.00	0.70	194.70	5386.40	3.43	-8.42	3.43	0.15
36	5481.00	0.70	206.60	5480.40	2.36	-8.82	2.36	0.15
37	5575.00	1.00	206.20	5574.39	1.11	-9.44	1.11	0.32
38	5669.00	1.00	222.60	5668.37	-0.23	-10.36	-0.23	0.30
39	5763.00	1.20	222.70	5762.35	-1.56	-11.58	-1.56	0.21

# SUNBURST CONSULTING, INC.

&lt;

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Foley 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
	1827	FE/WL:	E

Kick-off:	9/16/2011
Finish:	9/21/2011
Directional Supervision:	
Professional Directional	

Date: 10/11/2011

Time: 9:50

**F9 to re-calculate**

Proposed dir:

360

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	0.20	51.20	5856.35		-2.18	-12.12	-2.18	1.49
41	5951.00	0.20	43.10	5950.35		-1.95	-11.88	-1.95	0.03
42	6045.00	0.50	5.20	6044.35		-1.43	-11.73	-1.43	0.39
43	6140.00	0.70	328.00	6139.34		-0.52	-12.00	-0.52	0.45
44	6233.00	1.00	328.60	6232.33		0.65	-12.72	0.65	0.32
45	6328.00	1.40	310.50	6327.31		2.12	-14.04	2.12	0.58
46	6421.00	3.20	316.90	6420.23		4.75	-16.68	4.75	1.95
47	6515.00	4.00	323.80	6514.05		9.31	-20.41	9.31	0.97
48	6609.00	3.60	319.80	6607.84		14.21	-24.25	14.21	0.51
49	6703.00	3.30	311.20	6701.67		18.25	-28.19	18.25	0.64
50	6797.00	2.00	319.40	6795.57		21.27	-31.29	21.27	1.44
51	6891.00	1.30	0.30	6889.53		23.59	-32.35	23.59	1.41
52	6985.00	1.00	93.20	6983.52		24.61	-31.53	24.61	1.79
53	7080.00	1.30	113.10	7078.50		24.14	-29.71	24.14	0.52
54	7173.00	1.30	120.80	7171.48		23.18	-27.83	23.18	0.19
55	7268.00	1.50	121.00	7266.45		21.99	-25.84	21.99	0.21
56	7362.00	1.90	124.30	7360.41		20.48	-23.50	20.48	0.44
57	7456.00	2.30	124.40	7454.34		18.53	-20.66	18.53	0.43
58	7550.00	2.60	125.90	7548.26		16.22	-17.37	16.22	0.33
59	7644.00	1.80	112.40	7642.19		14.41	-14.28	14.41	1.01
60	7739.00	1.60	105.60	7737.14		13.48	-11.62	13.48	0.30
61	7833.00	1.70	108.00	7831.11		12.70	-9.03	12.70	0.13
62	7927.00	1.60	118.00	7925.07		11.65	-6.55	11.65	0.32
63	8021.00	1.30	134.20	8019.04		10.29	-4.63	10.29	0.54
64	8115.00	1.20	145.30	8113.01		8.74	-3.30	8.74	0.28
65	8209.00	1.20	150.70	8206.99		7.07	-2.26	7.07	0.12
66	8303.00	1.20	160.50	8300.97		5.28	-1.45	5.28	0.22
67	8398.00	1.40	163.80	8395.95		3.23	-0.79	3.23	0.22
68	8492.00	0.60	293.10	8489.94		2.32	-0.92	2.32	1.96
69	8586.00	1.50	323.70	8583.92		3.51	-2.11	3.51	1.10
70	8680.00	1.70	340.70	8677.89		5.81	-3.30	5.81	0.55
71	8774.00	1.90	341.70	8771.84		8.61	-4.25	8.61	0.22
72	8869.00	1.50	340.80	8866.80		11.28	-5.15	11.28	0.42
73	8963.00	1.80	345.30	8960.76		13.87	-5.93	13.87	0.35
74	9054.00	1.90	349.10	9051.71		16.73	-6.58	16.73	0.17
75	9152.00	1.80	354.10	9149.66		19.86	-7.04	19.86	0.19
76	9246.00	1.70	353.90	9243.62		22.71	-7.34	22.71	0.11
77	9340.00	1.70	357.50	9337.58		25.49	-7.55	25.49	0.11
78	9434.00	1.60	351.80	9431.54		28.19	-7.80	28.19	0.20
79	9528.00	0.20	85.70	9525.53		29.50	-7.82	29.50	1.73

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## SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC		
Well :	Foley 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
	1827	FE/WL:	E

Kick-off:	9/16/2011
Finish:	9/21/2011
Directional Supervision:	Professional Directional
Date:	10/11/2011
Time:	9:50
F9 to re-calculate	

Minimum Curvature Method (SPE-3362)

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

Proposed dir: 360

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
80	9622.00	0.40	161.60	9619.53	29.20	-7.55	29.20	0.43
81	9716.00	0.40	162.40	9713.52	28.57	-7.35	28.57	0.01
82	9811.00	0.40	170.80	9808.52	27.93	-7.20	27.93	0.06
83	9905.00	0.30	173.40	9902.52	27.36	-7.12	27.36	0.11
84	9999.00	0.20	152.70	9996.52	26.97	-7.01	26.97	0.14
85	10094.00	0.20	138.60	10091.52	26.70	-6.83	26.70	0.05
86	10188.00	0.10	262.80	10185.52	26.57	-6.80	26.57	0.29
87	10283.00	5.40	35.20	10280.38	30.21	-4.31	30.21	5.76
88	10314.00	10.20	29.80	10311.08	33.79	-2.10	33.79	15.65
89	10345.00	14.20	32.80	10341.38	39.37	1.33	39.37	13.06
90	10377.00	18.30	32.50	10372.09	46.91	6.15	46.91	12.82
91	10408.00	22.30	32.60	10401.16	55.97	11.94	55.97	12.90
92	10440.00	25.60	29.50	10430.40	67.11	18.62	67.11	11.03
93	10471.00	27.00	27.90	10458.19	79.16	25.21	79.16	5.06
94	10503.00	28.50	25.00	10486.51	92.50	31.83	92.50	6.31
95	10534.00	31.20	24.30	10513.40	106.52	38.27	106.52	8.78
96	10565.00	33.30	23.70	10539.61	121.63	44.99	121.63	6.85
97	10597.00	38.00	19.50	10565.61	138.97	51.82	138.97	16.55
98	10628.00	43.40	12.60	10589.12	158.39	57.33	158.39	22.65
99	10659.00	48.90	8.20	10610.59	180.36	61.32	180.36	20.47
100	10691.00	53.90	3.20	10630.56	205.23	63.77	205.23	19.82
101	10722.00	57.70	358.90	10647.99	230.85	64.22	230.85	16.79
102	10753.00	59.30	355.30	10664.19	257.24	62.87	257.24	11.17
103	10785.00	60.40	355.30	10680.26	284.82	60.60	284.82	3.44
104	10816.00	63.50	352.80	10694.84	312.02	57.76	312.02	12.27
105	10848.00	66.90	351.90	10708.26	340.81	53.89	340.81	10.93
106	10879.00	72.10	350.90	10719.11	369.51	49.55	369.51	17.04
107	10910.00	77.80	350.70	10727.16	399.05	44.76	399.05	18.40
108	10942.00	83.20	351.10	10732.44	430.20	39.77	430.20	16.92
109	10966.00	87.70	353.00	10734.34	453.89	36.47	453.89	20.34
110	11054.00	92.90	359.70	10733.88	541.63	30.87	541.63	9.64
111	11148.00	91.90	359.60	10729.94	635.54	30.29	635.54	1.07
112	11241.00	89.90	357.40	10728.48	728.49	27.86	728.49	3.20
113	11335.00	89.30	358.30	10729.14	822.42	24.33	822.42	1.15
114	11429.00	90.00	358.90	10729.71	916.39	22.04	916.39	0.98
115	11523.00	89.60	359.40	10730.04	1010.37	20.64	1010.37	0.68
116	11618.00	90.60	0.80	10729.87	1105.37	20.81	1105.37	1.81
117	11712.00	89.30	0.80	10729.96	1199.36	22.12	1199.36	1.38
118	11807.00	90.40	0.90	10730.20	1294.35	23.53	1294.35	1.16
119	11902.00	89.80	359.70	10730.04	1389.34	24.03	1389.34	1.41

**SUNBURST CONSULTING, INC.**

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Operator:	Oasis Petroleum North America, LLC	
Well :	Foley 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
	1827	FE/WL: E

Kick-off:	9/16/2011
Finish:	9/21/2011
Directional Supervision:	Professional Directional

Date:	10/11/2011
Time:	9:50
F9 to re-calculate	

Proposed dir:	360
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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					
120	11997.00	88.20	358.60	10731.70	1484.31	22.62	1484.31	2.04	
121	12093.00	91.10	359.50	10732.28	1580.29	21.03	1580.29	3.16	
122	12188.00	92.10	359.60	10729.63	1675.25	20.28	1675.25	1.06	
123	12283.00	92.50	1.70	10725.82	1770.16	21.36	1770.16	2.25	
124	12417.00	92.50	1.70	10719.97	1903.97	25.33	1903.97	0.00	

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# SUNBURST CONSULTING, INC.

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Operator:

Oasis Petroleum North America, LLC	
Foley 5301 43-12H	Sidetrack #1
McKenzie	State: ND
SW SE	Section: 12
153	N/S: N
101	E/W: W
250	FN/SL: S
1827	FE/WL: E

Kick-off:

9/22/2011

Finish:

9/25/2011

Directional Supervision:

Professional Directional

Date: 10/11/2011

Time: 9:50

**F9 to re-calculate**

Proposed dir:

360

Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
119	11997.00	88.20	358.60	10731.70	1484.19	21.43	1484.19	2.04
120	12093.00	87.00	0.40	10735.72	1580.10	20.59	1580.10	2.25
121	12188.00	87.40	360.00	10740.36	1674.98	20.92	1674.98	0.60
122	12283.00	89.80	359.60	10742.68	1769.95	20.59	1769.95	2.56
123	12378.00	89.10	359.90	10743.59	1864.94	20.18	1864.94	0.80
124	12473.00	89.30	358.90	10744.92	1959.92	19.18	1959.92	1.07
125	12568.00	90.00	358.10	10745.50	2054.89	16.70	2054.89	1.12
126	12663.00	90.90	357.50	10744.75	2149.81	13.05	2149.81	1.14
127	12758.00	89.00	357.00	10744.83	2244.70	8.49	2244.70	2.07
128	12853.00	89.10	356.80	10746.41	2339.55	3.35	2339.55	0.24
129	12947.00	90.40	356.70	10746.82	2433.39	-1.97	2433.39	1.39
130	13042.00	90.50	355.30	10746.07	2528.16	-8.60	2528.16	1.48
131	13137.00	89.00	353.80	10746.49	2622.72	-17.62	2622.72	2.23
132	13233.00	89.40	355.70	10747.83	2718.30	-26.41	2718.30	2.02
133	13328.00	90.90	356.70	10747.58	2813.09	-32.70	2813.09	1.90
134	13422.00	90.90	356.30	10746.10	2906.90	-38.44	2906.90	0.43
135	13517.00	91.30	357.50	10744.28	3001.75	-43.58	3001.75	1.33
136	13612.00	90.40	358.70	10742.87	3096.68	-46.73	3096.68	1.58
137	13707.00	90.80	1.60	10741.87	3191.66	-46.48	3191.66	3.08
138	13802.00	91.30	2.30	10740.13	3286.59	-43.25	3286.59	0.91
139	13897.00	91.90	2.50	10737.48	3381.47	-39.27	3381.47	0.67
140	13992.00	93.00	1.40	10733.42	3476.33	-36.04	3476.33	1.64
141	14087.00	91.30	0.10	10729.86	3571.25	-34.80	3571.25	2.25
142	14182.00	89.70	0.30	10729.03	3666.24	-34.46	3666.24	1.70
143	14277.00	89.70	359.60	10729.52	3761.24	-34.55	3761.24	0.74
144	14372.00	90.00	358.60	10729.77	3856.22	-36.04	3856.22	1.10
145	14467.00	91.50	359.20	10728.53	3951.20	-37.86	3951.20	1.70
146	14603.00	90.00	359.20	10726.75	4087.17	-39.76	4087.17	1.10

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## SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC		
Well :	Foley 5301 43-12H Sidetrack #2		
County:	McKenzie	State:	ND
QQ:	SW SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	1827	FE/WL:	E

Kick-off: 9/26/2011  
 Finish: 10/6/2011  
 Directional Supervision:  
 Professional Directional

Date: 10/11/2011  
 Time: 9:50  
**F9 to re-calculate**

Proposed dir: 360

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					
139	13897.00	91.90	2.50	10737.48	3381.47	-39.28	3381.47	0.67	
140	13991.00	89.20	2.20	10736.58	3475.38	-35.42	3475.38	2.89	
141	14086.00	89.20	2.40	10737.91	3570.29	-31.61	3570.29	0.21	
142	14182.00	89.10	2.80	10739.33	3666.18	-27.26	3666.18	0.43	
143	14277.00	90.90	3.70	10739.33	3761.03	-21.87	3761.03	2.12	
144	14372.00	89.70	3.20	10738.83	3855.85	-16.15	3855.85	1.37	
145	14467.00	91.00	4.00	10738.25	3950.66	-10.19	3950.66	1.61	
146	14561.00	90.80	6.00	10736.77	4044.28	-2.00	4044.28	2.14	
147	14656.00	89.10	4.70	10736.86	4138.86	6.86	4138.86	2.25	
148	14751.00	88.10	4.20	10739.18	4233.55	14.23	4233.55	1.18	
149	14846.00	88.80	4.20	10741.75	4328.26	21.18	4328.26	0.74	
150	14941.00	90.00	3.90	10742.74	4423.01	27.89	4423.01	1.30	
151	15036.00	88.70	2.70	10743.82	4517.85	33.36	4517.85	1.86	
152	15131.00	89.40	2.80	10745.40	4612.72	37.92	4612.72	0.74	
153	15226.00	89.70	3.00	10746.14	4707.60	42.72	4707.60	0.38	
154	15320.00	90.00	1.80	10746.39	4801.51	46.66	4801.51	1.32	
155	15416.00	90.20	1.00	10746.22	4897.48	49.01	4897.48	0.86	
156	15511.00	90.70	0.30	10745.47	4992.47	50.08	4992.47	0.91	
157	15606.00	90.40	1.40	10744.56	5087.46	51.49	5087.46	1.20	
158	15701.00	88.50	1.00	10745.47	5182.43	53.48	5182.43	2.04	
159	15796.00	89.20	359.70	10747.38	5277.40	54.06	5277.40	1.55	
160	15891.00	90.20	359.10	10747.88	5372.40	53.07	5372.40	1.23	
161	15985.00	90.60	358.90	10747.22	5466.38	51.43	5466.38	0.48	
162	16080.00	90.80	358.30	10746.06	5561.34	49.11	5561.34	0.67	
163	16175.00	88.50	358.60	10746.64	5656.30	46.54	5656.30	2.44	
164	16271.00	88.30	357.60	10749.32	5752.21	43.36	5752.21	1.06	
165	16366.00	89.00	357.20	10751.56	5847.08	39.05	5847.08	0.85	
166	16460.00	88.70	359.20	10753.45	5941.01	36.10	5941.01	2.15	
167	16555.00	89.20	358.80	10755.19	6035.98	34.44	6035.98	0.67	
168	16651.00	89.80	358.30	10756.03	6131.95	32.01	6131.95	0.81	
169	16746.00	87.50	358.00	10758.26	6226.87	28.94	6226.87	2.44	
170	16841.00	88.00	357.70	10761.99	6321.73	25.38	6321.73	0.61	
171	16937.00	89.10	357.60	10764.42	6417.61	21.45	6417.61	1.15	
172	17031.00	90.30	357.40	10764.92	6511.52	17.35	6511.52	1.29	
173	17127.00	90.30	358.10	10764.41	6607.44	13.58	6607.44	0.73	
174	17220.00	91.80	357.80	10762.71	6700.37	10.25	6700.37	1.64	
175	17315.00	89.90	357.50	10761.30	6795.27	6.36	6795.27	2.02	
176	17410.00	89.50	357.50	10761.80	6890.18	2.21	6890.18	0.42	
177	17506.00	88.90	357.70	10763.14	6986.09	-1.81	6986.09	0.66	
178	17601.00	86.80	359.00	10766.70	7080.97	-4.54	7080.97	2.60	
179	17696.00	87.80	357.20	10771.18	7175.81	-7.69	7175.81	2.17	
180	17791.00	88.80	357.60	10773.99	7270.67	-12.00	7270.67	1.13	
181	17885.00	90.30	358.20	10774.73	7364.60	-15.44	7364.60	1.72	

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# SUNBURST CONSULTING, INC.

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Operator:

Oasis Petroleum North America, LLC		
Well :	Foley 5301 43-12H	Sidetrack #2
County:	McKenzie	State: ND
QQ:	SW SE	Section: 12
Township:	153	N/S: N
Range:	101	E/W: W
Footages:	250	FN/SL: S
	1827	FE/WL: E

Kick-off:

9/26/2011

Finish:

10/6/2011

Directional Supervision:

Professional Directional

Date: 10/11/2011

Time: 9:50

**F9 to re-calculate**

Proposed dir:

360

Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
182	17980.00	89.60	358.90	10774.82	7459.57	-17.84	7459.57	1.04
183	18075.00	90.80	359.10	10774.48	7554.55	-19.50	7554.55	1.28
184	18170.00	90.90	358.40	10773.07	7649.52	-21.57	7649.52	0.74
185	18265.00	90.40	359.10	10772.00	7744.49	-23.65	7744.49	0.91
186	18360.00	91.60	0.00	10770.34	7839.47	-24.39	7839.47	1.58
187	18454.00	89.20	358.90	10769.68	7933.45	-25.29	7933.45	2.81
188	18549.00	90.10	1.50	10770.26	8028.44	-24.96	8028.44	2.90
189	18645.00	90.20	359.20	10770.01	8124.43	-24.38	8124.43	2.40
190	18740.00	88.90	359.60	10770.76	8219.42	-25.37	8219.42	1.43
191	18835.00	89.40	359.20	10772.17	8314.41	-26.37	8314.41	0.67
192	18930.00	88.70	358.70	10773.74	8409.38	-28.11	8409.38	0.91
193	19025.00	91.70	359.70	10773.41	8504.35	-29.43	8504.35	3.33
194	19120.00	90.90	359.40	10771.26	8599.33	-30.18	8599.33	0.90
195	19215.00	89.10	359.70	10771.26	8694.32	-30.92	8694.32	1.92
196	19309.00	90.90	358.80	10771.26	8788.31	-32.15	8788.31	2.14
197	19404.00	89.30	0.20	10771.09	8883.30	-32.98	8883.30	2.24
198	19499.00	89.50	0.60	10772.08	8978.29	-32.32	8978.29	0.47
199	19594.00	88.80	1.30	10773.49	9073.26	-30.75	9073.26	1.04
200	19689.00	86.10	359.10	10777.72	9168.15	-30.41	9168.15	3.66
201	19784.00	86.50	359.00	10783.85	9262.94	-31.98	9262.94	0.43
202	19879.00	87.90	358.20	10788.49	9357.80	-34.30	9357.80	1.70
203	19973.00	89.00	358.40	10791.03	9451.72	-37.09	9451.72	1.19
204	20069.00	89.70	359.00	10792.12	9547.69	-39.27	9547.69	0.96
205	20163.00	90.20	0.30	10792.21	9641.68	-39.84	9641.68	1.48
206	20258.00	90.70	358.80	10791.46	9736.68	-40.59	9736.68	1.66
207	20353.00	91.70	359.80	10789.47	9831.65	-41.75	9831.65	1.49
208	20391.00	91.90	359.40	10788.28	9869.63	-42.01	9869.63	1.18
209	20440.00	92.00	359.20	10786.61	9918.59	-42.61	9918.59	0.46

## FORMATION TOPS & STRUCTURAL RELATIONSHIPS

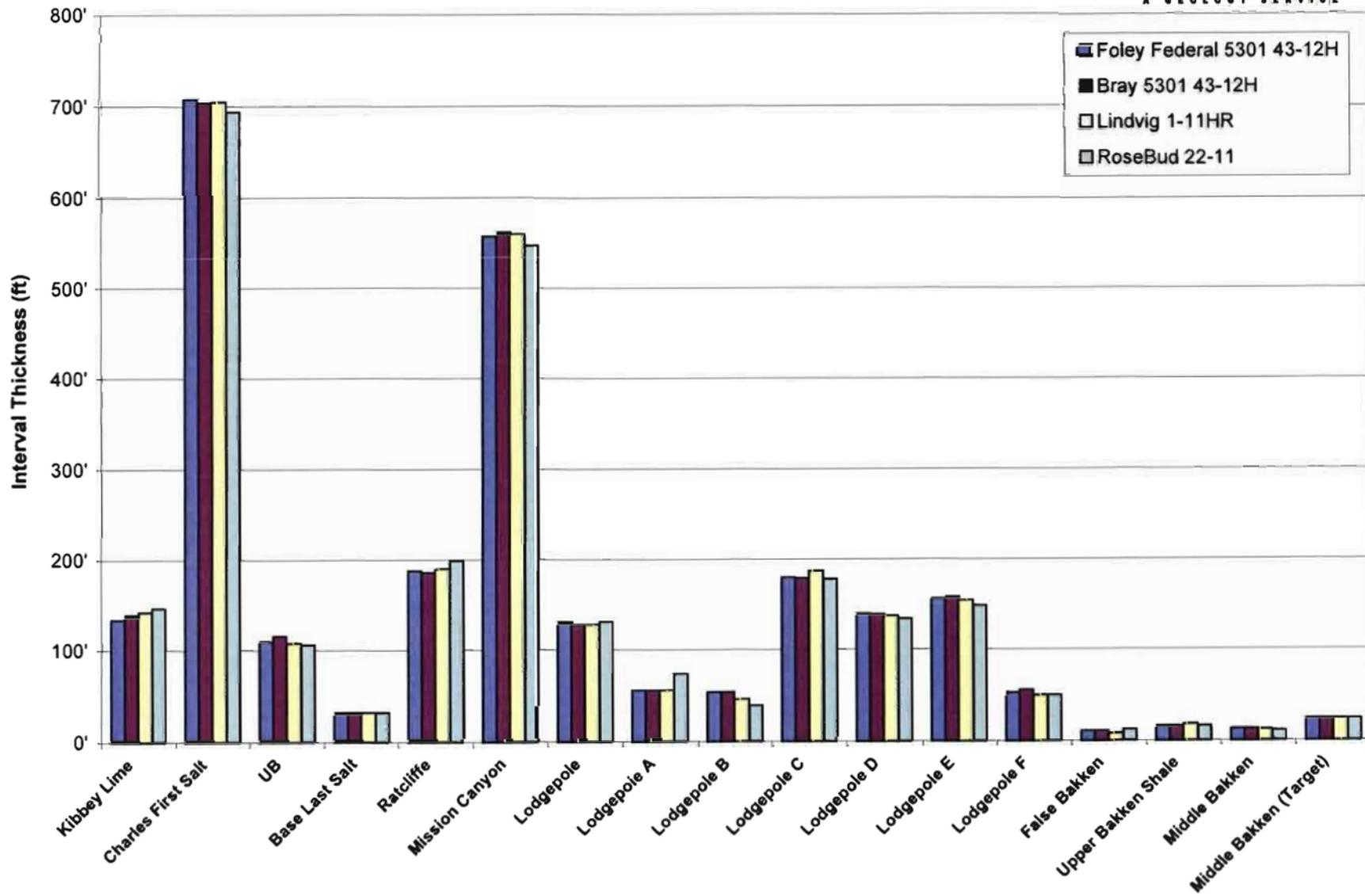
Operator: Well Name: Location:  Elevation:	Subject Well:  Oasis Petroleum North America, LLC Foley Federal 5301 43-12H 250' FSL & 1,827' FEL SW SE Section 12, T153N-R101W								Offset Wells:			
	Formation/ Zone	Prog. Top	Prog. Datum (MSL)	Est. Top (ROP)	MWD GR Top	Datum (MSL)	Interval Thickness	Thickness to Target	Dip To Prog.	Dip To Bray 5301 43-12H	Dip To Lindvig 1-11HR	Dip To RoseBud 22-11
Kibbey Lime	8,353'	-6,262'	8,356'			-6,265'	134'	2,376'	-3'	-1'	-7'	-43'
Charles First Salt	8,499'	-6,408'	8,490'			-6,399'	708'	2,242'	9'	4'	1'	-31'
UB	9,123'	-7,032'	9,120'			-7,029'	110'	1,612'	3'	-6'	0'	-41'
Base Last Salt	9,199'	-7,108'	9,198'			-7,107'	32'	1,534'	1'	0'	-2'	-45'
Ratcliffe	9,247'	-7,156'	9,230'			-7,139'	188'	1,502'	17'	0'	-2'	-45'
Mission Canyon	9,423'	-7,332'	9,418'			-7,327'	557'	1,314'	5'	-2'	0'	-34'
Lodgepole	9,998'	-7,907'	9,975'			-7,884'	131'	757'	23'	3'	3'	-44'
Lodgepole A		-8,005'	10,106'			-8,015'	56'	626'	-10'	0'	0'	-44'
Lodgepole B		-8,091'	10,162'	10,162'		-8,071'	54'	570'	20'	0'	0'	-26'
Lodgepole C		-8,137'	10,216'	10,216'		-8,125'	180'	516'	12'	0'	-8'	-41'
Lodgepole D		-8,324'	10,396'	10,396'		-8,305'	140'	336'	19'	-1'	-1'	-43'
Lodgepole E		-8,457'	10,536'	10,536'		-8,445'	156'	196'	12'	-2'	-4'	-49'
Lodgepole F		-8,573'	10,650'	10,650'		-8,559'	53'	82'	14'	-3'	-6'	-53'
False Bakken	10,703'	-8,612'	10,692'	10,692'		-8,601'	11'	40'	11'	0'	-6'	-57'
Upper Bakken Shale	10,713'	-8,622'	10,703'	10,703'		-8,612'	16'	29'	10'	0'	-9'	-56'
Middle Bakken	10,727'	-8,636'	10,719'	10,719'		-8,628'	13'	13'	8'	0'	-7'	-56'
<b>Middle Bakken (Target)</b>	<b>10,734'</b>	<b>-8,643'</b>	<b>10,732'</b>	<b>10,732'</b>		<b>-8,641'</b>	<b>24'</b>	<b>0'</b>	<b>2'</b>	<b>0'</b>	<b>-8'</b>	<b>-58'</b>
Lower Bakken Shale	10,756'	-8,665'	10,756'	10,756'		-8,665'		10,732'	0'	0'	-8'	-58'

## CONTROL DATA

Operator: Well Name: Location:  Elevation:	Oasis Petroleum North America, LLC Bray 5301 43-12H SW SE Sec. 12, T153N, R101W McKenzie County, ND 100 ft. W of Foley Federal 5301 43-12H				SM Energy Company Lindvig 1-11HR SE SE Sec. 11, T153N, R101W McKenzie County, ND 0.8 mi. W of Foley Federal 5301 43-12H				SM Energy Company RoseBud 22-11 SE NW Sec. 11, T153N, R101W McKenzie County, ND 1.45 mi. NW of Foley Federal 5301 43-12H			
	KB: 2,091'				KB: 2,105'				KB: 1,872'			
Formation/ Zone	E-Log Top	Datum (MSL)	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	8,355'	-6,264'	139'	2,377'	8,363'	-6,258'	142'	2,375'	8,094'	-6,222'	146'	2,361'
Charles First Salt	8,494'	-6,403'	704'	2,238'	8,505'	-6,400'	705'	2,233'	8,240'	-6,368'	694'	2,215'
UB	9,114'	-7,023'	116'	1,618'	9,134'	-7,029'	108'	1,604'	8,860'	-6,988'	106'	1,595'
Base Last Salt	9,198'	-7,107'	32'	1,534'	9,210'	-7,105'	32'	1,528'	8,934'	-7,062'	32'	1,521'
Ratcliffe	9,230'	-7,139'	186'	1,502'	9,242'	-7,137'	190'	1,496'	8,966'	-7,094'	199'	1,489'
Mission Canyon	9,416'	-7,325'	562'	1,316'	9,432'	-7,327'	560'	1,306'	9,165'	-7,293'	547'	1,290'
Lodgepole	9,978'	-7,887'	128'	754'	9,992'	-7,887'	128'	746'	9,712'	-7,840'	131'	743'
Lodgepole A	10,106'	-8,015'	56'	626'	10,120'	-8,015'	56'	618'	9,843'	-7,971'	74'	612'
Lodgepole B	10,162'	-8,071'	54'	570'	10,176'	-8,071'	46'	562'	9,917'	-8,045'	39'	538'
Lodgepole C	10,216'	-8,125'	179'	516'	10,222'	-8,117'	187'	516'	9,956'	-8,084'	178'	499'
Lodgepole D	10,395'	-8,304'	139'	337'	10,409'	-8,304'	137'	329'	10,134'	-8,262'	134'	321'
Lodgepole E	10,534'	-8,443'	158'	198'	10,546'	-8,441'	154'	192'	10,268'	-8,396'	148'	187'
Lodgepole F	10,647'	-8,556'	56'	85'	10,658'	-8,553'	50'	80'	10,378'	-8,506'	50'	77'
False Bakken	10,692'	-8,601'	11'	40'	10,700'	-8,595'	8'	38'	10,416'	-8,544'	12'	39'
Upper Bakken Shale	10,703'	-8,612'	16'	29'	10,708'	-8,603'	18'	30'	10,428'	-8,556'	16'	27'
Middle Bakken	10,719'	-8,628'	13'	13'	10,726'	-8,621'	12'	12'	10,444'	-8,572'	11'	11'
<b>Middle Bakken (Target)</b>	<b>10,732'</b>	<b>-8,641'</b>	<b>24'</b>	<b>0'</b>	<b>10,738'</b>	<b>-8,633'</b>	<b>24'</b>	<b>0'</b>	<b>10,455'</b>	<b>-8,583'</b>	<b>24'</b>	<b>0'</b>
Lower Bakken Shale	10,756'	-8,665'		-24'	10,762'	-8,657'		-24'	10,479'	-8,607'		-24'

# INTERVAL THICKNESS

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

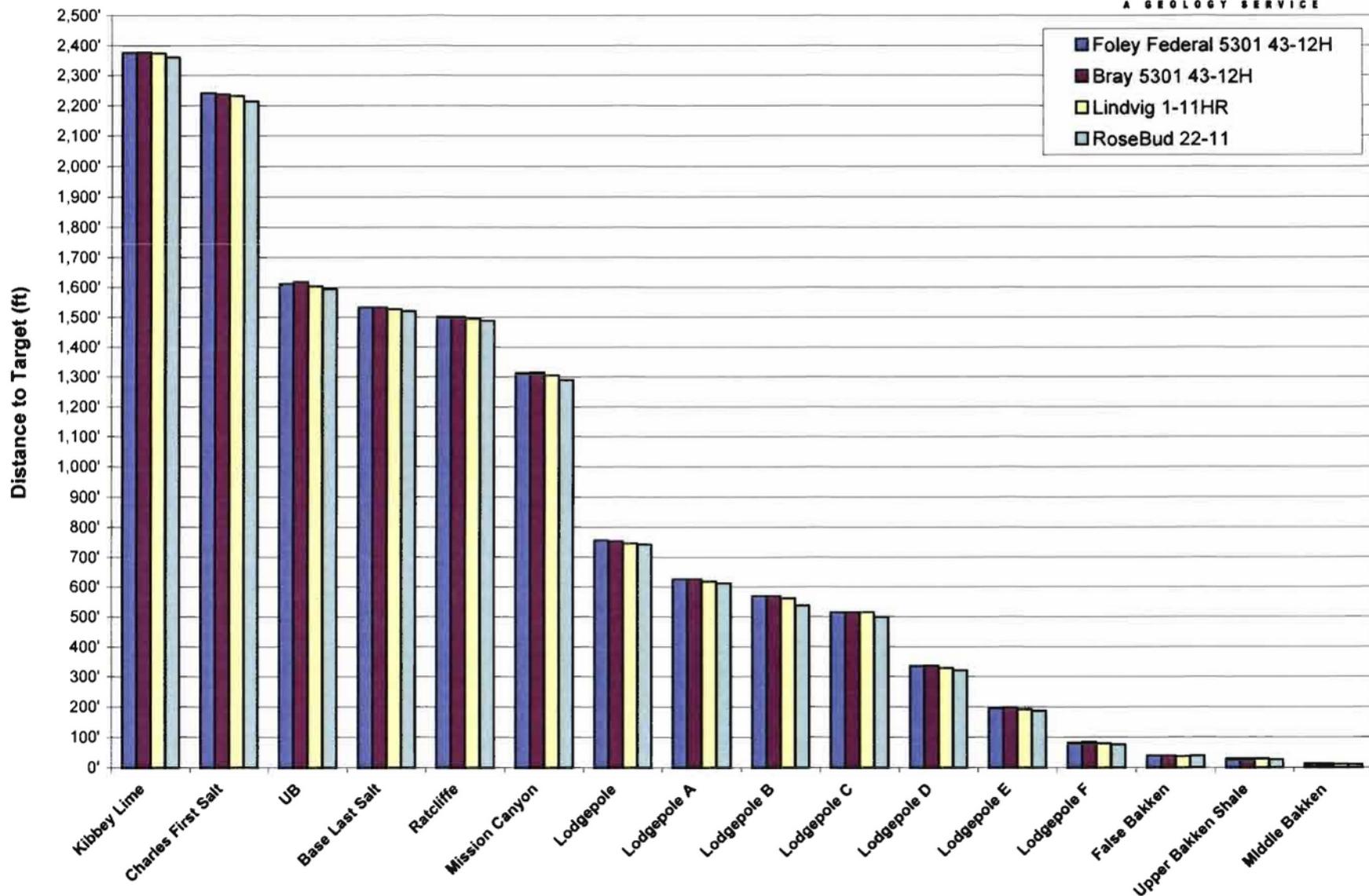


## TARGET PROXIMATION

Formation/ Zone:	Proposed Top of Target From:			
	Bray 5301 43-12H	Lindvig 1-11HR	RoseBud 22-11	Average of Offset Wells
Kibbey Lime	10,733'	10,731'	10,717'	10,727'
Charles First Salt	10,728'	10,723'	10,705'	10,719'
UB	10,738'	10,724'	10,715'	10,726'
Base Last Salt	10,732'	10,726'	10,719'	10,726'
Ratcliffe	10,732'	10,726'	10,719'	10,726'
Mission Canyon	10,734'	10,724'	10,708'	10,722'
Lodgepole	10,729'	10,721'	10,718'	10,723'
Lodgepole A	10,732'	10,724'	10,718'	10,725'
Lodgepole B	10,732'	10,724'	10,700'	10,719'
Lodgepole C	10,732'	10,732'	10,715'	10,726'
Lodgepole D	10,733'	10,725'	10,717'	10,725'
Lodgepole E	10,734'	10,728'	10,723'	10,728'
Lodgepole F	10,735'	10,730'	10,727'	10,731'
False Bakken	10,732'	10,730'	10,731'	10,731'
Upper Bakken Shale	10,732'	10,733'	10,730'	10,732'
Middle Bakken	10,732'	10,731'	10,730'	10,731'
<b>Middle Bakken (Target)</b>	<b>10,732'</b>	<b>10,732'</b>	<b>10,732'</b>	<b>10,732'</b>

# ISOPACH TO TARGET

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



## **Vertical Hole Lithology Descriptions**

Rig crew caught samples in 30' intervals

**Note: Tops are based off rate of penetration and offset interval thickness. Gamma tools were not 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, poorly cemented, well sorted, no visible porosity

8270-8300 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, poorly cemented, well sorted, no visible porosity; SILTY SANDSTONE: off white to gray, soft to friable, sub blocky, calcareous cement, moderately cemented

8300-8330 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, poorly cemented, well sorted, no visible porosity; occasional ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

### **Kibbey "Lime"**

**8,356' TVD (6,265' MSL)**

8330-8360 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, poorly cemented, well sorted, no visible porosity; trace ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous; trace LIMESTONE: mudstone, light to medium gray, microcrystalline, firm, laminated, earthy, no visible porosity

8360-8390 LIMESTONE: mudstone, light to medium gray, microcrystalline, firm, laminated, earthy, no visible porosity

8390-8420 LIMESTONE: mudstone, light to medium gray, microcrystalline, firm, laminated, earthy, no visible porosity; occasional SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, poorly cemented, well sorted, 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, poorly cemented, well sorted, no visible porosity; occasional SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

8450-8480 SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, poorly cemented, well sorted, no visible porosity; occasional SALT; clear to milky, crystalline, hard, euhedral, crystalline texture

### **Charles Salt**

**8,490' TVD (-6,399' MSL)**

8480-8510 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture; rare SILTSTONE: orange to orange brown, soft, blocky to sub platy, calcareous cement, poorly cemented, well sorted, no visible porosity; trace LIMESTONE: mudstone, light to medium gray, firm, earthy texture

8510-8540 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture; trace ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous; trace 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, rare ARGILLACEOUS LIMESTONE: gray, gray to brown, microcrystalline, hard, crystalline, dense, no visible porosity; trace ANHYDRITE: white to off white, microcrystalline, soft, massive, amorphous

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, gray to brown, microcrystalline, hard, crystalline, dense, no visible porosity

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

8780-8810 ARGILLACEOUS LIMESTONE: mudstone gray, gray 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; occasional

8810-8840 SALT; clear to milky, crystalline, hard, euhedral, crystalline texture; occasional ARGILLACEOUS LIMESTONE: mudstone gray, gray 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, gray 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

**UB**

**9,120' TVD (-7,029' 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 (-7,107' MSL)**

9170-9200 SALT: clear to milky, crystalline, hard, euhedral, crystalline texture; trace ANHYDRITE: white to off white, microcrystalline, soft, amorphous

**Ratcliffe**

**9,230' TVD (-7,139' MSL)**

9200-9230 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

9230-9260 LIMESTONE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity, trace spotty oil stain; rare DOLOMITE: mudstone, light gray to light tan, microcrystalline, hard to firm, chalky texture, no visible porosity; trace ANHYDRITE: white to off white, microcrystalline, soft, amorphous

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

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

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

9350-9380 ARGILLACEOUS LIMESTONE: mudstone, light to dark gray, microcrystalline, firm, dense, earthy texture, trace spotty brown oil stain; trace 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**

**9,418' TVD (-7,327' 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**

**9,975' TVD (-7,884' MSL)**

9950-9980 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

9980-10010 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

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, occasional white, common dark gray, microcrystalline, friable to firm, dense, earthy texture, occasional disseminated pyrite, no visible porosity

10160-10190 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

10190-10220 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

10220-10257 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

### **Begin Curve and Lateral Sample Descriptions**

**Rig crew caught samples in 30' intervals from 10,250'-10,820' and 11,030'-TD  
10' Samples from 10,820'-11,030'**

**Note: Formation tops are based off MWD gamma**

10257-10280 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, light to medium gray, trace white to off white, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite

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

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

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

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

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

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

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

**False Bakken** **10,815' MD 10,692' TVD (-8,601')**

10790-10820 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; trace SHALE: dark gray to brown, soft to friable, earthy txt, calcite, common disseminated pyrite, no visible porosity

**Upper Bakken Shale** **10,832' MD 10,703' TVD (-8,612')**

10820-10850 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

10850-10860 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

10870-10880 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

10860-10870 SHALE: black, blocky, friable to firm, earthy texture, carbonaceous, petroliferous, common disseminated pyrite, even black oil stain

**Middle Bakken****10,876' MD 10,719' TVD (-8,628')**

10880-10890 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

10910-10920 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

10900-10910 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

10890-10900 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

10940-10950 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; occasional SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

10930-10940 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

10920-10930 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

10950-10960 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain; rare SILTSTONE: as above

10960-10970 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain; rare SILTSTONE: as above

10980-10990 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain; trace SILTSTONE: as above

10970-10980 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain; trace SILTSTONE: as above

11015-11030 Sample contaminated well/ cement

10990-11000 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

11000-11015 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

11030-11060 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

11060-11090 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, slow diffuse white cut fluorescence

11090-11120 SILTY SANDSTONE: light gray, common medium gray, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, slow diffuse white cut fluorescence

11120-11150 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, slow diffuse white cut fluorescence

11150-11180 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow diffuse white cut fluorescence

11180-11210 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow diffuse white cut fluorescence

11210-11240 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow diffuse white cut fluorescence

11240-11270 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

11270-11300 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

11300-11330 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

11330-11360 SILTY SANDSTONE: light gray, occasional medium gray to brown, trace off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow diffuse green cut fluorescence

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

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

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

11450-11480 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, common brown to green oil in sample

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

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

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

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

11600-11630 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, common brown to green oil in sample

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

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

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

11720-11750 SILTY SANDSTONE: light gray, abundant medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, common brown to green oil in sample

11750-11780 SILTY SANDSTONE: light gray, abundant medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, common brown to green oil in sample

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

11810-11840 SILTY SANDSTONE: light gray, abundant medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, common brown to green oil in sample

11840-11870 SILTY SANDSTONE: light gray, abundant medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, common brown to green oil in sample

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

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

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

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

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

12020-12050 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

12050-12080 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, slow diffuse green cut fluorescence

12080-12110 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain

12110-12140 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain

12140-12170 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, slow diffuse green cut fluorescence

12170-12200 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain

12200-12230 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain

12230-12260 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, slow diffuse green cut fluorescence

12260-12290 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain

12290-12320 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain

12320-12350 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain, slow diffuse green cut fluorescence

12350-12380 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain

12380-12410 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, rare light brown spotty to even oil stain

12410-12440 SILTY SANDSTONE: light gray, trace medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse green cut fluorescence

12440-12470 SILTY SANDSTONE: light gray, trace medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12470-12500 SILTY SANDSTONE: light gray, trace medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12500-12530 SILTY SANDSTONE: light gray, trace medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse green cut fluorescence, slightly contaminated with lube

12530-12560 SILTY SANDSTONE: light gray, trace medium gray to brown, common off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12560-12590 SILTY SANDSTONE: light gray, trace medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12590-12620 SILTY SANDSTONE: light gray, trace medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse green cut fluorescence

12620-12650 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12650-12680 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12680-12710 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse green cut fluorescence

12710-12740 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12740-12770 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12770-12800 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse green cut fluorescence

12800-12830 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12830-12860 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12860-12890 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

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

12920-12950 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

12950-12980 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

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

13010-13040 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13040-13070 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13070-13100 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse green cut fluorescence

13100-13130 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13130-13160 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13160-13190 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse white cut fluorescence

13190-13220 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13220-13250 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13250-13280 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse white cut fluorescence

13280-13310 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13310-13340 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13340-13370 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse white cut fluorescence

13370-13400 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13400-13430 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13430-13460 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse white cut fluorescence

13460-13490 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13490-13520 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13520-13550 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse white cut fluorescence

13550-13580 SILTY SANDSTONE: light gray, trace medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13580-13610 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

13610-13640 SILTY SANDSTONE: light gray, rare medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, slow diffuse green cut fluorescence

13640-13670 SILTY SANDSTONE: light gray, occasional medium gray to brown, common off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

13670-13700 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

13700-13730 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow diffuse green cut fluorescence

13730-13760 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

13760-13790 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

13790-13820 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow diffuse green cut fluorescence

13820-13850 SILTY SANDSTONE: light gray, occasional medium gray to brown, occasional off white to cream, rare dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

13850-13880 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

13880-13910 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow diffuse green cut fluorescence

13910-13940 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

13940-13970 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

13970-14000 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

14000-14030 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

14030-14060 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow green diffuse cut fluorescence

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

14090-14120 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain

14120-14150 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, slow diffuse green cut fluorescence

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

14180-14210 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

14210-14240 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain



14600-14630 SILTY SANDSTONE: light gray, common medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

14630-14660 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

14660-14690 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

14690-14720 SILTY SANDSTONE: light gray, common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, sample contaminated with lube

14720-14750 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

14750-14780 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

14780-14810 SILTY SANDSTONE: light gray, common medium gray to brown, occasional off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain, sample contaminated with lube

14810-14840 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, common oil in sample

14840-14870 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, common oil in sample

14870-14900 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, common oil in sample

14900-14930 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, common oil in sample, contaminated with lube

14930-14960 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, common oil in sample

14960-14990 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, common oil in sample

14990-15020 SILTY SANDSTONE: light gray, very common medium gray to brown, rare off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, occasional oil in sample, contaminated with lube

15020-15050 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, occasional oil in sample

15050-15080 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, occasional oil in sample

15080-15110 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, occasional oil in sample, con with lube

15110-15140 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, trace dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, occasional oil in sample

15140-15170 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, occasional oil in sample

15170-15200 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, occasional oil in sample, contaminated with lube

15200-15230 SILTY SANDSTONE: light gray, very common medium gray to brown, trace off white to cream, occasional dark gray, friable to firm, very fine grained to fine grained, sub angular to sub rounded, moderately sorted, dolomitic cement, moderately to well cemented, calcareous in part, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty to even oil stain, occasional oil in sample

15230-15260 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, trace oil in sample, heavily contaminated with lube

15260-15290 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15290-15320 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15320-15350 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15350-15380 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15380-15410 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube.

15410-15440 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15440-15470 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15470-15500 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15500-15530 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15530-15560 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

15560-15590 SILTY SANDSTONE: light gray, very 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube









17030-17060 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

17060-17090 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

17090-17120 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

17120-17150 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

17150-17180 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

17180-17210 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, trace light brown spotty to even oil stain, occasional oil in sample

17210-17240 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, trace light brown spotty to even oil stain, occasional oil in sample

17240-17270 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, trace light brown spotty to even oil stain, occasional oil in sample

17270-17300 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

17300-17330 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

17330-17360 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

17360-17390 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, trace light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily 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, rare light brown spotty to even oil stain, occasional oil in sample, heavily contaminated with lube

19820-19850 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, heavily contaminated with lube

19850-19880 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, heavily contaminated with lube

19880-19910 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, occasional oil in sample, heavily contaminated with lube



20270-20300 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, heavily contaminated with lube

20300-20330 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, heavily contaminated with lube

20330-20360 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, heavily contaminated with lube

20360-20390 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, heavily contaminated with lube

20390-20420 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, heavily contaminated with lube

20420-20440 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, heavily contaminated with lube



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

## Survey Certification Sheet

Date Submitted:	October 6, 2011
Operator Name:	Oasis Petroleum North America LLC
Well Name:	Foley Federal 5301 43-12H <b>Original Hole</b>
NDIC File No.	20863
Location:	Section 12-T153N-R101W
County/State:	McKenzie County, ND
Surveyed From a Depth of:	2,186' MD to 12,283' MD
Type of Survey:	Magnetic MWD
Name(s) of MWD Supervisor(s):	John Capra / Brandon Ramirez

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:** Foley Federal 5301 43-12H  
**Wellbore:** Original Hole  
 Final Surveys  
**Rig:** Xtreme XTC-17

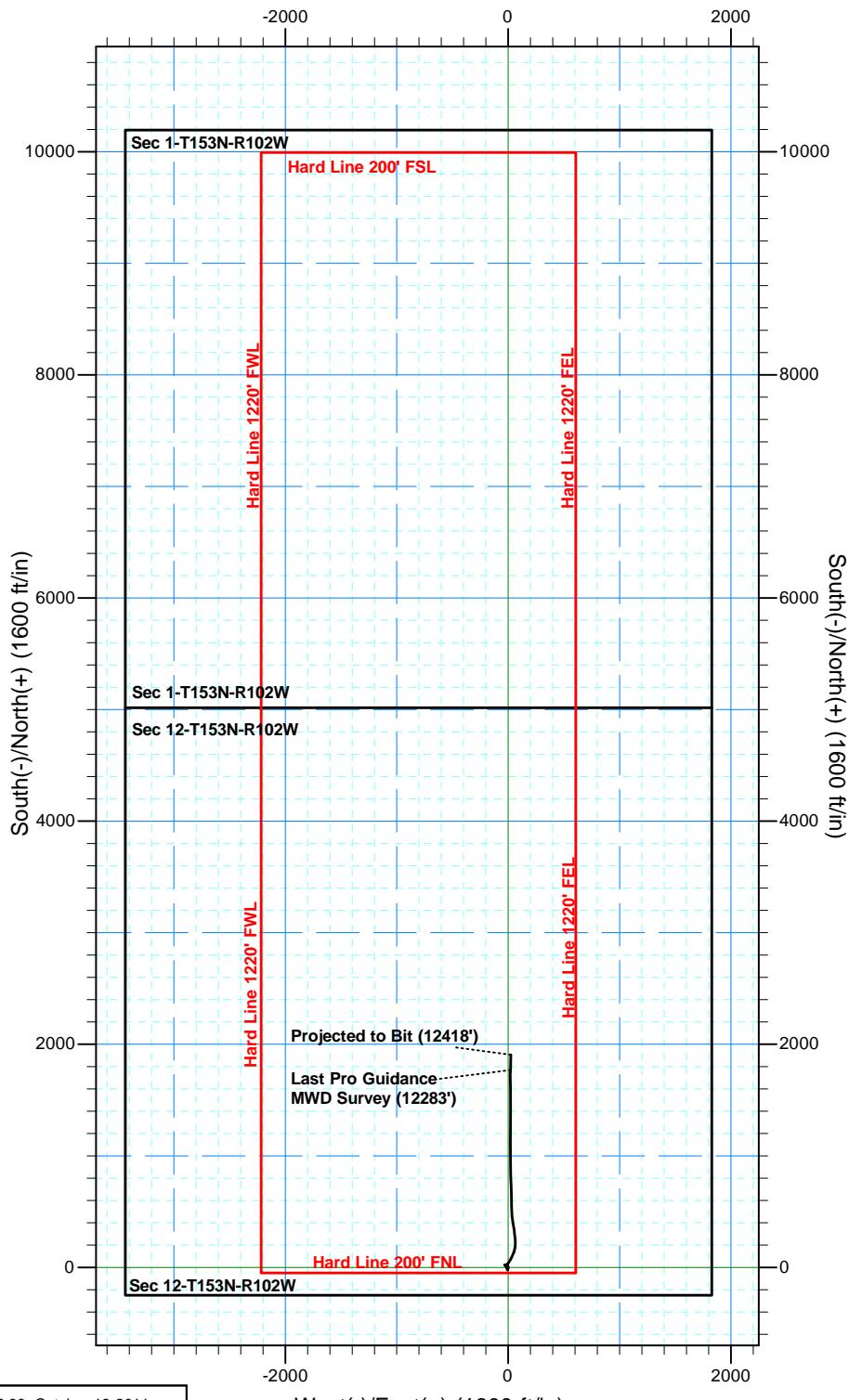


**Surface Location:**  
 SHL 250' FSL & 1827' FEL Sec 12-T153N-R101W

US State Plane 1983  
North Dakota Northern Zone

**Elevation:** 2074' GL + 16.5' KB @ 2090.50ft (Xtreme XTC-17)  
**Northing** 410320.91    **Easting** 1208152.68    **Latitude** 48° 4' 57.940 N    **Longitude** 103° 36' 41.780 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

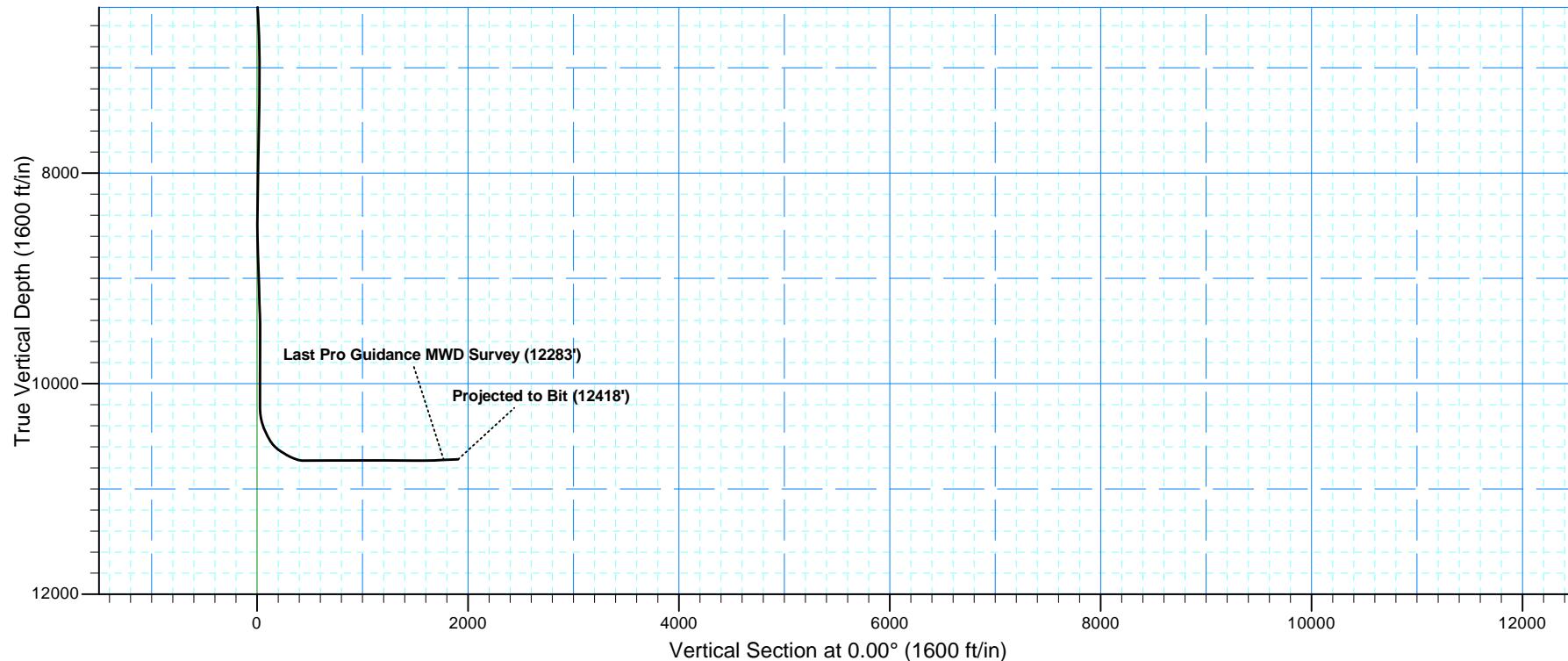


Project: McKenzie County, ND  
Site: Sec 12-T153N-R101W  
Well: Foley Federal 5301 43-12H  
Wellbore: Original Hole  
Final Surveys  
Rig: Xtreme XTC-17

Surface Location:  
SHL 250' FSL & 1827' FEL Sec 12-T153N-R101W

US State Plane 1983  
North Dakota Northern Zone

Elevation: 2074' GLI + 16.5' KB @ 2090.50ft (Xtreme XTC-17)  
Northing      Easting      Latitude      Longitude  
410320.91    1208152.68   48° 4' 57.940 N   103° 36' 41.780 W





مکانیزم های آماده

LLC

مکانیزم های نو

نوسازی-T 53N-W

نوسازی 53N-3-H

نوسازی H

نوسازی های مخصوص

نوسازی های مخصوص

نوسازی های مخصوص





<b>C</b> <b>m</b> <b>o</b> <b>o</b> <b>o</b>	<b>McK</b> <b>nz</b> <b>C</b> <b>o</b> <b>n</b> <b>D</b>	<b>L</b> <b>T</b> <b>M</b> <b>N</b> <b>O</b>	<b>o</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>
<b>j</b> <b>o</b> <b>o</b>	<b>c</b> <b>T</b> <b>o</b> <b>o</b> <b>o</b>	<b>f</b> <b>f</b> <b>f</b> <b>f</b> <b>f</b>	<b>o</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>
<b>W</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>	<b>h</b> <b>C</b> <b>M</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>
<b>W</b> <b>o</b> <b>o</b>	<b>g</b> <b>n</b> <b>o</b> <b>o</b> <b>o</b>	<b>h</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>
<b>o</b> <b>o</b> <b>o</b>	<b>n</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>	<b>A</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b> <b>o</b> <b>o</b>

McKenzien, D
M
G
M

<input type="checkbox"/>	<input checked="" type="checkbox"/> <b>c</b>	<input type="checkbox"/> <b>T</b>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> <b>m</b>	<input type="checkbox"/> <b>L</b> / <b>L</b> <b>ng</b>	<input type="checkbox"/> <b>N</b> <b>h</b>	<input type="checkbox"/> <b>6.97</b> f
<input type="checkbox"/> <b>U</b>	<input type="checkbox"/> f	<input type="checkbox"/> <b>E</b>	<input type="checkbox"/> <b>8.00</b> f

<b>W</b>	□□□□□□□□□□□□						
<b>W</b> □□□□□□□□□□	<b>+N/-□</b>	□□□f□	<b>N</b> □□h□□□	□□□,□□□.9□ f□	<b>L</b> □□□□□□	□8°□□□7.9□□□	
	<b>+E/-W</b>	□□□f□	<b>E</b> □□□□□□	□,□□8,□□□.67 f□	<b>L</b> □□□□□□□□	□□□°□□□□□7.8□□□	
□□□□□□U□□□□□□□□		□□□f□	<b>W</b> □□h□□□E□□□□□□	f□	<b>G</b> □□□□□L□□□□□	□,□□7□□□f□	

W	g	n	h
M	M	N	m
IG	8/	7	6,76
10	10	10	10

m	T	(W)	N	
(f)	(f)	(W)	m	
99.00	8.00	GncM D((g n))	M D	M D
8.00	8.00	jcnB((g n))	jcn	jcn

Meteostation											
V	V	B	T								
Wind direction	Wind speed	Azimuth	Wind direction	Wind speed	+N/-S	+E/-W	Wind direction	Wind speed	Wind direction	Wind speed	
(f)	(°)	(°)	(f)	(f)	(f)	(f)	(f)	(°/m/s)	(°/m/s)	(°/m/s)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0,99.00	0.00	0.00	0,99.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>Tilted 9-5/8" Celsius temperature height (0.99')</b>											
0,86.00	0.00	096.80	0,86.00	0.70	0.00	0.70	0.00	0.00	0.00	0.00	
0,80.00	0.00	090.00	0,80.98	0.80	0.70	0.80	0.00	0.00	0.00	0.60	
0,70.00	0.00	090.00	0,70.96	0.90	0.00	0.90	0.00	0.00	0.00	0.60	
0,69.00	0.00	097.60	0,68.90	6.70	0.70	6.70	0.00	0.9	0.00	7.87	
0,60.00	0.00	090.00	0,60.90	9.00	0.00	9.00	0.00	0.00	0.00	0.07	





M	V		V		V		B		T	
	h	m	h	m	+N/-	+E/-W	(f)	(°/m)	(°/m)	(°/m)
(f)	(°)	(°)	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
6,69.00	0.6	0.9.8	6,6.7.8	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.6
6,70.00	0.0	0.0.0	6,7.0.67	0.8.00	0.8.0	0.8.0	0.8.0	0.6.0	0.1.00	0.9.00
6,797.00	0.0	0.9.0	6,79.1.7	0.0.7	0.0.9	0.0.7	0.0.7	0.0.0	0.0.8	0.8.70
6,89.00	0.0	0.0	6,889.00	0.0.9	0.0.0	0.0.9	0.0.9	0.0.0	0.0.7	0.0.00
6,98.00	0.0	9.0	6,98.1.00	0.0.6	0.0.0	0.0.6	0.0.6	0.79	0.1.00	98.80
7,08.00	0.0	0.0.0	7,0.78.00	0.0.0	0.9.70	0.0.0	0.0.0	0.0.0	0.0.0	0.0.90
7,07.00	0.0	0.0.8	7,0.70.8	0.0.8	0.7.80	0.0.8	0.0.9	0.0.0	0.0.0	0.0.8
7,068.00	0.0	0.0.0	7,0.66.00	0.0.99	0.0.80	0.0.99	0.0.99	0.0.0	0.0.0	0.0.0
7,06.00	0.9	0.0.0	7,0.61.00	0.0.8	0.0.0	0.0.8	0.0.0	0.0.0	0.0.0	0.0.0
7,006.00	0.0	0.0.0	7,0.000.00	0.8.00	0.0.66	0.8.00	0.0.0	0.0.0	0.0.0	0.0.0
7,000.00	0.6	0.0.9	7,0.08.06	0.6.00	0.7.7	0.6.00	0.0.0	0.0.0	0.0.0	0.0.6
7,60.00	0.8	0.0.0	7,6.00.9	0.0.0	0.0.8	0.0.0	0.0.0	0.0.0	0.0.8	0.0.6
7,70.00	0.6	0.0.6	7,7.0.7.00	0.0.8	0.0.60	0.0.8	0.0.0	0.0.0	0.0.0	0.7.6
7,80.00	0.7	0.0.8	7,8.00.00	0.0.7	0.9.00	0.0.70	0.0.0	0.0.0	0.0.0	0.0.0
7,90.00	0.6	0.0.8	7,9.00.7	0.0.6	0.6.00	0.6.00	0.0.0	0.0.0	0.0.0	0.0.6
8,000.00	0.0	0.0.0	8,0.09.00	0.0.9	0.0.60	0.0.9	0.0.0	0.0.0	0.0.0	0.7.00
8,000.00	0.0	0.0.0	8,0.000.00	8.70	0.0.00	8.70	0.0.0	0.0.0	0.0.0	0.0.80
8,009.00	0.0	0.0.7	8,0.06.99	7.07	0.0.6	7.07	0.0.0	0.0.0	0.0.0	0.0.70
8,098.00	0.0	0.6.0	8,0.000.97	0.0.7	0.0.00	0.0.7	0.0.0	0.0.0	0.0.0	0.0.00
8,090.00	0.6	0.0.8	8,0.09.90	0.0.0	0.0.79	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0
8,086.00	0.0	0.0.7	8,0.08.90	0.0.0	0.0.00	0.0.0	0.0.0	0.0.0	0.0.0	0.0.96
8,680.00	0.7	0.0.7	8,677.89	0.80	0.0.9	0.80	0.0.0	0.0.0	0.0.0	0.8.09
8,770.00	0.9	0.0.7	8,77.0.8	0.8.0	0.0.00	0.8.0	0.0.0	0.0.0	0.0.0	0.0.6
8,869.00	0.0	0.0.8	8,866.80	0.0.8	0.0.00	0.0.8	0.0.0	0.0.0	0.0.0	0.0.90
8,960.00	0.8	0.0.0	8,96.0.76	0.0.87	0.0.90	0.0.87	0.0.0	0.0.0	0.0.0	0.0.79
9,007.00	0.9	0.0.9	9,000.70	0.6.80	0.6.60	0.6.80	0.0.7	0.0.0	0.0.0	0.0.0
9,000.00	0.8	0.0.0	9,0.09.66	0.9.86	0.7.00	0.9.86	0.0.0	0.0.0	0.0.0	0.0.6
9,006.00	0.7	0.0.9	9,000.60	0.0.7	0.7.00	0.0.70	0.0.0	0.0.0	0.0.0	0.0.00
9,000.00	0.7	0.0.7	9,0.07.08	0.0.0	0.7.6	0.0.0	0.0.0	0.0.0	0.0.0	0.0.80
9,000.00	0.6	0.0.8	9,0.000.00	0.8.9	0.7.80	0.8.9	0.0.0	0.0.0	0.0.0	0.0.6
9,008.00	0.0	0.0.7	9,0.000.00	0.9.00	0.7.80	0.9.00	0.0.7	0.0.0	0.0.0	0.0.99.89
9,600.00	0.0	0.6.6	9,6.0.9	0.9.00	0.7.6	0.9.00	0.0.0	0.0.0	0.0.0	0.0.70
9,706.00	0.0	0.6.0	9,7.00.00	0.8.8	0.7.6	0.8.8	0.0.0	0.0.0	0.0.0	0.0.80
9,800.00	0.0	0.7.8	9,8.0.8	0.7.90	0.7.00	0.7.90	0.0.6	0.0.0	0.0.0	0.0.80
9,900.00	0.0	0.7.0	9,9.00.00	0.7.6	0.7.00	0.7.6	0.0.0	0.0.0	0.0.0	0.0.77
9,999.00	0.0	0.0.7	9,996.00	0.6.97	0.7.00	0.6.97	0.0.0	0.0.0	0.0.0	0.0.00
00,090.00	0.0	0.8.6	00,090.00	0.6.70	0.6.80	0.6.70	0.0.0	0.0.0	0.0.0	0.0.00
00,088.00	0.0	0.6.8	00,080.00	0.6.07	0.6.80	0.6.07	0.0.9	0.0.0	0.0.0	0.0.00
00,080.00	0.0	0.0.0	00,080.00	0.0.00	0.0.00	0.0.00	0.0.76	0.0.0	0.0.0	0.0.9.07
00,000.00	0.0	0.9.8	00,000.00	0.79	0.0.00	0.0.79	0.0.60	0.0.0	0.0.0	0.0.7.00
00,000.00	0.0	0.0.8	00,000.00	0.9.07	0.0.00	0.0.9.07	0.0.06	0.0.0	0.0.0	0.0.9.68



<b>C</b> ompany	hA co LLC	L	7' GL+6.0' KB @ 9.0' f(X) XTC 7)
Project	McKenz Cen, ID	TV	7' GL+6.0' KB @ 9.0' f(X) XTC 7)
Scope	ce T	M	N h f
Wells		C	Min C
Wellbore	gn	M	EDM
Operations	n		

M	Elevation (ft)	Inclination (°)	Azimuth (°)	Verticality		Elevation (ft)	Inclination (°)	Azimuth (°)	Verticality		Elevation (ft)	Inclination (°)	Azimuth (°)	Verticality		Elevation (ft)	Inclination (°)	Azimuth (°)	Verticality		Elevation (ft)	Inclination (°)	Azimuth (°)	Verticality	
				+N/E	+E/W																				
77.00	8.00	0.00	7.9	6.90	6.00	6.90	8.00	8.0	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00		
8.00	0.00	6.00	6.6	97	9.00	97	9.00	9.0	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00		
6.00	9.00	0.00	6.00	67.00	8.60	67.00	6.00	6.00	67.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00		
7.00	7.00	7.9	8.9	79.6	79.6	79.6	7.00	7.00	79.6	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00		
8.00	8.00	0.00	86.00	9.00	8.00	9.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00		
6.00	0.00	6.00	9.6	6.00	6.00	6.00	8.6	8.6	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00		
97.00	8.00	9.00	6.60	8.97	8.80	8.97	8.80	8.80	8.97	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80		
6.8.00	0.00	6.00	89.00	8.9	8.00	8.9	7.00	8.00	8.9	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00		
6.9.00	8.90	8.00	6.00.9	8.06	6.00	8.06	6.00	6.00	8.06	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00		
69.00	9.0	0.00	6.00.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
7.00	7.70	8.9	6.7.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
7.00	9.00	0.00	66.0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
78.00	6.00	0.00	68.0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
8.16.00	6.00	0.00	69.8.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
8.18.00	66.90	0.00	78.6.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
879.00	7.00	0.00	79.0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
9.00.00	77.80	0.00	77.6.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
9.00.00	8.00	0.00	70.0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
966.00	87.70	0.00	70.0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
99.00	9.70	0.00	70.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
9.00	9.60	0.00	70.9.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
89.90	7.00	0.00	70.8.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
89.00	8.00	0.00	70.9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
9.00	8.90	0.00	70.9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
89.60	9.00	0.00	70.0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
7.00	9.00	0.00	70.9.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
89.00	8.00	0.00	70.9.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
8.07.00	9.00	0.00	70.0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
89.80	9.70	0.00	70.0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00		
88.00	8.60	0.00	70.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
9.00	9.00	0.00	70.0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
88.00	9.00	0.00	70.9.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
8.08.00	9.00	0.00	70.0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
9.00	7.00	0.00	70.0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
<b>L</b> ateral <b>G</b> radient <b>MW</b> ( <b>83'</b> )																									
8.08.00	9.00	0.00	70.9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
<b>B</b> earing ( <b>8'</b> )																									



f DIRECTIONAL LTD

EXPERIENCE ENHANCES PERFORMANCE



<b>C</b> ompany	hA co LLC	L evel C - f	7' GL+6.6' KB @ 9' f(X) XTC 7)
<b>M</b> ember	McKenz Cen, ID	TV f	7' GL+6.6' KB @ 9' f(X) XTC 7)
<b>C</b> lient	c T	M f	7' GL+6.6' KB @ 9' f(X) XTC 7)
<b>W</b> ork		N h f	T
<b>W</b> orkshop	g n	C M h	Min C
<b>O</b> peration	n		EDM

A				
M	V	L		C
h	h	+N/-	+E/-W	mm
(f)	(f)	(f)	(f)	
99.00	99.00	00	00	Tin 9/8" C long h(99')
8.00	7.80	77.00	6	L G M D(8.0')
8.00	7.9.90	9.00.80	6	obj c B(8.0')



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

## Survey Certification Sheet

Date Submitted:	October 6, 2011
Operator Name:	Oasis Petroleum North America LLC
Well Name:	Foley Federal 5301 43-12H <b>Sidetrack 1</b>
NDIC File No.	20863
Location:	Section 12-T153N-R101W
County/State:	McKenzie County, ND
Surveyed From a Depth of:	12,093' MD to 14,467' MD
Type of Survey:	Magnetic MWD
Name(s) of MWD Supervisor(s):	John Capra / Brandon Ramirez

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:** Foley Federal 5301 43-12H  
**Wellbore:** Sidetrack 1  
**Final Surveys**  
**Rig:** Xtreme XTC-17



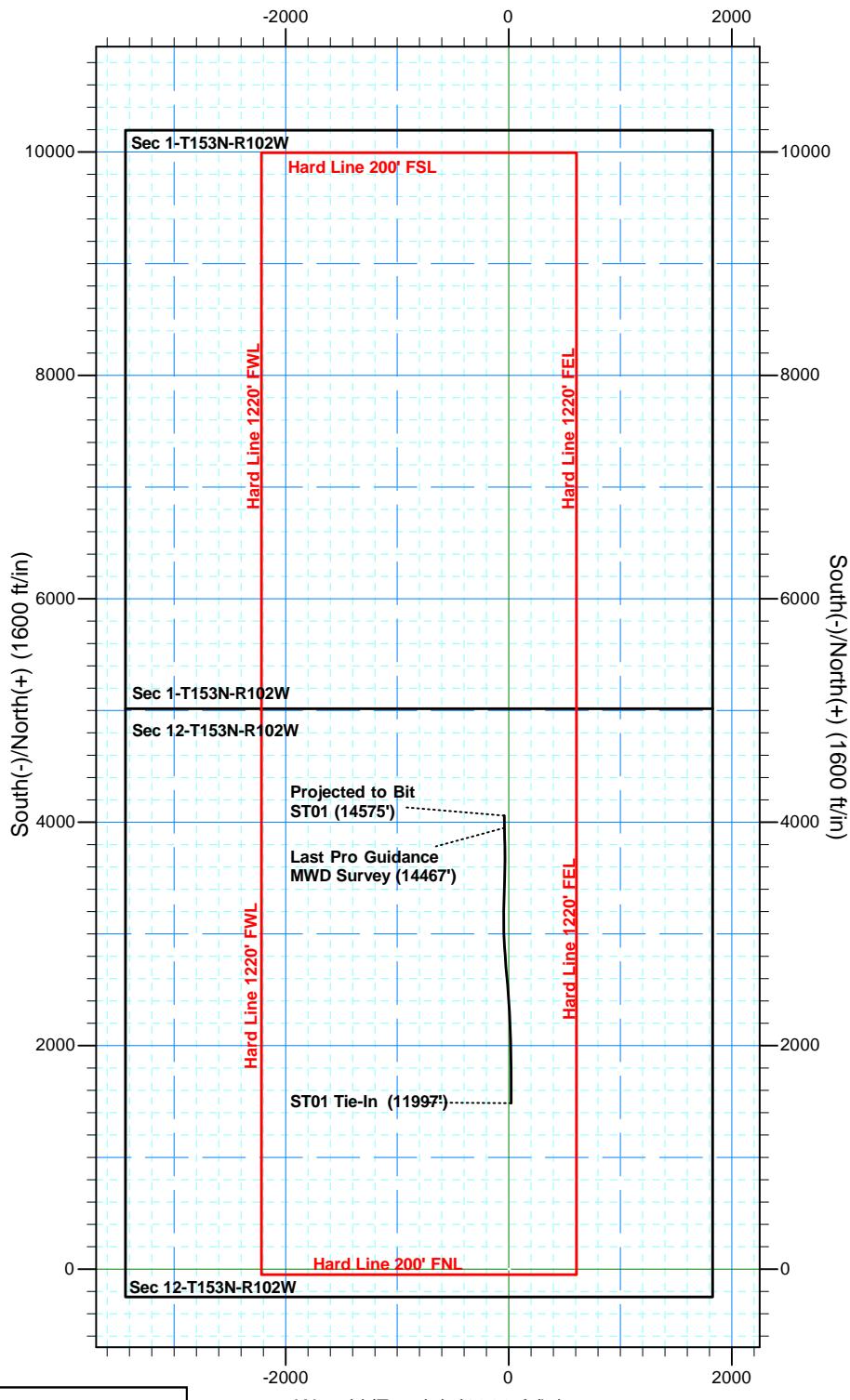
**Surface Location:**  
 SHL 250' FSL & 1827' FEL Sec 12-T153N-R101W

US State Plane 1983  
North Dakota Northern Zone

**Elevation:** 2074' GL + 16.5' KB @ 2090.50ft (Xtreme XTC-17)  
 Northing 410320.91      Easting 1208152.68      Latitude 48° 4' 57.940 N      Longitude 103° 36' 41.780 W

To convert a Magnetic Direction to a True Direction, Add 8.59° East

Magnetic Model: IGRF200510      Date: 22-Sep-11  
Azimuths & Coordinates to True North



# Oasis Petroleum North America LLC

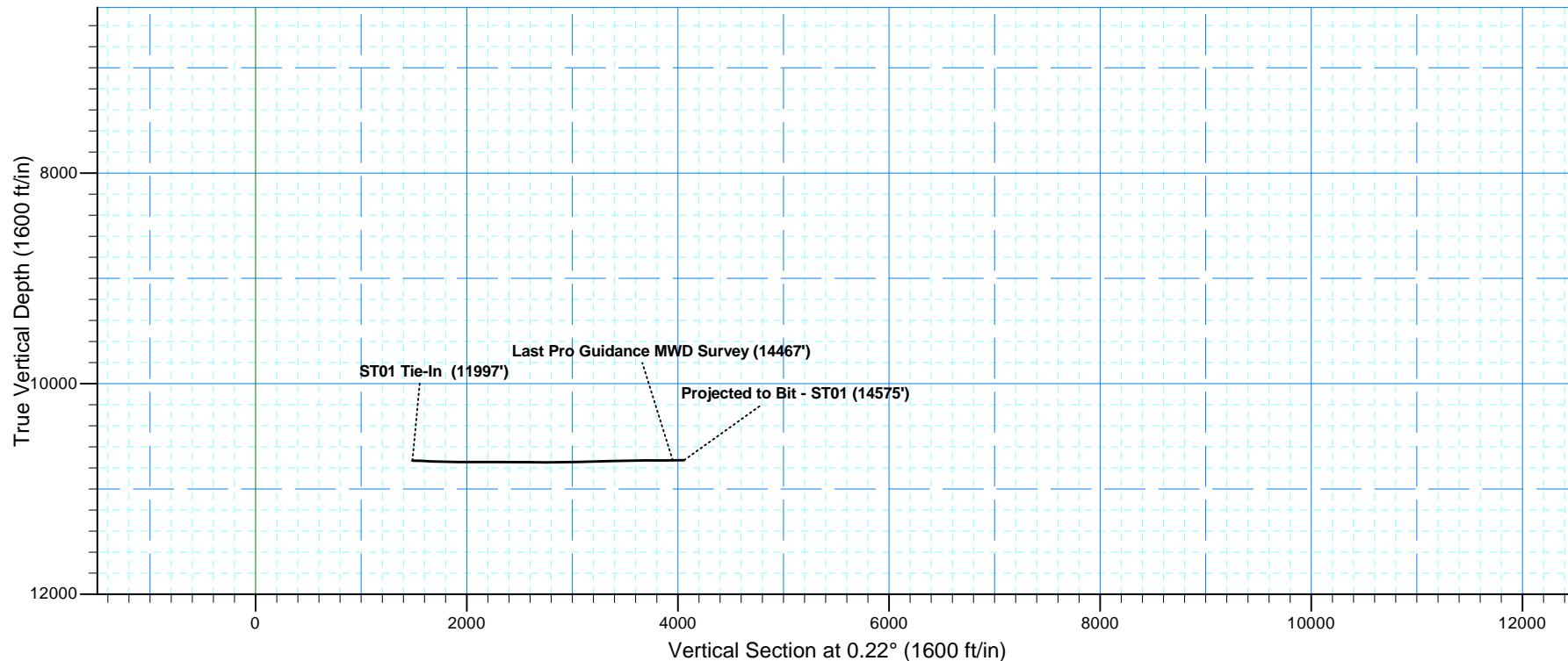


Project: McKenzie County, ND  
Site: Sec 12-T153N-R101W  
Well: Foley Federal 5301 43-12H  
Wellbore: Sidetrack 1  
Final Surveys  
Rig: Xtreme XTC-17

Surface Location:  
SHL 250' FSL & 1827' FEL Sec 12-T153N-R101W

US State Plane 1983  
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Elevation: 2074' GLI + 16.5' KB @ 2090.50ft (Xtreme XTC-17)  
Northing      Easting      Latitude      Longitude  
410320.91    1208152.68   48° 4' 57.940 N   103° 36' 41.780 W





مکانیزم امنیتی ملکیت املاک

**LLC**

مکانیزم امنیتی ملکیت املاک





<b>M</b> onday	<b>K</b> onnect <b>C</b> onnect <b>D</b>
<b>G</b> uesday	<b>A</b> uth <b>C</b> onnect <b>D</b> ay
<b>M</b> riday	<b>H</b> oliday <b>D</b> evelopment <b>Z</b> one

<b>□□□</b>	<b>□□c□□T□□□□□</b>	<b>N□□h□□□</b>	<b>□□, □□6.97 f□</b>	<b>L□□□□□□</b>	<b>□8°□□□7.96 □□</b>
<b>□□□m□</b>	<b>L□/L□ng</b>	<b>E□□□□□</b>	<b>□, □□8, □□□□ f□</b>	<b>L□□□□□□</b>	<b>□□°□□□6' □□□ □□□</b>
<b>□□□□□U□□□□□□</b>	<b>f□</b>	<b>□□□□□□□□</b>	<b>□, □□□□ f□</b>	<b>G□□C□□□□□□</b>	<b>□□ □□ °</b>

<b>W</b>	□□□□□□□□□□□□					
<b>W</b> □□□□□□□□□□	<b>+N/-□</b>	□□□f□	<b>N</b> □□h□□□	□□□,□□□.9□ f□	<b>L</b> □□□□□□	□8°□□□7.9□□□
	<b>+E/-W</b>	□□□f□	<b>E</b> □□□□□□	□,□□8,□□□.67 f□	<b>L</b> □□□□□□□□	□□□°□□□□□7.8□□□
□□□□□□U□□□□□□□□		□□□f□	<b>W</b> □□h□□□E□□□□□□	f□	<b>G</b> □□□□□L□□□□□	□,□□7□□□f□

W	ck	
M	Nm	m
IG	9/	8.9
7	6,7	7

m	T	(W)	Nm	
(f)	(f)			
99.00	997.00	GncM D((g n))	M D	M D
9.00	67.00	Dc n M D((ck))	M D	M D
7.00	7.00	j c B T((ck))	M D	M D

M <small>eteorological</small>	V <small>isual</small>		V <small>isual</small>		B <small>eacon</small>		T <small>emperature</small>	
	A <small>zimuth</small>	I <small>ndicator</small>	A <small>zimuth</small>	I <small>ndicator</small>	+N/-S	+E/-W	(°/○○○f)	(°/○○○f)
(f)	(°)	(f)	(°)	(f)	(f)	(f)	(f)	(f)
1997.00	88.00	8.60	70070	8009			8006	000
T <small>emperature</small> -H <small>umidity</small> (1997)							68	6
90.00	87.00	0.00	70070	8000	0009	8006	000	000
88.00	87.00	0.00	7006	67098	0090	67000	060	000
88.00	89.80	9.60	70068	769.90	0009	77000	006	000
78.00	89.00	9.90	7009	86090	0007	86000	080	070
78.00	89.00	8.90	70090	90090	0908	9009.98	007	000



Cm	hAco LLC	LCoCof	hAco LLC
McKenz	Co n, D	TVf	7'GL+6.0KB@9.0f(XTC 7)
c	T	Mof	7'GL+6.0KB@9.0f(XTC 7)
W		Nhf	T
W	ck	CoCofMh	Min C
	n		EDMngUdb

M	V	V	B	T
h	h	h	h	h
(f)	(f)	(f)	(f)	(f)
68.00	9.00	8.00	7.00.00	89
66.00	9.90	7.00	7.00.70	9.80
78.00	89.00	7.00	7.00.80	7.00
8.00.00	89.00	6.80	7.6.00	9.00
9.7.00	9.00	6.70	7.6.80	9.00
9.00.00	9.00	7.00	7.6.7	8.6
9.7.00	89.00	8.00	7.6.9	6.00.70
9.00.00	89.00	7.00	7.7.80	7.8.00
9.8.00	9.90	6.70	7.7.0.8	8.00.9
9.00.00	9.90	6.00	7.6.00	9.6.90
9.7.00	9.00	7.00	7.0.8	9.00.70
6.00.00	9.00	8.70	7.00.87	96.68
7.7.00	9.00	6.0	7.00.87	9.00.67
8.00.00	9.00	0.00	7.00.00	86.09
897.00	9.90	0.00	7.7.0.8	8.00.7
99.00	9.00	0.00	7.00.00	76.00
87.00	9.00	0.00	7.9.86	7.00.00
8.00.00	89.70	0.00	7.9.00	666.00
77.00	89.70	9.60	7.9.00	76.00.8
7.00.00	9.00	8.60	7.9.77	8.00.6
67.00	9.00	9.00	7.8.00	9.00.00
<b>LCoCof MW(67')</b>				
7.00.00	9.00	9.00	7.7.00	9.00.7
<b>Mcj B-T(575')</b>				

M	V	LCoCof	Comm
h	h	+N/-	+E/-W
(f)	(f)	(f)	(f)
997.00	7.0.70	8.00.9	7.00.7In(997')
67.00	7.0.80	9.00.00	7.87 LCoCof Genc M D(67')
7.00.00	7.0.70	9.0.7	9.0.8 Mcj B-T(7')



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

## Survey Certification Sheet

Date Submitted:	October 6, 2011	
Operator Name:	Oasis Petroleum North America LLC	
Well Name:	Foley Federal 5301 43-12H	<b>Sidetrack 2</b>
NDIC File No.	20863	
Location:	Section 12-T153N-R101W	
County/State:	McKenzie County, ND	
Surveyed From a Depth of:	13,991' MD to 20,391' MD	
Type of Survey:	Magnetic MWD	
Name(s) of MWD Supervisor(s):	John Capra /Tim Pile	

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

**Project: McKenzie County, ND**  
**Site: Sec 12-T153N-R101W**  
**Well: Foley Federal 5301 43-12H**  
**Wellbore: Sidetrack 2**  
**Final Surveys**  
**Rig: Xtreme XTC-17**

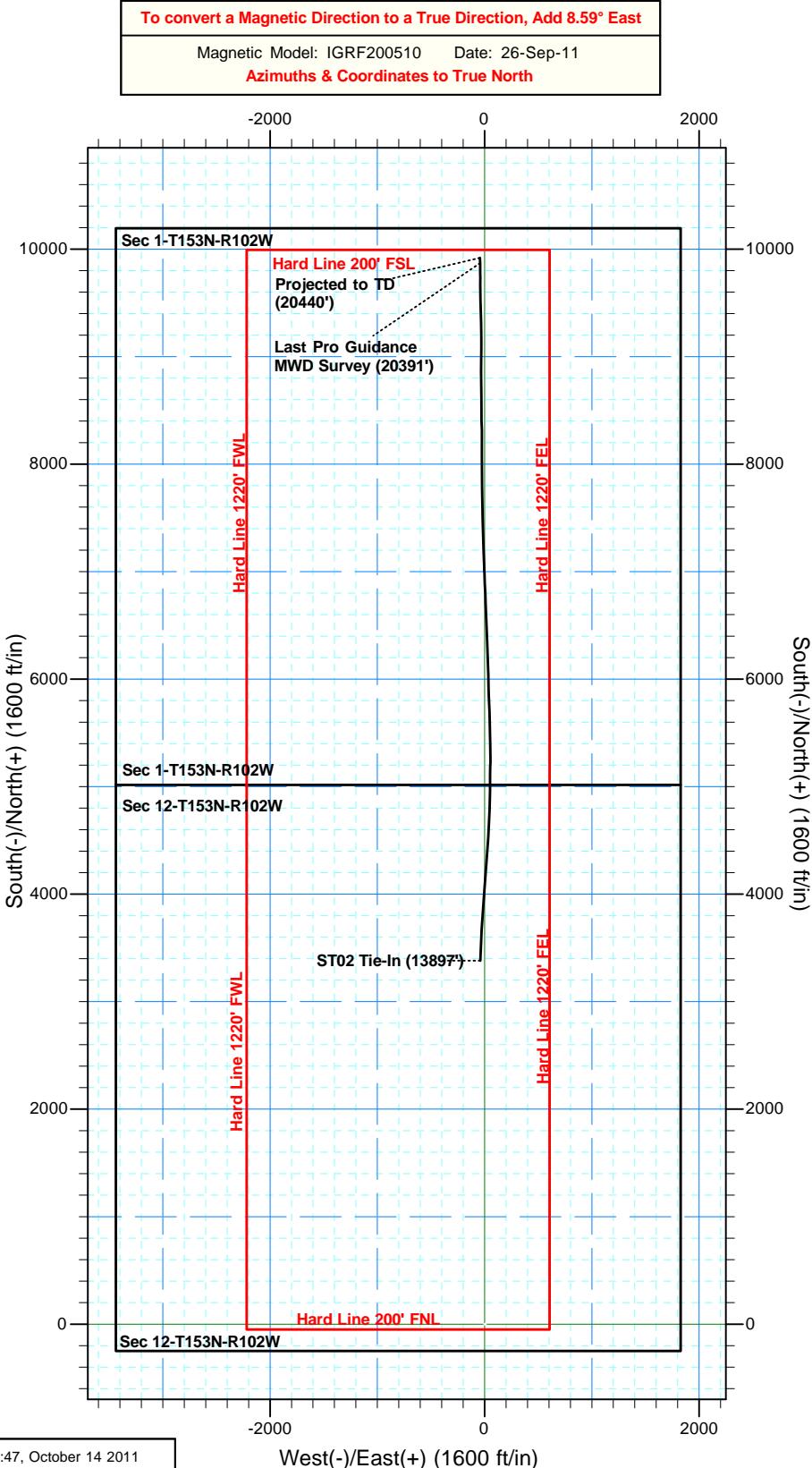


**Surface Location:**  
**SHL 250' FSL & 1827' FEL Sec 12-T153N-R101W**

US State Plane 1983  
 North Dakota Northern Zone

**Elevation: 2074' GL + 16.5' KB @ 2090.50ft (Xtreme XTC-17)**

Northing	Easting	Latitude	Longitude
410320.91	1208152.68	48° 4' 57.940 N	103° 36' 41.780 W



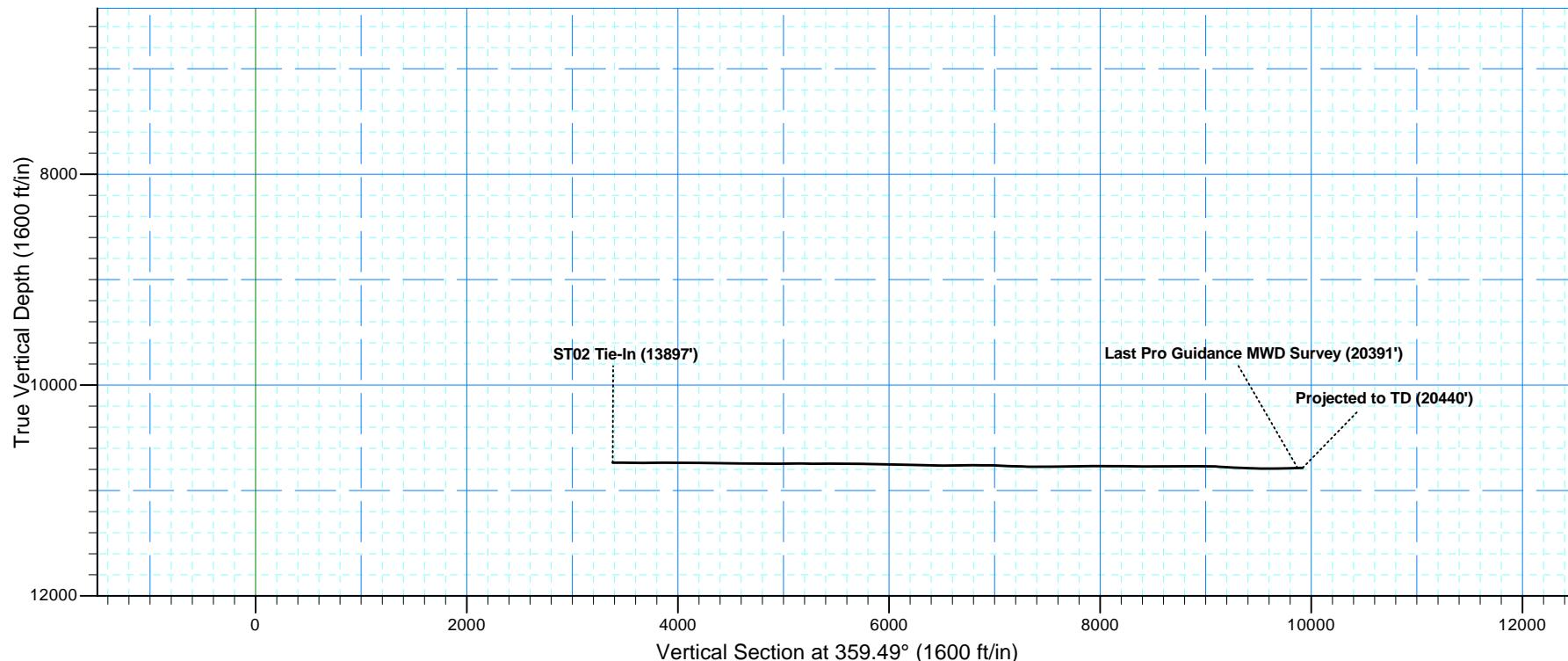
# Oasis Petroleum North America LLC



Project: McKenzie County, ND  
Site: Sec 12-T153N-R101W  
Well: Foley Federal 5301 43-12H  
Wellbore: Sidetrack 2  
Final Surveys  
Rig: Xtreme XTC-17

Surface Location:  
SHL 250' FSL & 1827' FEL Sec 12-T153N-R101W

US State Plane 1983  
North Dakota Northern Zone  
Elevation: 2074' GLI + 16.5' KB @ 2090.50ft (Xtreme XTC-17)  
Northing Easting Latitude Longitude  
410320.91 1208152.68 48° 4' 57.940 N 103° 36' 41.780 W





مکانیزم آماده ام

LLC

مکانیزم کنترل

آرکیتکچر-ت ۵۳ ن-و و

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آرکیتکچر

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آرکیتکچر





Cm	McKenzCn, LLC	Lc-f	f
j	McKenzCn, LLC	TV-f	
c	C-T	M-f	
W		N-h f	
W	d ck	NC-Mh	
	n		EDM

McKenzCn, LLC			
M	U98	m	M
G	A	m	m
M	Z	D	

C-T						
h	N-h	6.97 f	L	8° 7.96		
m	E	8, 8 f	L	8° 6'		
U	f	8 f	G-C	7 °		

W						
W	+N-/	9 f	N-h	8, 9 f	L	8° 7.9
	+E/-W	8 f	E	8, 67 f	L	8° 6' 78
U	8 f	W-h E		f	G-L	7, 0 f

W						
M	M-N-m	m	m	A	m	(T)
	IG	9/6		8.9	7.0	6,76

A-N						
V	h	ACTUAL	T			897.00
V	h(f)	+N-/	+E/-W	m	(T)	

m						
m	T					6
(f)	(f)	(W)	T-N-m			
99.00	997.00 G-d-n-c-M-D	(g-n)	M D	M D		
99.00	897.00 D-c-n-M-D	(d-c)	M D	M D		
99.00	99.00 G-d-n-c-M-D	(d-c)	M D	M D		
77.00	77.00 j-c-d-TD	(j-c)	jj-c	jj-c		

M	I	Az m h	V	V	B	T
(f)	(°)	(°)	(f)	(f)	(% f)	(% f)
897.00	9.90	0.00	7.08	8.07	9.07	8.67
T-I-(3897)						
99.00	89.00	0.00	7.68	7.08	7.00	8.89
86.00	89.00	0.00	7.90	7.00	6.00	8.00
81.00	89.00	0.80	7.90	666.9	7.00	666.8
77.00	9.90	0.70	7.90	76.00	87	76.07



<b>C</b> <b>m</b> <b>o</b> <b>o</b> <b>o</b>	<b>A</b> <b>c</b> <b>L</b> <b>C</b>	<b>L</b> <b>C</b> - <b>f</b> <b>T</b> <b>f</b>	<b>7</b> <b>GL</b> <b>6.</b> <b>XT</b> <b>7)</b>
<b>j</b> <b>o</b> <b>o</b>	<b>McK</b> <b>nz</b> <b>C</b> <b>o</b> <b>n</b> <b>D</b>	<b>M</b> <b>o</b> <b>f</b>	<b>7</b> <b>GL</b> <b>6.</b> <b>XT</b> <b>7)</b>
<b>o</b> <b>o</b>	<b>c</b> <b>T</b> <b>o</b> <b>o</b>	<b>N</b> <b>o</b> <b>h</b> <b>f</b>	<b>T</b> <b>o</b>
<b>W</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b>	<b>C</b> <b>o</b> <b>M</b> <b>o</b> <b>h</b>	<b>M</b> <b>n</b> <b>o</b> <b>C</b>
<b>W</b> <b>o</b> <b>o</b>	<b>d</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b>	<b>EDM</b> <b>o</b> <b>o</b> <b>ing</b> <b>U</b> <b>o</b> <b>Db</b>
<b>o</b> <b>o</b>	<b>i</b> <b>o</b> <b>o</b>		

M	V		V		V		B		T	
	b	h	m	h	N/-	E/-W	h	°/f	°/f	°/f
(f)	(°)	(°)	(f)	(f)	(f)	(f)	(f)	(°/f)	(°/f)	(°/f)
7,7,0,0	89.7	0,0	7,8,8,0	8,0,8,0	6,0	8,0,8,0	0,7	1,6	1,0	1,0
7,67,0	9,0	0,0	7,8,0,0	9,0,66	9	9,0,6,0	6,0	1,7	1,8	1,0
7,6,0,0	9,8	6,0	7,6,78	9,0,9	0,0	9,0,0,0	0,0	1,0	1,0	1,0
7,66,0	89,0	0,7	7,6,86	8,8,87	6,86	8,6,0	0,0	1,79	1,7	1,0
7,0,0,0	88,0	0,0	7,9,8,0	9,0,0,0	0,0	9,0,6	0,8	1,0	1,0	1,0
8,86,0	88,8	0,0	7,0,7,0	8,8,6	9	7,9,0	7,0	1,7	1,0	1,0
9,0,0,0	9,0	0,9	7,0,7,0	9,0,0,0	7,89	9,0,6,0	0,0	1,6	1,0	1,0
9,0,6,0	88,7	0,7	7,0,8,0	7,8,0	6	7,0,8,0	86	1,7	1,6	1,0
9,0,0,0	89,0	0,8	7,0,1,0	6,0,7,0	7,9	6,0,0,0	7,0	1,7	1,0	1,0
9,0,6,0	89,7	0,0	7,6,0,0	7,6,0,0	7	7,0,0,0	0,8	1,0	1,0	1,0
9,0,0,0	9,0	0,8	7,6,0,9	8,0,0,0	6,66	8,0,9,0	0,0	1,8	1,8	1,0
9,0,7,0	9,0	0,0	7,6,0,0	898,0,9	9,0	897,86	8,0	1,0	1,8	1,0
9,0,0,0	9,7	0,0	7,0,1,8	99,0,8	0,0	99,0,8,0	9,0	1,0	1,7	1,0
6,66,0	9,0	0,0	7,0,0,7	87,0,6	0,0	86,8,0	0,0	1,0	1,6	1,0
7,0,0,0	88,0	0,0	7,0,0,8	8,0,0,0	0,0	8,0,7,0	0,0	1,0	1,0	1,0
796,0	89,0	0,9,7	7,7,7,9	77,0,0	8	76,7,0	0,0	1,7	1,7	1,0
89,0,0	9,0	0,9,0	7,7,89	7,0,0,0	8	7,7,0	0,0	1,0	1,6	1,0
98,0,0	9,6	0,8,9	7,7,0,0	66,0,8	0,0	6,0,7,0	0,8	1,0	1,0	1,0
6,8,0,0	9,8	0,8,0	7,6,0,7	6,0,0,0	9,0	6,0,69	67	1,0	1,6	1,0
6,7,0,0	88,0	0,8,6	7,6,6,0	6,6,6,0	6,0	6,0,67	0,0	1,0	1,0	1,0
6,7,0,0	88,0	0,7,6	7,9,0,0	7,0,0,0	7	7,0,6,0	0,6	1,0	1,0	1,0
6,66,0	89,0	0,7,0	7,0,0,7	8,7,0,9	9,6	8,6,0,0	8,0	1,7	1,0	1,0
6,6,0,0	88,7	0,9,0	7,0,0,0	9,0,0,0	6,0	9,0,6,0	0,0	1,0	1,0	1,0
6,0,0,0	89,0	0,8,8	7,0,0,9	6,0,0,99	0,0	6,0,0,0	67	1,0	1,0	1,0
6,6,0,0	89,8	0,8,0	7,6,0,0	6,0,0,9	0,0	6,0,0,0	8,0	1,6	1,0	1,0
6,7,6,0	87,0	0,8,0	7,8,0,7	6,0,6,87	8,96	6,0,6,7	0,0	1,0	1,0	1,0
6,8,0,0	88,0	0,7,7	76,0,0	6,0,0,7	0,0	6,0,0,6	6,0	1,0	1,0	1,0
6,9,7,0	89,0	0,7,6	76,0,0	6,0,7,6	6	6,0,7,0,7	0,0	1,0	1,0	1,0
7,0,0,0	9,0	0,7,0	76,0,9	6,0,0,0	7,6	6,0,0,0	9,0	1,8	1,0	1,0
7,0,7,0	9,0	0,8,0	76,1,00	6,6,7,0,0	0,9	6,6,7,0,7	7,0	1,0	1,7	1,0
7,0,0,1	9,8	0,7,8	76,1,7	6,7,0,0,7	0,7	6,7,0,0	6,0	1,6	1,0	1,0
7,0,0,1	89,9	0,7,0	76,1,00	6,79,0,0,7	6,7	6,79,0,9,0	0,0	1,0	1,0	1,0
7,0,0,1	89,0	0,7,0	76,1,8	6,89,0,0,8	0,0	6,889,89	0,0	1,0	1,0	1,0
7,0,6,0	88,9	0,7,7	76,1,00	6,986,0,9	79	6,98,0,8,0	66	1,6	1,0	1,0
7,6,0,0	86,8	0,9,0	766,7,0	7,0,8,0,97	0,0	7,8,0,7,0	6,0	1,0	1,7	1,0
7,696,0	87,8	0,7,0	77,0,8	7,0,7,0,8	7,67	7,0,7,0,6,0	0,7	1,0	1,89	1,0
7,79,0,0	88,8	0,7,6	77,0,0	7,0,7,0,67	0,98	7,0,7,0,9,0	0,0	1,0	1,0	1,0
7,88,0,0	9,0	0,8,0	77,0,7	7,0,6,0,6	0,0	7,0,6,0,0	7,0	1,6	1,0	1,0
7,98,0,0	89,6	0,8,9	77,0,8	7,0,9,0,7	7,8	7,0,9,0,0	0,0	1,7	1,7	1,0
8,7,0,0	9,8	0,9,0	77,1,9	7,0,0,0	9,9	7,0,0,0,0	8,0	1,6	1,0	1,0
8,7,0,0	9,9	0,8,0	77,1,8	7,6,9,0,0	0,6	7,6,9,0,0	7,0	1,0	1,7	1,0
8,6,0,0	9,0	0,9,0	77,1,00	7,7,0,0,9	0,6	7,7,0,0,1	9,0	1,0	1,7	1,0



<b>C</b> <b>m</b> <b>o</b> <b>o</b> <b>o</b>	<b>A</b> <b>c</b> <b>L</b> <b>C</b> <b>D</b>	<b>L</b> <b>T</b> <b>M</b> <b>N</b> <b>S</b>	<b>f</b> <b>f</b> <b>f</b> <b>f</b> <b>f</b>
<b>j</b> <b>o</b> <b>o</b>	<b>McK</b> <b>nz</b> <b>C</b> <b>o</b> <b>n</b> <b>D</b>		<b>7</b> <b>7</b> <b>7</b>
<b>o</b> <b>o</b> <b>o</b>	<b>c</b> <b>T</b> <b>o</b> <b>o</b> <b>o</b>	<b>M</b> <b>N</b> <b>S</b>	<b>GL</b> <b>GL</b> <b>GL</b>
<b>W</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b>	<b>@</b> <b>@</b> <b>@</b>
<b>W</b> <b>o</b> <b>o</b>	<b>d</b> <b>o</b> <b>o</b>	<b>C</b> <b>M</b> <b>h</b>	<b>f</b> <b>f</b> <b>f</b>
<b>o</b> <b>o</b> <b>o</b>	<b>i</b> <b>n</b> <b>o</b> <b>o</b>	<b>o</b> <b>o</b> <b>o</b>	<b>(X</b> <b>(X</b> <b>(X</b>

M	V	L	C	
h (f)	h (f)	+N/-□ (f)	+E/-W (f)	Comm
897.□	7□7.□8	8□7	9.□7	T□T□In(□897')
9.□□	788.□8	9,869.6□	□.□	L□G□d□nc□M□D□□□□(□9□)
□.□□.□	786.6□	9,9□8.6□	6□	□j c□d□TD(□□□□)



## 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)

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date <b>August 24, 2011</b>
<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

A circular stamp with the following text:  
WYOMING STATE OF  
OIL AND GAS  
DIVISION  
AUG - 11  
RECEIVED  
2011

Well File No.  
**20863**

- |                                     |                      |  |                          |
|-------------------------------------|----------------------|--|--------------------------|
| <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                | <b>Waiver to rule Rule 43-02-03-31</b> |                          |

Well Name and Number													
<b>Foley Federal 5301 43-12H</b>													
Footages			Qtr-Qtr	Section	Township	Range							
250	F	S	L	1827	F	E	L	SWSE	12	153	N	101	W
Field			Pool			County							
<b>Wildcat</b>			<b>Bakken</b>			<b>McKenzie</b>							

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

**Name of Contractor(s)**

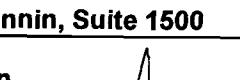
**Address** \_\_\_\_\_ **City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip Code** \_\_\_\_\_

## **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 5300-34-34H (NDIC 20314)~~ 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 <b>Oasis Petroleum North America LLC</b>		Telephone Number <b>281-404-9491</b>
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>		State <b>TX</b>
Signature 		Printed Name <b>Brandi Terry</b>
Title <b>Regulatory Specialist</b>		Date <b>August 24, 2011</b>
Email Address <b>bterry@oasispetroleum.com</b>		

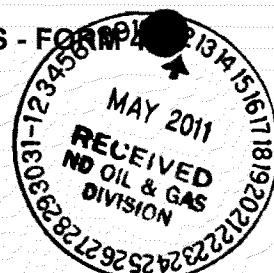
<b>FOR STATE USE ONLY</b>	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date	9-1-2011
By	
Title	<b>Richard A. Suggs</b> <b>Geologist</b>



# SUNDRY 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.  
**20863**



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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date <b>June, 2011</b>
<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	<b>Suspension of Drilling</b>

Well Name and Number <b>Foley Federal 5301 43-12H</b>					
Footages <b>250 F S L</b>	Qtr-Qtr <b>1827 F E L</b>	SWSE	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>
Field <b>Wildcat</b>	Pool <b>Dakota</b>	County <b>McKenzie</b>			

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

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>7/14/11</b>	
By 	
Title <b>Mineral Resources Permit Manager</b>	



# SUNDRY NOTICES AND REPORTS ON WELLS

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.

20863

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

**Foley Federal 5301 43-12H**

Footages	250 F S L	1827 F E L	Qtr-Qtr <b>SWSE</b>	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>
Field	Pool <b>Bakken</b>			County	<b>McKenzie</b>	

## 24-HOUR PRODUCTION RATE

	Before	After
Oil	Bbls	Oil
Water	Bbls	Water
Gas	MCF	Gas

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

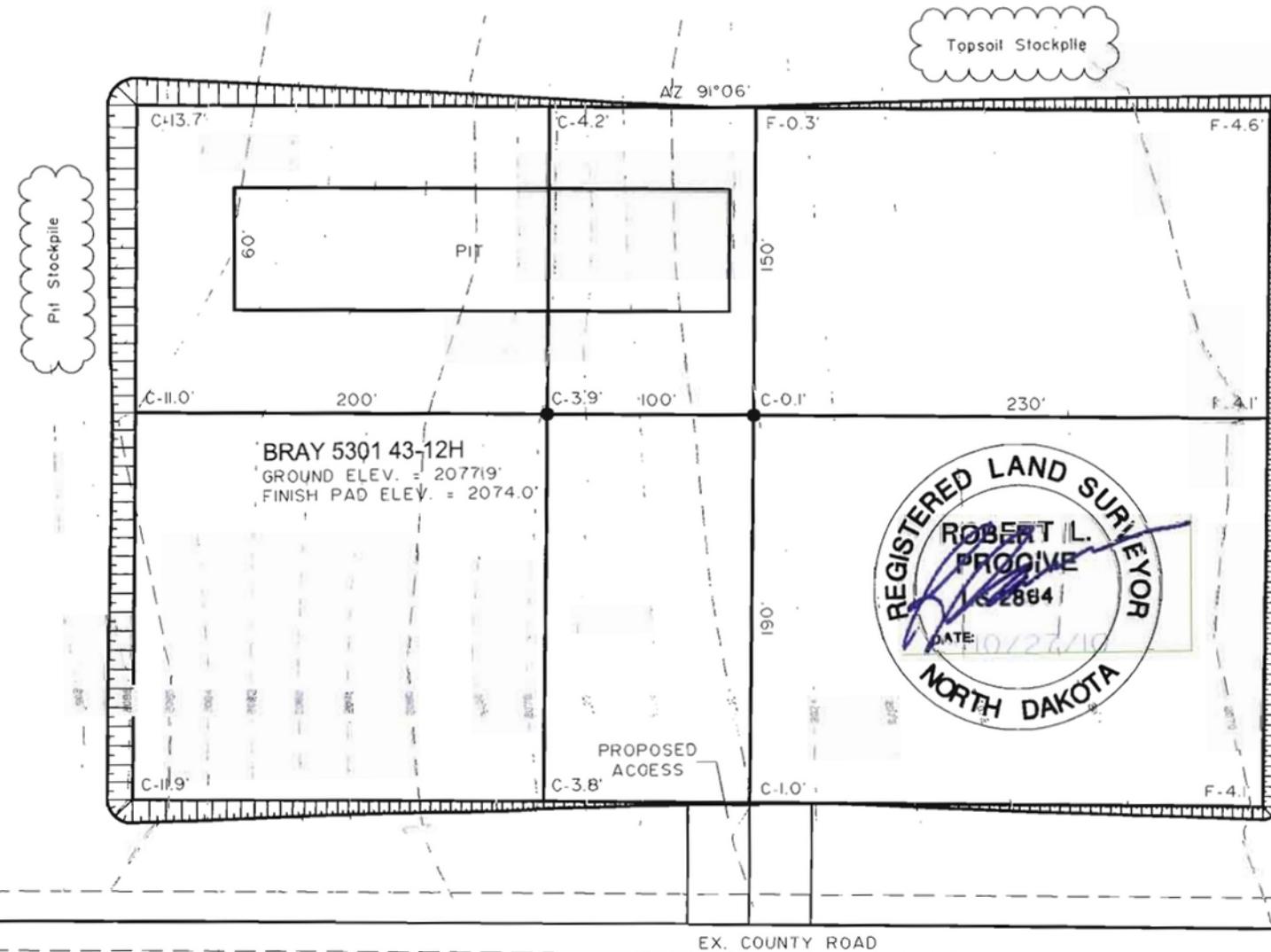
## FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <i>7-6-2011</i>	
By <i>Allen J. Orlan</i>	
Title <b>Field Supervisor</b>	

# PAD LAYOUT

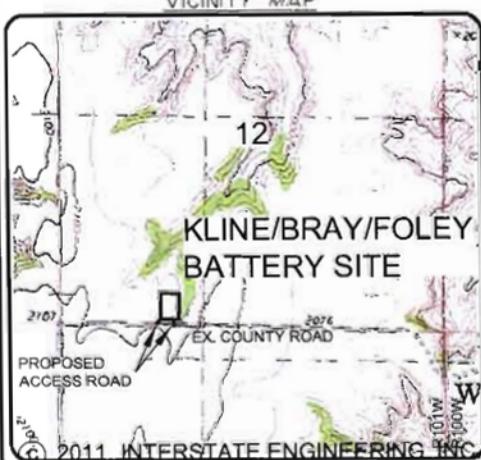
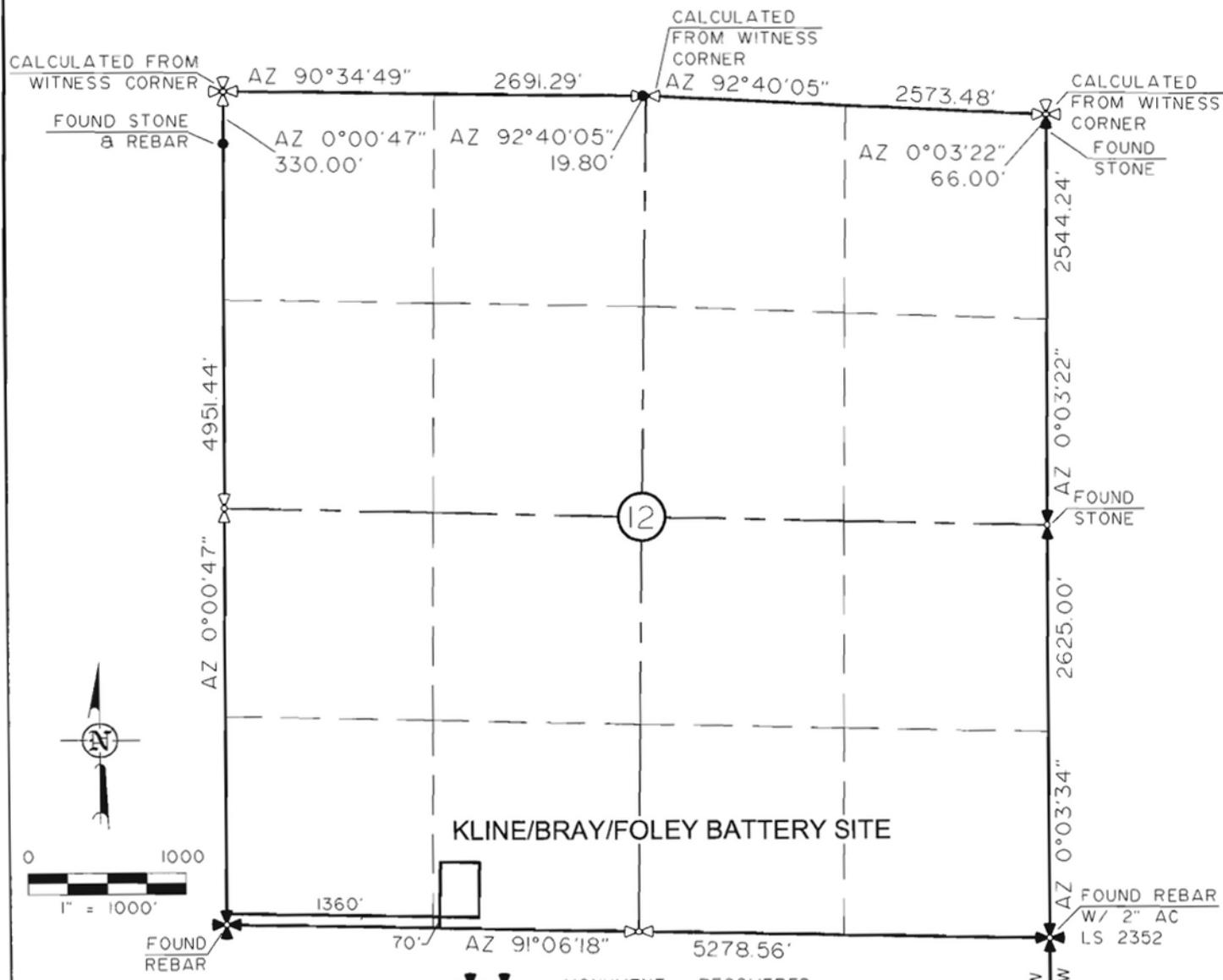
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 202 HOUSTON, TX 77002  
"BRAY 5301 43-12H"

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



Interstate Engineering, Inc. P.O. Box 648 425 East Main Street Sidney, Montana 59270 Ph (406) 433-5617 Fax (406) 433-5618 www.iesgi.com One office dedicated to Oilfield and Survey Details	Project No.: S109-167 Drawn By: A.J.H/DLP Checked By: _____ Date: OCT 2010
Project No.: S109-167 Drawn By: A.J.H/DLP Checked By: _____ Date: OCT 2010	Project No.: S109-167 Drawn By: A.J.H/DLP Checked By: _____ Date: OCT 2010

**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



**1/7**



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Other offices in Minnesota, North Dakota and South Dakota

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

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

Drawn By:

H.J.G.

Project No.: S11-09-137

Checked By:

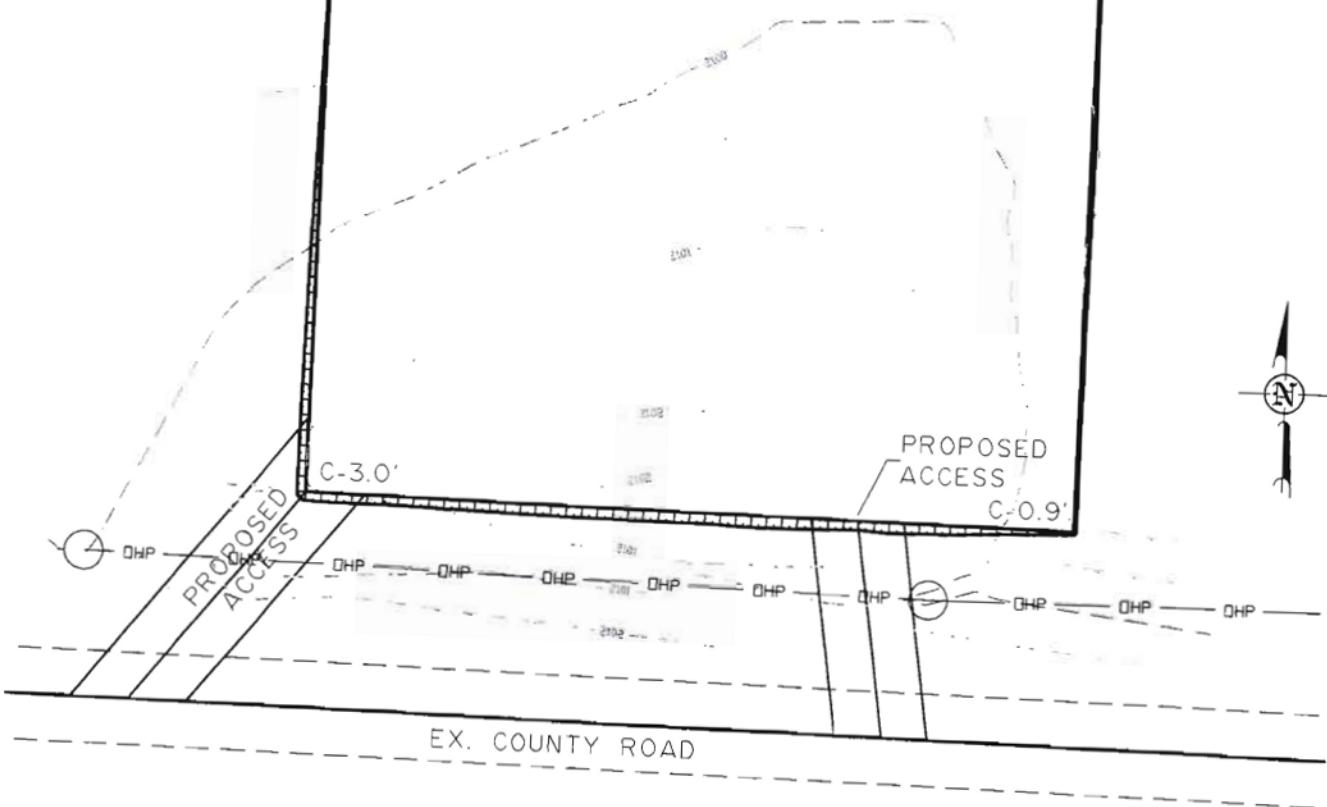
A.J.H./C.S.V.

Date: JUNE 2011

**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



**KLINE/BRAY/FOLEY BATTERY SITE**  
 FINISH PAD ELEV. = 2098.0'



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

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

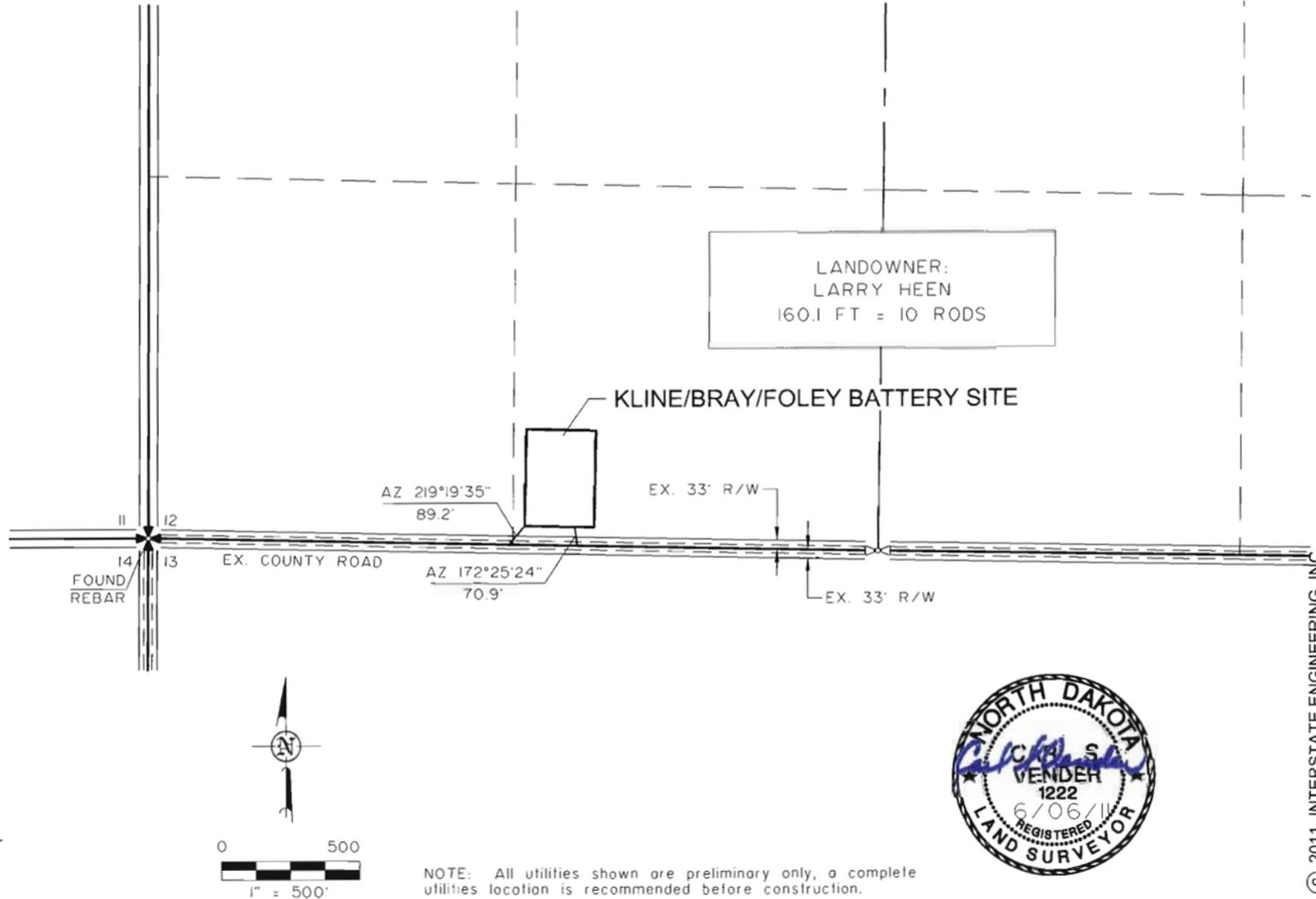
Drawn By: H.J.G. | Project No: S11-9-137  
 Checked By: A.J.H/J.C.S.V. | Date: JUNE 2011

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

## ACCESS APPROACH

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



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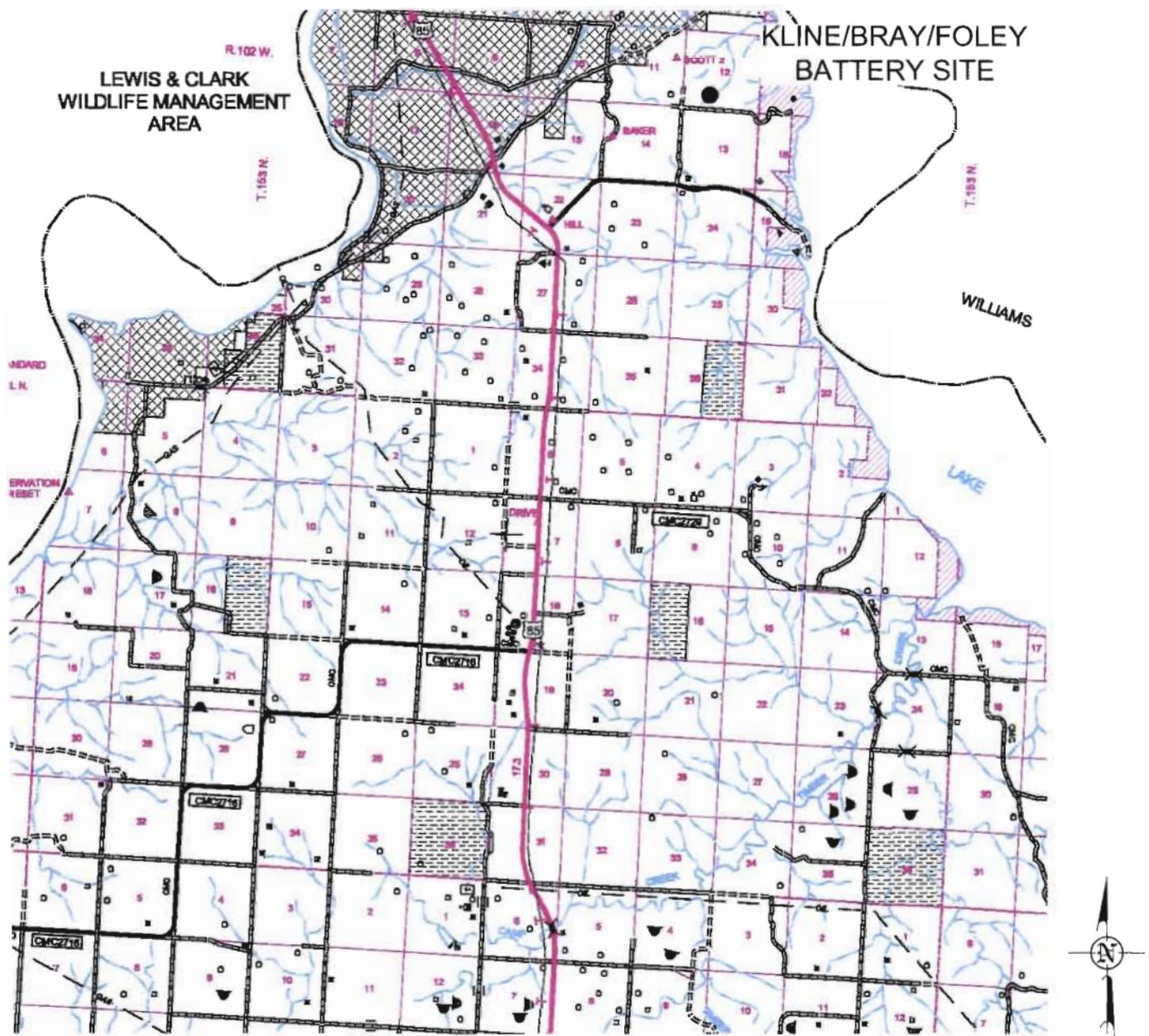
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Sheet No. 3/7

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[www.ienig.com](http://www.ienig.com)  
Other offices in Missoula, Montana and South Dakota

Project No.: S1109-137	Date: JUNE 2011
Drawn By: H.G.	Checked By: A.H.C.S.V.
MCKENZIE COUNTY, NORTH DAKOTA	
SECTION 12, T153N, R101W	
OASIS PETROLEUM NORTH AMERICA, LLC	
ACCESS APPROACH	
Rev. I	0/06/11
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

OASIS PETROLEUM NORTH AMERICA, LLC  
KLINE/BRAY/FOLEY BATTERY SITE  
QUAD LOCATION MAP  
SECTION 12, T153N, R10W  
MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE



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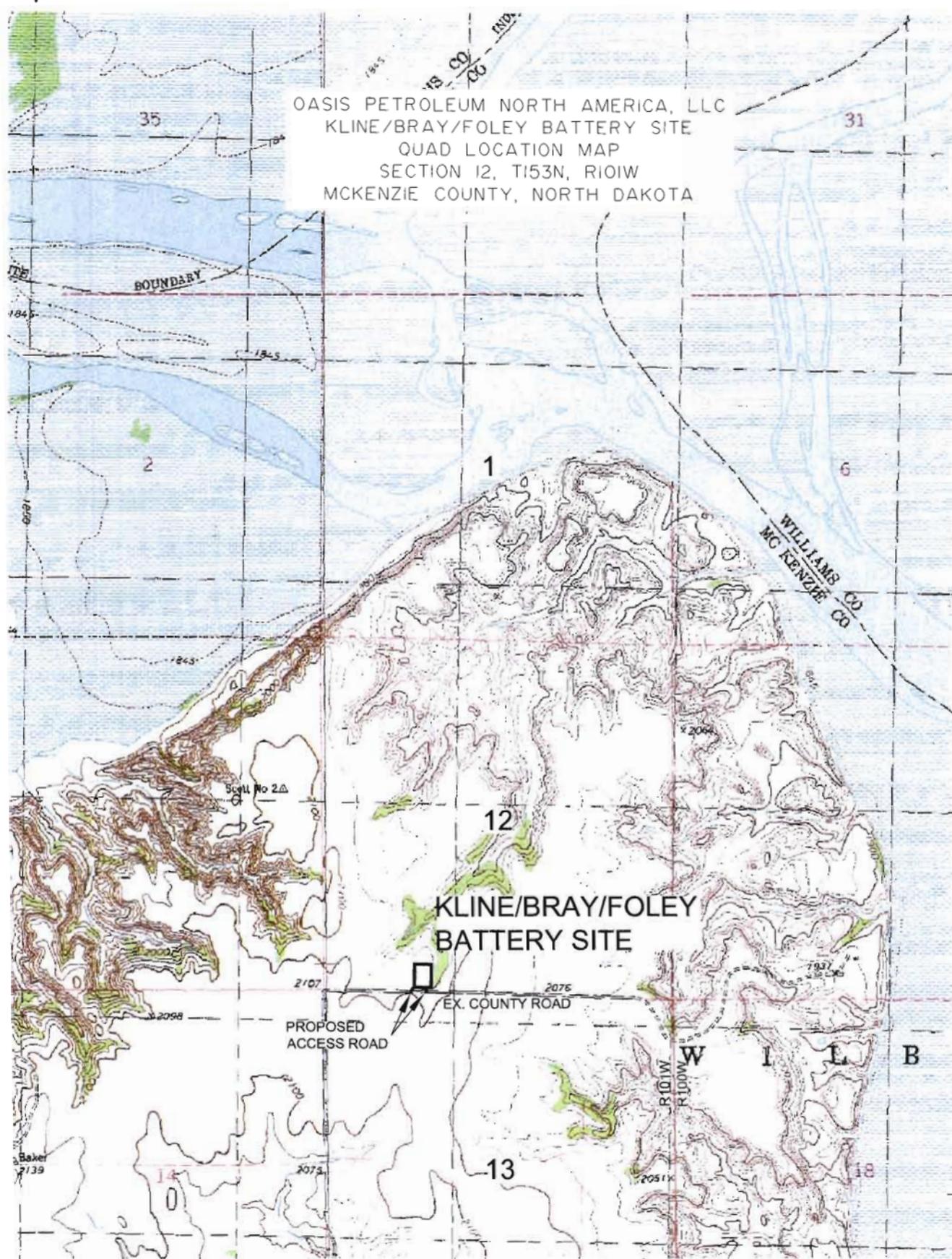
SHEET NO. \_\_\_\_\_

**Interstate Engineering, Inc.**  
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OASIS PETROLEUM NORTH AMERICA, LLC  
COUNTY ROAD MAP  
SECTION 12, T153N, R101W

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Fax (406) 433-5618  
[www.iengl.com](http://www.iengl.com)

OASIS PETROLEUM NORTH AMERICA, LLC COUNTY ROAD MAP SECTION 12, T153N, R101W		Revision No. REV 1	Date 6/06/11	By HUG	Description BATTERY NAME CHANGE
MCKENZIE COUNTY, NORTH DAKOTA					
own By: H.J.G.	Project No.: S11-09-137				
checked By: A.J.H./C.S.V.	Date: JUNE 2011				



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Fax (406) 433-5618  
[www.lengli.com](http://www.lengli.com)

Other offices in Minnesota, North Dakota and South Dakota

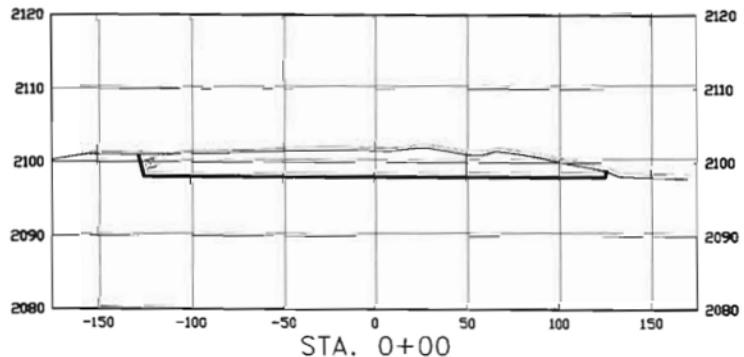
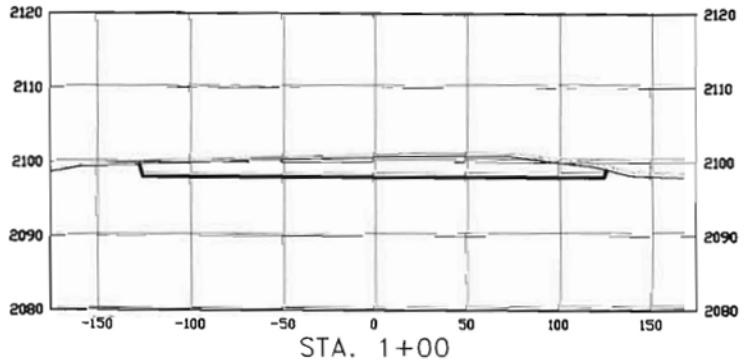
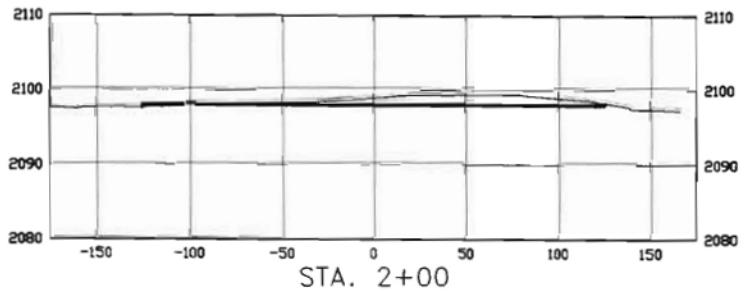
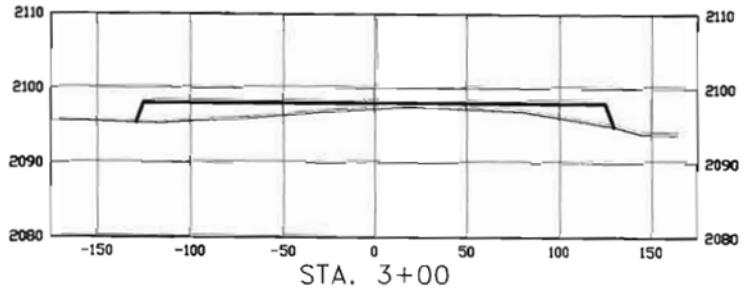
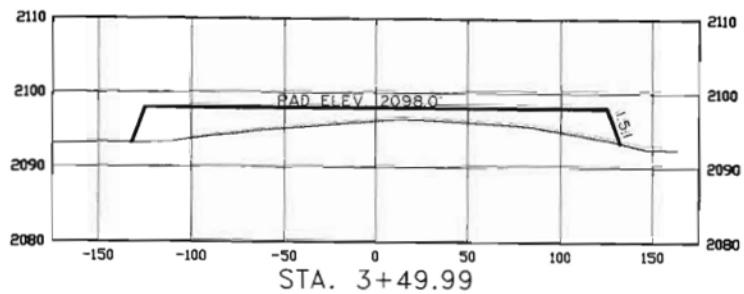
OASIS PETROLEUM NORTH AMERICA, LLC  
QUAD LOCATION MAP  
SECTION 12, T153N, R101W

**MCKENZIE COUNTY, NORTH DAKOTA**

Own By: H.J.G. Project No.: S11-09-137

Revision No.	Date	By	Description
REV 1	6/06/01	HJD	BATTERY NAME CHANGE

**CROSS SECTIONS**  
 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



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

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OASIS PETROLEUM NORTH AMERICA, LLC  
 PAD CROSS SECTIONS  
 SECTION 12, T153N, R101W  
 MCKENZIE COUNTY, NORTH DAKOTA  
 Drawn By: H.J.G. Project No.: S11-B-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

**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%)	<u>501</u>
	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

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OASIS PETROLEUM, LLC

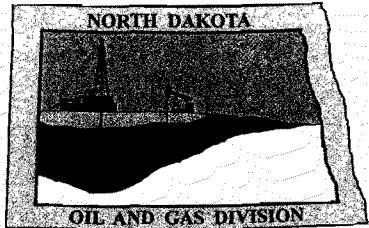
QUANTITIES

SECTION 12, T153N, R101W

MCKENZIE COUNTY, ND

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. I	6/06/11	H.J.G.	BATTERY NAME CHANGE



# 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](http://www.oilgas.nd.gov)

208e3

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: **FOLEY FEDERAL 5301 43-12H** Well File No.: **20863**  
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.

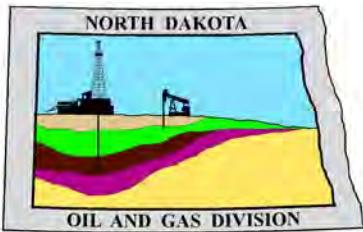
- 3) Cores: ALL CORES cut shall be preserved in correct order, properly boxed, and forwarded to the State Geologist within 90 days of completion of drilling operations. Any extension of time must have written approval from the State Geologist.
- 4) All cores, core chips, and samples must be shipped, 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](http://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  
FOLEY FEDERAL 5301 43-12H  
SWSE Section 12-153N-101W  
McKenzie County  
Well File # 20863**

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 1 & 12 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. OASIS PETROLEUM NORTH AMERICA LLC must ensure the pit is not constructed in fill dirt. OASIS PETRO NO AMER MUST CONTACT NDIC FIELD INSPECTOR KEVIN CONNORS AT 701-220-5989 PRIOR TO LOCATION CONSTRUCTION.**

### 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](mailto: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](mailto: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 <b>New Location</b>	Type of Well <b>Oil &amp; Gas</b>	Approximate Date Work Will Start <b>06 / 01 / 2011</b>	Confidential Status <b>No</b>
Operator <b>OASIS PETROLEUM NORTH AMERICA LLC</b>		Telephone Number <b>281-404-9491</b>	
Address <b>1001 Fannin Suite 202</b>		City <b>Houston</b>	State <b>TX</b> Zip Code <b>77002</b>

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 <b>FOLEY FEDERAL</b>				Well Number <b>5301 43-12H</b>			
Surface Footages <b>250 F S L      1827 F E L</b>		Qtr-Qtr <b>SWSE</b>	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKenzie</b>	
Longstring Casing Point Footages <b>741 F S L      1827 F E L</b>		Qtr-Qtr <b>SWSE</b>	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKenzie</b>	
Longstring Casing Point Coordinates From Well Head <b>491 N From WH      0 E From WH</b>		Azimuth <b>360.0 °</b>	Longstring Total Depth <b>11020 Feet MD      10734 Feet TVD</b>				
Bottom Hole Footages From Nearest Section Line <b>201 F N L      1827 F E L</b>		Qtr-Qtr <b>NWNE</b>	Section <b>1</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKenzie</b>	
Bottom Hole Coordinates From Well Head <b>9993 N From WH      0 E From WH</b>		KOP Lateral 1 <b>10256 Feet MD</b>	Azimuth Lateral 1 <b>360.0 °</b>	Estimated Total Depth Lateral 1 <b>20522 Feet MD      10710 Feet TVD</b>			
Latitude of Well Head <b>48 ° 04 ' 57.94 "</b>		Longitude of Well Head <b>-103 ° 36 ' 41.78 "</b>	NAD Reference <b>WGS84</b>	Description of Drilling Unit: <b>Section 1 &amp; 12 T153N R101W</b> (Subject to NDIC Approval)			
Ground Elevation <b>2074 Feet Above S.L.</b>		Acres in Spacing/Drilling Unit <b>1280</b>	Spacing/Drilling Unit Setback Requirement <b>200 Feet N/S      1220 Feet E/W</b>		Industrial Commission Order <b>14007</b>		
North Line of Spacing/Drilling Unit <b>5280 Feet</b>		South Line of Spacing/Drilling Unit <b>5279 Feet</b>		East Line of Spacing/Drilling Unit <b>10444 Feet</b>		West Line of Spacing/Drilling Unit <b>10407 Feet</b>	
Objective Horizons <b>Bakken</b>						Pierre Shale Top <b>1941</b>	
Proposed Surface Casing	Size <b>9 - 5/8 "</b>	Weight <b>36 Lb./Ft.</b>	Depth <b>2045 Feet</b>	Cement Volume <b>611 Sacks</b>	NOTE: Surface hole must be drilled with fresh water and surface casing must be cemented back to surface.		
Proposed Longstring Casing	Size <b>7 - "</b>	Weight(s) <b>29/32 Lb./Ft.</b>	Longstring Total Depth <b>11020 Feet MD      10734 Feet TVD</b>		Cement Volume <b>772 Sacks</b>	Cement Top <b>4933 Feet</b>	Top Dakota Sand <b>5433 Feet</b>
Base Last Charles Salt (If Applicable) <b>9199 Feet</b>		NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.					
Proposed Logs <b>Triple Combo KOP-Kibby GR/RES-BSC GR-Surf CND thru DakotaCBL/GR-TOCGR-BSC</b>							
Drilling Mud Type (Vertical Hole - Below Surface Casing) <b>Invert</b>				Drilling Mud Type (Lateral) <b>Salt Water Gel</b>			
Survey Type in Vertical Portion of Well <b>MWD Every 100 Feet</b>		Survey Frequency: Build Section <b>30 Feet</b>		Survey Frequency: Lateral <b>90 Feet</b>		Survey Contractor <b>Ryan</b>	

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 <b>N</b>	Range <b>W</b>	County	
Bottom Hole Footages From Nearest Section Line F      L		Qtr-Qtr	Section	Township <b>N</b>	Range <b>W</b>	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 <b>N</b>	Range <b>W</b>	County	
Bottom Hole Footages From Nearest Section Line F      L		Qtr-Qtr	Section	Township <b>N</b>	Range <b>W</b>	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 <b>N</b>	Range <b>W</b>	County	
Bottom Hole Footages From Nearest Section Line F      L		Qtr-Qtr	Section	Township <b>N</b>	Range <b>W</b>	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 <b>N</b>	Range <b>W</b>	County	
Bottom Hole Footages From Nearest Section Line F      L		Qtr-Qtr	Section	Township <b>N</b>	Range <b>W</b>	County	

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

Date

04 / 26 / 2011

ePermit

Printed Name  
**Brandi Terry**

Title

**Engineering Tech****FOR STATE USE ONLY**

Permit and File Number <b>20863</b>	API Number <b>33 - 053 - 03608</b>
Field <b>WILDCAT</b>	
Pool <b>BAKKEN</b>	Permit Type <b>WILDCAT</b>

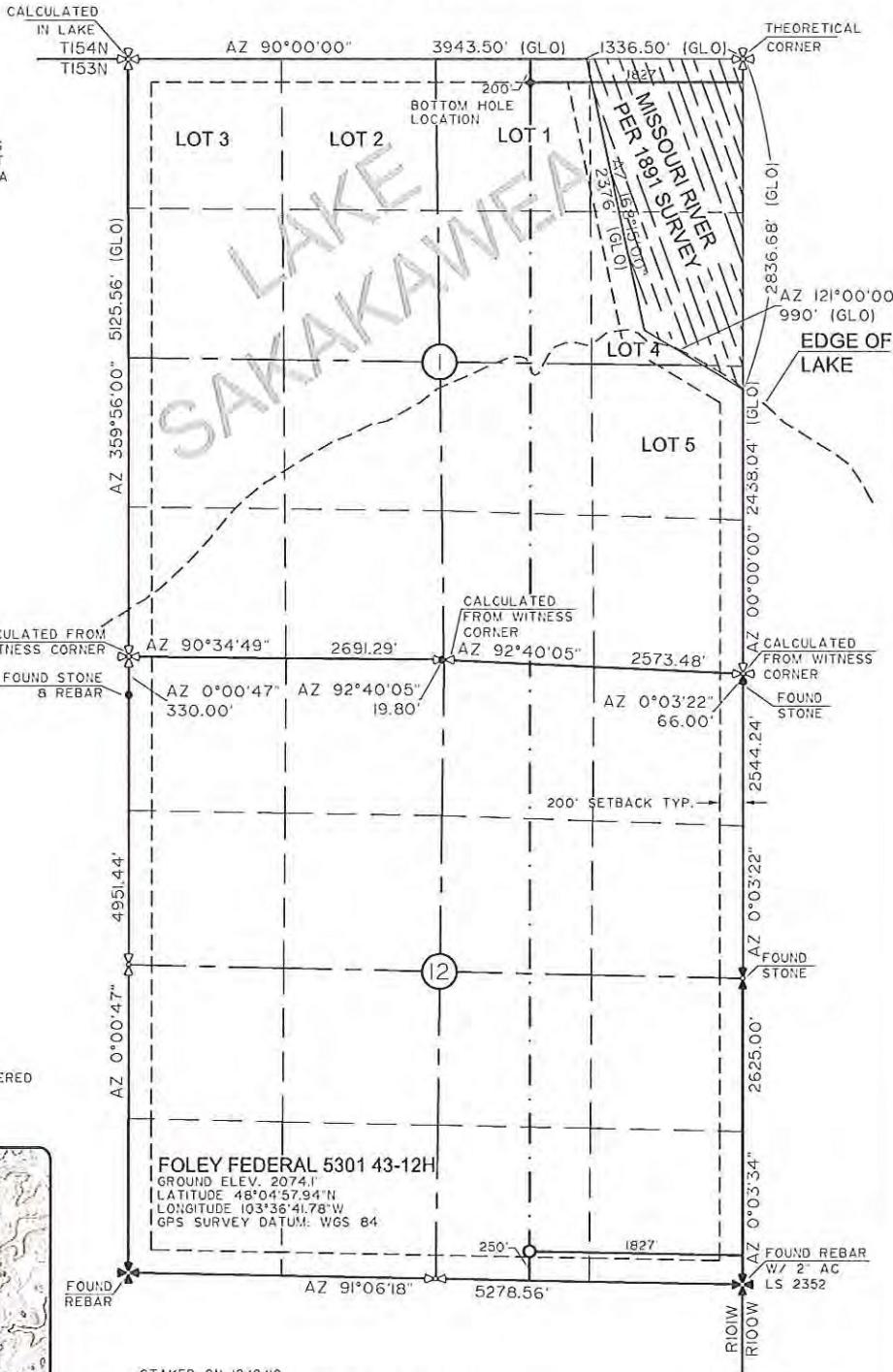
**FOR STATE USE ONLY**

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

**WELL LOCATION PLAT**  
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"FOLEY FEDERAL 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



**1**

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ENGINEERING**  
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Interstate Engineering, Inc.  
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OASIS PETROLEUM NORTH AMERICA, LLC  
WELL LOCATION PLAT  
SECTION 12, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.S.      Project No.: S1301-14

Checked By: A.H.W.D.      Date: 050-01-09

Frater No.	Date	Ex.	Description
REV 1	3-15-10	F&S	WELL DRAWING
REV 2	4-2-10	LS	REVISED BOUNDARY

DRILLING PLAN							
PROSPECT/FIELD	Indian Hills	Horizontal Middle Bakken		COUNTY/STATE	McKenzie Co., ND		
OPERATOR	Oasis			RIG	XTC-17		
WELL NAME	Foley 5301 43-12H						
LOCATION	SWSE -153N-101W	Surface Location (survey plat): 250' fsl		1827' fsl			
EST. T.D.	20,522'				GROUND ELEV:	2074	Finished Pad Elev.
TOTAL LATERAL:	9,502' (est)				KB ELEV:	2091	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; CND through the Dakota			
Pierre	NDIC MAP	1,941	150	CBL/GR: Above top of cement/GR to base of casing			
Greenhorn		4,606	-2,516'	MWD GR: KOP to lateral TD			
Mowry		5,002	-2,912'				
Dakota		5,433	-3,343'				
Rierdon		6,350	-4,259'				
Dunham Salt		6,869	-4,778'				
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'				
Amsden		7,640	-5,550'				
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'				
UB		9,123	-7,032'				
Base Last Salt		9,199	-7,109'				
Ratcliffe		9,247	-7,157'				
Mission Canyon		9,423	-7,333'				
Lodgepole		9,998	-7,907'				
False Bakken		10,703	-8,613'				
Upper Bakken		10,713	-8,622'				
Middle Bakken		10,727	-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'				
Dip Rate:	-flat to (+0.25°) or .25' / 100' up						
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	Circ Mud Tanks
Intermediate	2,045' -	11,020'	Invert	9.6-10.4	40-60	30+(HpHt)	Circ Mud Tanks
Liner	11,020' -	20,522'	Salt Water	9.3-10.4	28-34	NC	Circ Mud Tanks
CASING:	Size	Wt pfp	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"	11,020'	4933	24	500' above Dakota
Production:	4.5"	11.6#	6"	20,522'	TOL @ 10,210'		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	1827'FEL	12-T153N-R101W		Survey Company:
KOP:	10,256'	10,257'	250'FSL	1827'FEL	12-T153N-R101W		Build Rate: 12 deg /100'
EOC	11,008'	10,734'	729'FSL	1827'FEL	12-T153N-R101W	360.0	
Casing Point:	11,020'	10,734'	741'FSL	1827'FEL	12-T153N-R101W	360.0	
Middle Bakken Lateral TD:	20,522'	10,710'	200'FNL	1827'FEL	1-T153N-R101W	360.0	
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 latera							
MWD GR to be run from KOP to Lateral TD.							
GR must be run to ground surface.							
		Geology: PCG 12-12-2010		Prepared by: BT 4-14-2011		Engineering: L. Strong 4/18/2011	

**Oasis Petroleum  
Well Summary  
Foley 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:**      392 sks (222 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:**      227 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  
Foley 5301 43-12H  
Section 12 T153N R101W  
McKenzie County, ND**

**INTERMEDIATE CASING AND CEMENT DESIGN**

**Intermediate Casing Design**

<b>Size</b>	<b>Interval</b>	<b>Weight</b>	<b>Grade</b>	<b>Coupling</b>	<b>I.D.</b>	<b>Drift</b>	<b>Make-up Torque (ft-lbs)</b>		
							<b>Minimum</b>	<b>Optimum</b>	<b>Max</b>
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' – 11,020'	29	P-110	LTC	6.184"	6.059"	5,980	7,970	8,770

\*\*Special Drift

<b>Interval</b>	<b>Length</b>	<b>Description</b>	<b>Collapse</b>	<b>Burst</b>	<b>Tension</b>
			(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' – 11,020'	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 11,030'). 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:** **124 sks** (56 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:** **661 sks** (194 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**  
**Foley 5301 43-12H**  
**Section 12 T153N R101W**  
**McKenzie County, ND**

PRODUCTION LINER

<b>Size</b>	<b>Interval</b>	<b>Weight</b>	<b>Grade</b>	<b>Coupling</b>	<b>I.D.</b>	<b>Drift</b>	<b>Make-up Torque (ft-lbs)</b>		
							<b>Minimum</b>	<b>Optimum</b>	<b>Max</b>
4-1/2"	10,210' to 20,522'	11.6	P-110	LTC	4.000"	3.875"	2,270	3,020	3,780

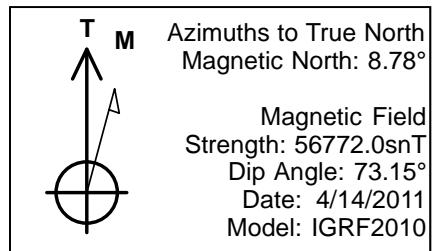
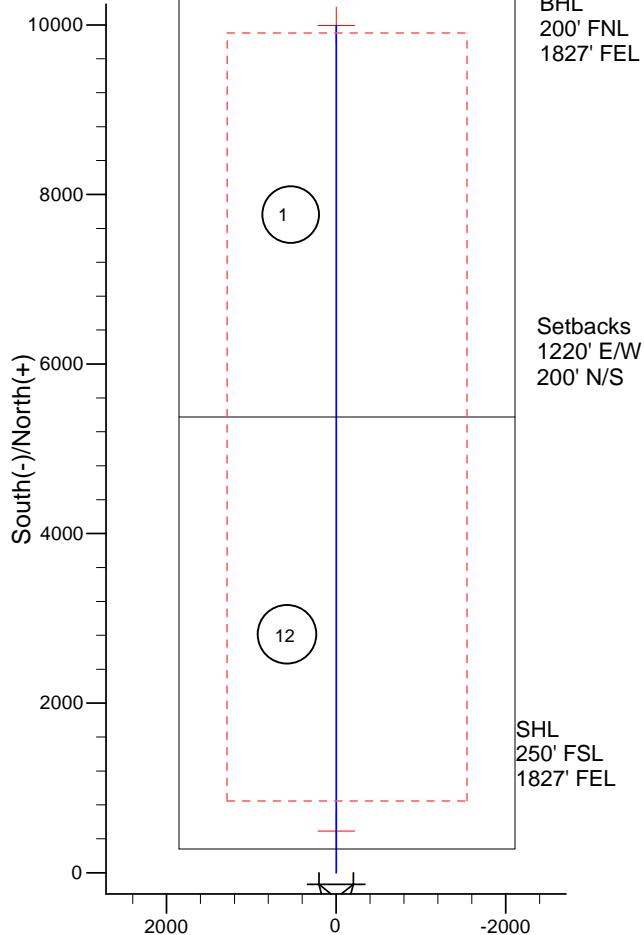
<b>Interval</b>	<b>Length</b>	<b>Description</b>	<b>Collapse</b>	<b>Burst</b>	<b>Tension</b>
			(psi) <b>a</b>	(psi) <b>b</b>	(1000 lbs) <b>c</b>
10,210' to 20,522'	10,374'	4-1/2", 11.6 lb, P-110, LTC, 8rd	7,580 / 1.42	10,690 / 1.10	277 / 1.36

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: 103k lbs.) plus 100k lbs overpull.



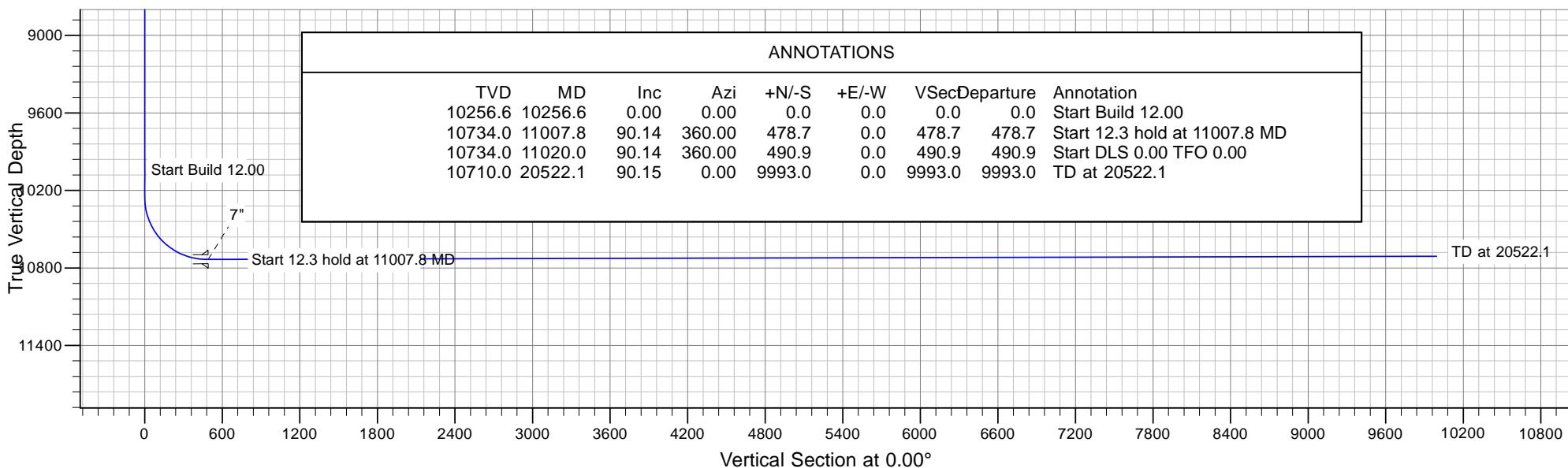
Project: McKenzie County, ND  
 Site: Sec. 12 T153N R101W  
 Well: Foley Federal 5301 43-12H  
 Wellbore: OH  
 Design: Plan #1



SITE DETAILS: Sec. 12 T153N R101W

Site Centre Latitude: 48° 4' 57.940 N  
 Longitude: 103° 36' 41.780 W

Positional Uncertainty: 0.0  
 Convergence: -2.32  
 Local North: True



# **Oasis**

**McKenzie County, ND  
Sec. 12 T153N R101W  
Foley Federal 5301 43-12H**

**OH**

**Plan: Plan #1**

# **Standard Planning Report**

**26 April, 2011**

## Planning Report

<b>Database:</b>	EDM Network	<b>Local Co-ordinate Reference:</b>	Well Foley Federal 5301 43-12H
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Project:</b>	McKenzie County, ND	<b>MD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Site:</b>	Sec. 12 T153N R101W	<b>North Reference:</b>	True
<b>Well:</b>	Foley Federal 5301 43-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

<b>Project</b>	McKenzie County, ND		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	North Dakota Northern Zone		

<b>Site</b>	Sec. 12 T153N R101W			
<b>Site Position:</b>		<b>Northing:</b>	125,065.82 m	<b>Latitude:</b> 48° 4' 57.940 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	368,244.93 m	<b>Longitude:</b> 103° 36' 41.780 W
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -2.32 °

<b>Well</b>	Foley Federal 5301 43-12H				
<b>Well Position</b>	+N/-S +E/-W	0.0 ft 0.0 ft	<b>Northing:</b> <b>Easting:</b>	125,065.82 m 368,244.93 m	<b>Latitude:</b> <b>Longitude:</b>
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b> 2,074.0 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b> (°)	<b>Dip Angle</b> (°)	<b>Field Strength</b> (nT)
	IGRF2010	4/14/2011	8.78	73.15	56,772

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>		<b>Depth From (TVD)</b> (ft)	<b>+N/-S</b> (ft)	<b>+E/-W</b> (ft)	<b>Direction</b> (°)
		0.0	0.0	0.0	0.01

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	0.00
10,256.6	0.00	0.00	10,256.6	0.0	0.0	0.00	0.00	0.00	0.00	0.00
11,007.8	90.14	360.00	10,734.0	478.7	0.0	12.00	12.00	0.00	360.00	
11,020.0	90.14	360.00	10,734.0	490.9	0.0	0.00	0.00	0.00	0.00	Interp @ 10734.0 (Foley Federal 5301 43-12H)
20,522.1	90.15	0.00	10,710.0	9,993.0	0.0	0.00	0.00	0.00	0.00	Foley Federal 5301 43-12H

## Planning Report

<b>Database:</b>	EDM Network	<b>Local Co-ordinate Reference:</b>	Well Foley Federal 5301 43-12H
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Project:</b>	McKenzie County, ND	<b>MD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Site:</b>	Sec. 12 T153N R101W	<b>North Reference:</b>	True
<b>Well:</b>	Foley Federal 5301 43-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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
<b>Pierre</b>									
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
<b>9 5/8"</b>									
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
<b>Greenhorn</b>									

## Planning Report

<b>Database:</b>	EDM Network	<b>Local Co-ordinate Reference:</b>	Well Foley Federal 5301 43-12H
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Project:</b>	McKenzie County, ND	<b>MD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Site:</b>	Sec. 12 T153N R101W	<b>North Reference:</b>	True
<b>Well:</b>	Foley Federal 5301 43-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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
<b>Mowry</b>									
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
<b>Dakota</b>									
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
<b>Rierdon</b>									
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
<b>Dunham Salt</b>									
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
<b>Dunham Salt Base</b>									
6,941.0	0.00	0.00	6,941.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Spearfish</b>									
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
<b>Pine Salt</b>									
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
<b>Pine Salt Base</b>									
7,337.0	0.00	0.00	7,337.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Opeche Salt</b>									
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
<b>Opeche Salt Base</b>									
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
<b>Broom Creek (Top of Minnelusa Gp.)</b>									
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

<b>Database:</b>	EDM Network	<b>Local Co-ordinate Reference:</b>	Well Foley Federal 5301 43-12H
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Project:</b>	McKenzie County, ND	<b>MD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Site:</b>	Sec. 12 T153N R101W	<b>North Reference:</b>	True
<b>Well:</b>	Foley Federal 5301 43-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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)
<b>Amunden</b>									
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
<b>Tyler</b>									
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
<b>Otter (Base of Minnelusa Gp.)</b>									
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
<b>Kibbey</b>									
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
<b>Charles Salt</b>									
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
<b>UB</b>									
9,199.0	0.00	0.00	9,199.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Base Last Salt</b>									
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
<b>Ratcliffe</b>									
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
<b>Mission Canyon</b>									
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
<b>Lodgepole</b>									
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
<b>Start Build 12.00</b>									
10,275.0	2.21	360.00	10,275.0	0.4	0.0	0.4	12.00	12.00	0.00
10,300.0	5.21	360.00	10,299.9	2.0	0.0	2.0	12.00	12.00	0.00
10,325.0	8.21	360.00	10,324.8	4.9	0.0	4.9	12.00	12.00	0.00
10,350.0	11.21	360.00	10,349.4	9.1	0.0	9.1	12.00	12.00	0.00
10,375.0	14.21	360.00	10,373.8	14.6	0.0	14.6	12.00	12.00	0.00
10,400.0	17.21	360.00	10,397.9	21.4	0.0	21.4	12.00	12.00	0.00

## Planning Report

<b>Database:</b>	EDM Network	<b>Local Co-ordinate Reference:</b>	Well Foley Federal 5301 43-12H
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Project:</b>	McKenzie County, ND	<b>MD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Site:</b>	Sec. 12 T153N R101W	<b>North Reference:</b>	True
<b>Well:</b>	Foley Federal 5301 43-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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	360.00	10,421.5	29.4	0.0	29.4	12.00	12.00	0.00
10,450.0	23.21	360.00	10,444.8	38.6	0.0	38.6	12.00	12.00	0.00
10,475.0	26.21	360.00	10,467.5	49.1	0.0	49.1	12.00	12.00	0.00
10,500.0	29.21	360.00	10,489.6	60.7	0.0	60.7	12.00	12.00	0.00
10,525.0	32.21	360.00	10,511.1	73.5	0.0	73.5	12.00	12.00	0.00
10,550.0	35.21	360.00	10,531.9	87.4	0.0	87.4	12.00	12.00	0.00
10,575.0	38.21	360.00	10,551.9	102.3	0.0	102.3	12.00	12.00	0.00
10,600.0	41.21	360.00	10,571.1	118.3	0.0	118.3	12.00	12.00	0.00
10,625.0	44.21	360.00	10,589.5	135.2	0.0	135.2	12.00	12.00	0.00
10,650.0	47.21	360.00	10,607.0	153.1	0.0	153.1	12.00	12.00	0.00
10,675.0	50.21	360.00	10,623.5	171.9	0.0	171.9	12.00	12.00	0.00
10,700.0	53.21	360.00	10,638.9	191.5	0.0	191.5	12.00	12.00	0.00
10,725.0	56.21	360.00	10,653.4	211.9	0.0	211.9	12.00	12.00	0.00
10,750.0	59.21	360.00	10,666.7	233.1	0.0	233.1	12.00	12.00	0.00
10,775.0	62.21	360.00	10,679.0	254.9	0.0	254.9	12.00	12.00	0.00
10,800.0	65.21	360.00	10,690.0	277.3	0.0	277.3	12.00	12.00	0.00
10,825.0	68.21	360.00	10,699.9	300.2	0.0	300.2	12.00	12.00	0.00
10,833.5	69.23	360.00	10,703.0	308.1	0.0	308.1	12.00	12.00	0.00
<b>False Bakken</b>									
10,850.0	71.21	360.00	10,708.6	323.7	0.0	323.7	12.00	12.00	0.00
10,864.3	72.93	360.00	10,713.0	337.3	0.0	337.3	12.00	12.00	0.00
<b>Upper Bakken</b>									
10,875.0	74.21	360.00	10,716.0	347.6	0.0	347.6	12.00	12.00	0.00
10,900.0	77.21	360.00	10,722.2	371.8	0.0	371.8	12.00	12.00	0.00
10,924.5	80.15	360.00	10,727.0	395.8	0.0	395.8	12.00	12.00	0.00
<b>Middle Bakken</b>									
10,925.0	80.21	360.00	10,727.1	396.3	0.0	396.3	12.00	12.00	0.00
10,950.0	83.21	360.00	10,730.7	421.0	0.0	421.0	12.00	12.00	0.00
10,975.0	86.21	360.00	10,733.0	445.9	0.0	445.9	12.00	12.00	0.00
11,000.0	89.21	360.00	10,734.0	470.9	0.0	470.9	12.00	12.00	0.00
11,000.9	89.21	360.00	10,734.0	471.8	0.0	471.8	0.00	0.00	0.00
<b>Middle Bakken Sand Target</b>									
11,007.8	90.14	360.00	10,734.0	478.7	0.0	478.7	13.67	13.67	0.00
<b>Start 12.3 hold at 11007.8 MD</b>									
11,020.0	90.14	360.00	10,734.0	490.9	0.0	490.9	0.00	0.00	0.00
<b>Start DLS 0.00 TFO 0.00 - 7"</b>									
11,100.0	90.14	360.00	10,733.8	570.9	0.0	570.9	0.00	0.00	0.00
11,200.0	90.14	360.00	10,733.6	670.9	0.0	670.9	0.00	0.00	0.00
11,300.0	90.14	360.00	10,733.3	770.9	0.0	770.9	0.00	0.00	0.00
11,400.0	90.14	360.00	10,733.1	870.9	0.0	870.9	0.00	0.00	0.00
11,500.0	90.14	360.00	10,732.8	970.9	0.0	970.9	0.00	0.00	0.00
11,600.0	90.14	360.00	10,732.6	1,070.9	0.0	1,070.9	0.00	0.00	0.00
11,700.0	90.14	360.00	10,732.3	1,170.9	0.0	1,170.9	0.00	0.00	0.00
11,800.0	90.14	360.00	10,732.1	1,270.9	0.0	1,270.9	0.00	0.00	0.00
11,900.0	90.14	360.00	10,731.8	1,370.9	0.0	1,370.9	0.00	0.00	0.00
12,000.0	90.14	360.00	10,731.6	1,470.9	0.0	1,470.9	0.00	0.00	0.00
12,100.0	90.14	360.00	10,731.3	1,570.9	0.0	1,570.9	0.00	0.00	0.00
12,200.0	90.14	360.00	10,731.1	1,670.9	0.0	1,670.9	0.00	0.00	0.00
12,300.0	90.14	360.00	10,730.8	1,770.9	0.0	1,770.9	0.00	0.00	0.00
12,400.0	90.14	360.00	10,730.5	1,870.9	0.0	1,870.9	0.00	0.00	0.00
12,500.0	90.14	360.00	10,730.3	1,970.9	0.0	1,970.9	0.00	0.00	0.00
12,600.0	90.14	360.00	10,730.0	2,070.9	0.0	2,070.9	0.00	0.00	0.00
12,700.0	90.14	360.00	10,729.8	2,170.9	0.0	2,170.9	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM Network	<b>Local Co-ordinate Reference:</b>	Well Foley Federal 5301 43-12H
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Project:</b>	McKenzie County, ND	<b>MD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Site:</b>	Sec. 12 T153N R101W	<b>North Reference:</b>	True
<b>Well:</b>	Foley Federal 5301 43-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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)
12,800.0	90.14	360.00	10,729.5	2,270.9	0.0	2,270.9	0.00	0.00	0.00
12,900.0	90.14	360.00	10,729.3	2,370.9	0.0	2,370.9	0.00	0.00	0.00
13,000.0	90.14	360.00	10,729.0	2,470.9	0.0	2,470.9	0.00	0.00	0.00
13,100.0	90.14	360.00	10,728.8	2,570.9	0.0	2,570.9	0.00	0.00	0.00
13,200.0	90.14	360.00	10,728.5	2,670.9	0.0	2,670.9	0.00	0.00	0.00
13,300.0	90.14	360.00	10,728.3	2,770.9	0.0	2,770.9	0.00	0.00	0.00
13,400.0	90.14	360.00	10,728.0	2,870.9	0.0	2,870.9	0.00	0.00	0.00
13,500.0	90.14	360.00	10,727.8	2,970.9	0.0	2,970.9	0.00	0.00	0.00
13,600.0	90.14	360.00	10,727.5	3,070.9	0.0	3,070.9	0.00	0.00	0.00
13,700.0	90.14	360.00	10,727.3	3,170.9	0.0	3,170.9	0.00	0.00	0.00
13,800.0	90.14	360.00	10,727.0	3,270.9	0.0	3,270.9	0.00	0.00	0.00
13,900.0	90.14	360.00	10,726.8	3,370.9	0.0	3,370.9	0.00	0.00	0.00
14,000.0	90.14	360.00	10,726.5	3,470.9	0.0	3,470.9	0.00	0.00	0.00
14,100.0	90.14	360.00	10,726.3	3,570.9	0.0	3,570.9	0.00	0.00	0.00
14,200.0	90.14	360.00	10,726.0	3,670.9	0.0	3,670.9	0.00	0.00	0.00
14,300.0	90.14	360.00	10,725.8	3,770.9	0.0	3,770.9	0.00	0.00	0.00
14,400.0	90.14	360.00	10,725.5	3,870.9	0.0	3,870.9	0.00	0.00	0.00
14,500.0	90.14	360.00	10,725.3	3,970.9	0.0	3,970.9	0.00	0.00	0.00
14,600.0	90.14	360.00	10,725.0	4,070.9	0.0	4,070.9	0.00	0.00	0.00
14,700.0	90.14	360.00	10,724.8	4,170.9	0.0	4,170.9	0.00	0.00	0.00
14,800.0	90.14	360.00	10,724.5	4,270.9	0.0	4,270.9	0.00	0.00	0.00
14,900.0	90.14	360.00	10,724.3	4,370.9	0.0	4,370.9	0.00	0.00	0.00
15,000.0	90.14	360.00	10,724.0	4,470.9	0.0	4,470.9	0.00	0.00	0.00
15,100.0	90.14	360.00	10,723.8	4,570.9	0.0	4,570.9	0.00	0.00	0.00
15,200.0	90.14	360.00	10,723.5	4,670.9	0.0	4,670.9	0.00	0.00	0.00
15,300.0	90.14	360.00	10,723.3	4,770.9	0.0	4,770.9	0.00	0.00	0.00
15,400.0	90.14	360.00	10,723.0	4,870.9	0.0	4,870.9	0.00	0.00	0.00
15,500.0	90.14	360.00	10,722.8	4,970.9	0.0	4,970.9	0.00	0.00	0.00
15,600.0	90.14	360.00	10,722.5	5,070.9	0.0	5,070.9	0.00	0.00	0.00
15,700.0	90.14	360.00	10,722.3	5,170.9	0.0	5,170.9	0.00	0.00	0.00
15,800.0	90.14	0.00	10,722.0	5,270.9	0.0	5,270.9	0.00	0.00	0.00
15,900.0	90.14	0.00	10,721.7	5,370.9	0.0	5,370.9	0.00	0.00	0.00
16,000.0	90.14	0.00	10,721.5	5,470.9	0.0	5,470.9	0.00	0.00	0.00
16,100.0	90.14	0.00	10,721.2	5,570.9	0.0	5,570.9	0.00	0.00	0.00
16,200.0	90.14	0.00	10,721.0	5,670.9	0.0	5,670.9	0.00	0.00	0.00
16,300.0	90.14	0.00	10,720.7	5,770.9	0.0	5,770.9	0.00	0.00	0.00
16,400.0	90.14	0.00	10,720.5	5,870.9	0.0	5,870.9	0.00	0.00	0.00
16,500.0	90.14	0.00	10,720.2	5,970.9	0.0	5,970.9	0.00	0.00	0.00
16,600.0	90.15	0.00	10,720.0	6,070.9	0.0	6,070.9	0.00	0.00	0.00
16,700.0	90.15	0.00	10,719.7	6,170.9	0.0	6,170.9	0.00	0.00	0.00
16,800.0	90.15	0.00	10,719.5	6,270.9	0.0	6,270.9	0.00	0.00	0.00
16,900.0	90.15	0.00	10,719.2	6,370.9	0.0	6,370.9	0.00	0.00	0.00
17,000.0	90.15	0.00	10,719.0	6,470.9	0.0	6,470.9	0.00	0.00	0.00
17,100.0	90.15	0.00	10,718.7	6,570.9	0.0	6,570.9	0.00	0.00	0.00
17,200.0	90.15	0.00	10,718.5	6,670.9	0.0	6,670.9	0.00	0.00	0.00
17,300.0	90.15	0.00	10,718.2	6,770.9	0.0	6,770.9	0.00	0.00	0.00
17,400.0	90.15	0.00	10,717.9	6,870.9	0.0	6,870.9	0.00	0.00	0.00
17,500.0	90.15	0.00	10,717.7	6,970.9	0.0	6,970.9	0.00	0.00	0.00
17,600.0	90.15	0.00	10,717.4	7,070.9	0.0	7,070.9	0.00	0.00	0.00
17,700.0	90.15	0.00	10,717.2	7,170.9	0.0	7,170.9	0.00	0.00	0.00
17,800.0	90.15	0.00	10,716.9	7,270.9	0.0	7,270.9	0.00	0.00	0.00
17,900.0	90.15	0.00	10,716.7	7,370.9	0.0	7,370.9	0.00	0.00	0.00
18,000.0	90.15	0.00	10,716.4	7,470.9	0.0	7,470.9	0.00	0.00	0.00
18,100.0	90.15	0.00	10,716.2	7,570.9	0.0	7,570.9	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM Network	<b>Local Co-ordinate Reference:</b>	Well Foley Federal 5301 43-12H
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Project:</b>	McKenzie County, ND	<b>MD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Site:</b>	Sec. 12 T153N R101W	<b>North Reference:</b>	True
<b>Well:</b>	Foley Federal 5301 43-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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)
18,200.0	90.15	0.00	10,715.9	7,670.9	0.0	7,670.9	0.00	0.00	0.00
18,300.0	90.15	0.00	10,715.7	7,770.9	0.0	7,770.9	0.00	0.00	0.00
18,400.0	90.15	0.00	10,715.4	7,870.9	0.0	7,870.9	0.00	0.00	0.00
18,500.0	90.15	0.00	10,715.2	7,970.9	0.0	7,970.9	0.00	0.00	0.00
18,600.0	90.15	0.00	10,714.9	8,070.9	0.0	8,070.9	0.00	0.00	0.00
18,700.0	90.15	0.00	10,714.6	8,170.9	0.0	8,170.9	0.00	0.00	0.00
18,800.0	90.15	0.00	10,714.4	8,270.9	0.0	8,270.9	0.00	0.00	0.00
18,900.0	90.15	0.00	10,714.1	8,370.9	0.0	8,370.9	0.00	0.00	0.00
19,000.0	90.15	0.00	10,713.9	8,470.9	0.0	8,470.9	0.00	0.00	0.00
19,100.0	90.15	0.00	10,713.6	8,570.9	0.0	8,570.9	0.00	0.00	0.00
19,200.0	90.15	0.00	10,713.4	8,670.9	0.0	8,670.9	0.00	0.00	0.00
19,300.0	90.15	0.00	10,713.1	8,770.9	0.0	8,770.9	0.00	0.00	0.00
19,400.0	90.15	0.00	10,712.9	8,870.9	0.0	8,870.9	0.00	0.00	0.00
19,500.0	90.15	0.00	10,712.6	8,970.9	0.0	8,970.9	0.00	0.00	0.00
19,600.0	90.15	0.00	10,712.4	9,070.9	0.0	9,070.9	0.00	0.00	0.00
19,700.0	90.15	0.00	10,712.1	9,170.9	0.0	9,170.9	0.00	0.00	0.00
19,800.0	90.15	0.00	10,711.8	9,270.9	0.0	9,270.9	0.00	0.00	0.00
19,900.0	90.15	0.00	10,711.6	9,370.9	0.0	9,370.9	0.00	0.00	0.00
20,000.0	90.15	0.00	10,711.3	9,470.9	0.0	9,470.9	0.00	0.00	0.00
20,100.0	90.15	0.00	10,711.1	9,570.9	0.0	9,570.9	0.00	0.00	0.00
20,200.0	90.15	0.00	10,710.8	9,670.9	0.0	9,670.9	0.00	0.00	0.00
20,300.0	90.15	0.00	10,710.6	9,770.9	0.0	9,770.9	0.00	0.00	0.00
20,400.0	90.15	0.00	10,710.3	9,870.9	0.0	9,870.9	0.00	0.00	0.00
20,500.0	90.15	0.00	10,710.1	9,970.9	0.0	9,970.9	0.00	0.00	0.00
20,522.1	90.15	0.00	10,710.0	9,993.0	0.0	9,993.0	0.00	0.00	0.00
<b>TD at 20522.1</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/S (ft)	+E/W (ft)	Northing (m)	Easting (m)	Latitude	Longitude
- hit/miss target									
- Shape									
Foley Federal 5301 43-1	0.00	0.00	10,710.0	9,993.0	0.0	128,109.20	368,367.99	48° 6' 36.560 N	103° 36' 41.780 W
- plan hits target center									
- Point									
Interp @ 10734.0 (Foley	0.00	0.00	10,734.0	490.9	0.0	125,215.33	368,250.98	48° 5' 2.785 N	103° 36' 41.780 W
- plan hits target center									
- Point									

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		
11,020.0	10,734.0 7"					7.000	8.750		

## Planning Report

<b>Database:</b>	EDM Network	<b>Local Co-ordinate Reference:</b>	Well Foley Federal 5301 43-12H
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Project:</b>	McKenzie County, ND	<b>MD Reference:</b>	WELL @ 2091.0ft (Original Well Elev)
<b>Site:</b>	Sec. 12 T153N R101W	<b>North Reference:</b>	True
<b>Well:</b>	Foley Federal 5301 43-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

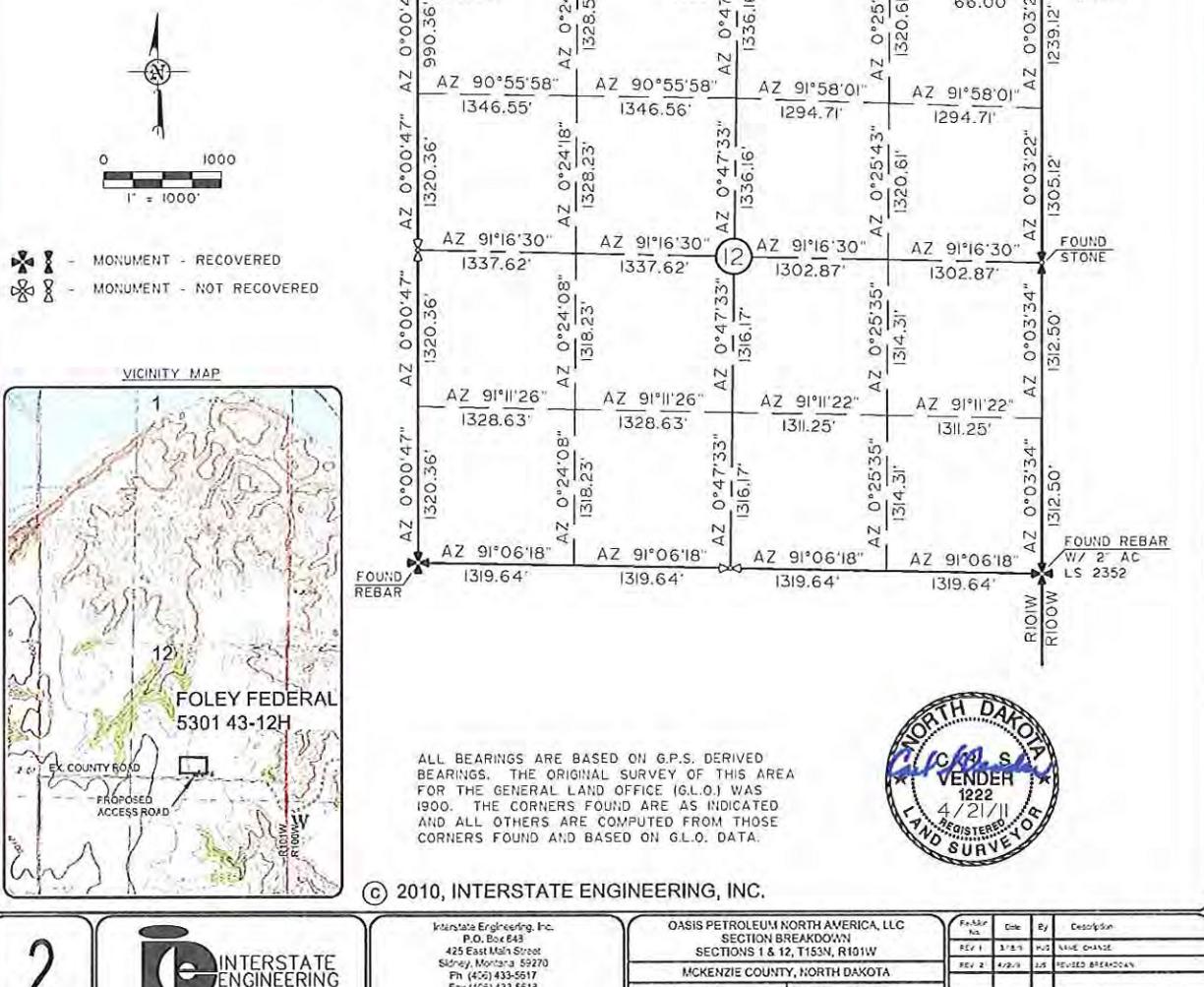
Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,941.0	1,941.0	Pierre			
4,606.0	4,606.0	Greenhorn			
5,002.0	5,002.0	Mowry			
5,433.0	5,433.0	Dakota			
6,350.0	6,350.0	Rierdon			
6,869.0	6,869.0	Dunham Salt			
6,936.0	6,936.0	Dunham Salt Base			
6,941.0	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			
11,000.9	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 12.3 hold at 11007.8 MD	
11,020.0	10,734.0	490.9	0.0	Start DLS 0.00 TFO 0.00	
20,522.1	10,710.0	9,993.0	0.0	TD at 20522.1	

**SECTION BREAKDOWN**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002  
 \*FOLEY FEDERAL 5301 43-12H\*

250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
 SECTIONS 1 & 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

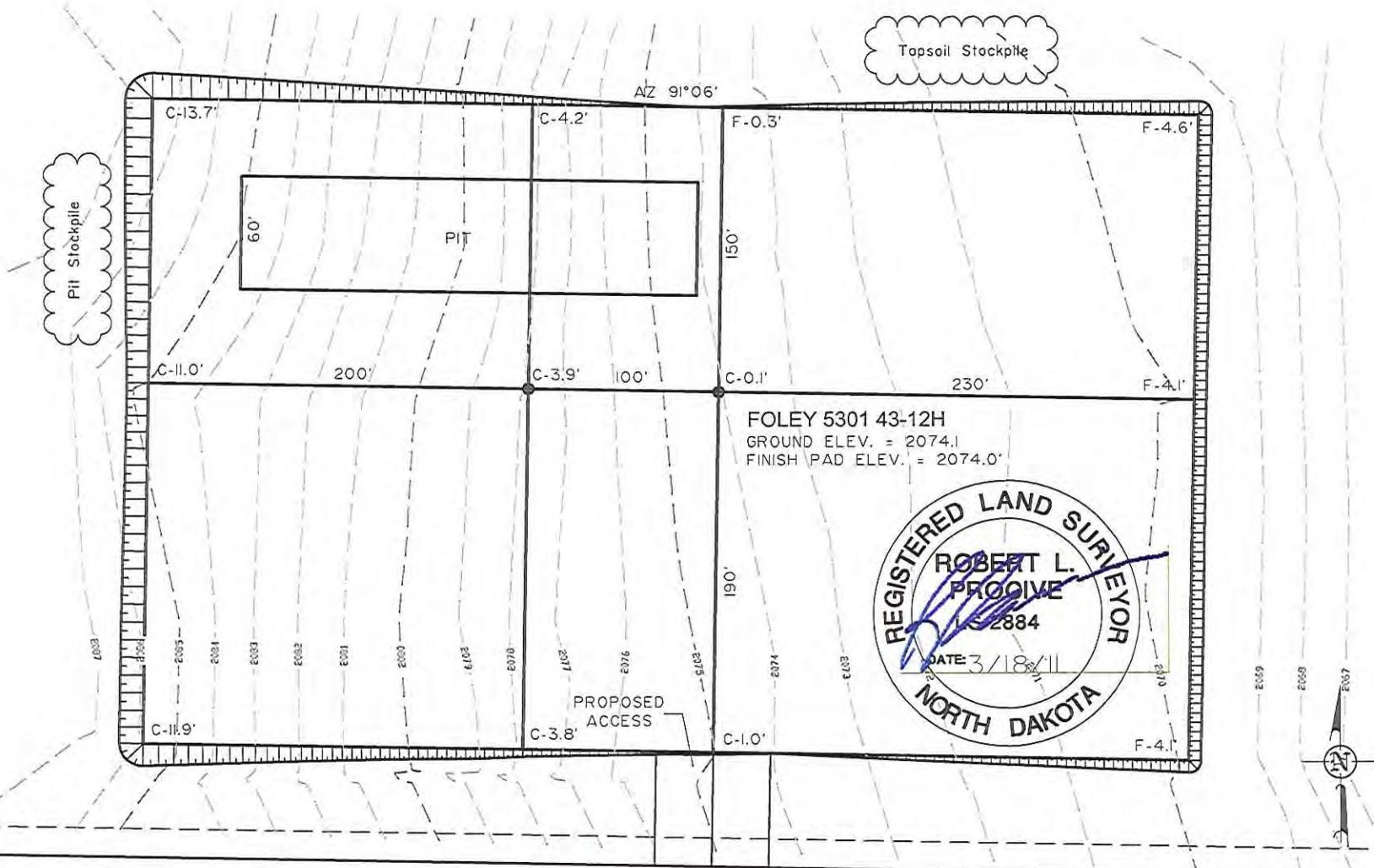
THE THEORETICAL 40 ACRE PARCELS UNDER THE RIVER WERE CREATED AT THE REQUEST OF THE NORTH DAKOTA OIL AND GAS DIVISION FOR WELL SPACING AND WERE NOT CREATED ACCORDING TO ANY GLO OR BLM RULES.



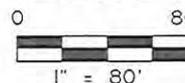
# PAD LAYOUT

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

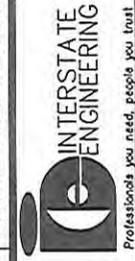
250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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



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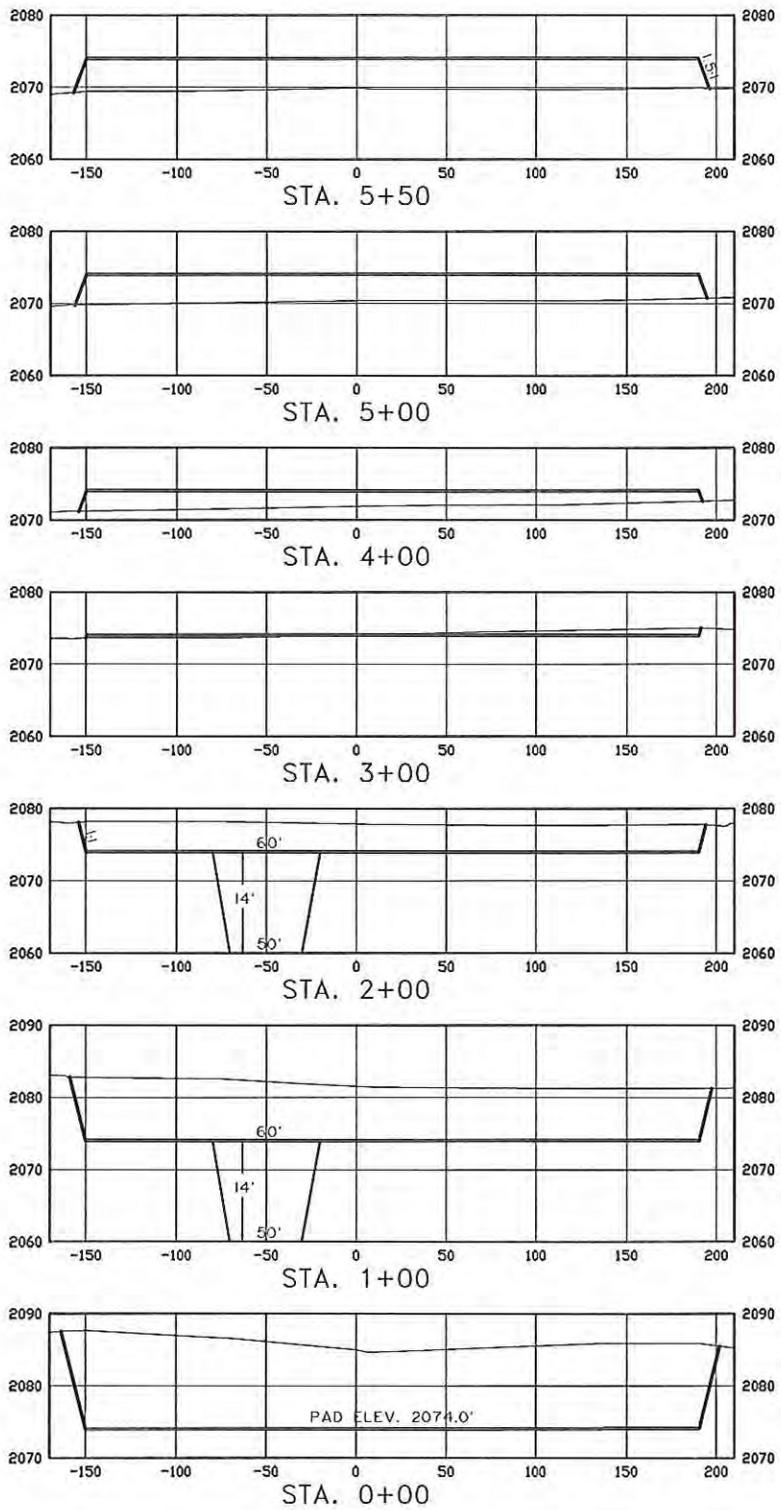


SHEET NO. 3

Project No.: S109-164	Rev. No.: 1	Date: 3/4/11	By: H-G	Description: NAME CHANGE
OASIS PETROLEUM NORTH AMERICA, LLC				
PAD LAYOUT				
SECTION 12, T153N, R101W				
MCKENZIE COUNTY, NORTH DAKOTA				
Drawn By: J.J.S.	Checked By: A.H.R.P.	Approved By: _____	Date: DEC. 2019	

Interstate Engineering, Inc.  
P.O. Box 618  
426 East Main Street  
Sidney, Montana 59270  
Ph. (406) 433-5617  
Fax (406) 433-5618  
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**CROSS SECTIONS**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002  
 "FOLEY FEDERAL 5301 43-12H"  
 250 FEET FROM SOUTH LINE AND 1827 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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 Sidney, Montana 59270  
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[www.jengl.com](http://www.jengl.com)  
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
 PAD CROSS SECTIONS  
 SECTION 12, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	J.J.S.	Project No.:	S139-164
Checked By:	R.L.P.	Date:	DEC. 2010

Revision No.	Date	By	Description
REV I	3/8/11	HJO	NAME CHANGE

## WELL LOCATION SITE QUANTITIES

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

"FOLEY FEDERAL 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL SITE ELEVATION	2074.1
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)

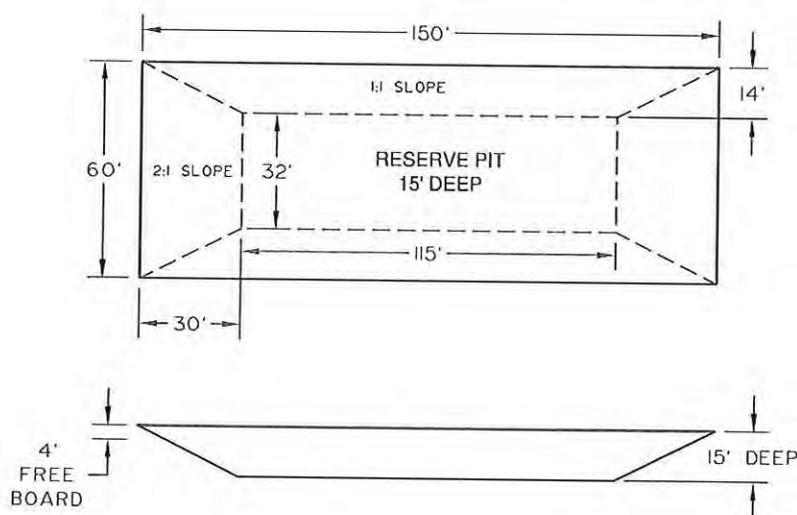
CUT END SLOPES AT 1:1

FILL END SLOPES AT 1:5:1

## WELL SITE LOCATION

1827' FFI

250' FSI



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Professionals you need. People you trust.

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.leng.com](http://www.leng.com)

OASIS PETROLEUM, LLC  
QUANTITIES  
SECTION 12 T158N R101W

SECTION 12, T153N, R101W

Revision No.	Date	By	Description
REV I	3/18/11	HJC	NAME CHANGE

## ACCESS APPROACH

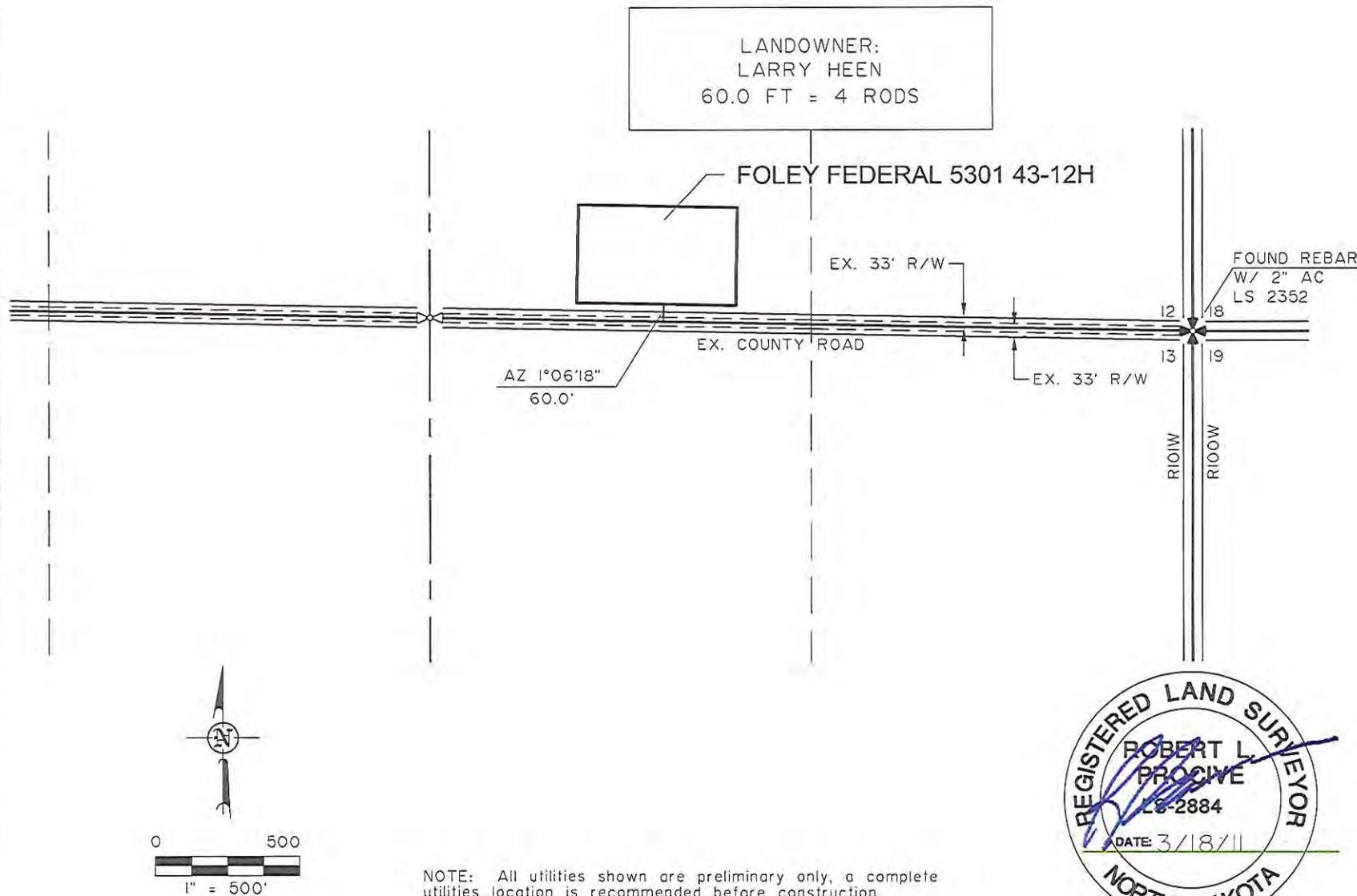
OASIS PETROLEUM NORTH AMERICA, LLC

1001 FANNIN, SUITE 202 HOUSTON, TX 77002

"FOLEY FEDERAL 5301 43-12H"

250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

LANDOWNER:  
LARRY HEEN  
60.0 FT = 4 RODS

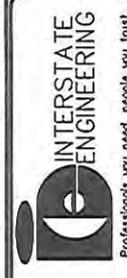


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Project No.	Date	By	Description
REV 1	3/8/11	J.G.	NAME CHANGE

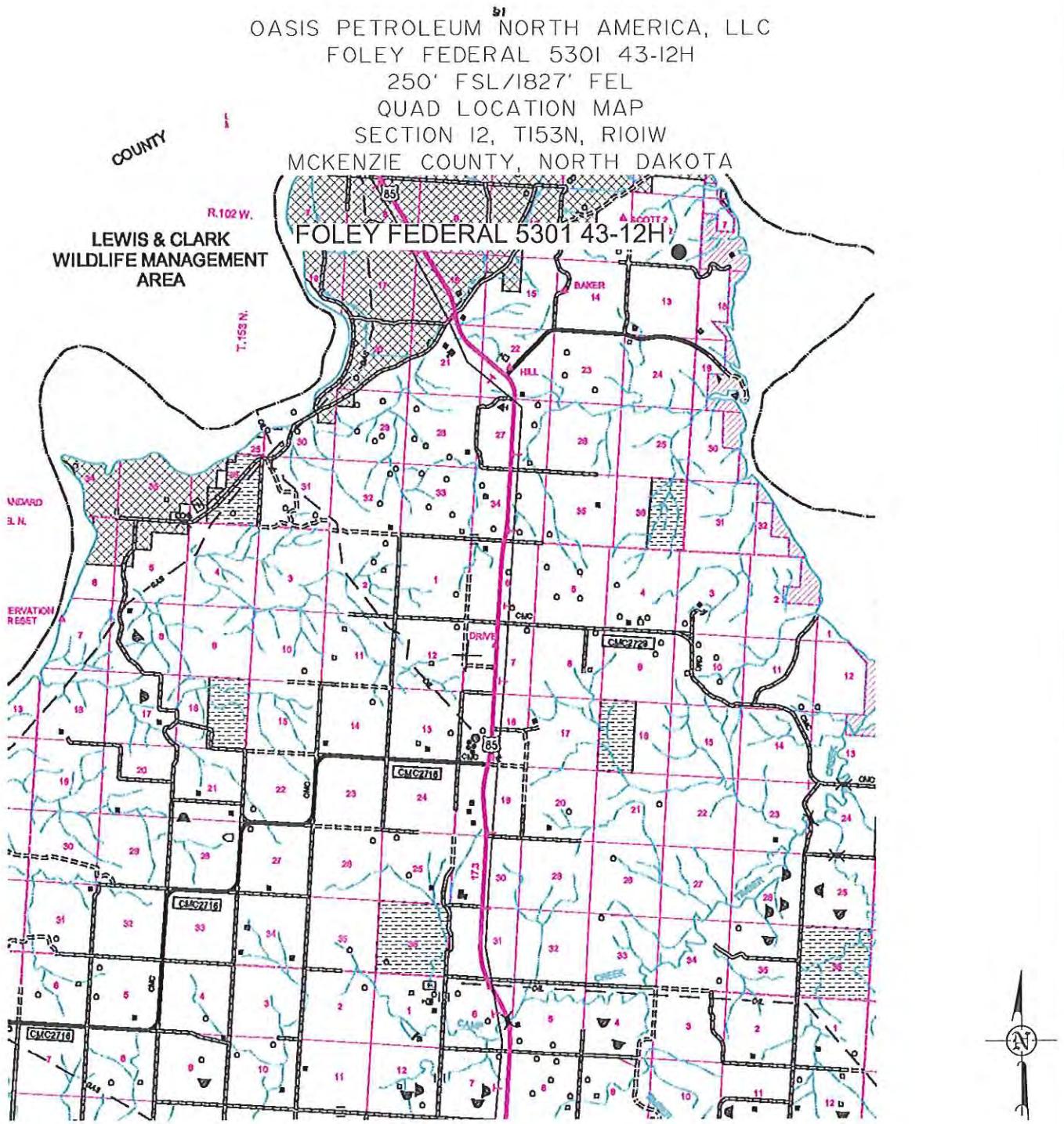
OASIS PETROLEUM NORTH AMERICA, LLC	Project No.	Date
ACCESS APPROACH	REV 1	3/8/11
SECTION 12, T153N, R101W	By	Description
MCKENZIE COUNTY, NORTH DAKOTA	J.S.	
Driveway:	S100-164	
Crosses Br.:	A.J.H.R.L.P.	
Check Br.:	DEC 2010	

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SHEET NO.

**COUNTY ROAD MAP**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 202 HOUSTON, TX 77002  
 "FOLEY FEDERAL 5301 43-12H"  
 250 FEET FROM SOUTH LINE AND 1827 FEET FROM EAST LINE  
 SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



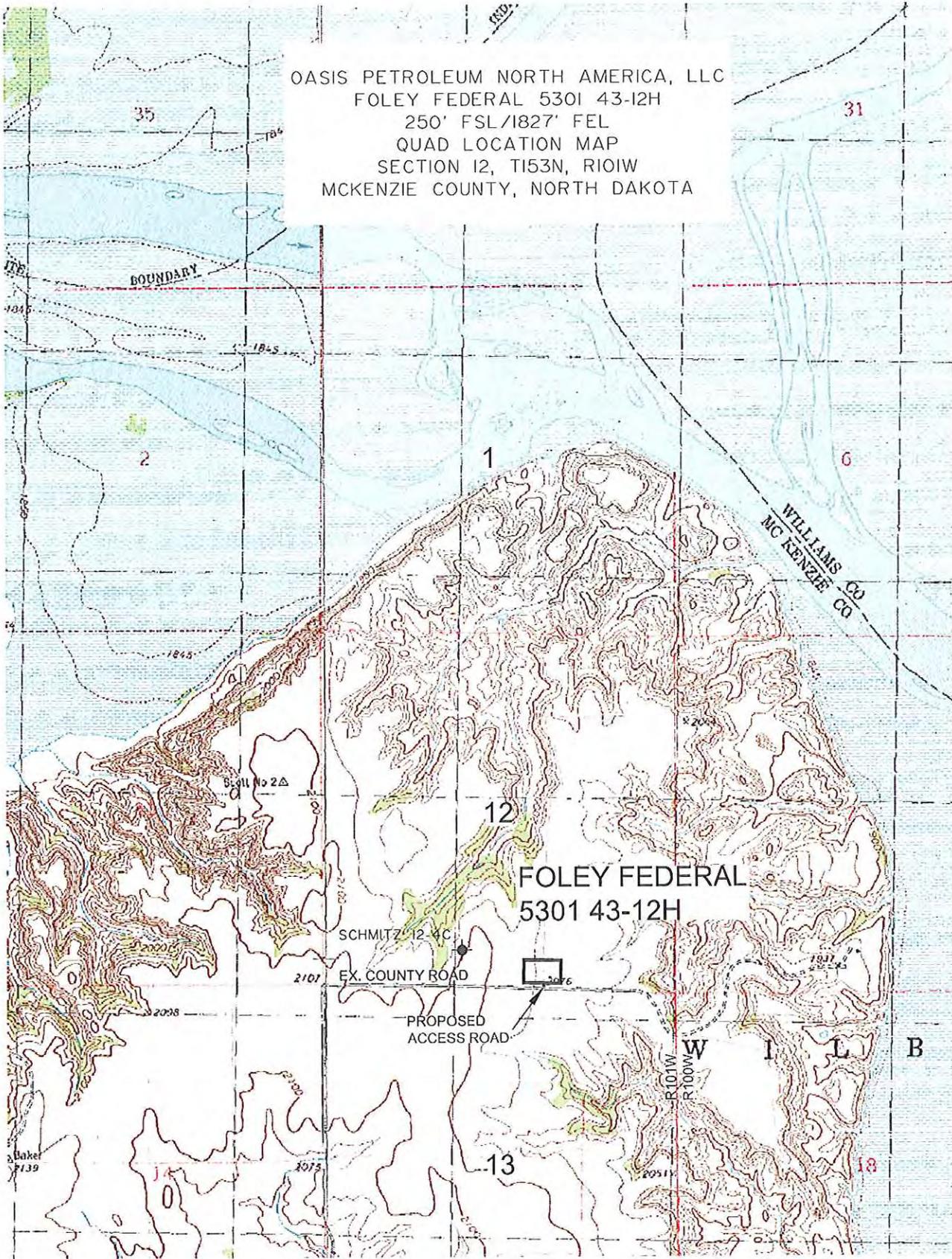
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Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
 COUNTY ROAD MAP  
 SECTION 12, T153N, R101W  
 MCKENZIE COUNTY, NORTH DAKOTA  
 Drawn By: J.J.S. Project No.: S10-09-164  
 Checked By: A.J.H./RLP. Date: DEC, 2010

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REV 1	3/18/11	HJG	NAME CHANGE



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OASIS PETROLEUM NORTH AMERICA, LLC  
QUAD LOCATION MAP  
SECTION I2, T153N, R101W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No.: S10-09-164  
Checked By: A.J.H/R.L.P. Date: DEC. 2010

Revision No.	Date	By	Description
REV 1	3/8/11	HJS	NAME CHANGE