



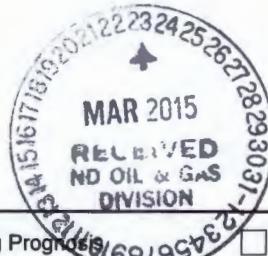
# SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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.  
**25571**

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>November 30, 2013</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 Progress	<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>Well on pump</b>

Well Name and Number  
**Colville 5301 44-12T**

Footages <b>250 F S L</b>	Qtr-Qtr <b>950 F E L</b>	SESE	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	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)

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

## DETAILS OF WORK

Effective 11/30/2013 the above referenced well is on pump.

End of Tubing: 2-7/8" L-80 tubing @ 10166'

Pump: 2-1/2" x 2.0" x 24' insert pump @10105'

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281 404-9652</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature <i>VS-t</i>	Printed Name <b>Victoria Siemieniewski</b>	
Title <b>Regulatory Specialist</b>	Date <b>March 19, 2015</b>	
Email Address <b>vsiemieniewski@oasispetroleum.com</b>		

## FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>4-1-2015</b>	
By <i>Jared Thune</i>	
Title <b>JARED THUNE</b>	
Engineering Technician	



# WELL COMPLETION OR RECOMPLETION REPORT FORM 6

TH

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.  
**25571**

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

Designate Type of Completion										
<input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> EOR Well <input type="checkbox"/> Recompletion <input type="checkbox"/> Deepened Well <input type="checkbox"/> Added Horizontal Leg <input type="checkbox"/> Extended Horizontal Leg			<input type="checkbox"/> Gas Well <input type="checkbox"/> SWD Well <input type="checkbox"/> Water Supply Well <input type="checkbox"/> Other:							
Well Name and Number <b>Colville 5301 44-12T</b>				Spacing Unit Description <b>T153N R101W Sec 13 &amp; 24</b>						
Operator <b>Oasis Petroleum North America</b>			Telephone Number <b>(281) 404-9563</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 checked="" type="checkbox"/> Wildcat	<input type="checkbox"/> Development	<input type="checkbox"/> Extension		

## LOCATION OF WELL

At Surface		Qtr-Qtr	Section	Township	Range	County
250	F S L	950 F E L	SESE	12	153 N	101 W
Spud Date		Date TD Reached		Drilling Contractor and Rig Number		KB Elevation (Ft)
July 11, 2013		August 12, 2013		Nabors B22		Graded Elevation (Ft) <b>2085</b>

Type of Electric and Other Logs Run (See Instructions)

N/A

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

Well Bore	Type	String Size (Inch)	Top Set (MD Ft)	Depth Set (MD Ft)	Hole Size (Inch)	Weight (Lbs/Ft)	Anchor Set (MD Ft)	Packer Set (MD Ft)	Sacks Cement	Top of Cement
Surface Hole	Surface	9 5/8		2115	13 1/2	36			768	0
Vertical Hole	Intermediate	7		11144	8 3/4	32			794	2080
Lateral1	Liner	4 1/2	10258	21060	6	13.5				

## PERFORATION & OPEN HOLE INTERVALS

Well Bore	Well Bore TD Drillers Depth (MD Ft)	Completion Type	Open Hole/Perforated Interval (MD,Ft)	Kick-off Point (MD Ft)	Top of Casing Window (MD Ft)	Date Perfd or Drilled	Date Isolated	Isolation Method	Sacks Cement
Lateral1	21090	Perforations	11144 21090	10326		09/11/2013			

## PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion Top and Bottom, (MD Ft) <b>Lateral 1 -11,144 -21090</b>				Name of Zone (If Different from Pool Name)				
Date Well Completed (SEE INSTRUCTIONS) <b>September 22, 2013</b>		Producing Method <b>Flowing</b>		Pumping-Size & Type of Pump			Well Status (Producing or Shut-In) <b>Producing</b>	
Date of Test <b>09/23/2013</b>	Hours Tested <b>24</b>	Choke Size <b>48 /64</b>	Production for Test	Oil (Bbls) <b>1427</b>	Gas (MCF) <b>810</b>	Water (Bbls) <b>3189</b>	Oil Gravity-API (Corr.) <b>41.0 °</b>	Disposition of Gas <b>Sold</b>
Flowing Tubing Pressure (PSI)		Flowing Casing Pressure (PSI)		Calculated 24-Hour Rate	Oil (Bbls) <b>1427</b>	Gas (MCF) <b>810</b>	Water (Bbls) <b>3189</b>	Gas-Oil Ratio <b>567</b>

## GEOLOGICAL MARKERS

## **PLUG BACK INFORMATION**

CORES CUT

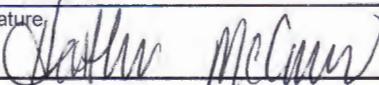
Top (Ft)	Bottom (Ft)	Formation	Top (Ft)	Bottom (Ft)	Formation

Drill Stem Test

### Well Specific Stimulation

Date Stimulated 09/11/2013	Stimulated Formation Bakken		Top (Ft) 21090	Bottom (Ft) 36	Stimulation Stages	Volume 95801	Volume Units Barrels
Type Treatment Sand Frac	Acid %	Lbs Proppant 3826701	Maximum Treatment Pressure (PSI) 9406		Maximum Treatment Rate (BBLS/Min) 36.0		
Details 100 mesh: 127,379 40/70 White: 1,462,926 20/40 Ceramic: 2,236,396							
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 <a href="mailto:hmccowan@oasispetroleum.com">hmccowan@oasispetroleum.com</a>	Date 10/28/2013
Signature 	Printed Name Heather McCowan	Title Regulatory Assistant

WELL COMPLETION OR RECOMPLETION REPORT - FORM 6  
SFN 2468

1. This report shall be filed by the operator with the Commission immediately after the completion of a well in an unspaced pool or reservoir. Please refer to Section 43-02-03-31 of the North Dakota Administrative Code (NDAC).
2. This report shall be filed by the operator with the Commission within thirty (30) days after the completion of a well, or recompletion of a well in a different pool. Please refer to Section 43-02-03-31 NDAC.
3. The well file number, operator, well name and number, field, pool, permit type, well location(s), and any other pertinent data shall coincide with the official records on file with the Commission. If it does not, an explanation shall be given.
4. If a parasite string was used in the drilling of a well, the size, depth set, cement volume used to plug, and the date plugged shall be included. This information may be included in the "Additional Information" portion of the report or included as an attachment.
5. In the "Perforation & Open Hole Intervals" table, each borehole should be identified in the "Well Bore" column (vertical, sidetrack 1, lateral 1, etc.). On horizontal or directional wells, the following information shall be entered in the table if applicable: pilot hole total depth, kick-off point, casing windows, original lateral total depth, and all sidetracked interval starting and ending footages.
6. In the "Production" section, list all the current producing open hole or perforated intervals associated with the production rates reported. Oil, gas, and water rates and recoveries from perforations or laterals tested but not included in the completion should be included in the "Additional Information" portion of the report or included as an attachment.
7. In The "Date Well Completed" portion of the form please report the appropriate date as follows:
  - An oil well shall be considered completed when the first oil is produced through wellhead equipment into tanks from the ultimate producing interval after casing has been run.
  - A gas well shall be considered complete when the well is capable of producing gas through wellhead equipment from the ultimate producing zone after casing has been run.
  - For EOR or SWD wells, please report the date the well is capable of injection through tubing and packer into the permitted injection zone. Also, please report the packer type and depth and the tubing size, depth, and type. The packer and tubing type may be included in the "Additional Information" portion of the report.
8. The top of the Dakota Formation shall be included in the "Geological Markers."
9. Stimulations for laterals can be listed as a total for each lateral.
10. The operator shall file with the Commission two copies of all logs run. Logs shall be submitted as one digital TIFF (tagged image file format) copy and one digital LAS (log ASCII) formatted copy, or a format approved by the Director. In addition, operators shall file two copies of drill stem test reports and charts, formation water analyses, core analyses, geologic reports, and noninterpretive lithologic logs or sample descriptions if compiled by the operator.
11. A certified copy of any directional survey run shall be filed directly with the Commission by the survey contractor.
12. The original and one copy of this report shall be filed with the Industrial Commission of North Dakota, Oil and Gas Division, 600 East Boulevard, Dept. 405, Bismarck, ND 58505-0840.

Industrial Commission of North Dakota  
Oil and Gas Division

Well or Facility No

*TH*  
**25571**

Verbal Approval To Purchase and Transport Oil

Tight Hole    No

**OPERATOR**

Operator

**OASIS PETROLEUM NORTH AMERICA LL**

Representative

**Cody Jeannotte**

Rep Phone

**(701) 580-7993**

**WELL INFORMATION**

Well Name

**COLVILLE 5301 44-12T**

Inspector

**Richard Dunn**

Well Location    QQ      Sec      Twp      Rng  
                  SESE     12     153   N     101   W

County  
**MCKENZIE**

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

Field  
**BAKER**

Date of First Production Through Permanent Wellhead

**This Is Not The First Sales**

**PURCHASER / TRANSPORTER**

Purchaser

**OASIS PETROLEUM MARKETING LLC**

Transporter

**HILAND CRUDE, LLC**

**TANK BATTERY**

Single Well Tank Battery Number :

**SALES INFORMATION**    This Is Not The First Sales

ESTIMATED BARRELS TO BE SOLD		ACTUAL BARRELS SOLD	DATE
15000	BBLS	BBLS	
	BBLS	BBLS	

**DETAILS**

Must E-Mail or Call Inspector at 701-770-3554/rsdunn@nd.gov on first date of sales and report amount sold, date sold, and first date of production through the permanent wellhead. Must also forward Forms 6 & 8 to State prior to reaching 15000 Bbl estimate or no later than required time frame for submitting those forms.

Start Date    **9/10/2013**  
Date Approved    **9/12/2013**  
Approved By    **Richard Dunn**

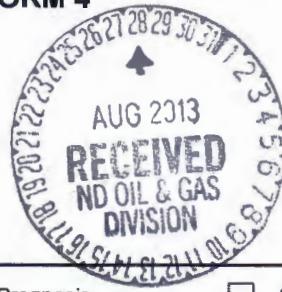


# SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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.

25571



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

 Notice of Intent

Approximate Start Date

August 27, 2013

 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

Colville 5301 44-12T

Footages

250

F

S

L

950

F

E

L

Qtr-Qtr SESE

Section

12

Township

153 N

Range

101 W

Field

Baker

Pool

Bakken

County

McKenzie

## 24-HOUR PRODUCTION RATE

Before	After	Oil	Oil
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>281-404-9563</b>
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature <i>Heather McCowan</i>	Printed Name <b>Heather McCowan</b>	
Title <b>Regulatory Assistant</b>	Date <b>August 27, 2013</b>	
Email Address <b>hmccowan@oasispetroleum.com</b>		

## FOR STATE USE ONLY

 Received Approved

Date

*September 3, 2013*

By

*J. Hamlin*

Title

PETROLEUM ENGINEER



# 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.

25571



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>September 10, 2013</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.	Approximate Start Date	<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	<b>Change well status to CONFIDENTIAL</b>

Well Name and Number <b>Colville 5301 44-12T</b>				
Footages <b>250 F S L</b>	Qtr-Qtr <b>950 F E L</b>	Section <b>SESE</b>	Township <b>12</b>	Range <b>153 N 101 W</b>
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

## DETAILS OF WORK

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

*OFF CONFIDENTIAL 3/11/14*

Company <b>Oasis Petroleum North America LLC</b>		Telephone Number <b>281-404-9563</b>
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature <i>Heather McCowan</i>	Printed Name <b>Heather McCowan</b>	
Title <b>Regulatory Assistant</b>	Date <b>September 10, 2013</b>	
Email Address <b>hmccowan@oasispetroleum.com</b>		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>9/12/13</b>	
By <i>Alice D. Webber</i>	
Title <b>Engineering Technician</b>	



Scientific  
Drilling

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

## Survey Certification

Operator	Oasis Petroleum
Well Name & No.	Colville 5301 44-12T
County & State	McKenzie County, ND
SDI Job No.	410713K33365
Rig	Nabors B22
Survey Date	12-Jul-2013

I, Seth M. Burstad, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 0 feet to a measured depth of 2126.17 feet is true and correct as determined from all available records.

Seth Burstad  
Signature

12-Aug-2013

Date

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

# Oasis Petroleum

McKenzie County, ND

Colville

Colville 5301 44-12T

OH

Design: OH

## Standard Survey Report

08 August, 2013



[www.scientificdrilling.com](http://www.scientificdrilling.com)



# Scientific Drilling International

## Survey Report

<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Colville 5301 44-12T
<b>Project:</b>	McKenzie County, ND	<b>TVD Reference:</b>	GL 2060' & KB 25' @ 2085.00ft (Nabors B22)
<b>Site:</b>	Colville	<b>MD Reference:</b>	GL 2060' & KB 25' @ 2085.00ft (Nabors B22)
<b>Well:</b>	Colville 5301 44-12T	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

<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>	Colville		
<b>Site Position:</b>		<b>Northing:</b>	410,268.53 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,209,024.75 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in
			<b>Latitude:</b> 48° 4' 57.780 N
			<b>Longitude:</b> 103° 36' 28.880 W
			<b>Grid Convergence:</b> -2.31 °

<b>Well</b>	Colville 5301 44-12T, 250' FSL 950' FEL SEC 13 T153 R101				
<b>Well Position</b>	+N/-S +E/-W	0.00 ft 0.00 ft	<b>Northing:</b> 410,268.52 usft <b>Easting:</b> 1,209,024.75 usft	<b>Latitude:</b> 48° 4' 57.780 N <b>Longitude:</b> 103° 36' 28.880 W	
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 2,060.00 ft	

<b>Wellbore</b>	OH				
<b>Magnetics</b>	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	8/13/2013	8.50	73.00	56,438

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>		<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
		25.00	0.00	0.00	208.70

<b>Survey Program</b>	Date	8/8/2013		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
125.00		2,126.17 Survey #1 Surface Gyros (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125.00	1.55	220.79	124.98	-1.28	-1.10	1.65	1.24	1.24	0.00
<b>First SDI Gyro Survey</b>									
225.00	1.40	219.68	224.95	-3.24	-2.77	4.17	0.15	-0.15	-1.11
325.00	0.81	214.78	324.93	-4.76	-3.95	6.08	0.60	-0.59	-4.90
425.00	0.64	189.55	424.92	-5.90	-4.45	7.31	0.36	-0.17	-25.23
525.00	0.35	157.01	524.92	-6.73	-4.42	8.02	0.39	-0.29	-32.54
625.00	0.35	165.39	624.92	-7.30	-4.22	8.44	0.05	0.00	8.38
725.00	0.37	185.64	724.92	-7.92	-4.18	8.96	0.13	0.02	20.25
825.00	0.28	180.88	824.92	-8.49	-4.21	9.47	0.09	-0.09	-4.76
925.00	0.21	180.65	924.91	-8.91	-4.22	9.85	0.07	-0.07	-0.23

# Scientific Drilling International

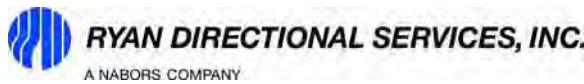
## Survey Report

<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Colville 5301 44-12T
<b>Project:</b>	McKenzie County, ND	<b>TVD Reference:</b>	GL 2060' & KB 25' @ 2085.00ft (Nabors B22)
<b>Site:</b>	Colville	<b>MD Reference:</b>	GL 2060' & KB 25' @ 2085.00ft (Nabors B22)
<b>Well:</b>	Colville 5301 44-12T	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,025.00	0.19	83.35	1,024.91	-9.08	-4.06	9.91	0.30	-0.02	-97.30	
1,125.00	0.52	103.59	1,124.91	-9.17	-3.45	9.70	0.35	0.33	20.24	
1,225.00	0.45	118.50	1,224.91	-9.46	-2.67	9.58	0.14	-0.07	14.91	
1,325.00	0.32	170.92	1,324.91	-9.92	-2.28	9.80	0.36	-0.13	52.42	
1,425.00	0.51	223.26	1,424.90	-10.52	-2.54	10.45	0.40	0.19	52.34	
1,525.00	0.52	255.93	1,524.90	-10.96	-3.28	11.19	0.29	0.01	32.67	
1,625.00	0.28	239.01	1,624.90	-11.19	-3.93	11.71	0.26	-0.24	-16.92	
1,725.00	0.59	239.52	1,724.90	-11.58	-4.59	12.36	0.31	0.31	0.51	
1,825.00	0.04	276.46	1,824.89	-11.84	-5.06	12.82	0.56	-0.55	36.94	
1,925.00	0.62	338.06	1,924.89	-11.33	-5.30	12.49	0.60	0.58	61.60	
2,025.00	0.65	348.66	2,024.89	-10.27	-5.61	11.71	0.12	0.03	10.60	
2,125.00	0.82	52.73	2,124.88	-9.28	-5.16	10.62	0.79	0.17	64.07	
2,126.17	0.82	53.67	2,126.05	-9.27	-5.14	10.61	1.15	0.00	80.34	
Last SDI Gyro Survey										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/S (ft)	+E/W (ft)	Comment	
125.00	124.98	-1.28	-1.10	First SDI Gyro Survey	
2,126.17	2,126.05	-9.27	-5.14	Last SDI Gyro Survey	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



19510 Oil Center Blvd  
Houston, TX 77073  
Bus 281.443.1414  
Fax 281.443.1676

Wednesday, August 28, 2013

State of North Dakota

Subject: **Surveys**

Re: **Oasis**  
**Colville 5301 44-12T**  
**McKenzie, ND**

Enclosed, please find the original and one copy of the survey performed on the above-referenced well by Ryan Directional Services, Inc. (Operator #: ). Other information required by your office is as follows:

<b>Surveyor Name</b>	<b>Surveyor Title</b>	<b>Borehole Number</b>	<b>Start Depth</b>	<b>End Depth</b>	<b>Start Date</b>	<b>End Date</b>	<b>Type of Survey</b>	<i><b>TD Straight Line Projection</b></i>
McCammond, Mike	MWD Operator	O.H.	2101'	21035'	07/24/13	08/12/13	MWD	21090'

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required please contact the undersigned at the letterhead address or phone number.

A handwritten signature in black ink that reads "Douglas Hudson".

---

**Douglas Hudson**  
Well Planner



19510 Oil Center Blvd  
Houston, TX 77073  
Bus 281.443.1414  
Fax 281.443.1676

Wednesday, August 28, 2013

State of North Dakota

Subject: **Survey Certification Letter**

Re: **Oasis  
Colville 5301 44-12T  
McKenzie, ND**

I, Mike McCommond, certify that; I am employed by Ryan Directional Services, Inc.; that I did on the conduct or supervise the taking of the following MWD surveys:

on the day(s) of 7/24/2013 thru 8/12/2013 from a depth of 2101' MD to a depth of 21035' MD and Straight line projection to TD 21090' MD;

that the data is true, correct, complete, and within the limitations of the tool as set forth by Ryan Directional Services, Inc.; that I am authorized and qualified to make this report; that this survey was conducted at the request of Oasis for the Colville 5301 44-12T; in McKenzie, ND.

Mike McCommond

**Mike McCommond**

MWD Operator

Ryan Directional Services, Inc.

Report #: **1**  
Date: **24-Jul-13**



**RYAN DIRECTIONAL SERVICES, INC.**  
A NABORS COMPANY

Ryan Job # **6436**  
Kit # **9**

**SURVEY REPORT**

Customer: **Oasis Petroleum**  
Well Name: **Colville 5301 44-12T**  
Block or Section: **153N-101W-13/24**  
Rig #: **Nabors B-22**  
Calculation Method: **Minimun Curvature Calculation**

MWD Operator: **Mike McCommand**  
Directional Drillers: **D Rakstad/D Bohn**  
Survey Corrected To: **True North**  
Vertical Section Direction: **181.85**  
Survey Correction: **8.32**  
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
<b>Tie in to Gyro Surveys</b>									
<b>Tie In</b>	<b>2101.17</b>	<b>0.82</b>	<b>53.67</b>		<b>2101.05</b>	<b>10.29</b>	<b>-9.03</b>	<b>-4.94</b>	<b>1.18</b>
1	2165	0.80	78.40	95.00	2164.87	8.80	-8.67	-4.14	0.54
2	2258	0.90	103.70	96.00	2257.86	8.80	-8.71	-2.79	0.41
3	2352	1.10	104.50	96.00	2351.85	9.15	-9.11	-1.20	0.21
4	2445	2.50	146.10	102.00	2444.80	10.99	-11.02	0.80	1.97
5	<b>2538</b>	<b>1.70</b>	<b>179.40</b>	<b>104.00</b>	<b>2537.74</b>	<b>14.01</b>	<b>-14.08</b>	<b>1.94</b>	<b>1.53</b>
6	2632	0.80	238.90	107.00	2631.72	15.76	-15.82	1.39	1.56
7	2725	0.80	229.40	107.00	2724.72	16.55	-16.57	0.35	0.14
8	2818	0.50	221.20	109.00	2817.71	17.31	-17.30	-0.41	0.34
9	2912	0.50	209.40	111.00	2911.71	17.99	-17.97	-0.89	0.11
10	<b>3005</b>	<b>0.50</b>	<b>226.20</b>	<b>111.00</b>	<b>3004.70</b>	<b>18.64</b>	<b>-18.60</b>	<b>-1.38</b>	<b>0.16</b>
11	3098	0.80	198.90	111.00	3097.70	19.55	-19.50	-1.88	0.46
12	3192	1.00	202.30	113.00	3191.68	20.94	-20.88	-2.40	0.22
13	3285	0.80	204.70	113.00	3284.67	22.30	-22.22	-2.98	0.22
14	3379	0.90	202.80	114.00	3378.66	23.60	-23.49	-3.54	0.11
15	<b>3472</b>	<b>0.80</b>	<b>165.70</b>	<b>116.00</b>	<b>3471.65</b>	<b>24.90</b>	<b>-24.80</b>	<b>-3.67</b>	<b>0.59</b>
16	3565	0.80	200.00	118.00	3564.64	26.14	-26.04	-3.73	0.51
17	3659	0.70	198.20	120.00	3658.64	27.32	-27.20	-4.13	0.11
18	3752	0.70	196.50	116.00	3751.63	28.41	-28.28	-4.47	0.02
19	3845	0.70	181.70	122.00	3844.62	29.53	-29.40	-4.65	0.19
20	<b>3938</b>	<b>0.60</b>	<b>182.50</b>	<b>123.00</b>	<b>3937.62</b>	<b>30.59</b>	<b>-30.45</b>	<b>-4.69</b>	<b>0.11</b>
21	4032	0.60	198.30	125.00	4031.61	31.55	-31.41	-4.86	0.18
22	4125	0.40	193.40	127.00	4124.61	32.33	-32.19	-5.09	0.22
23	4218	0.40	229.90	129.00	4217.61	32.87	-32.71	-5.42	0.27
24	4311	0.20	253.20	129.00	4310.60	33.14	-32.97	-5.82	0.25
25	<b>4405</b>	<b>0.10</b>	<b>331.40</b>	<b>131.00</b>	<b>4404.60</b>	<b>33.12</b>	<b>-32.94</b>	<b>-6.02</b>	<b>0.22</b>
26	4498	0.10	110.60	132.00	4497.60	33.08	-32.90	-5.98	0.20
27	4591	0.10	278.90	131.00	4590.60	33.09	-32.92	-5.98	0.21
28	4684	0.10	257.80	129.00	4683.60	33.10	-32.92	-6.14	0.04
29	4778	0.10	143.10	129.00	4777.60	33.19	-33.00	-6.17	0.18
30	<b>4871</b>	<b>0.30</b>	<b>165.40</b>	<b>129.00</b>	<b>4870.60</b>	<b>33.48</b>	<b>-33.30</b>	<b>-6.06</b>	<b>0.23</b>
31	4964	0.40	165.90	131.00	4963.60	34.03	-33.86	-5.92	0.11
32	5057	0.30	155.30	131.00	5056.60	34.56	-34.39	-5.74	0.13
33	5151	0.50	215.60	131.00	5150.60	35.12	-34.95	-5.88	0.47
34	5244	0.30	138.10	132.00	5243.60	35.63	-35.46	-5.95	0.56
35	<b>5337</b>	<b>0.50</b>	<b>105.10</b>	<b>132.00</b>	<b>5336.59</b>	<b>35.90</b>	<b>-35.75</b>	<b>-5.40</b>	<b>0.32</b>
36	5430	0.30	82.80	136.00	5429.59	35.96	-35.82	-4.76	0.27
37	5524	0.10	89.20	140.00	5523.59	35.91	-35.79	-4.44	0.21
38	5617	0.30	27.10	141.00	5616.59	35.69	-35.57	-4.24	0.29
39	5710	0.20	26.30	143.00	5709.59	35.32	-35.21	-4.06	0.11
40	<b>5804</b>	<b>0.30</b>	<b>291.50</b>	<b>145.00</b>	<b>5803.59</b>	<b>35.09</b>	<b>-34.97</b>	<b>-4.22</b>	<b>0.40</b>
41	5897	0.30	307.10	147.00	5896.59	34.87	-34.74	-4.64	0.09
42	5990	0.60	334.30	147.00	5989.59	34.30	-34.15	-5.04	0.39
43	6084	1.30	322.80	149.00	6083.57	33.03	-32.86	-5.90	0.77
44	6177	1.80	325.50	150.00	6176.54	31.04	-30.81	-7.37	0.54
45	<b>6270</b>	<b>1.60</b>	<b>346.30</b>	<b>152.00</b>	<b>6269.50</b>	<b>28.61</b>	<b>-28.35</b>	<b>-8.50</b>	<b>0.69</b>
46	6363	0.80	42.20	152.00	6362.48	26.86	-26.61	-8.37	1.43
47	6457	1.20	7.30	156.00	6456.47	25.38	-25.14	-7.81	0.76
48	6550	1.60	347.10	158.00	6549.44	23.16	-22.91	-7.97	0.68
49	6644	0.80	340.70	158.00	6643.42	21.28	-21.01	-8.48	0.86
50	<b>6737</b>	<b>1.10</b>	<b>338.50</b>	<b>161.00</b>	<b>6736.40</b>	<b>19.85</b>	<b>-19.57</b>	<b>-9.03</b>	<b>0.32</b>
51	6830	0.60	236.80	163.00	6829.40	19.31	-19.01	-9.76	1.46
52	6923	0.80	245.70	167.00	6922.39	19.88	-19.54	-10.76	0.24
53	7017	0.80	262.40	168.00	7016.38	20.27	-19.90	-12.01	0.25
54	7110	0.90	268.60	170.00	7109.37	20.42	-20.00	-13.38	0.15
55	<b>7204</b>	<b>0.90</b>	<b>262.00</b>	<b>174.00</b>	<b>7203.36</b>	<b>20.59</b>	<b>-20.12</b>	<b>-14.85</b>	<b>0.11</b>
56	7297	0.80	251.60	176.00	7296.35	20.94	-20.43	-16.19	0.20
57	7390	0.80	254.10	176.00	7389.34	21.36	-20.81	-17.43	0.04
58	7484	0.80	249.20	177.00	7483.33	21.82	-21.22	-18.68	0.07
59	7577	0.50	86.70	181.00	7576.33	22.03	-21.43	-18.88	1.38
60	<b>7670</b>	<b>0.30</b>	<b>76.70</b>	<b>183.00</b>	<b>7669.33</b>	<b>21.93</b>	<b>-21.35</b>	<b>-18.24</b>	<b>0.23</b>



### SURVEY REPORT

Customer: **Oasis Petroleum**  
Well Name: **Colville 5301 44-12T**  
Block or Section: **153N-101W-13/24**  
Rig #: **Nabors B-22**  
Calculation Method: **Minimun Curvature Calculation**

MWD Operator: **Mike McCommand**  
Directional Drillers: **D Rakstad/D Bohn**  
Survey Corrected To: **True North**  
Vertical Section Direction: **181.85**  
Survey Correction: **8.32**  
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
61	7763	0.30	75.30	183.00	7762.32	21.80	-21.23	-17.76	0.01
62	7857	0.30	87.80	181.00	7856.32	21.71	-21.16	-17.28	0.07
63	7950	0.30	104.40	185.00	7949.32	21.74	-21.21	-16.80	0.09
64	8043	0.10	106.80	185.00	8042.32	21.82	-21.30	-16.49	0.22
<b>65</b>	<b>8136</b>	<b>0.20</b>	<b>123.00</b>	<b>186.00</b>	<b>8135.32</b>	<b>21.92</b>	<b>-21.41</b>	<b>-16.27</b>	<b>0.12</b>
66	8230	0.30	134.90	188.00	8229.32	22.18	-21.67	-15.96	0.12
67	8323	0.40	93.50	192.00	8322.32	22.35	-21.86	-15.46	0.28
68	8417	0.50	71.00	194.00	8416.32	22.21	-21.75	-14.75	0.21
69	8510	2.00	58.90	186.00	8509.29	21.19	-20.78	-12.98	1.63
<b>70</b>	<b>8603</b>	<b>0.90</b>	<b>98.60</b>	<b>192.00</b>	<b>8602.26</b>	<b>20.39</b>	<b>-20.05</b>	<b>-10.86</b>	<b>1.54</b>
71	8696	1.00	109.50	195.00	8695.25	20.72	-20.43	-9.38	0.22
72	8790	1.00	98.90	199.00	8789.24	21.07	-20.83	-7.79	0.20
73	8883	1.00	113.70	201.00	8882.22	21.47	-21.28	-6.25	0.28
74	8976	1.00	99.60	203.00	8975.21	21.88	-21.74	-4.70	0.26
<b>75</b>	<b>9070</b>	<b>1.10</b>	<b>94.70</b>	<b>206.00</b>	<b>9069.19</b>	<b>22.04</b>	<b>-21.96</b>	<b>-3.00</b>	<b>0.14</b>
76	9163	1.10	93.60	206.00	9162.17	22.11	-22.08	-1.22	0.02
77	9256	1.00	94.50	199.00	9255.16	22.18	-22.20	0.48	0.11
78	9350	2.20	150.20	206.00	9349.12	23.75	-23.83	2.20	1.95
79	9443	1.00	189.30	208.00	9442.09	26.08	-26.18	2.95	1.67
<b>80</b>	<b>9536</b>	<b>1.00</b>	<b>197.80</b>	<b>210.00</b>	<b>9535.07</b>	<b>27.66</b>	<b>-27.76</b>	<b>2.58</b>	<b>0.16</b>
81	9630	0.90	203.40	212.00	9629.06	29.14	-29.22	2.03	0.15
82	9723	0.80	202.90	210.00	9722.05	30.42	-30.48	1.49	0.11
83	9816	0.80	205.00	212.00	9815.04	31.62	-31.67	0.96	0.03
84	9910	0.60	204.30	213.00	9909.04	32.68	-32.71	0.48	0.21
<b>85</b>	<b>10003</b>	<b>0.40</b>	<b>191.50</b>	<b>215.00</b>	<b>10002.03</b>	<b>33.45</b>	<b>-33.48</b>	<b>0.22</b>	<b>0.25</b>
86	10096	0.40	218.80	215.00	10095.03	34.03	-34.05	-0.05	0.20
87	10189	0.50	240.30	217.00	10188.03	34.50	-34.50	-0.61	0.21
88	10251	0.30	253.40	217.00	10250.03	34.70	-34.68	-1.00	0.35
89	10284	0.40	240.80	192.00	10283.02	34.78	-34.76	-1.18	0.38
<b>90</b>	<b>10315</b>	<b>0.80</b>	<b>213.50</b>	<b>194.00</b>	<b>10314.02</b>	<b>35.02</b>	<b>-35.00</b>	<b>-1.39</b>	<b>1.55</b>
91	10347	4.80	202.00	194.00	10345.98	36.47	-36.42	-2.02	12.56
92	10378	9.20	198.80	195.00	10376.74	40.06	-39.97	-3.31	14.24
93	10409	14.50	196.10	197.00	10407.07	46.20	-46.05	-5.18	17.19
94	10440	18.10	196.90	197.00	10436.82	54.61	-54.39	-7.66	11.64
<b>95</b>	<b>10471</b>	<b>19.10</b>	<b>196.70</b>	<b>197.00</b>	<b>10466.20</b>	<b>64.16</b>	<b>-63.86</b>	<b>-10.52</b>	<b>3.23</b>
96	10502	22.90	197.10	197.00	10495.13	74.89	-74.48	-13.75	12.27
<b>97</b>	<b>10533</b>	<b>27.10</b>	<b>202.30</b>	<b>197.00</b>	<b>10523.23</b>	<b>87.33</b>	<b>-86.79</b>	<b>-18.20</b>	<b>15.28</b>
98	10564	30.80	206.00	197.00	10550.35	101.20	-100.46	-24.36	13.26
99	10595	33.80	208.10	199.00	10576.55	116.18	-115.21	-31.91	10.33
<b>100</b>	<b>10626</b>	<b>36.40</b>	<b>207.10</b>	<b>199.00</b>	<b>10601.91</b>	<b>132.23</b>	<b>-131.00</b>	<b>-40.16</b>	<b>8.59</b>
101	10657	39.50	204.20	201.00	10626.36	149.67	-148.19	-48.39	11.53
102	10689	43.70	201.30	201.00	10650.28	169.52	-167.78	-56.59	14.44
103	10720	47.60	199.20	201.00	10671.95	190.55	-188.58	-64.24	13.48
104	10751	52.30	198.40	201.00	10691.89	213.25	-211.04	-71.88	15.29
<b>105</b>	<b>10782</b>	<b>55.60</b>	<b>197.60</b>	<b>203.00</b>	<b>10710.13</b>	<b>237.32</b>	<b>-234.87</b>	<b>-79.62</b>	<b>10.85</b>
106	10813	58.10	196.10	203.00	10727.08	262.39	-259.71	-87.14	9.02
107	10844	61.30	195.00	203.00	10742.72	288.39	-285.49	-94.31	10.77
108	10875	64.90	194.60	203.00	10756.75	315.33	-312.22	-101.37	11.67
109	10906	68.70	196.70	203.00	10768.96	342.99	-339.64	-109.06	13.75
<b>110</b>	<b>10937</b>	<b>70.90</b>	<b>200.60</b>	<b>203.00</b>	<b>10779.66</b>	<b>370.83</b>	<b>-367.20</b>	<b>-118.37</b>	<b>13.77</b>
111	10969	73.90	204.60	203.00	10789.34	399.34	-395.35	-130.10	15.16
112	11000	78.20	205.60	203.00	10796.81	426.97	-422.58	-142.86	14.22
113	11031	82.20	204.00	204.00	10802.09	455.10	-450.31	-155.66	13.87
114	11062	84.60	202.50	204.00	10805.65	483.77	-478.60	-167.82	9.11
<b>115</b>	<b>11093</b>	<b>87.90</b>	<b>201.10</b>	<b>208.00</b>	<b>10807.68</b>	<b>512.84</b>	<b>-507.32</b>	<b>-179.30</b>	<b>11.56</b>
116	11124	89.10	201.00	208.00	10808.49	542.11	-536.24	-190.43	3.88
117	11200	90.40	198.40	212.00	10808.82	614.44	-607.78	-216.05	3.82
118	11231	91.40	197.90	210.00	10808.34	644.19	-637.23	-225.71	3.61
119	11263	91.50	197.70	206.00	10807.53	674.95	-667.69	-235.49	0.70
<b>120</b>	<b>11294</b>	<b>90.30</b>	<b>197.90</b>	<b>208.00</b>	<b>10807.04</b>	<b>704.75</b>	<b>-697.20</b>	<b>-244.96</b>	<b>3.92</b>



### SURVEY REPORT

Customer:	Oasis Petroleum
Well Name:	Colville 5301 44-12T
Block or Section:	153N-101W-13/24
Rig #:	Nabors B-22
Calculation Method:	Minimun Curvature Calculation

MWD Operator:	Mike McCommand
Directional Drillers:	D Rakstad/D Bohn
Survey Corrected To:	True North
Vertical Section Direction:	181.85
Survey Correction:	8.32
Temperature Forecasting Model (Chart Only):	Logarithmic

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
121	11328	89.80	198.00	208.00	10807.01	737.41	-729.55	-255.44	1.50
122	11359	90.00	196.90	206.00	10807.06	767.27	-759.12	-264.73	3.61
123	11389	90.00	195.40	206.00	10807.06	796.34	-787.94	-273.08	5.00
124	11420	89.80	194.80	208.00	10807.12	826.52	-817.87	-281.15	2.04
125	11451	<b>89.10</b>	<b>195.00</b>	<b>206.00</b>	<b>10807.42</b>	<b>856.71</b>	<b>-847.82</b>	<b>-289.13</b>	<b>2.35</b>
126	11483	88.90	193.90	206.00	10807.97	887.94	-878.80	-297.11	3.49
127	11514	88.70	192.30	208.00	10808.62	918.34	-908.99	-304.13	5.20
128	11545	88.50	191.90	206.00	10809.38	948.83	-939.29	-310.63	1.44
129	11575	88.70	191.30	206.00	10810.11	978.39	-968.67	-316.66	2.11
130	11606	<b>89.50</b>	<b>189.70</b>	<b>208.00</b>	<b>10810.60</b>	<b>1009.03</b>	<b>-999.15</b>	<b>-322.31</b>	<b>5.77</b>
131	11637	89.50	189.30	208.00	10810.87	1039.75	-1029.72	-327.42	1.29
132	11667	89.40	188.10	208.00	10811.16	1069.54	-1059.37	-331.96	4.01
133	11699	89.40	185.90	208.00	10811.49	1101.41	-1091.13	-335.86	6.87
134	11730	89.40	185.20	210.00	10811.82	1132.34	-1121.98	-338.86	2.26
135	11761	<b>89.90</b>	<b>184.50</b>	<b>210.00</b>	<b>10812.01</b>	<b>1163.30</b>	<b>-1152.87</b>	<b>-341.48</b>	<b>2.77</b>
136	11792	90.20	182.80	212.00	10811.98	1194.28	-1183.81	-343.45	5.57
137	11824	90.40	182.90	212.00	10811.81	1226.27	-1215.77	-345.04	0.70
138	11854	90.50	181.60	210.00	10811.58	1256.27	-1245.74	-346.22	4.35
139	11885	90.30	179.60	212.00	10811.36	1287.26	-1276.74	-346.55	6.48
140	11948	<b>91.10</b>	<b>179.10</b>	<b>213.00</b>	<b>10810.59</b>	<b>1350.20</b>	<b>-1339.73</b>	<b>-345.83</b>	<b>1.50</b>
141	12042	89.10	178.50	215.00	10810.43	1444.06	-1433.70	-343.86	2.22
142	12134	90.50	180.00	217.00	10810.75	1535.96	-1525.69	-342.66	2.23
143	12227	91.80	180.00	219.00	10808.88	1628.89	-1618.67	-342.66	1.40
144	12320	89.60	179.50	219.00	10807.75	1721.81	-1711.66	-342.25	2.43
145	12413	<b>90.20</b>	<b>179.80</b>	<b>221.00</b>	<b>10807.91</b>	<b>1814.74</b>	<b>-1804.65</b>	<b>-341.69</b>	<b>0.72</b>
146	12505	89.20	179.10	221.00	10808.39	1906.66	-1896.65	-340.80	1.33
147	12597	92.10	181.00	221.00	10807.35	1998.59	-1988.63	-340.88	3.77
148	12628	91.70	181.60	222.00	10806.32	2029.58	-2019.60	-341.59	2.33
149	12659	91.40	182.30	221.00	10805.48	2060.56	-2050.57	-342.64	2.46
150	12690	<b>89.90</b>	<b>182.40</b>	<b>221.00</b>	<b>10805.13</b>	<b>2091.56</b>	<b>-2081.54</b>	<b>-343.91</b>	<b>4.85</b>
151	12720	87.80	182.70	222.00	10805.73	2121.55	-2111.51	-345.25	7.07
152	12751	87.10	182.40	222.00	10807.11	2152.52	-2142.44	-346.62	2.46
153	12782	87.90	182.60	221.00	10808.46	2183.49	-2173.38	-347.97	2.66
154	12814	88.60	182.00	222.00	10809.44	2215.47	-2205.34	-349.26	2.88
155	12844	<b>89.90</b>	<b>182.30</b>	<b>222.00</b>	<b>10809.83</b>	<b>2245.47</b>	<b>-2235.32</b>	<b>-350.38</b>	<b>4.45</b>
156	12875	90.00	180.90	222.00	10809.86	2276.46	-2266.31	-351.25	4.53
157	12909	88.70	180.10	224.00	10810.25	2310.45	-2300.30	-351.55	4.49
158	12940	88.20	180.10	224.00	10811.08	2341.43	-2331.29	-351.60	1.61
159	12972	88.80	180.30	226.00	10811.92	2373.40	-2363.28	-351.71	1.98
160	13003	<b>88.70</b>	<b>180.60</b>	<b>226.00</b>	<b>10812.60</b>	<b>2404.38</b>	<b>-2394.27</b>	<b>-351.95</b>	<b>1.02</b>
161	13034	89.70	180.90	226.00	10813.03	2435.38	-2425.26	-352.36	3.37
162	13065	90.60	181.00	224.00	10812.95	2466.37	-2456.26	-352.87	2.92
163	13097	89.50	181.10	226.00	10812.92	2498.37	-2488.25	-353.46	3.45
164	13128	88.90	181.30	224.00	10813.35	2529.36	-2519.24	-354.11	2.04
165	13159	<b>87.50</b>	<b>181.40</b>	<b>226.00</b>	<b>10814.33</b>	<b>2560.35</b>	<b>-2550.22</b>	<b>-354.84</b>	<b>4.53</b>
166	13190	87.90	181.60	226.00	10815.57	2591.32	-2581.18	-355.65	1.44
167	13221	86.60	181.00	228.00	10817.06	2622.28	-2612.14	-356.35	4.62
168	13253	86.30	181.60	224.00	10819.04	2654.22	-2644.07	-357.08	2.09
169	13284	87.30	181.10	224.00	10820.77	2685.17	-2675.01	-357.81	3.61
170	13315	<b>87.80</b>	<b>180.90</b>	<b>226.00</b>	<b>10822.10</b>	<b>2716.14</b>	<b>-2705.98</b>	<b>-358.35</b>	<b>1.74</b>
171	13346	89.10	180.50	226.00	10822.93	2747.12	-2736.96	-358.73	4.39
172	13378	90.10	179.70	228.00	10823.16	2779.10	-2768.96	-358.78	4.00
173	13409	90.60	179.10	228.00	10822.97	2810.07	-2799.96	-358.46	2.52
174	13440	90.50	178.70	228.00	10822.67	2841.03	-2830.95	-357.86	1.33
175	13471	<b>90.70</b>	<b>178.30</b>	<b>230.00</b>	<b>10822.35</b>	<b>2871.98</b>	<b>-2861.94</b>	<b>-357.05</b>	<b>1.44</b>
176	13502	90.80	178.20	228.00	10821.94	2902.91	-2892.92	-356.10	0.46
177	13534	89.80	178.70	230.00	10821.77	2934.85	-2924.91	-355.24	3.49
178	13565	90.10	179.30	231.00	10821.80	2965.82	-2955.91	-354.70	2.16
179	13596	90.00	179.10	231.00	10821.77	2996.78	-2986.90	-354.26	0.72
180	13627	<b>90.00</b>	<b>179.40</b>	<b>231.00</b>	<b>10821.77</b>	<b>3027.75</b>	<b>-3017.90</b>	<b>-353.86</b>	<b>0.97</b>



### SURVEY REPORT

Customer:	Oasis Petroleum
Well Name:	Colville 5301 44-12T
Block or Section:	153N-101W-13/24
Rig #:	Nabors B-22
Calculation Method:	Minimun Curvature Calculation

MWD Operator:	Mike McCommand
Directional Drillers:	D Rakstad/D Bohn
Survey Corrected To:	True North
Vertical Section Direction:	181.85
Survey Correction:	8.32
Temperature Forecasting Model (Chart Only):	Logarithmic

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
181	13721	90.20	179.30	233.00	10821.61	3121.66	-3111.89	-352.79	0.24
182	13815	89.40	178.70	231.00	10821.94	3215.54	-3205.88	-351.15	1.06
183	13908	88.10	178.50	233.00	10823.97	3308.37	-3298.83	-348.88	1.41
184	14002	89.60	178.60	233.00	10825.85	3402.19	-3392.77	-346.50	1.60
<b>185</b>	<b>14096</b>	<b>90.20</b>	<b>178.90</b>	<b>235.00</b>	<b>10826.02</b>	<b>3496.05</b>	<b>-3486.75</b>	<b>-344.45</b>	<b>0.71</b>
186	14189	91.30	178.60	237.00	10824.80	3588.91	-3579.72	-342.42	1.23
187	14283	89.60	179.70	237.00	10824.06	3682.80	-3673.70	-341.03	2.15
188	14377	92.50	179.90	239.00	10822.34	3776.71	-3767.67	-340.70	3.09
189	14408	92.20	179.50	239.00	10821.07	3807.66	-3798.65	-340.54	1.61
<b>190</b>	<b>14439</b>	<b>92.00</b>	<b>179.40</b>	<b>237.00</b>	<b>10819.93</b>	<b>3838.61</b>	<b>-3829.63</b>	<b>-340.24</b>	<b>0.72</b>
191	14471	90.10	179.40	237.00	10819.35	3870.58	-3861.62	-339.91	5.94
192	14502	89.30	179.40	239.00	10819.51	3901.55	-3892.62	-339.58	2.58
193	14533	88.80	179.00	239.00	10820.02	3932.51	-3923.61	-339.15	2.07
194	14564	89.00	179.10	237.00	10820.62	3963.47	-3954.60	-338.64	0.72
<b>195</b>	<b>14595</b>	<b>90.10</b>	<b>179.90</b>	<b>239.00</b>	<b>10820.86</b>	<b>3994.44</b>	<b>-3985.59</b>	<b>-338.36</b>	<b>4.39</b>
196	14626	89.80	180.40	239.00	10820.89	4025.43	-4016.59	-338.45	1.88
197	14658	89.40	180.50	240.00	10821.11	4057.42	-4048.59	-338.70	1.29
198	14689	89.10	180.10	240.00	10821.52	4088.40	-4079.59	-338.86	1.61
199	14720	89.60	180.00	240.00	10821.87	4119.39	-4110.59	-338.89	1.64
<b>200</b>	<b>14751</b>	<b>91.10</b>	<b>180.30</b>	<b>240.00</b>	<b>10821.68</b>	<b>4150.37</b>	<b>-4141.59</b>	<b>-338.97</b>	<b>4.93</b>
201	14782	90.70	179.90	239.00	10821.19	4181.35	-4172.58	-339.02	1.82
202	14813	90.00	180.00	240.00	10821.00	4212.33	-4203.58	-338.99	2.28
203	14845	88.40	179.10	240.00	10821.45	4244.30	-4235.58	-338.74	5.74
204	14876	87.20	179.40	239.00	10822.64	4275.25	-4266.55	-338.34	3.99
<b>205</b>	<b>14907</b>	<b>87.60</b>	<b>178.60</b>	<b>239.00</b>	<b>10824.05</b>	<b>4306.18</b>	<b>-4297.51</b>	<b>-337.80</b>	<b>2.88</b>
206	14938	88.50	178.20	240.00	10825.10	4337.10	-4328.48	-336.93	3.18
207	14970	88.80	178.10	239.00	10825.85	4369.03	-4360.46	-335.90	0.99
208	15001	89.30	178.00	240.00	10826.37	4399.96	-4391.43	-334.84	1.64
209	15032	90.20	178.00	240.00	10826.50	4430.88	-4422.41	-333.76	2.90
<b>210</b>	<b>15063</b>	<b>90.40</b>	<b>177.90</b>	<b>242.00</b>	<b>10826.34</b>	<b>4461.81</b>	<b>-4453.39</b>	<b>-332.65</b>	<b>0.72</b>
211	15126	91.00	177.60	242.00	10825.57	4524.65	-4516.34	-330.18	1.06
212	15157	91.00	177.30	244.00	10825.03	4555.55	-4547.31	-328.80	0.97
213	15188	91.20	177.20	240.00	10824.44	4586.44	-4578.26	-327.31	0.72
214	15219	92.20	177.60	240.00	10823.52	4617.34	-4609.22	-325.91	3.47
<b>215</b>	<b>15282</b>	<b>92.10</b>	<b>178.20</b>	<b>242.00</b>	<b>10821.15</b>	<b>4680.14</b>	<b>-4672.13</b>	<b>-323.60</b>	<b>0.96</b>
216	15313	90.20	178.70	242.00	10820.53	4711.08	-4703.11	-322.76	6.34
<b>217</b>	<b>15344</b>	<b>89.80</b>	<b>178.30</b>	<b>257.00</b>	<b>10820.53</b>	<b>4742.03</b>	<b>-4734.10</b>	<b>-321.95</b>	<b>1.82</b>
218	15407	92.40	179.70	242.00	10819.32	4804.93	-4797.07	-320.85	4.69
219	15500	91.70	181.60	244.00	10815.99	4897.85	-4890.00	-321.91	2.18
<b>220</b>	<b>15594</b>	<b>90.00</b>	<b>181.70</b>	<b>244.00</b>	<b>10814.60</b>	<b>4991.83</b>	<b>-4983.95</b>	<b>-324.61</b>	<b>1.81</b>
221	15625	89.50	181.60	244.00	10814.73	5022.83	-5014.94	-325.51	1.64
222	15657	89.70	181.80	246.00	10814.96	5054.83	-5046.92	-326.46	0.88
223	15688	89.80	181.90	246.00	10815.09	5085.83	-5077.91	-327.46	0.46
224	15782	89.70	181.50	246.00	10815.50	5179.83	-5171.86	-330.25	0.44
<b>225</b>	<b>15844</b>	<b>89.10</b>	<b>181.10</b>	<b>246.00</b>	<b>10816.15</b>	<b>5241.82</b>	<b>-5233.84</b>	<b>-331.65</b>	<b>1.16</b>
226	15875	89.60	181.10	244.00	10816.50	5272.82	-5264.84	-332.25	1.61
227	15906	91.00	181.20	246.00	10816.34	5303.81	-5295.83	-332.87	4.53
228	15969	91.80	181.60	246.00	10814.80	5366.79	-5358.79	-334.41	1.42
229	16000	90.90	181.10	246.00	10814.07	5397.78	-5389.77	-335.14	3.32
<b>230</b>	<b>16031</b>	<b>90.60</b>	<b>181.00</b>	<b>246.00</b>	<b>10813.67</b>	<b>5428.78</b>	<b>-5420.76</b>	<b>-335.71</b>	<b>1.02</b>
231	16062	90.90	181.20	248.00	10813.26	5459.77	-5451.76	-336.30	1.16
232	16125	91.10	180.80	246.00	10812.16	5522.75	-5514.74	-337.40	0.71
233	16156	89.30	180.90	246.00	10812.05	5553.75	-5545.73	-337.86	5.82
234	16187	89.30	180.50	248.00	10812.43	5584.74	-5576.73	-338.24	1.29
<b>235</b>	<b>16219</b>	<b>89.40</b>	<b>180.60</b>	<b>248.00</b>	<b>10812.79</b>	<b>5616.73</b>	<b>-5608.72</b>	<b>-338.55</b>	<b>0.44</b>
236	16250	89.50	180.30	248.00	10813.09	5647.72	-5639.72	-338.79	1.02
237	16343	90.50	179.90	249.00	10813.09	5740.67	-5732.72	-338.95	1.16
238	16437	90.00	179.70	249.00	10812.68	5834.61	-5826.72	-338.62	0.57
239	16531	91.10	179.40	251.00	10811.78	5928.53	-5920.71	-337.89	1.21
<b>240</b>	<b>16624</b>	<b>93.50</b>	<b>178.70</b>	<b>251.00</b>	<b>10808.05</b>	<b>6021.34</b>	<b>-6013.61</b>	<b>-336.35</b>	<b>2.69</b>



### SURVEY REPORT

Customer: **Oasis Petroleum**  
Well Name: **Colville 5301 44-12T**  
Block or Section: **153N-101W-13/24**  
Rig #: **Nabors B-22**  
Calculation Method: **Minimun Curvature Calculation**

MWD Operator: **Mike McCommand**  
Directional Drillers: **D Rakstad/D Bohn**  
Survey Corrected To: **True North**  
Vertical Section Direction: **181.85**  
Survey Correction: **8.32**  
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
241	16718	91.70	179.40	248.00	10803.78	6115.12	-6107.50	-334.79	2.05
242	16811	90.40	179.00	249.00	10802.08	6208.01	-6200.47	-333.49	1.46
243	16843	90.80	178.60	249.00	10801.74	6239.96	-6232.46	-332.82	1.77
244	16905	89.90	179.40	249.00	10801.37	6301.88	-6294.45	-331.74	1.94
<b>245</b>	<b>16936</b>	<b>88.80</b>	<b>179.70</b>	<b>249.00</b>	<b>10801.72</b>	<b>6332.85</b>	<b>-6325.45</b>	<b>-331.50</b>	<b>3.68</b>
246	16968	88.80	179.70	251.00	10802.39	6364.82	-6357.44	-331.33	0.00
247	16999	89.10	179.60	251.00	10802.96	6395.80	-6388.44	-331.14	1.02
248	17061	90.50	179.30	251.00	10803.17	6457.74	-6450.43	-330.54	2.31
249	17093	92.10	179.10	248.00	10802.45	6489.70	-6482.42	-330.10	5.04
<b>250</b>	<b>17155</b>	<b>91.80</b>	<b>178.90</b>	<b>249.00</b>	<b>10800.34</b>	<b>6551.58</b>	<b>-6544.37</b>	<b>-329.02</b>	<b>0.58</b>
251	17187	89.70	179.50	251.00	10799.92	6583.54	-6576.36	-328.57	6.83
252	17218	90.20	180.30	249.00	10799.94	6614.53	-6607.36	-328.51	3.04
253	17249	89.70	180.10	249.00	10799.97	6645.51	-6638.36	-328.62	1.74
254	17280	88.80	180.40	251.00	10800.38	6676.50	-6669.36	-328.76	3.06
<b>255</b>	<b>17311</b>	<b>89.60</b>	<b>180.20</b>	<b>251.00</b>	<b>10800.81</b>	<b>6707.48</b>	<b>-6700.36</b>	<b>-328.92</b>	<b>2.66</b>
256	17374	89.10	181.10	251.00	10801.53	6770.46	-6763.35	-329.63	1.63
257	17405	89.80	181.90	253.00	10801.82	6801.46	-6794.34	-330.45	3.43
258	17467	90.50	181.60	251.00	10801.66	6863.46	-6856.31	-332.34	1.23
259	17499	91.30	180.80	251.00	10801.16	6895.45	-6888.29	-333.01	3.54
<b>260</b>	<b>17561</b>	<b>91.10</b>	<b>180.10</b>	<b>251.00</b>	<b>10799.86</b>	<b>6957.42</b>	<b>-6950.28</b>	<b>-333.50</b>	<b>1.17</b>
261	17592	90.90	179.90	251.00	10799.32	6988.40	-6981.27	-333.50	0.91
262	17655	91.20	180.10	251.00	10798.16	7051.36	-7044.26	-333.50	0.57
263	17717	89.40	180.30	251.00	10797.84	7113.33	-7106.26	-333.71	2.92
264	17748	87.50	180.90	152.00	10798.68	7144.31	-7137.24	-334.04	6.43
<b>265</b>	<b>17780</b>	<b>87.80</b>	<b>180.60</b>	<b>253.00</b>	<b>10799.99</b>	<b>7176.28</b>	<b>-7169.21</b>	<b>-334.46</b>	<b>1.33</b>
266	17811	87.30	180.30	253.00	10801.31	7207.24	-7200.19	-334.70	1.88
267	17842	87.40	180.10	251.00	10802.75	7238.19	-7231.15	-334.81	0.72
268	17873	88.40	180.00	253.00	10803.88	7269.16	-7262.13	-334.83	3.24
269	17905	88.60	180.10	251.00	10804.72	7301.13	-7294.12	-334.86	0.70
<b>270</b>	<b>17936</b>	<b>90.00</b>	<b>180.00</b>	<b>251.00</b>	<b>10805.10</b>	<b>7332.11</b>	<b>-7325.12</b>	<b>-334.89</b>	<b>4.53</b>
271	17967	91.30	180.10	253.00	10804.75	7363.09	-7356.11	-334.92	4.21
272	17998	91.90	180.50	253.00	10803.88	7394.07	-7387.10	-335.08	2.33
273	18030	92.40	180.50	253.00	10802.68	7426.04	-7419.08	-335.36	1.56
274	18061	92.80	180.10	253.00	10801.28	7456.99	-7450.05	-335.52	1.82
<b>275</b>	<b>18092</b>	<b>93.10</b>	<b>180.00</b>	<b>251.00</b>	<b>10799.68</b>	<b>7487.94</b>	<b>-7481.00</b>	<b>-335.55</b>	<b>1.02</b>
276	18123	92.30	180.10	251.00	10798.22	7518.89	-7511.97	-335.57	2.60
<b>277</b>	<b>18155</b>	<b>91.00</b>	<b>180.70</b>	<b>251.00</b>	<b>10797.30</b>	<b>7550.86</b>	<b>-7543.95</b>	<b>-335.80</b>	<b>4.47</b>
278	18186	91.20	180.60	251.00	10796.70	7581.85	-7574.95	-336.15	0.72
279	18217	92.20	180.10	251.00	10795.78	7612.83	-7605.93	-336.34	3.61
<b>280</b>	<b>18248</b>	<b>91.30</b>	<b>180.30</b>	<b>251.00</b>	<b>10794.84</b>	<b>7643.80</b>	<b>-7636.92</b>	<b>-336.45</b>	<b>2.97</b>
281	18279	91.50	180.40	251.00	10794.08	7674.78	-7667.91	-336.64	0.72
282	18311	90.70	180.70	253.00	10793.47	7706.76	-7699.90	-336.94	2.67
283	18373	90.20	181.40	253.00	10792.98	7768.75	-7761.89	-338.08	1.39
284	18405	90.20	181.40	255.00	10792.87	7800.75	-7793.88	-338.86	0.00
<b>285</b>	<b>18436</b>	<b>89.80</b>	<b>181.00</b>	<b>255.00</b>	<b>10792.87</b>	<b>7831.75</b>	<b>-7824.87</b>	<b>-339.51</b>	<b>1.82</b>
286	18498	89.80	180.40	255.00	10793.08	7893.74	-7886.86	-340.27	0.97
287	18529	89.60	180.70	255.00	10793.25	7924.73	-7917.86	-340.56	1.16
288	18592	89.90	180.20	255.00	10793.52	7987.71	-7980.86	-341.06	0.93
289	18623	89.90	180.40	255.00	10793.58	8018.70	-8011.86	-341.22	0.65
<b>290</b>	<b>18686</b>	<b>91.10</b>	<b>181.20</b>	<b>255.00</b>	<b>10793.03</b>	<b>8081.68</b>	<b>-8074.85</b>	<b>-342.10</b>	<b>2.29</b>
291	18717	92.10	181.80	255.00	10792.16	8112.67	-8105.83	-342.91	3.76
292	18748	92.20	181.60	255.00	10791.00	8143.65	-8136.79	-343.83	0.72
293	18779	92.40	181.30	255.00	10789.75	8174.62	-8167.76	-344.62	1.16
294	18811	91.80	181.60	255.00	10788.58	8206.60	-8199.72	-345.42	2.10
<b>295</b>	<b>18842</b>	<b>91.60</b>	<b>181.80</b>	<b>257.00</b>	<b>10787.66</b>	<b>8237.59</b>	<b>-8230.70</b>	<b>-346.34</b>	<b>0.91</b>
296	18873	91.10	182.20	257.00	10786.93	8268.58	-8261.67	-347.43	2.07
297	18904	91.10	182.30	253.00	10786.34	8299.57	-8292.64	-348.64	0.32
298	18936	91.90	182.30	255.00	10785.50	8331.56	-8324.60	-349.93	2.50
299	18967	92.50	182.00	255.00	10784.31	8362.54	-8355.56	-351.09	2.16
<b>300</b>	<b>18998</b>	<b>92.60</b>	<b>181.50</b>	<b>255.00</b>	<b>10782.93</b>	<b>8393.51</b>	<b>-8386.51</b>	<b>-352.03</b>	<b>1.64</b>



### SURVEY REPORT

Customer: **Oasis Petroleum**  
Well Name: **Colville 5301 44-12T**  
Block or Section: **153N-101W-13/24**  
Rig #: **Nabors B-22**  
Calculation Method: **Minimun Curvature Calculation**

MWD Operator: **Mike McCommand**  
Directional Drillers: **D Rakstad/D Bohn**  
Survey Corrected To: **True North**  
Vertical Section Direction: **181.85**  
Survey Correction: **8.32**  
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
301	19029	92.40	181.20	255.00	10781.58	8424.47	-8417.47	-352.76	1.16
302	19061	92.10	181.30	257.00	10780.32	8456.45	-8449.44	-353.46	0.99
303	19092	92.40	181.20	257.00	10779.10	8487.42	-8480.41	-354.14	1.02
304	19123	93.10	181.00	257.00	10777.62	8518.38	-8511.37	-354.73	2.35
<b>305</b>	<b>19154</b>	<b>93.50</b>	<b>180.80</b>	<b>255.00</b>	<b>10775.83</b>	<b>8549.33</b>	<b>-8542.31</b>	<b>-355.22</b>	<b>1.44</b>
306	19185	92.50	181.00	255.00	10774.21	8580.28	-8573.27	-355.70	3.29
307	19217	92.70	180.80	257.00	10772.76	8612.24	-8605.23	-356.21	0.88
308	19248	93.10	180.10	257.00	10771.19	8643.19	-8636.19	-356.45	2.60
309	19279	92.90	179.80	257.00	10769.57	8674.13	-8667.15	-356.42	1.16
<b>310</b>	<b>19341</b>	<b>91.50</b>	<b>180.20</b>	<b>255.00</b>	<b>10767.19</b>	<b>8736.06</b>	<b>-8729.10</b>	<b>-356.42</b>	<b>2.35</b>
311	19373	91.80	180.30	255.00	10766.26	8768.03	-8761.09	-356.56	0.99
312	19435	90.20	180.70	257.00	10765.18	8830.00	-8823.07	-357.10	2.66
313	19466	90.60	180.70	257.00	10764.97	8860.99	-8854.07	-357.48	1.29
314	19522	90.60	179.40	255.00	10764.38	8916.96	-8910.06	-357.53	2.32
<b>315</b>	<b>19553</b>	<b>90.50</b>	<b>179.40</b>	<b>257.00</b>	<b>10764.08</b>	<b>8947.93</b>	<b>-8941.06</b>	<b>-357.21</b>	<b>0.32</b>
316	19584	90.60	179.10	257.00	10763.78	8978.90	-8972.06	-356.80	1.02
317	19615	90.60	179.20	257.00	10763.46	9009.86	-9003.05	-356.34	0.32
318	19647	90.40	179.30	257.00	10763.18	9041.83	-9035.05	-355.92	0.70
319	19678	90.00	179.40	257.00	10763.07	9072.80	-9066.05	-355.57	1.33
<b>320</b>	<b>19709</b>	<b>89.80</b>	<b>178.90</b>	<b>257.00</b>	<b>10763.13</b>	<b>9103.76</b>	<b>-9097.04</b>	<b>-355.11</b>	<b>1.74</b>
321	19740	89.80	178.70	251.00	10763.23	9134.72	-9128.03	-354.46	0.65
<b>322</b>	<b>19802</b>	<b>90.80</b>	<b>178.60</b>	<b>257.00</b>	<b>10762.91</b>	<b>9196.62</b>	<b>-9190.02</b>	<b>-353.00</b>	<b>1.62</b>
323	19834	91.10	178.50	257.00	10762.38	9228.56	-9222.00	-352.19	0.99
324	19865	91.60	178.30	257.00	10761.65	9259.50	-9252.98	-351.32	1.74
<b>325</b>	<b>19896</b>	<b>91.40</b>	<b>177.80</b>	<b>257.00</b>	<b>10760.84</b>	<b>9290.42</b>	<b>-9283.95</b>	<b>-350.27</b>	<b>1.74</b>
326	19927	91.20	178.00	257.00	10760.13	9321.34	-9314.92	-349.13	0.91
327	19959	91.50	178.30	258.00	10759.38	9353.26	-9346.90	-348.10	1.33
328	19990	91.40	177.90	258.00	10758.60	9384.19	-9377.87	-347.07	1.33
329	20021	91.70	177.60	258.00	10757.76	9415.10	-9408.83	-345.86	1.37
<b>330</b>	<b>20052</b>	<b>91.80</b>	<b>177.20</b>	<b>255.00</b>	<b>10756.81</b>	<b>9445.99</b>	<b>-9439.79</b>	<b>-344.45</b>	<b>1.33</b>
331	20084	92.10	177.00	255.00	10755.72	9477.86	-9471.73	-342.83	1.13
332	20146	92.30	177.10	255.00	10753.34	9539.60	-9533.60	-339.65	0.36
333	20177	92.00	178.40	257.00	10752.18	9570.49	-9564.55	-338.43	4.30
334	20240	91.80	178.60	255.00	10750.09	9633.35	-9627.50	-336.78	0.45
<b>335</b>	<b>20271</b>	<b>91.30</b>	<b>180.10</b>	<b>257.00</b>	<b>10749.25</b>	<b>9664.31</b>	<b>-9658.48</b>	<b>-336.43</b>	<b>5.10</b>
336	20302	91.80	180.90	257.00	10748.41	9695.29	-9689.47	-336.70	3.04
<b>337</b>	<b>20333</b>	<b>91.70</b>	<b>180.30</b>	<b>257.00</b>	<b>10747.47</b>	<b>9726.27</b>	<b>-9720.45</b>	<b>-337.02</b>	<b>1.96</b>
338	20365	91.10	179.70	257.00	10746.68	9758.24	-9752.44	-337.02	2.65
339	20396	92.20	179.10	257.00	10745.79	9789.20	-9783.43	-336.70	4.04
<b>340</b>	<b>20458</b>	<b>91.70</b>	<b>179.50</b>	<b>257.00</b>	<b>10743.68</b>	<b>9851.10</b>	<b>-9845.39</b>	<b>-335.94</b>	<b>1.03</b>
341	20490	91.30	180.20	257.00	10742.84	9883.07	-9877.38	-335.86	2.52
342	20552	90.90	180.20	257.00	10741.65	9945.03	-9939.37	-336.08	0.65
343	20583	90.30	180.40	258.00	10741.33	9976.02	-9970.36	-336.24	2.04
344	20615	90.20	179.50	258.00	10741.19	10008.00	-10002.36	-336.21	2.83
<b>345</b>	<b>20646</b>	<b>90.20</b>	<b>179.50</b>	<b>258.00</b>	<b>10741.08</b>	<b>10038.98</b>	<b>-10033.36</b>	<b>-335.94</b>	<b>0.00</b>
346	20677	90.20	179.60	258.00	10740.97	10069.95	-10064.36	-335.70	0.32
347	20708	90.20	179.40	258.00	10740.87	10100.93	-10095.36	-335.43	0.65
348	20740	90.10	179.40	258.00	10740.78	10132.90	-10127.36	-335.09	0.31
349	20770	90.70	179.40	258.00	10740.57	10162.87	-10157.35	-334.78	2.00
<b>350</b>	<b>20801</b>	<b>90.20</b>	<b>179.40</b>	<b>258.00</b>	<b>10740.33</b>	<b>10193.84</b>	<b>-10188.35</b>	<b>-334.45</b>	<b>1.61</b>
351	20833	90.00	179.40	258.00	10740.27	10225.81	-10220.35	-334.12	0.63
352	20926	89.80	178.60	260.00	10740.44	10318.69	-10313.33	-332.49	0.89
353	21020	89.60	178.20	260.00	10740.93	10412.52	-10407.30	-329.87	0.48
354	21035	89.80	178.20	258.00	10741.01	10427.49	-10422.29	-329.40	1.33
<b>Projection</b>	<b>21090</b>	<b>89.80</b>	<b>178.20</b>		<b>10741.20</b>	<b>10482.38</b>	<b>-10477.26</b>	<b>-327.67</b>	<b>0.00</b>



**Oasis Petroleum North America, LLC**

**Colville 5301 44-12T**

**250' FSL & 950' FEL**

**SE SE Section 12, T153N, R101W**

**Baker Field / Three Forks**

**McKenzie County, North Dakota**

**BOTTOM HOLE LOCATION:**

**10,477.26' S & 327.67' W, of surface location or approx.**

**301.26' FSL & 1,277.67' FEL, SE SE Sec. 24, T153N, R101W**

**Prepared for:**

Brian Cornette  
Oasis Petroleum North America, LLC  
1001 Fannin Suite 1500  
Houston, TX 77002

**Prepared by:**

G. Wayne Peterson, Michelle Baker  
PO Box 51297; Billings, MT 59105  
2150 Harnish Blvd., Billings, MT 59101  
(406) 259-4124  
[geology@sunburstconsulting.com](mailto:geology@sunburstconsulting.com)  
[www.sunburstconsulting.com](http://www.sunburstconsulting.com)

# **WELL EVALUATION**



**Figure 1.** Nabors B22 drilling the Oasis Petroleum North America, LLC - Colville 5301 44-12T during July and August, 2013 in the Baker Field, McKenzie County, North Dakota.  
(G. Wayne Peterson, Sunburst Consulting)

## **INTRODUCTION**

Oasis Petroleum North America, LLC. Colville 5301 44-12T [SE SE Sec. 12-T153N-R101W] is located approximately 3 miles south of Williston in McKenzie County, North Dakota. The Colville 5301 44-12T is a horizontal Three Forks development well in part of Oasis Petroleum's Camp prospect within the Williston Basin. The vertical hole was planned to be drilled to approximately 10,333'. The curve would be built at 12 degrees per 100' to land within the Three Forks. This well is a two section lateral which originates in the southeast quarter of section 12, then drilled south across section 13, to the southeast quarter of section 24 (**Figure 2**). Directional drilling technologies and geo-steering techniques were used to land in the upper Three Forks reservoir and maintain exposure to the ideal target rock.

## **OFFSET WELLS**

The primary offset wells used for depth correlation during curve operations were the Gulf Oil Exploration and Production, Lindvig 1-11-3C; and the Oasis Petroleum North America, LLC Ash Federal 5300 11-18T. The Gulf Oil Exploration and Production, Lindvig 1-11-3C [SE SE Sec. 11, T153N, R101W] is located approximately  $\frac{1}{2}$  of a mile west of the Colville 5301 44-12T. This well was completed in March of 1982 reached a total depth of 13,800' true vertical depth (TVD). The Oasis Petroleum North America, LLC Ash Federal 5300 11-18T [Lot 1 Section 18,

T153N, R100W] is located approximately east north east of the Colville 5301 44-12T. This well was drilled to the Three Forks landing of 10,794' MD in August and September of 2012. The formation thicknesses expressed by gamma signatures in these wells, and the Oasis Petroleum North America, LLC Larry 5301 44-12B [SE NE Section 12, T153N, R101W] were used to assist in landing the curve. This was accomplished by comparing gamma signatures from the offset wells to gamma data collected during drilling operations. The casing target landing was periodically updated to ensure accurate landing of the curve. Data used in this evaluation are included as an appendix to this report.

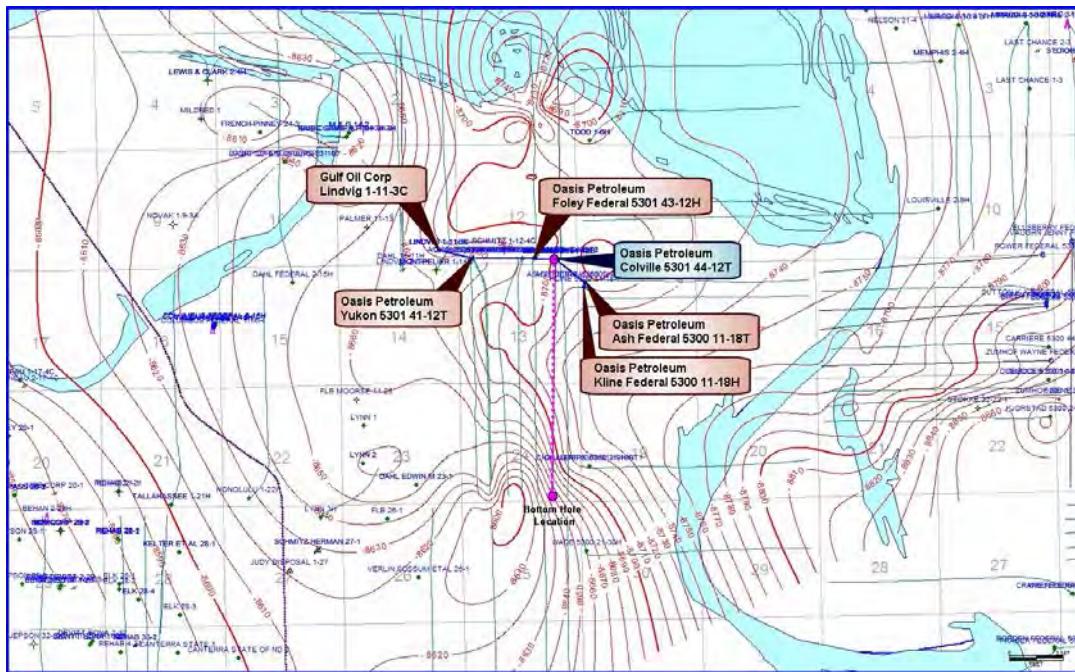


Figure 2. Structure map of the Three Forks Top (subsea) with annotated offset wells (Oasis Petroleum).

## GEOLOGY

### Lithology

The Ratcliffe interval [Charles Formation] was drilled at 9,228' MD 9,227' TVD (-7,142') SS. The top of this interval was observed as faster penetration rates were encountered, as the well bore transitioned from anhydrite to limestone. This limestone was tan to gray tan, light brown gray, occasional light brown, rare off white lime mudstone. This facies was microcrystalline, firm, with an earthy to crystalline texture, as well as contained traces of disseminated pyrite. Also noted in certain areas was a trace *light brown oil stain*; possible earthy to intercrystalline porosity may have been present

The Mission Canyon Formation [Mississippian Madison Group] was logged at 9,420' MD 9,419' TVD (-7,334') SS. The Mission Canyon Formation consisted of lime mudstone that was described as light brown, light gray brown to brown, occasional cream, rare light gray, trace off white to white in color. The Mission Canyon was predominately friable to firm, dense with an earthy to crystalline texture. Some intervals were trace siliceous with traces of disseminated

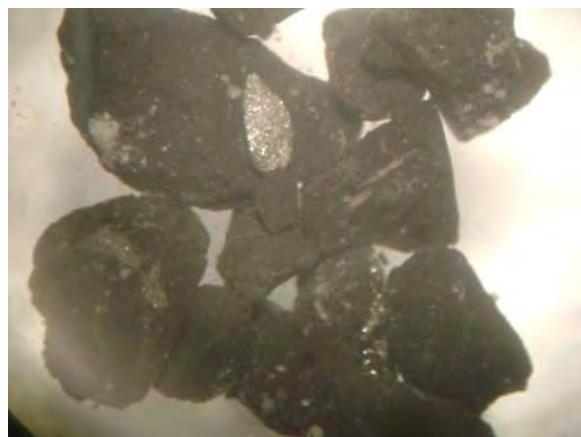
pyrite. Fossil fragments, along with black, dark brown algal laminations and a trace of stylolites were visible in some samples throughout the Mission Canyon Formation. Following connections or periods of non-circulation, gas shows of 39 to 46 units were noted and a trace to rare *spotty light to medium brown spotty oil stain* was occasionally observed while logging the Mission Canyon Formation.



**Figure 3. Limestone with spotty light to medium brown staining from the Mission Canyon Formation.**

The Upper Bakken Shale Member [Mississippian-Bakken Formation] was drilled at 10,762' MD 10,699' TVD (-8,614') SS. Entry into this member was characterized by high gamma, elevated background gas and increased rates of penetration. The black carbonaceous and *petroliferous* shale was sub blocky and firm with an earthy texture. Trace minerals were observed to include disseminated pyrite and calcite fracture fill. Hydrocarbons evaluated in this interval reached a maximum of 305 units.

The Bakken Middle Member [Mississippian-Devonian] was reached at 10,792' MD 10,715' TVD (-8,630') SS. This formation was predominantly siltstone and silty sandstone noted by the decreasing penetration rates, gamma API counts, and recorded gas levels, relative to the overlying source rock. The siltstone was light gray, sub-platy to sub-blocky, with an earthy texture. It was moderately calcite cemented, with traces of disseminated pyrite. Also present was silty sandstone which was light gray, light gray tan, rare buff, firm, very fine grained, well sorted, friable, sub-angular to sub-round, and contained possible intergranular porosity. It was moderately calcite cemented. Trace minerals included disseminated and nodular pyrite. Drilling gas in this interval reached a maximum of 145 units, with a connection gas of 256 units. Also observed was *spotty light brown spotty oil stain*.

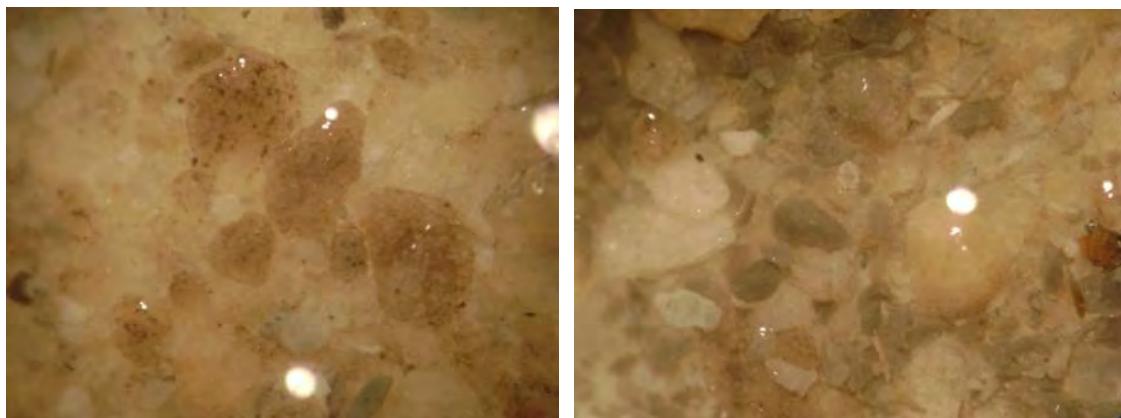


**Figure 4. Sample from the Lower Bakken Shale Member**

The Lower Bakken Shale Member [Devonian] was reached at 10,878' MD 10,758' TVD (-8,673') SS. This was 19' low to the Lindvig 1-11-3C. Entry into this interval was characterized by high gamma, elevated background gas and increased rates of penetration. The carbonaceous black, black gray shale is *petroliferous*, with a blocky texture and exhibits possible fracture porosity. Trace minerals included disseminated pyrite. Drilling gas in this interval reached a maximum of 312 units with a connection gas of 311 units.

The Pronghorn Member [Devonian-Bakken Formation] was reached at 10,906' MD 10,769' TVD (-8,684') SS. Entry into this interval was characterized by lower gamma, and slightly slower penetration rates. Samples from the Pronghorn were described as siltstone which was medium to dark gray, gray brown, friable, sub-platy to sub-blocky, with an earthy texture. This siltstone was moderately dolomite cemented and included disseminated and nodular pyrite. Drilling gas in this interval reached a maximum of 196 units with a connection gas of 278 units.

The Three Forks Formation [Devonian] was reached at 10,949' MD 10,783 TVD (-8,698') SS. The target zone of the Three Forks was to be drilled in a predominatly dolomite eight foot zone beginning 16 feet into the Three Forks Formation.



**Figure 5 & 6. Sample of the predominately dolomitic facies in the preferred drilling zone of the Three Forks formation on left; sample from a brief contact with underlying claystone on the right.**

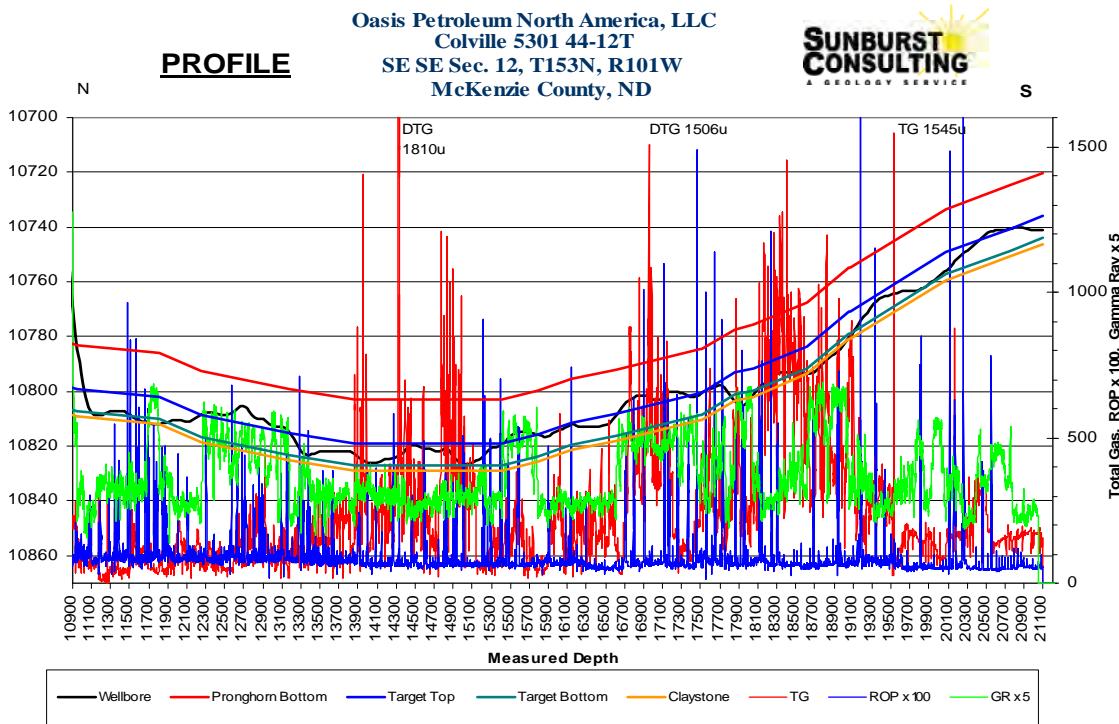
Samples in the Three Forks were commonly dolomite which is tan, cream, occasional light brown, rare light gray tan, trace light gray. Additionally this facies was friable and dense with an earthy texture. It also contained a trace of disseminated and nodular pyrite. Possible intercrystalline porosity was observed, as was a *rare to a trace of light brown spotty oil stain*. Present in varying amounts was light gray to off white, rare light green shale which was friable to firm, sub-blocky with an earthy texture. Trace of nodular and disseminated pyrite was noted in the shale which contained no visible porosity.

## Gas Show

Gas monitoring and fluid gains provided evidence of a hydrocarbon saturated reservoir during the drilling of the Yukon 5301 41-12T. Oil and gas shows at the shakers and in samples were continuously monitored. In the closed mud system, hydrostatic conditions were maintained near balance, this allowed for gas and fluid gains from the well to be evaluated. Gas on the Colville 5301 44-12T varied according to stratigraphic position and penetration rates which may have reflected increased porosity. Background concentrations ranged from 300 to 600 units, and connection peaks of 1,000 to 1,200 units were observed in the middle of the target zone. A trip at 19,527' MD, yielded a trip gas of 1,545 units. Chromatography of gas revealed typical concentrations of methane, ethane, propane and butane characteristic of Bakken and Three Forks gas (Figure 7).



**Figure 7.** Gas chromatography of 1,400 unit connection gas peaks. Note the measurable concentrations of C<sub>3</sub> and C<sub>4</sub> at 2.7 and 4.2 minutes.



**Figure 8.** Profile displaying total gas, gamma ray and rate of penetration.

## Geo-steering

Ryan Energy Technologies provided personnel and equipment for measurement-while-drilling (MWD) services. The RPM directional drillers MWD and Sunburst Consulting personnel worked closely together throughout the project to evaluate data and make steering decisions to maximize the amount of borehole in the targeted zones and increase rate of penetration (ROP) of the formation.

The 873' curve was drilled in 24 hours with bit #2 a Security FXD55D, attached to a 2.38 degree fixed NOV 7/8 5 stage mud motor and MWD tools. The curve was successfully landed at 11,173' MD, approximately 25' into the Three Forks Formation. Seven inch diameter 32# HCP-110 casing was set to 11,144' MD.

Geologic structure maps of the Colville 5301 44-12T and surrounding control wells, estimated formation dip to move down at approximately  $-0.3^\circ$  initially, then reverse due to a plunging syncline at about 2,500', reversing to an estimated  $0.5^\circ$  to  $1.0^\circ$  until total depth (TD) was reached. The Colville 5301 44-12T preferred drilling interval consisted of an eight foot zone located approximately sixteen feet into the Three Forks Formation. Stratigraphic position in the target zone was based on penetration rates, gas shows, gamma ray data and sample observations. The projected target landing was to be sixteen feet into the Three Forks and was successfully reached prior to casing operations. Using offsets provided by Oasis representatives, projected porosity zones were identified as the preferred drilling areas (Figure 9).



Figure 9. Type log gamma profile from the Lindvig 1-11-3C, with target points.

Steering decisions were made by using the higher gamma, of the underlying claystone, the low gamma located in the middle to higher portion of the drilling zone, and the fluctuating high to medium gamma located at the top of the drilling zone.

The TD of 21,090' MD was achieved at 1720 hours CDT on August 12, 2013. The well site team worked well together maintaining the well bore in the desired target interval for 76% of the lateral, opening 10,141' of potentially productive reservoir rock. The hole was then circulated and reamed for completion.

## SUMMARY

The Colville 5301 44-12T is a successful well in Oasis Petroleum's horizontal Three Forks development program in Baker Field. The project was drilled from surface casing to TD in 21 days. The TD of 21,090' MD was achieved at 1720 hours CDT August 12, 2013. The well site team worked well together maintaining the well bore in the desired target interval for 76% of the lateral, opening 10,141' of potentially productive reservoir rock.

Diesel invert drilling fluid 9.5-10.1 ppg for the vertical hole and 10.15-10.4 ppg for curve operations were used to maintain stable hole conditions, minimize washout through the salt intervals and permit adequate analysis of mud gas concentrations.

Samples in the Three Forks were commonly dolomite which is tan, cream, occasional light brown, rare light gray tan, trace light gray. Additionally this facies was friable and dense with an earthy texture. It also contained a trace of disseminated and nodular pyrite. Possible intercrystalline porosity was observed, as was a *rare to a trace of light brown spotty oil stain*. Present in varying amounts was light gray to off white, rare light green shale which was friable to firm, sub-blocky with an earthy texture. Trace of nodular and disseminated pyrite was noted, and the shale contained no visible porosity.

Gas on the Colville 5301 44-12T varied according to penetration rates and stratigraphic position of the well bore. Observed concentrations of background gas ranged from 300 to 600 units, and connection peaks of 1,000 to 1,200 units were observed in the middle portion of formation while drilling in the lateral where shows were the best. A trip at 19,527' MD, yielded a trip gas of 1,545 units

The Oasis Petroleum North America, LLC. Colville 5301 44-12T awaits completion operations to determine its ultimate production potential.

Respectfully submitted,

*G. Wayne Peterson*  
Sunburst Consulting, Inc.  
13 August, 2013

# **WELL DATA SUMMARY**

**OPERATOR:** Oasis Petroleum North America, LLC

**ADDRESS:** 1001 Fannin Suite 1500  
Houston, TX 77002

**WELL NAME:** Colville 5301 44-12T

**API #:** 33-053-04981

**WELL FILE #:** 25571

**SURFACE LOCATION:** 250' FSL & 950' FEL  
SE SE Section 12, T153N, R101W

**FIELD/ PROSPECT:** Baker Field / Three Forks

**COUNTY, STATE** McKenzie County, North Dakota

**BASIN:** Williston

**WELL TYPE:** Three Forks Horizontal

**ELEVATION:** GL: 2,060'  
KB: 2,085'

**SPUD/ RE-ENTRY DATE:** July 23, 2013

**BOTTOM HOLE LOCATION** 10,477.26' S & 327.67' W, of surface location or approx.  
301.26' FSL & 1,277.67' FEL, SE SE Sec. 24, T153N, R101W

**CLOSURE COORDINATE** Closure Azimuth: 181.79°  
Closure Distance: 10,482.38'

**TOTAL DEPTH / DATE:** 21,090' on August 12, 2013  
76% within target interval

**TOTAL DRILLING DAYS:** 21 days

**CONTRACTOR:** Nabors #B22

**PUMPS:** H&H Triplex (stroke length - 12")

<u>TOOLPUSHERS:</u>	Jessie Tibbets, Chase Erdman
<u>FIELD SUPERVISORS:</u>	Dominic Bohn, Doug Rakstad
<u>CHEMICAL COMPANY:</u>	NOV
<u>MUD ENGINEER:</u>	Larry Langenfeld, Joe Standar
<u>MUD TYPE:</u>	Fresh water in surface hole Diesel invert in curve; Salt water in lateral
<u>MUD LOSSES:</u>	Invert Mud: 450 bbls, Salt Water: 0 bbls
<u>PROSPECT GEOLOGIST:</u>	Brian Cornette
<u>WELLSITE GEOLOGISTS:</u>	G. Wayne Peterson, Michelle Baker
<u>GEOSTEERING SYSTEM:</u>	Sunburst Digital Wellsite Geological System
<u>ROCK SAMPLING:</u>	30' from 8,240' - 10,940' 10' from 10,940' - 11,173' 30' from 11,173' - 21,090' (TD)
<u>SAMPLE EXAMINATION:</u>	Binocular microscope & fluoroscope
<u>SAMPLE CUTS:</u>	Trichloroethylene (Carbo-Sol)
<u>GAS DETECTION:</u>	MSI (Mudlogging Systems, Inc.) TGC - total gas with chromatograph Serial Number(s): ML-382
<u>ELECTRIC LOGS:</u>	n/a
<u>DRILL STEM TESTS:</u>	n/a
<u>DIRECTIONAL DRILLERS:</u>	RPM, Inc. Dominic Bohn, Doug Rakstad, Rick Bansemer, Travis Baker
<u>MWD:</u>	Ryan Mike McCommand, Todd Fink, Sam Hayman

**CASING:**

Surface: 9 5/8" 36# J-55 set to 2,098'

Intermediate: 7" 32# P-110 set to 11,144'

**KEY OFFSET WELLS:**

**Gulf Oil**

**Lindvig 1-11-3C**

SE SE Sec. 11, T153N, R101W

McKenzie County, ND

**Oasis Petroleum North America LLC.**

**Larry 5301 44-12B**

SE NE Section 12, T153N, R101W

McKenzie County, ND

**Oasis Petroleum North America LLC.**

**Ash Federal 5300 11-18T**

Lot 1 Section 18, T153N, R100W

McKenzie County, ND

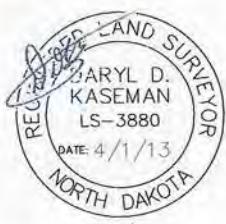
**WELL LOCATION PLAT**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "COLVILLE 5301 44-12T"  
 250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
 SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

THIS DOCUMENT WAS ORIGINALLY ISSUED AND  
 SEALED BY DARYL D. KASEMAN, PLS.  
 REGISTRATION NUMBER 3880 ON 4/1/13 AND  
 THE ORIGINAL DOCUMENTS ARE STORED AT THE  
 OFFICES OF INTERSTATE ENGINEERING, INC.

STAKED ON 3/28/13  
 VERTICAL CONTROL DATUM WAS BASED UPON  
 CONTROL POINT 13 WITH AN ELEVATION OF 2090.8'

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

DARYL D. KASEMAN LS-3880

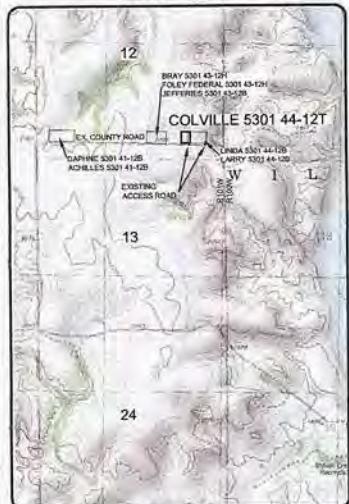


0 1000  
1" = 1000'

- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED

FOUND STONE  
W/ 2" AC  
LS 2884

VICINITY MAP



© 2013, INTERSTATE ENGINEERING, INC.

Interstate Engineering, Inc.

P.O. Box 648  
425 East Main Street  
Sidney, Montana 59270  
Ph: (406) 433-5617  
Fax: (406) 433-5619  
[www.interstateeng.com](http://www.interstateeng.com)

Other offices in Montana, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC

WELL LOCATION PLAT  
SECTION 12, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No: S13-09-050

Checked By: D.D.K. Date: MARCH 2013

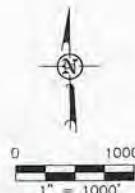
Revision No.	Date	By	Description
REV 1	4/1/13	B.H.H.	REvised PAD

**SECTION BREAKDOWN**  
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"COLVILLE 5301 44-12T"

250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
SECTIONS 13 & 24, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

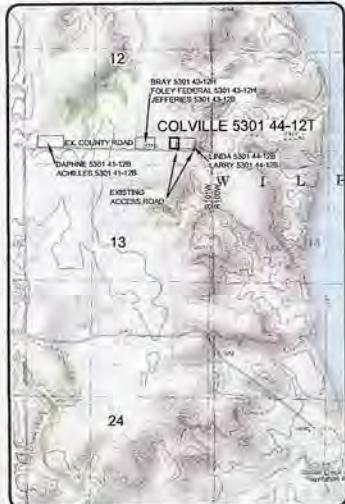
ALL AZIMUTHS ARE BASED ON G.P.S.  
OBSERVATIONS. THE ORIGINAL SURVEY OF THIS  
AREA FOR THE GENERAL LAND OFFICE (G.L.O.)  
WAS 1900. THE CORNERS FOUND ARE AS  
INDICATED AND ALL OTHERS ARE COMPUTED FROM  
THOSE CORNERS FOUND AND BASED ON G.L.O.  
DATA. THE MAPPING ANGLE FOR THIS AREA IS  
APPROXIMATELY -0°03'.

THIS DOCUMENT WAS ORIGINALLY ISSUED AND  
SEALED BY DARYL D. KASEMAN, PLS.,  
REGISTRATION NUMBER 3880 ON 4/1/13 AND  
THE ORIGINAL DOCUMENTS ARE STORED AT THE  
OFFICES OF INTERSTATE ENGINEERING, INC.



- ❖ - MONUMENT - RECOVERED
- ❖ - MONUMENT - NOT RECOVERED

VICINITY MAP



© 2013, INTERSTATE ENGINEERING, INC.

2/8



Interstate Engineering, Inc.  
P.O. Box 648  
425 East Main Street  
Sidney, Montana 59270  
Ph: (406) 433-5617  
Fax: (406) 433-5619  
[www.interstateeng.com](http://www.interstateeng.com)  
Other offices in Missoula, North Idaho and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
SECTION BREAKDOWN  
SECTIONS 13 & 24, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: E.H.U. Project No.: S13-09-056  
Checked By: D.D.K. Date: MARCH 2013

Revision No.	Date	By	Description
REV 1	4/1/13	E.H.U.	REvised PAD

8 U.S. Legal Form 1000 Rev. 12-12-2011  
Copyright © 2011 Interstate Engineering, Inc.

## PAD LAYOUT

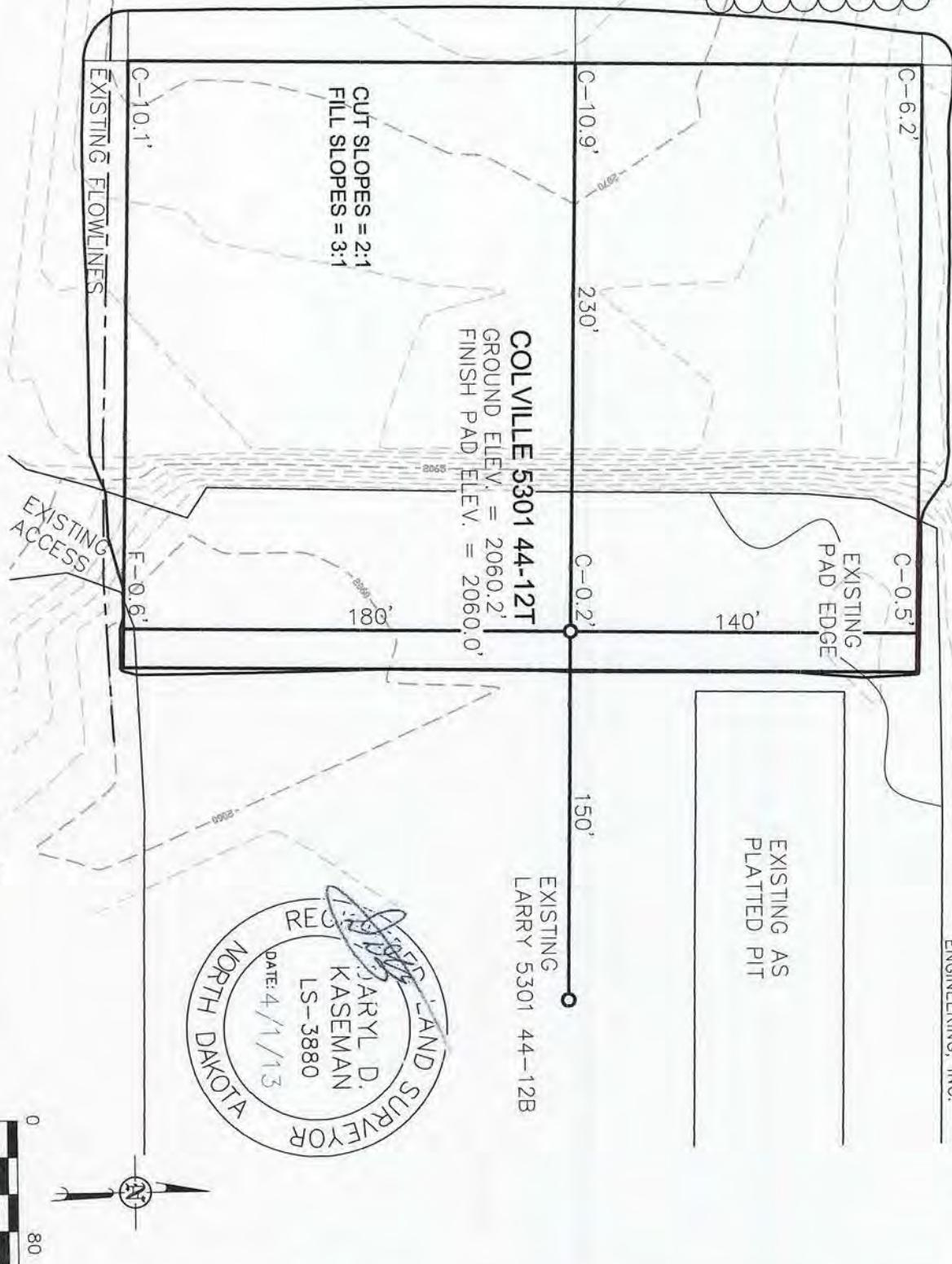
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"COLVILLE 5301 44-12T"

250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

THE OFFICES OF INTERSTATE ENGINEERING, INC.

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 ON 4/1/13 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.

Topsoil Stockpile



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

© 2013, INTERSTATE ENGINEERING, INC.

3/8



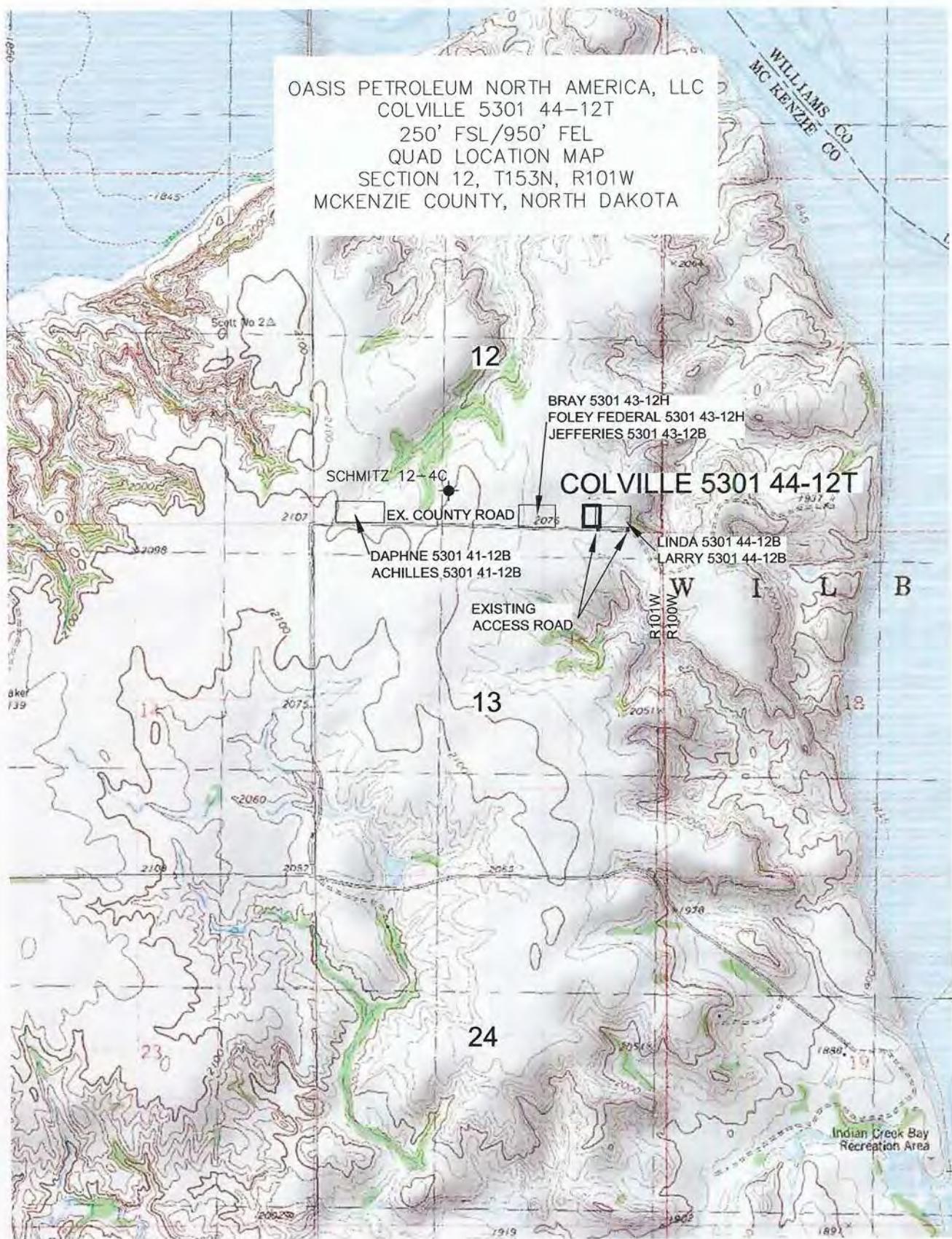
SHEET NO.

Interstate Engineering, Inc.  
P.O. Box 648  
425 East Main Street  
Sidney, Montana 59270  
Ph (406) 433-5617  
Fax (406) 433-6618  
[www.interstateeng.com](http://www.interstateeng.com)  
Other offices in Minnesota, North Dakota and South Dakota

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

Revision No.	Date	By	Description
REV 1	4/1/13	B.H.H.	REVISED PAD

Drawn By: B.H.H. Project No.: S13-09-058  
Checked By: D.D.K. Date: MARCH 2013



© 2013, INTERSTATE ENGINEERING, INC.

5/8

SHEET NO.



Professionals you need, people you trust.

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

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

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.J. Project No.: S13-09-058  
 Checked By: D.D.K. Date: MARCH 2013

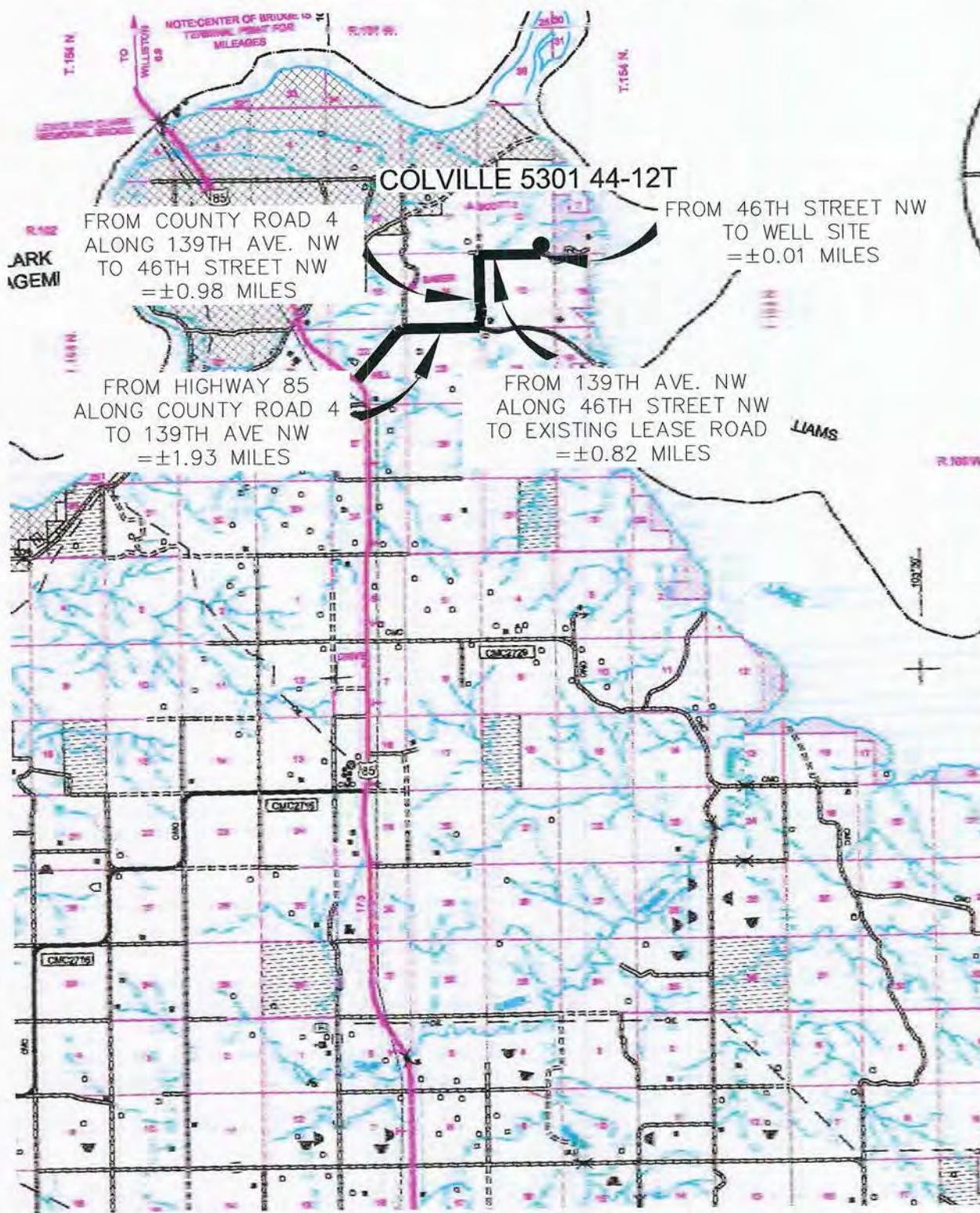
Revision No.	Date	By	Description
REV 1	4/1/13	BHJ	REvised PAD

---

COUNTY ROAD MAP

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"COLVILLE 5291 44 12T"

250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



SCALE: 1" = 2 MILE

© 2013, INTERSTATE ENGINEERING, INC.

6/8



**INTERSTATE  
ENGINEERING**

SHEET NO.

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

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

MCKENZIE COUNTY, NORTH DAKOTA

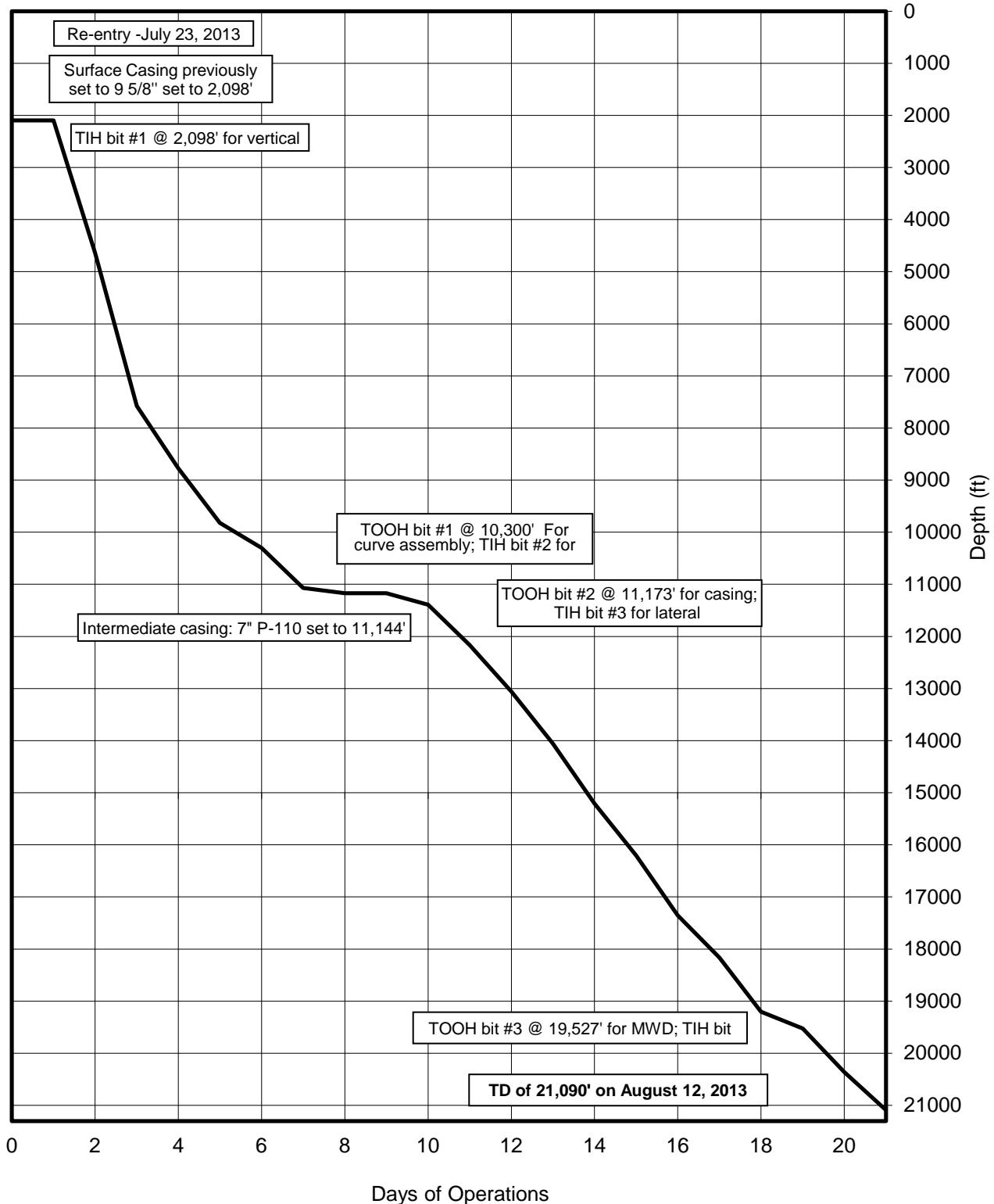
Drawn By: B.H.H. Project No.: S13-09-058  
Checked By: D.D.K Date: MARCH 2013

Revision No.	Date	By	Description
REV 1	4/1/13	BHJ	REvised Pad

# TIME VS DEPTH

Oasis Petroleum North America, LLC

Colville 5301 44-12T



# DAILY DRILLING SUMMARY

Day	Date 2013	Depth (0600 Hrs)	24 Hr Footage	Bit #	WOB (Klbs) RT	WOB (Klbs) MM	RPM (RT)	RPM (MM)	PP	SPM 1	SPM 2	24 Hr Activity		Formation	
												GPM			
0	7/23	2,098'	-	-	-	-	-	-	-	-	-	-	Rig up prepare to re-enter.	Pierre	
1	7/24	2,098'	0	-	-	-	-	-	-	-	-	-	Rig up top drive, prep for drilling. Install wellhead, Weatherford drilling adapter. Nipple up BOPS Test BOPS and bottom pipe rams. Test.	Pierre	
2	7/25	4,640'	2,542	1	30	-	60	-	2900	71	71	500	Nipple up BOPS. Center BOP Install wear bushing. Pick up BHA directional tools. Pick up drill pipe, collars, heavy weight drill pipe. Cut drilling line. Install rotating head. Drill cement, float @ 2,064', shoe @ 2,098'. Service rig. Drill 2,100' to 4,640'	Pierre	
3	7/26	7,577'	2,937	1	20	-	60	122	3300	72	72	507	Drill vertical hole from 4,640'-6,598'. Rig service. Drill vertical hole from 6,599'-7,439'. Rig service. Drill vertical hole from 7,439'-7,577'.	Broom Creek	
4	7/27	8,773'	1,196	1	25	10	60	122	3400	72	72	507	Drill vertical hole from 7,577'-7,905'. Rig service. Drill vertical hole from 7,905'-8,279'. Rig service. Drill vertical hole from 8,279'-8,773'.	Charles	
5	7/28	9,820'	1,047	1	35	30	60	122	3600	72	72	507	Drill vertical hole from 8,773'-9,119'. Rig service. Drill vertical hole from 9,119'-9,305'. Rig service. Drill vertical hole from 9,305'-9,320'.	Mission Canyon	
6	7/29	10,300'	480	1	50	-	60	120	3600	71	71	500	Drill vertical hole from 9,820'-10,145'. Rig service. Drill vertical hole from 10,145'-10,300'. Reach KOP. Circulate and condition mud, pump pill. TOOH. Remove rotating head and install trip nipple. TOOH. Lay down BHA. Pick up new BHA. Test MWD tool. TIH Log BLS. TIH	Lodgepole	
7	7/30	11,068'	768	2	50	50	30	30	143	3300	70	70	493	TIH. Build curve and survey from 10,300'-10,645'. Rig service. Drill and survey curve from 10,645'-11,068'. Rig service.	Lodgepole
8	7/31	11,173'	105	2	-	-	-	0	-	-	-	0	Drill 11,067' to 11,173' Ream/washing 11,173' to 10,326'. Lay down drill pipe, drill collars, HWDP. Lay down BHA Remove wear bushing. Rig up pipe. to run casing. Pre-job safety meeting. Run casing.	Three Forks	
9	8/1	11,173'	0	2	-	-	-	0	-	-	-	0	Run casing. Verify landing. Rig down casing crew. Circulate bottoms up. Rig up cementers. Safety meeting. Cement. Rig down cementers. Prep top drive for 4" drill pipe. Strap and log 4" drill pipe and BHA. Fill mud tanks with salt water. Pick up BHA. Surface test tool. Pick up drill pipe. Install pack off tool.	Three Forks	
10	8/2	11,393'	220	3	60	50	20	138	2100	80	-	282	Install pack off. Rig down Weatherford tools. Install wear bushing. Pick up drill pipe. Cut drilling line. Pressure test casing/shoe. Drill cement, tagged FLT @ 11,047', shoe @ 11,195'. Fit test @ 11,195'. Drill 11,195' to 11,393'.	Three Forks	
11	8/3	12,167'	774	3	20	35	20	138	2800	-	80	282	Drill and survey lateral from 11,393'-11,715'. Rig service. Drill and survey from 11,715'-12,162'. Rig service. Drill and survey lateral from 12,152'-12,167'.	Three Forks	

## DAILY DRILLING SUMMARY

Day	Date 2013	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
12	8/4	13,060'	893	3	20	30	20	138	3000	80	-	282	Drill and survey lateral from 12,152'-12,660'. Rig service. Drill and survey lateral from 12,660'-13,020'. Rig service. Drill and survey lateral from 13,020'-13,060'.		Three Forks
13	8/5	14,060'	1,000	3	25	30	20	138	3200	80	-	282	Drill and survey lateral from 13,519'-14,060'. Rig service.		Three Forks
14	8/6	15,205'	1,145	3	25	60	20	138	3200	-	80	282	Drill and survey lateral from 14,060'-14,643'. Rig service. Drill and survey lateral from 14,643'-15,205'. Rig service.		Three Forks
15	8/7	16,204'	999	3	25	70	30	138	3200	-	80	282	Drill and survey lateral from 15,205'-15,585'. Rig service. Drill and survey lateral from 15,585'-16,204'. Rig service.		Three Forks
16	8/8	17,354'	1,150	3	25	70	30	138	3200	-	80	282	Drill and survey lateral from 16,204'-16,893'. Rig service. Drill and survey lateral from 16,893'-17,354'. Rig service.		Three Forks
17	8/9	18,166'	812	3	25	50	30	138	3700	-	80	282	Drill and survey lateral from 17,354'-17,770'. Rig service. Drill and survey lateral from 17,770'-17,866'. Rig service.		Three Forks
18	8/10	19,204'	1,038	3	25	50	30	138	3400	-	80	282	Drill and survey lateral from 18,166'-18,734'. Rig service. Drill and survey lateral from 18,734'-19,204'. Rig service.		Three Forks
													Drill and survey lateral from 19,204'-19,527'. Circulate and condition. Trouble shoot MWD. Rig service. TOOH for MWD. Pull wear bushing. Lay down BHA. Pick up new BHA. Surface tool. TIH. Install wear bushing. Install rotating rubber. Slip and cut drill line.		
19	8/11	19,527'	323	4	25	70	30	138	3700	-	80	282	Cut drill line. TIH. Drill and survey lateral from 19,527'-19,835'. Rig service. Drill and survey from 18,835'-20,359'. Rig service.		Three Forks
20	8/12	20,359'	832	4	25	75	30	127	3400	-	74	260	Drill and survey lateral from 20,359'-20,795'. Rig service. Drill and survey from 20,795'-21,090'. Circulate and condition		Three Forks
21	8/13	21,090'	731	4	28	50	30	138	3900	80	-	282			Three Forks

# DAILY MUD SUMMARY

Day	Date	Mud Depth	Mud WT (ppg)	Vis (sec/qt)	PV (cP)	YP (lbs/100 ft <sup>2</sup> )	Gels (lbs/100 ft <sup>2</sup> )	600/300	NAP/H <sub>2</sub> O (ratio)	NAP/H <sub>2</sub> O (%) by vol	Cake (API/HTHP)	Cor. Solids (%)	Oil/H <sub>2</sub> O (%)	pH	Excess Lime (lb/bbl)	Cl <sup>-</sup> (mg/L)	HGS/LGS (%)	Salinity (ppm)	Electrical Stability	Gain/Loss (bbls)
0	07/23	2098	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	07/24	2,098'	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	07/25	2,098'	9.5	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	07/26	5,196'	9.7	52	18	9	8/12	45/27	75.6/24.4	65/21	3	13.2	65/21	1.1	-	1.4	12k	6.6/6.7	264,320	696
4	07/27	7,745'	9.95	53	9	5	7/10	35/20	81.6/18.4	71/16	3	12.1	71/16	1.2	-	1.6	14k	9.3/2.8	126,027	782
5	07/28	9,140'	9.8	52	13	8	7/10	34/21	85.1/14.9	74/13	3	11.7	74/13	1.7	-	2.2	21k	8.5/3.2	210,245	856
6	07/29	10,003'	10.1	45	15	8	7/11	38/23	82.4/17.6	70/15	3	13.3	70/15	1.7	-	2.2	28k	8.3/5.0	235,256	847
7	07/30	10,331'	10.15	50	16	10	8/13	42/26	81.2/18.8	69/16	3	13.0	69/16	2.0	-	2.6	33k	9.1/3.9	264,320	905
8	07/31	11,170'	10.4	44	16	12	10/17	44/28	82.4/17.6	70/15	3	13.0	70/15	1.9	-	2.5	32k	10.7/2.3	247,894	-110
9	08/01	11,173'	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	08/02	11,173'	9.7	28	1	1	1/1/-	3/2	-	1/89.8	-	-	-	-	-	8.5	-	136k	0.5/0.7	-
11	08/03	11,558'	9.7	28	1	1	1/1/-	3/2	-	1/89.8	-	-	-	-	-	8.5	-	136k	0.5/0.7	-
12	08/04	13,269'	9.65	27	1	1	1/1/-	3/2	-	0/90.7	-	-	-	-	-	8	-	154k	-0.3	-
13	08/05	13,269'	9.65	27	1	1	1/1/-	3/2	-	0/90.7	-	-	-	-	-	8	-	154k	-0.3	-
14	08/06	13,269'	9.65	27	1	1	1/1/-	3/2	-	0/90.7	-	-	-	-	-	8	-	154k	-0.3	-
15	08/07	15,330'	9.75	28	1	1	1/1/-	3/2	-	0/89.8	-	-	-	-	-	8.5	-	178k	-0.2	-
16	08/08	15,330'	9.75	28	1	1	1/1/-	3/2	-	0/89.8	-	-	-	-	-	8.5	-	178k	-0.2	-
17	08/09	17,488'	9.8	28	1	1	1/1/-	3/2	-	0/90	-	-	-	-	-	8.5	-	164k	0.1/0.1	-
18	08/10	17,488'	9.8	28	1	1	1/1/-	3/2	-	0/90	-	-	-	-	-	8.5	-	164k	0.1/0.1	-
19	08/11	19,525'	9.65	27	1	1	1/1/-	3/2	-	0/90.9	-	-	-	-	-	8	-	146k	0.0/0.3	-
20	08/12	19,525'	9.65	27	1	1	1/1/-	3/2	-	0/90.9	-	-	-	-	-	8	-	146k	0.0/0.3	-
21	08/13	20,417'	9.7	28	1	1	1/1/-	3/2	-	0/90.2	-	-	-	-	-	9.8	-	166k	-0.4	-

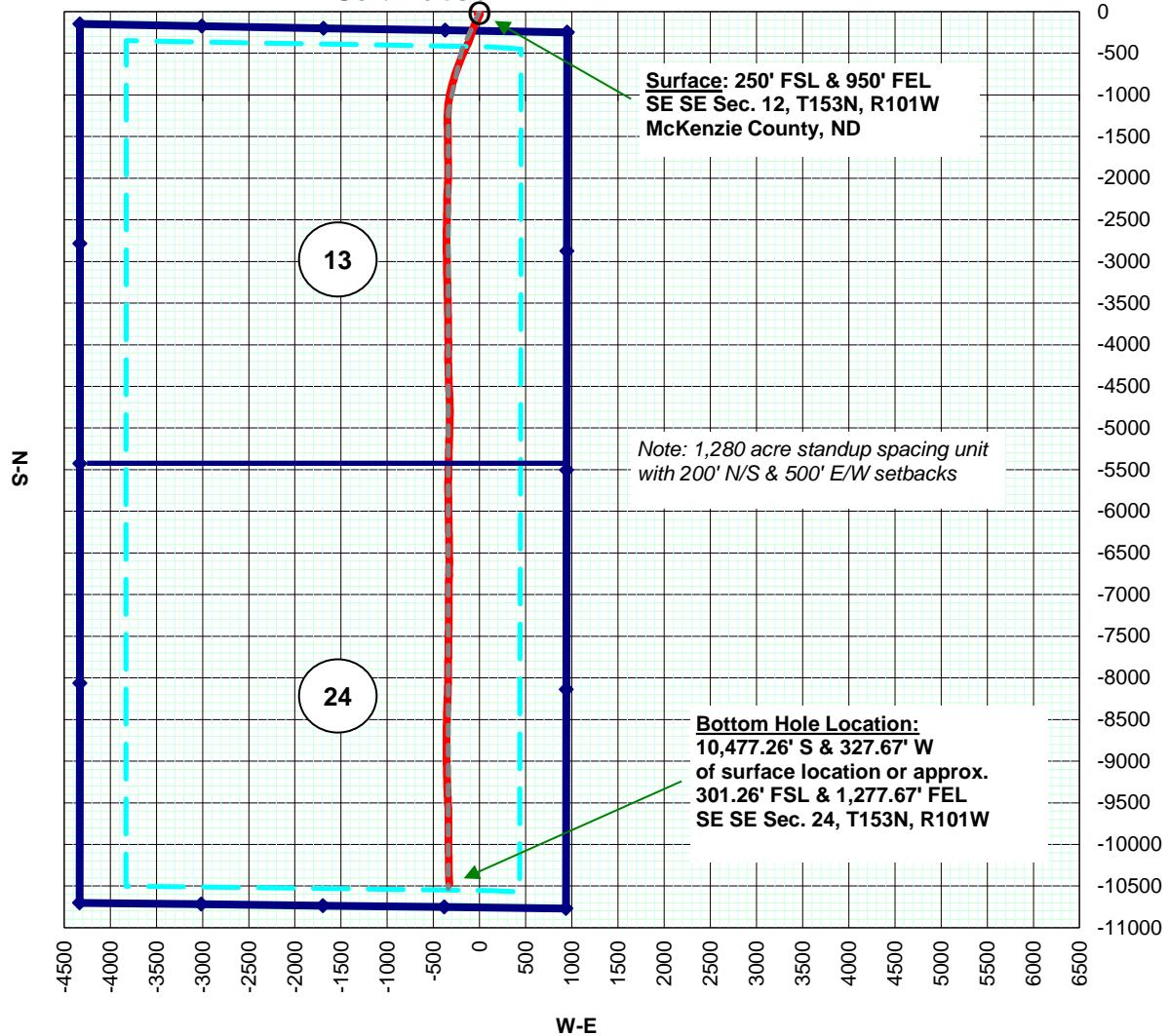
Change from Invert to Saltwater gel

## BOTTOM HOLE ASSEMBLY RECORD

BHA Run	Depth In	Depth Out	Footage	Hours	Accum. Hours	Vert. Dev.	Bit Data						Motor Data							
							Bit #	Size (in.)	Type	Make	Model	Serial #	Jets	Hours	Motor #	Make	Model			
1	2,098'	10,300'	8,202'	88	88.00	Vertical	1	8 3/4	PDC	Security	FX55D	12216327	5x14	88	1	Hunting	7/8 5.7	1.00°	88	0.22
2	10,300'	11,173'	873'	24	112.00	Curve	2	8 3/4	PDC	Security	FXD55D	12249673	5x20	24	2	NOV	7/8 5.0	2.38°	24	0.29
3	11,173'	19,527'	8,354'	22.5	134.50	Lateral	3	6	PDC	NOV	SKH1613M	A177287	6x18	194.5	3	Baker	XL/XL	1.50°	194.5	0.49
4	19,527'	21,090'	1,563'	28.5	163.00	Lateral	4	6	PDC	Security	MMD64D	1223845	6x18	28.5	4	Baker	XU/XL	1.50°	28.5	0.49

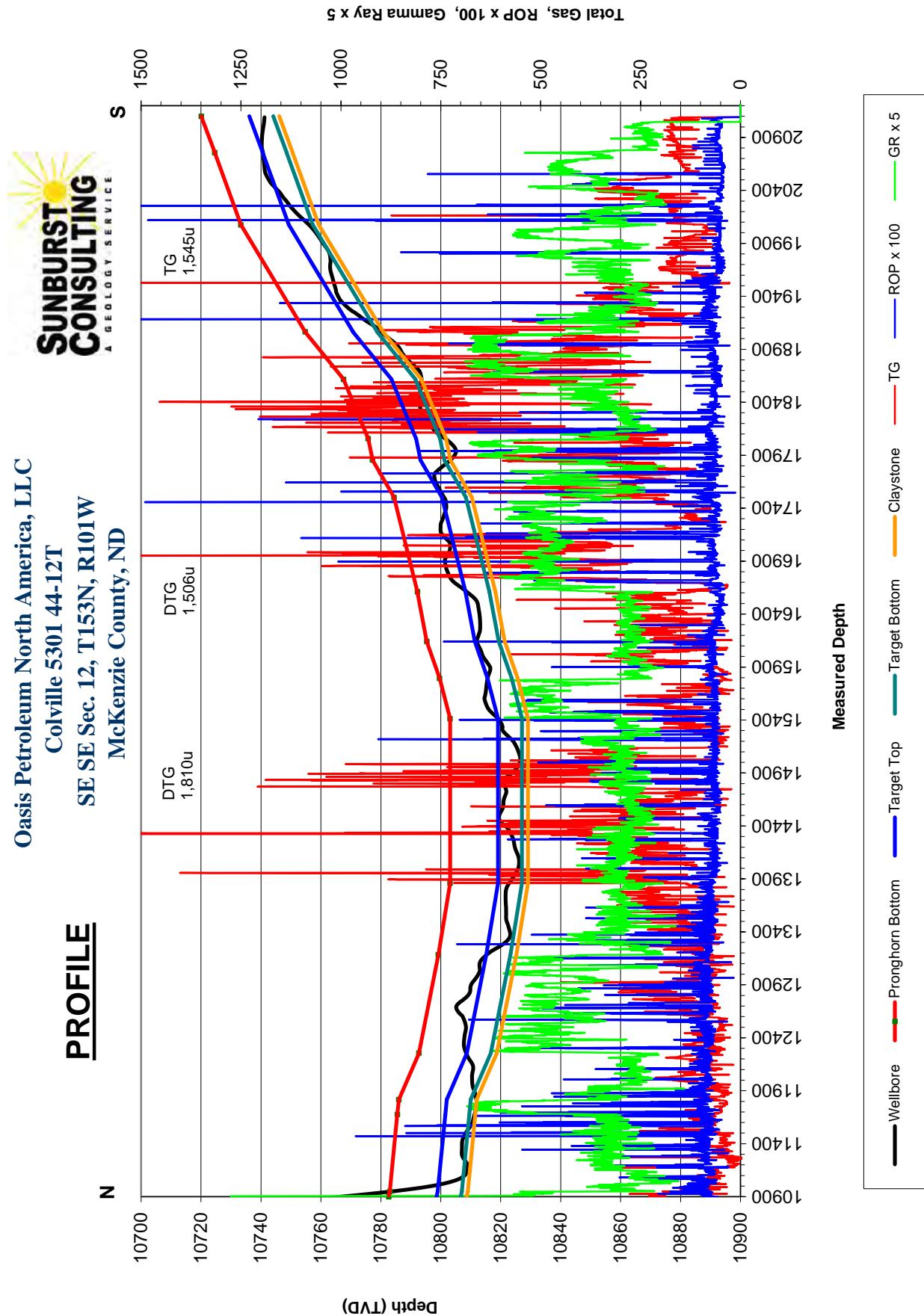
## PLAN VIEW

Oasis Petroleum North America, LLC  
Colville 5301 44-12T



Oasis Petroleum North America, LLC  
Colville 5301 44-12T  
SE SE Sec. 12, T153N, R101W  
McKenzie County, ND

## **PROFILE**



# FORMATION MARKERS & DIP ESTIMATES

Oasis Petroleum North America, LLC - Colville 5301 44-12T

Dip Change Points	MD	TVD	TVD diff.	MD diff.	Dip	Dipping up/down	Type of Marker
Marker							
Three Forks entry	10,949	10,799.00					
Claystone	11,675'	10,801.50	2.50	726.00	-0.20	Down	Gamma
Claystone	11,815'	10,802.00	0.50	140.00	-0.20	Down	Gamma
Target top	12,256'	10,808.70	6.70	441.00	-0.87	Down	Gamma
Target top	13,185'	10,815.20	6.50	929.00	-0.40	Down	Gamma
Cool gamma #1	13,859'	10,819.10	3.90	674.00	-0.33	Down	Gamma
Target top	15,413'	10,819.10	0.00	1554.00	0.00	Flat	Gamma
Target top	15,795'	10,815.60	-3.50	382.00	0.52	Up	Gamma
Cool gamma #2	16,142'	10,811.30	-4.30	347.00	0.71	Up	Gamma
Target top	16,611'	10,808.20	-3.10	469.00	0.38	Up	Gamma
Target top	17,500'	10,800.40	-7.80	889.00	0.50	Up	Gamma
Target bottom	17,855'	10,793.22	-7.18	355.00	1.16	Up	Gamma
Target bottom	18,050'	10,791.78	-1.44	195.00	0.42	Up	Gamma
Target bottom	18,615'	10,783.56	-8.22	565.00	0.83	Up	Gamma
Target bottom	19,065'	10,770.73	-12.83	450.00	1.63	Up	Gamma
Target bottom	20,075'	10,749.30	-21.43	1010.00	1.22	Up	Gamma
Target top	20,756'	10,741.20	-8.10	681.00	0.68	Up	Gamma
TD	21,100'	10,737.10	-4.10	344.00	0.68	Up	Gamma
<b>Gross Dip</b>							
Initial Target Contact	10,949'	10,799.00					
Projected Final Target Contact	21,100'	10,737.10	-61.90	10151.00	<b>0.35</b>	Up	Projection

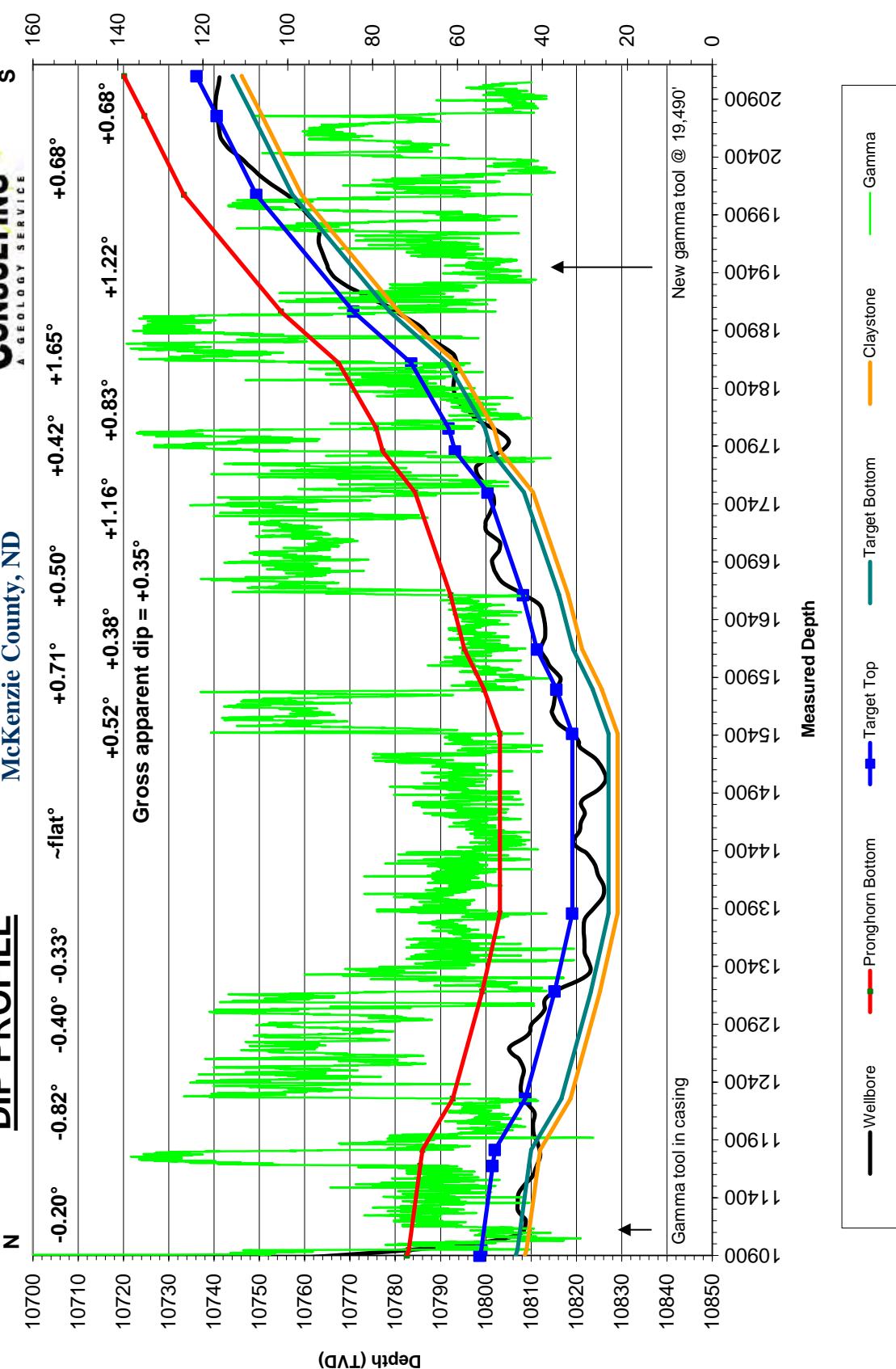
\* = GR / electric log confirmation

Other markers based on natural deflections & drill rate changes

Oasis Petroleum North America, LLC  
 Colville 5301 44-12T  
 SE SE Sec. 12, T153N, R101W  
 McKenzie County, ND



## DIP PROFILE



&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Colville 5301 44-12T		
County:	McKenzie	State:	ND
QQ:	SE SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	950	FE/WL:	E

Kick-off:	7/29/2013
Finish:	8/12/2013
Directional Supervision:	
Ryan Directional Services	

Date: 8/20/2013  
 Time: 15:33  
**F9 to re-calculate**

Proposed dir: 181.85

Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE			N-S	E-W	SECT	DLS/ 100
			AZM	TVD					
Tie	2101.17	0.82	53.67	2101.05		-9.03	-4.94	10.29	1.18
1	2165.00	0.80	78.40	2164.87		-8.67	-4.14	8.80	0.54
2	2258.00	0.90	103.70	2257.86		-8.71	-2.79	8.80	0.41
3	2352.00	1.10	104.50	2351.85		-9.11	-1.20	9.15	0.21
4	2445.00	2.50	146.10	2444.80		-11.02	0.80	10.99	1.97
5	2538.00	1.70	179.40	2537.74		-14.08	1.94	14.01	1.53
6	2632.00	0.80	238.90	2631.72		-15.82	1.39	15.76	1.56
7	2725.00	0.80	229.40	2724.72		-16.57	0.35	16.55	0.14
8	2818.00	0.50	221.20	2817.71		-17.30	-0.41	17.31	0.34
9	2912.00	0.50	209.40	2911.71		-17.97	-0.89	17.99	0.11
10	3005.00	0.50	226.20	3004.70		-18.60	-1.38	18.64	0.16
11	3098.00	0.80	198.90	3097.70		-19.50	-1.88	19.55	0.46
12	3192.00	1.00	202.30	3191.68		-20.88	-2.40	20.94	0.22
13	3285.00	0.80	204.70	3284.67		-22.22	-2.98	22.30	0.22
14	3379.00	0.90	202.80	3378.66		-23.49	-3.54	23.60	0.11
15	3472.00	0.80	165.70	3471.65		-24.80	-3.67	24.90	0.59
16	3565.00	0.80	200.00	3564.64		-26.04	-3.73	26.14	0.51
17	3659.00	0.70	198.20	3658.64		-27.20	-4.13	27.32	0.11
18	3752.00	0.70	196.50	3751.63		-28.28	-4.47	28.41	0.02
19	3845.00	0.70	181.70	3844.62		-29.40	-4.65	29.53	0.19
20	3938.00	0.60	182.50	3937.62		-30.45	-4.69	30.59	0.11
21	4032.00	0.60	198.30	4031.61		-31.41	-4.86	31.55	0.18
22	4125.00	0.40	193.40	4124.61		-32.19	-5.09	32.33	0.22
23	4218.00	0.40	229.90	4217.61		-32.71	-5.42	32.87	0.27
24	4311.00	0.20	253.20	4310.60		-32.97	-5.82	33.14	0.25
25	4405.00	0.10	331.40	4404.60		-32.94	-6.02	33.12	0.22
26	4498.00	0.10	110.60	4497.60		-32.90	-5.98	33.08	0.20
27	4591.00	0.10	278.90	4590.60		-32.92	-5.98	33.09	0.21
28	4684.00	0.10	257.80	4683.60		-32.92	-6.14	33.10	0.04
29	4778.00	0.10	143.10	4777.60		-33.00	-6.17	33.19	0.18
30	4871.00	0.30	165.40	4870.60		-33.30	-6.06	33.48	0.23
31	4964.00	0.40	165.90	4963.60		-33.86	-5.92	34.03	0.11
32	5057.00	0.30	155.30	5056.60		-34.39	-5.74	34.56	0.13
33	5151.00	0.50	215.60	5150.60		-34.95	-5.88	35.12	0.47
34	5244.00	0.30	138.10	5243.60		-35.46	-5.95	35.63	0.56
35	5337.00	0.50	105.10	5336.59		-35.75	-5.40	35.90	0.32
36	5430.00	0.30	82.80	5429.59		-35.82	-4.76	35.96	0.27
37	5524.00	0.10	89.20	5523.59		-35.79	-4.44	35.91	0.21
38	5617.00	0.30	27.10	5616.59		-35.57	-4.24	35.69	0.29
39	5710.00	0.20	26.30	5709.59		-35.21	-4.06	35.32	0.11
40	5804.00	0.30	291.50	5803.59		-34.97	-4.22	35.09	0.40
41	5897.00	0.30	307.10	5896.59		-34.74	-4.64	34.87	0.09
42	5990.00	0.60	334.30	5989.59		-34.15	-5.04	34.30	0.39
43	6084.00	1.30	322.80	6083.57		-32.86	-5.90	33.03	0.77
44	6177.00	1.80	325.50	6176.54		-30.81	-7.37	31.04	0.54
45	6270.00	1.60	346.30	6269.50		-28.35	-8.50	28.61	0.69

&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Colville 5301 44-12T		
County:	McKenzie	State:	ND
QQ:	SE SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	950	FE/WL:	E

Kick-off:	7/29/2013
Finish:	8/12/2013
Directional Supervision:	
Ryan Directional Services	

Date: 8/20/2013  
 Time: 15:33  
**F9 to re-calculate**

Proposed dir: 181.85

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		
46	6363.00	0.80	42.20	6362.48	-26.61	-8.37	26.86	1.43
47	6457.00	1.20	7.30	6456.47	-25.14	-7.81	25.38	0.76
48	6550.00	1.60	347.10	6549.44	-22.91	-7.97	23.16	0.68
49	6644.00	0.80	340.70	6643.42	-21.01	-8.48	21.28	0.86
50	6737.00	1.10	338.50	6736.40	-19.57	-9.03	19.85	0.32
51	6830.00	0.60	236.80	6829.40	-19.01	-9.76	19.31	1.46
52	6923.00	0.80	245.70	6922.39	-19.54	-10.76	19.88	0.24
53	7017.00	0.80	262.40	7016.38	-19.90	-12.01	20.27	0.25
54	7110.00	0.90	268.60	7109.37	-20.00	-13.38	20.42	0.15
55	7204.00	0.90	262.00	7203.36	-20.12	-14.85	20.59	0.11
56	7297.00	0.80	251.60	7296.35	-20.43	-16.19	20.94	0.20
57	7390.00	0.80	254.10	7389.34	-20.81	-17.43	21.36	0.04
58	7484.00	0.80	249.20	7483.33	-21.22	-18.68	21.82	0.07
59	7577.00	0.50	86.70	7576.33	-21.43	-18.88	22.03	1.38
60	7670.00	0.30	76.70	7669.33	-21.35	-18.24	21.93	0.23
61	7763.00	0.30	75.30	7762.32	-21.23	-17.76	21.80	0.01
62	7857.00	0.30	87.80	7856.32	-21.16	-17.28	21.71	0.07
63	7950.00	0.30	104.40	7949.32	-21.21	-16.80	21.74	0.09
64	8043.00	0.10	106.80	8042.32	-21.30	-16.49	21.82	0.22
65	8136.00	0.20	123.00	8135.32	-21.41	-16.27	21.92	0.12
66	8230.00	0.30	134.90	8229.32	-21.67	-15.96	22.18	0.12
67	8323.00	0.40	93.50	8322.32	-21.86	-15.46	22.35	0.28
68	8417.00	0.50	71.00	8416.32	-21.75	-14.75	22.21	0.21
69	8510.00	2.00	58.90	8509.29	-20.78	-12.98	21.19	1.63
70	8603.00	0.90	98.60	8602.26	-20.05	-10.86	20.39	1.54
71	8696.00	1.00	109.50	8695.25	-20.43	-9.38	20.72	0.22
72	8790.00	1.00	98.90	8789.24	-20.83	-7.79	21.07	0.20
73	8883.00	1.00	113.70	8882.22	-21.28	-6.25	21.47	0.28
74	8976.00	1.00	99.60	8975.21	-21.74	-4.70	21.88	0.26
75	9070.00	1.10	94.70	9069.19	-21.96	-3.00	22.04	0.14
76	9163.00	1.10	93.60	9162.17	-22.08	-1.22	22.11	0.02
77	9256.00	1.00	94.50	9255.16	-22.20	0.48	22.18	0.11
78	9350.00	2.20	150.20	9349.12	-23.83	2.20	23.75	1.95
79	9443.00	1.00	189.30	9442.09	-26.18	2.95	26.08	1.67
80	9536.00	1.00	197.80	9535.07	-27.76	2.58	27.66	0.16
81	9630.00	0.90	203.40	9629.06	-29.22	2.03	29.14	0.15
82	9723.00	0.80	202.90	9722.05	-30.48	1.49	30.42	0.11
83	9816.00	0.80	205.00	9815.04	-31.67	0.96	31.62	0.03
84	9910.00	0.60	204.30	9909.04	-32.71	0.48	32.68	0.21
85	10003.00	0.40	191.50	10002.03	-33.48	0.22	33.45	0.25
86	10096.00	0.40	218.80	10095.03	-34.05	-0.05	34.03	0.20
87	10189.00	0.50	240.30	10188.03	-34.50	-0.61	34.50	0.21
88	10251.00	0.30	253.40	10250.03	-34.68	-1.00	34.70	0.35
89	10284.00	0.40	240.80	10283.02	-34.76	-1.18	34.78	0.38
90	10315.00	0.80	213.50	10314.02	-35.00	-1.39	35.02	1.55
91	10347.00	4.80	202.00	10345.98	-36.42	-2.02	36.47	12.56

&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Colville 5301 44-12T		
County:	McKenzie	State:	ND
QQ:	SE SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	950	FE/WL:	E

Kick-off:	7/29/2013
Finish:	8/12/2013
Directional Supervision:	
Ryan Directional Services	

Date: 8/20/2013  
 Time: 15:33  
**F9 to re-calculate**

Proposed dir: 181.85

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					
92	10378.00	9.20	198.80	10376.74	-39.97	-3.31	40.06	14.24	
93	10409.00	14.50	196.10	10407.07	-46.05	-5.18	46.20	17.19	
94	10440.00	18.10	196.90	10436.82	-54.39	-7.66	54.61	11.64	
95	10471.00	19.10	196.70	10466.20	-63.86	-10.52	64.16	3.23	
96	10502.00	22.90	197.10	10495.13	-74.48	-13.75	74.89	12.27	
97	10533.00	27.10	202.30	10523.23	-86.79	-18.20	87.33	15.28	
98	10564.00	30.80	206.00	10550.35	-100.46	-24.36	101.20	13.26	
99	10595.00	33.80	208.10	10576.55	-115.21	-31.91	116.18	10.33	
100	10626.00	36.40	207.10	10601.91	-131.00	-40.16	132.23	8.59	
101	10657.00	39.50	204.20	10626.36	-148.19	-48.39	149.67	11.53	
102	10689.00	43.70	201.30	10650.28	-167.78	-56.59	169.52	14.44	
103	10720.00	47.60	199.20	10671.95	-188.58	-64.24	190.55	13.48	
104	10751.00	52.30	198.40	10691.89	-211.04	-71.88	213.25	15.29	
105	10782.00	55.60	197.60	10710.13	-234.87	-79.62	237.32	10.85	
106	10813.00	58.10	196.10	10727.08	-259.71	-87.14	262.39	9.02	
107	10844.00	61.30	195.00	10742.72	-285.49	-94.31	288.39	10.77	
108	10875.00	64.90	194.60	10756.75	-312.22	-101.37	315.33	11.67	
109	10906.00	68.70	196.70	10768.96	-339.64	-109.06	342.99	13.75	
110	10937.00	70.90	200.60	10779.66	-367.20	-118.37	370.83	13.77	
111	10969.00	73.90	204.60	10789.34	-395.35	-130.10	399.34	15.16	
112	11000.00	78.20	205.60	10796.81	-422.58	-142.86	426.97	14.22	
113	11031.00	82.20	204.00	10802.09	-450.31	-155.66	455.10	13.87	
114	11062.00	84.60	202.50	10805.65	-478.60	-167.82	483.77	9.11	
115	11093.00	87.90	201.10	10807.68	-507.32	-179.30	512.84	11.56	
116	11124.00	89.10	201.00	10808.49	-536.24	-190.43	542.11	3.88	
117	11200.00	90.40	198.40	10808.82	-607.78	-216.05	614.44	3.82	
118	11231.00	91.40	197.90	10808.34	-637.23	-225.71	644.19	3.61	
119	11263.00	91.50	197.70	10807.53	-667.69	-235.49	674.95	0.70	
120	11294.00	90.30	197.90	10807.04	-697.20	-244.96	704.75	3.92	
121	11328.00	89.80	198.00	10807.01	-729.55	-255.44	737.41	1.50	
122	11359.00	90.00	196.90	10807.06	-759.12	-264.73	767.27	3.61	
123	11389.00	90.00	195.40	10807.06	-787.94	-273.08	796.34	5.00	
124	11420.00	89.80	194.80	10807.12	-817.87	-281.15	826.52	2.04	
125	11451.00	89.10	195.00	10807.42	-847.82	-289.13	856.71	2.35	
126	11483.00	88.90	193.90	10807.97	-878.80	-297.11	887.94	3.49	
127	11514.00	88.70	192.30	10808.62	-908.99	-304.13	918.34	5.20	
128	11545.00	88.50	191.90	10809.38	-939.29	-310.63	948.83	1.44	
129	11575.00	88.70	191.30	10810.11	-968.67	-316.66	978.39	2.11	
130	11606.00	89.50	189.70	10810.60	-999.15	-322.31	1009.03	5.77	
131	11637.00	89.50	189.30	10810.87	-1029.72	-327.42	1039.75	1.29	
132	11667.00	89.40	188.10	10811.16	-1059.37	-331.96	1069.54	4.01	
133	11699.00	89.40	185.90	10811.49	-1091.13	-335.86	1101.41	6.87	
134	11730.00	89.40	185.20	10811.82	-1121.98	-338.86	1132.34	2.26	
135	11761.00	89.90	184.50	10812.01	-1152.87	-341.48	1163.30	2.77	
136	11792.00	90.20	182.80	10811.98	-1183.81	-343.45	1194.28	5.57	
137	11824.00	90.40	182.90	10811.81	-1215.77	-345.04	1226.27	0.70	

&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Colville 5301 44-12T		
County:	McKenzie	State:	ND
QQ:	SE SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	950	FE/WL:	E

Kick-off:	7/29/2013
Finish:	8/12/2013
Directional Supervision:	
Ryan Directional Services	

Date: 8/20/2013  
 Time: 15:33  
**F9 to re-calculate**

Proposed dir: 181.85

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		
138	11854.00	90.50	181.60	10811.58	-1245.74	-346.22	1256.27	4.35
139	11885.00	90.30	179.60	10811.36	-1276.74	-346.55	1287.26	6.48
140	11948.00	91.10	179.10	10810.59	-1339.73	-345.83	1350.20	1.50
141	12042.00	89.10	178.50	10810.43	-1433.70	-343.86	1444.06	2.22
142	12134.00	90.50	180.00	10810.75	-1525.69	-342.66	1535.96	2.23
143	12227.00	91.80	180.00	10808.88	-1618.67	-342.66	1628.89	1.40
144	12320.00	89.60	179.50	10807.75	-1711.66	-342.25	1721.81	2.43
145	12413.00	90.20	179.80	10807.91	-1804.65	-341.69	1814.74	0.72
146	12505.00	89.20	179.10	10808.39	-1896.65	-340.80	1906.66	1.33
147	12597.00	92.10	181.00	10807.35	-1988.63	-340.88	1998.59	3.77
148	12628.00	91.70	181.60	10806.32	-2019.60	-341.59	2029.58	2.33
149	12659.00	91.40	182.30	10805.48	-2050.57	-342.64	2060.56	2.46
150	12690.00	89.90	182.40	10805.13	-2081.54	-343.91	2091.56	4.85
151	12720.00	87.80	182.70	10805.73	-2111.51	-345.25	2121.55	7.07
152	12751.00	87.10	182.40	10807.11	-2142.44	-346.62	2152.52	2.46
153	12782.00	87.90	182.60	10808.46	-2173.38	-347.97	2183.49	2.66
154	12814.00	88.60	182.00	10809.44	-2205.34	-349.26	2215.47	2.88
155	12844.00	89.90	182.30	10809.83	-2235.32	-350.38	2245.47	4.45
156	12875.00	90.00	180.90	10809.86	-2266.31	-351.25	2276.46	4.53
157	12909.00	88.70	180.10	10810.25	-2300.30	-351.55	2310.45	4.49
158	12940.00	88.20	180.10	10811.08	-2331.29	-351.60	2341.43	1.61
159	12972.00	88.80	180.30	10811.92	-2363.28	-351.71	2373.40	1.98
160	13003.00	88.70	180.60	10812.60	-2394.27	-351.95	2404.38	1.02
161	13034.00	89.70	180.90	10813.03	-2425.26	-352.36	2435.38	3.37
162	13065.00	90.60	181.00	10812.95	-2456.26	-352.87	2466.37	2.92
163	13097.00	89.50	181.10	10812.92	-2488.25	-353.46	2498.37	3.45
164	13128.00	88.90	181.30	10813.35	-2519.24	-354.11	2529.36	2.04
165	13159.00	87.50	181.40	10814.33	-2550.22	-354.84	2560.35	4.53
166	13190.00	87.90	181.60	10815.57	-2581.18	-355.65	2591.32	1.44
167	13221.00	86.60	181.00	10817.06	-2612.14	-356.35	2622.28	4.62
168	13253.00	86.30	181.60	10819.04	-2644.07	-357.08	2654.22	2.09
169	13284.00	87.30	181.10	10820.77	-2675.01	-357.81	2685.17	3.61
170	13315.00	87.80	180.90	10822.10	-2705.98	-358.35	2716.14	1.74
171	13346.00	89.10	180.50	10822.93	-2736.96	-358.73	2747.12	4.39
172	13378.00	90.10	179.70	10823.16	-2768.96	-358.78	2779.10	4.00
173	13409.00	90.60	179.10	10822.97	-2799.96	-358.46	2810.07	2.52
174	13440.00	90.50	178.70	10822.67	-2830.95	-357.86	2841.03	1.33
175	13471.00	90.70	178.30	10822.35	-2861.94	-357.05	2871.98	1.44
176	13502.00	90.80	178.20	10821.94	-2892.92	-356.10	2902.91	0.46
177	13534.00	89.80	178.70	10821.77	-2924.91	-355.24	2934.85	3.49
178	13565.00	90.10	179.30	10821.80	-2955.91	-354.70	2965.82	2.16
179	13596.00	90.00	179.10	10821.77	-2986.90	-354.26	2996.78	0.72
180	13627.00	90.00	179.40	10821.77	-3017.90	-353.86	3027.75	0.97
181	13721.00	90.20	179.30	10821.61	-3111.89	-352.79	3121.66	0.24
182	13815.00	89.40	178.70	10821.94	-3205.88	-351.15	3215.54	1.06
183	13908.00	88.10	178.50	10823.97	-3298.83	-348.88	3308.37	1.41

&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Colville 5301 44-12T		
County:	McKenzie	State:	ND
QQ:	SE SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	950	FE/WL:	E

Kick-off:	7/29/2013
Finish:	8/12/2013
Directional Supervision:	
Ryan Directional Services	

Date: 8/20/2013  
 Time: 15:33  
**F9 to re-calculate**

Proposed dir: 181.85

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		
184	14002.00	89.60	178.60	10825.85	-3392.77	-346.50	3402.19	1.60
185	14096.00	90.20	178.90	10826.02	-3486.75	-344.45	3496.05	0.71
186	14189.00	91.30	178.60	10824.80	-3579.72	-342.42	3588.91	1.23
187	14283.00	89.60	179.70	10824.06	-3673.70	-341.03	3682.80	2.15
188	14377.00	92.50	179.90	10822.34	-3767.67	-340.70	3776.71	3.09
189	14408.00	92.20	179.50	10821.07	-3798.65	-340.54	3807.66	1.61
190	14439.00	92.00	179.40	10819.93	-3829.63	-340.24	3838.61	0.72
191	14471.00	90.10	179.40	10819.35	-3861.62	-339.91	3870.58	5.94
192	14502.00	89.30	179.40	10819.51	-3892.62	-339.58	3901.55	2.58
193	14533.00	88.80	179.00	10820.02	-3923.61	-339.15	3932.51	2.07
194	14564.00	89.00	179.10	10820.62	-3954.60	-338.64	3963.47	0.72
195	14595.00	90.10	179.90	10820.86	-3985.59	-338.36	3994.44	4.39
196	14626.00	89.80	180.40	10820.89	-4016.59	-338.45	4025.43	1.88
197	14658.00	89.40	180.50	10821.11	-4048.59	-338.70	4057.42	1.29
198	14689.00	89.10	180.10	10821.52	-4079.59	-338.86	4088.40	1.61
199	14720.00	89.60	180.00	10821.87	-4110.59	-338.89	4119.39	1.64
200	14751.00	91.10	180.30	10821.68	-4141.59	-338.97	4150.37	4.93
201	14782.00	90.70	179.90	10821.19	-4172.58	-339.02	4181.35	1.82
202	14813.00	90.00	180.00	10821.00	-4203.58	-338.99	4212.33	2.28
203	14845.00	88.40	179.10	10821.45	-4235.58	-338.74	4244.30	5.74
204	14876.00	87.20	179.40	10822.64	-4266.55	-338.34	4275.25	3.99
205	14907.00	87.60	178.60	10824.05	-4297.51	-337.80	4306.18	2.88
206	14938.00	88.50	178.20	10825.10	-4328.48	-336.93	4337.10	3.18
207	14970.00	88.80	178.10	10825.85	-4360.46	-335.90	4369.03	0.99
208	15001.00	89.30	178.00	10826.37	-4391.43	-334.84	4399.96	1.64
209	15032.00	90.20	178.00	10826.50	-4422.41	-333.76	4430.88	2.90
210	15063.00	90.40	177.90	10826.34	-4453.39	-332.65	4461.81	0.72
211	15126.00	91.00	177.60	10825.57	-4516.34	-330.18	4524.65	1.06
212	15157.00	91.00	177.30	10825.03	-4547.31	-328.80	4555.55	0.97
213	15188.00	91.20	177.20	10824.44	-4578.26	-327.31	4586.44	0.72
214	15219.00	92.20	177.60	10823.52	-4609.22	-325.91	4617.34	3.47
215	15282.00	92.10	178.20	10821.15	-4672.13	-323.60	4680.14	0.96
216	15313.00	90.20	178.70	10820.53	-4703.11	-322.76	4711.08	6.34
217	15344.00	89.80	178.30	10820.53	-4734.10	-321.95	4742.03	1.82
218	15407.00	92.40	179.70	10819.32	-4797.07	-320.85	4804.93	4.69
219	15500.00	91.70	181.60	10815.99	-4890.00	-321.91	4897.85	2.18
220	15594.00	90.00	181.70	10814.60	-4983.95	-324.61	4991.83	1.81
221	15625.00	89.50	181.60	10814.73	-5014.94	-325.51	5022.83	1.64
222	15657.00	89.70	181.80	10814.96	-5046.92	-326.46	5054.83	0.88
223	15688.00	89.80	181.90	10815.09	-5077.91	-327.46	5085.83	0.46
224	15782.00	89.70	181.50	10815.50	-5171.86	-330.25	5179.83	0.44
225	15844.00	89.10	181.10	10816.15	-5233.84	-331.65	5241.82	1.16
226	15875.00	89.60	181.10	10816.50	-5264.84	-332.25	5272.82	1.61
227	15906.00	91.00	181.20	10816.34	-5295.83	-332.87	5303.81	4.53
228	15969.00	91.80	181.60	10814.80	-5358.79	-334.41	5366.79	1.42
229	16000.00	90.90	181.10	10814.07	-5389.77	-335.14	5397.78	3.32

&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Colville 5301 44-12T		
County:	McKenzie	State:	ND
QQ:	SE SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	950	FE/WL:	E

Kick-off:	7/29/2013
Finish:	8/12/2013
Directional Supervision:	
Ryan Directional Services	

Date: 8/20/2013  
 Time: 15:33  
**F9 to re-calculate**

Proposed dir: 181.85

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		
230	16031.00	90.60	181.00	10813.67	-5420.76	-335.71	5428.78	1.02
231	16062.00	90.90	181.20	10813.26	-5451.76	-336.30	5459.77	1.16
232	16125.00	91.10	180.80	10812.16	-5514.74	-337.40	5522.75	0.71
233	16156.00	89.30	180.90	10812.05	-5545.73	-337.86	5553.75	5.82
234	16187.00	89.30	180.50	10812.43	-5576.73	-338.24	5584.74	1.29
235	16219.00	89.40	180.60	10812.79	-5608.72	-338.55	5616.73	0.44
236	16250.00	89.50	180.30	10813.09	-5639.72	-338.79	5647.72	1.02
237	16343.00	90.50	179.90	10813.09	-5732.72	-338.95	5740.67	1.16
238	16437.00	90.00	179.70	10812.68	-5826.72	-338.62	5834.61	0.57
239	16531.00	91.10	179.40	10811.78	-5920.71	-337.89	5928.53	1.21
240	16624.00	93.50	178.70	10808.05	-6013.61	-336.35	6021.34	2.69
241	16718.00	91.70	179.40	10803.78	-6107.50	-334.79	6115.12	2.05
242	16811.00	90.40	179.00	10802.08	-6200.47	-333.49	6208.01	1.46
243	16843.00	90.80	178.60	10801.74	-6232.46	-332.82	6239.96	1.77
244	16905.00	89.90	179.40	10801.37	-6294.45	-331.74	6301.88	1.94
245	16936.00	88.80	179.70	10801.72	-6325.45	-331.50	6332.85	3.68
246	16968.00	88.80	179.70	10802.39	-6357.44	-331.33	6364.82	0.00
247	16999.00	89.10	179.60	10802.96	-6388.44	-331.14	6395.80	1.02
248	17061.00	90.50	179.30	10803.17	-6450.43	-330.54	6457.74	2.31
249	17093.00	92.10	179.10	10802.45	-6482.42	-330.10	6489.70	5.04
250	17155.00	91.80	178.90	10800.34	-6544.37	-329.02	6551.58	0.58
251	17187.00	89.70	179.50	10799.92	-6576.36	-328.57	6583.54	6.83
252	17218.00	90.20	180.30	10799.94	-6607.36	-328.51	6614.53	3.04
253	17249.00	89.70	180.10	10799.97	-6638.36	-328.62	6645.51	1.74
254	17280.00	88.80	180.40	10800.38	-6669.36	-328.76	6676.50	3.06
255	17311.00	89.60	180.20	10800.81	-6700.36	-328.92	6707.48	2.66
256	17374.00	89.10	181.10	10801.53	-6763.35	-329.63	6770.46	1.63
257	17405.00	89.80	181.90	10801.82	-6794.34	-330.45	6801.46	3.43
258	17467.00	90.50	181.60	10801.66	-6856.31	-332.34	6863.46	1.23
259	17499.00	91.30	180.80	10801.16	-6888.29	-333.01	6895.45	3.54
260	17561.00	91.10	180.10	10799.86	-6950.28	-333.50	6957.42	1.17
261	17592.00	90.90	179.90	10799.32	-6981.27	-333.50	6988.40	0.91
262	17655.00	91.20	180.10	10798.16	-7044.26	-333.50	7051.36	0.57
263	17717.00	89.40	180.30	10797.84	-7106.26	-333.71	7113.33	2.92
264	17748.00	87.50	180.90	10798.68	-7137.24	-334.04	7144.31	6.43
265	17780.00	87.80	180.60	10799.99	-7169.21	-334.46	7176.28	1.33
266	17811.00	87.30	180.30	10801.31	-7200.19	-334.70	7207.24	1.88
267	17842.00	87.40	180.10	10802.75	-7231.15	-334.81	7238.19	0.72
268	17873.00	88.40	180.00	10803.88	-7262.13	-334.83	7269.16	3.24
269	17905.00	88.60	180.10	10804.72	-7294.12	-334.86	7301.13	0.70
270	17936.00	90.00	180.00	10805.10	-7325.12	-334.89	7332.11	4.53
271	17967.00	91.30	180.10	10804.75	-7356.11	-334.92	7363.09	4.21
272	17998.00	91.90	180.50	10803.88	-7387.10	-335.08	7394.07	2.33
273	18030.00	92.40	180.50	10802.68	-7419.08	-335.36	7426.04	1.56
274	18061.00	92.80	180.10	10801.28	-7450.05	-335.52	7456.99	1.82
275	18092.00	93.10	180.00	10799.68	-7481.00	-335.55	7487.94	1.02

&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Colville 5301 44-12T		
County:	McKenzie	State:	ND
QQ:	SE SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	950	FE/WL:	E

Kick-off:	7/29/2013
Finish:	8/12/2013
Directional Supervision:	
Ryan Directional Services	

Date: 8/20/2013  
 Time: 15:33  
**F9 to re-calculate**

Proposed dir: 181.85

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		
276	18123.00	92.30	180.10	10798.22	-7511.97	-335.57	7518.89	2.60
277	18155.00	91.00	180.70	10797.30	-7543.95	-335.80	7550.86	4.47
278	18186.00	91.20	180.60	10796.70	-7574.95	-336.15	7581.85	0.72
279	18217.00	92.20	180.10	10795.78	-7605.93	-336.34	7612.83	3.61
280	18248.00	91.30	180.30	10794.84	-7636.92	-336.45	7643.80	2.97
281	18279.00	91.50	180.40	10794.08	-7667.91	-336.64	7674.78	0.72
282	18311.00	90.70	180.70	10793.47	-7699.90	-336.94	7706.76	2.67
283	18373.00	90.20	181.40	10792.98	-7761.89	-338.08	7768.75	1.39
284	18405.00	90.20	181.40	10792.87	-7793.88	-338.86	7800.75	0.00
285	18436.00	89.80	181.00	10792.87	-7824.87	-339.51	7831.75	1.82
286	18498.00	89.80	180.40	10793.08	-7886.86	-340.27	7893.74	0.97
287	18529.00	89.60	180.70	10793.25	-7917.86	-340.56	7924.73	1.16
288	18592.00	89.90	180.20	10793.52	-7980.86	-341.06	7987.71	0.93
289	18623.00	89.90	180.40	10793.58	-8011.86	-341.22	8018.70	0.65
290	18686.00	91.10	181.20	10793.03	-8074.85	-342.10	8081.68	2.29
291	18717.00	92.10	181.80	10792.16	-8105.83	-342.91	8112.67	3.76
292	18748.00	92.20	181.60	10791.00	-8136.79	-343.83	8143.65	0.72
293	18779.00	92.40	181.30	10789.75	-8167.76	-344.62	8174.62	1.16
294	18811.00	91.80	181.60	10788.58	-8199.72	-345.42	8206.60	2.10
295	18842.00	91.60	181.80	10787.66	-8230.70	-346.34	8237.59	0.91
296	18873.00	91.10	182.20	10786.93	-8261.67	-347.43	8268.58	2.07
297	18904.00	91.10	182.30	10786.34	-8292.64	-348.64	8299.57	0.32
298	18936.00	91.90	182.30	10785.50	-8324.60	-349.93	8331.56	2.50
299	18967.00	92.50	182.00	10784.31	-8355.56	-351.09	8362.54	2.16
300	18998.00	92.60	181.50	10782.93	-8386.51	-352.03	8393.51	1.64
301	19029.00	92.40	181.20	10781.58	-8417.47	-352.76	8424.47	1.16
302	19061.00	92.10	181.30	10780.32	-8449.44	-353.46	8456.45	0.99
303	19092.00	92.40	181.20	10779.10	-8480.41	-354.14	8487.42	1.02
304	19123.00	93.10	181.00	10777.62	-8511.37	-354.73	8518.38	2.35
305	19154.00	93.50	180.80	10775.83	-8542.31	-355.22	8549.33	1.44
306	19185.00	92.50	181.00	10774.21	-8573.27	-355.70	8580.28	3.29
307	19217.00	92.70	180.80	10772.76	-8605.23	-356.21	8612.24	0.88
308	19248.00	93.10	180.10	10771.19	-8636.19	-356.45	8643.19	2.60
309	19279.00	92.90	179.80	10769.57	-8667.15	-356.42	8674.13	1.16
310	19341.00	91.50	180.20	10767.19	-8729.10	-356.42	8736.06	2.35
311	19373.00	91.80	180.30	10766.26	-8761.09	-356.56	8768.03	0.99
312	19435.00	90.20	180.70	10765.18	-8823.07	-357.10	8830.00	2.66
313	19466.00	90.60	180.70	10764.97	-8854.07	-357.48	8860.99	1.29
314	19522.00	90.60	179.40	10764.38	-8910.06	-357.53	8916.96	2.32
315	19553.00	90.50	179.40	10764.08	-8941.06	-357.21	8947.93	0.32
316	19584.00	90.60	179.10	10763.78	-8972.06	-356.80	8978.90	1.02
317	19615.00	90.60	179.20	10763.46	-9003.05	-356.34	9009.86	0.32
318	19647.00	90.40	179.30	10763.18	-9035.05	-355.92	9041.83	0.70
319	19678.00	90.00	179.40	10763.07	-9066.05	-355.57	9072.80	1.33
320	19709.00	89.80	178.90	10763.13	-9097.04	-355.11	9103.76	1.74
321	19740.00	89.80	178.70	10763.23	-9128.03	-354.46	9134.72	0.65

&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America, LLC		
Well :	Colville 5301 44-12T		
County:	McKenzie	State:	ND
QQ:	SE SE	Section:	12
Township:	153	N/S:	N
Range:	101	E/W:	W
Footages:	250	FN/SL:	S
	950	FE/WL:	E

Kick-off:	7/29/2013
Finish:	8/12/2013
Directional Supervision:	
Ryan Directional Services	

Date: 8/20/2013  
 Time: 15:33  
**F9 to re-calculate**

Proposed dir: 181.85

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		
322	19802.00	90.80	178.60	10762.91	-9190.02	-353.00	9196.62	1.62
323	19834.00	91.10	178.50	10762.38	-9222.00	-352.19	9228.56	0.99
324	19865.00	91.60	178.30	10761.65	-9252.98	-351.32	9259.50	1.74
325	19896.00	91.40	177.80	10760.84	-9283.95	-350.27	9290.42	1.74
326	19927.00	91.20	178.00	10760.13	-9314.92	-349.13	9321.34	0.91
327	19959.00	91.50	178.30	10759.38	-9346.90	-348.10	9353.26	1.33
328	19990.00	91.40	177.90	10758.60	-9377.87	-347.07	9384.19	1.33
329	20021.00	91.70	177.60	10757.76	-9408.83	-345.86	9415.10	1.37
330	20052.00	91.80	177.20	10756.81	-9439.79	-344.45	9445.99	1.33
331	20084.00	92.10	177.00	10755.72	-9471.73	-342.83	9477.86	1.13
332	20146.00	92.30	177.10	10753.34	-9533.60	-339.65	9539.60	0.36
333	20177.00	92.00	178.40	10752.18	-9564.55	-338.43	9570.49	4.30
334	20240.00	91.80	178.60	10750.09	-9627.50	-336.78	9633.35	0.45
335	20271.00	91.30	180.10	10749.25	-9658.48	-336.43	9664.31	5.10
336	20302.00	91.80	180.90	10748.41	-9689.47	-336.70	9695.29	3.04
337	20333.00	91.70	180.30	10747.47	-9720.45	-337.02	9726.27	1.96
338	20365.00	91.10	179.70	10746.68	-9752.44	-337.02	9758.24	2.65
339	20396.00	92.20	179.10	10745.79	-9783.43	-336.70	9789.20	4.04
340	20458.00	91.70	179.50	10743.68	-9845.39	-335.94	9851.10	1.03
341	20490.00	91.30	180.20	10742.84	-9877.38	-335.86	9883.07	2.52
342	20552.00	90.90	180.20	10741.65	-9939.37	-336.08	9945.03	0.65
343	20583.00	90.30	180.40	10741.33	-9970.36	-336.24	9976.02	2.04
344	20615.00	90.20	179.50	10741.19	-10002.36	-336.21	10008.00	2.83
345	20646.00	90.20	179.50	10741.08	-10033.36	-335.94	10038.98	0.00
346	20677.00	90.20	179.60	10740.97	-10064.36	-335.70	10069.95	0.32
347	20708.00	90.20	179.40	10740.87	-10095.36	-335.43	10100.93	0.65
348	20740.00	90.10	179.40	10740.78	-10127.36	-335.09	10132.90	0.31
349	20770.00	90.70	179.40	10740.57	-10157.35	-334.78	10162.87	2.00
350	20801.00	90.20	179.40	10740.33	-10188.35	-334.45	10193.84	1.61
351	20833.00	90.00	179.40	10740.27	-10220.35	-334.12	10225.81	0.63
352	20926.00	89.80	178.60	10740.44	-10313.33	-332.49	10318.69	0.89
353	21020.00	89.60	178.20	10740.93	-10407.30	-329.87	10412.52	0.48
354	21035.00	89.80	178.20	10741.01	-10422.29	-329.40	10427.49	1.33
355	21090.00	89.80	178.20	10741.20	-10477.26	-327.67	10482.38	0.00

## DEVIATION SURVEYS

Depth	Inclination	Azimuth
100	1.55	220.79
200	1.40	219.68
300	0.81	214.78
400	0.64	189.55
500	0.35	157.01
600	0.35	165.39
700	0.37	185.64
800	0.28	180.88
900	0.21	180.65
1000	0.19	83.35
1100	0.52	103.59
1200	0.45	118.50
1300	0.32	170.92
1400	0.51	223.26
1500	0.52	255.93
1600	0.28	239.01
1700	0.59	239.52
1800	0.04	276.46
1900	0.62	338.06
2000	0.65	348.66
2100	0.82	52.73
2101	0.82	53.67

# FORMATION TOPS & STRUCTURAL RELATIONSHIPS

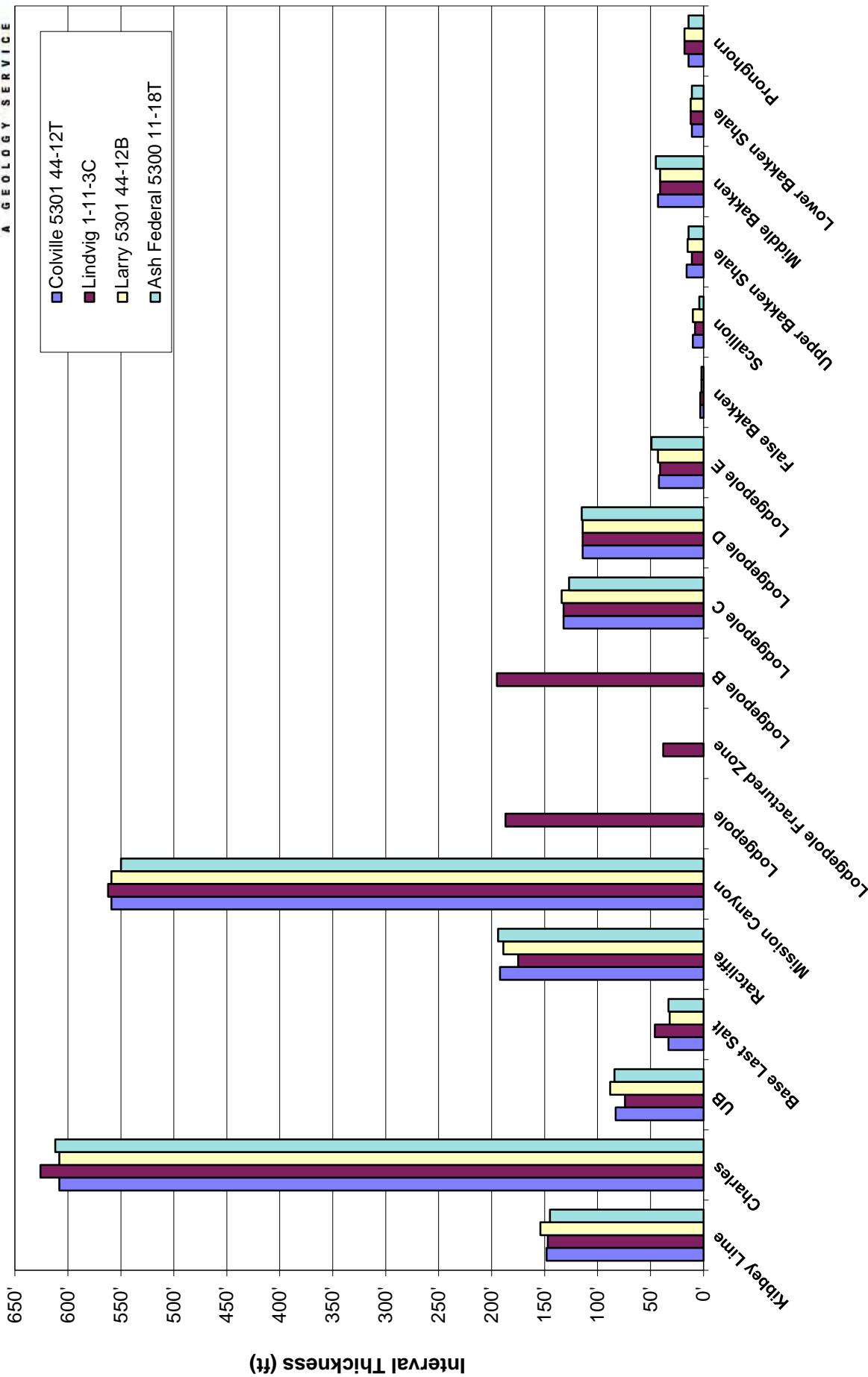
# CONTROL DATA

<b>Operator:</b>	<b>Gulf Oil</b>			<b>Oasis Petroleum North America LLC.</b>			<b>Oasis Petroleum North America LLC.</b>		
<b>Well Name:</b>	<b>Lindvig 11-11-3C</b>			<b>Larry 5301 44-12B</b>			<b>Ash Federal 5300 11-18T</b>		
<b>Location:</b>	SE SE Sec. 11, T153N, R101W McKenzie County, ND			SE NE Section 12, T153N, R101W McKenzie County, ND			Lot 1 Section 18, T153N, R100W McKenzie County, ND		
<b>Elevation:</b>	1/2 Mile W of Colville 5301 41-12T KB: 2,108'			3/4 of a Mile E of Colville 5301 41-12T KB: 2,083'			1 Mile ENE of Colville 5301 41-12T KB: 2,078'		
Formation/ Zone	E-Log Top	Datum (MSL)	Interval Thickness	E-Log Top	Datum (MSL)	Interval Thickness	E-Log Top	Datum (MSL)	Interval Thickness
Kibbey Lime	8,362'	-6,254'	147'	2,454'	8,348'	-6,265'	154'	2,465'	8,346'
Charles	8,509'	-6,401'	626'	2,307'	8,502'	-6,419'	608'	2,311'	8,491'
UB	9,135'	-7,027'	74'	1,681'	9,110'	-7,027'	88'	1,703'	9,103'
Base Last Salt	9,209'	-7,101'	46'	1,607'	9,198'	-7,115'	32'	1,615'	9,187'
Ratcliffe	9,255'	-7,147'	175'	1,561'	9,230'	-7,147'	189'	1,583'	9,220'
Mission Canyon	9,430'	-7,322'	562'	1,386'	9,419'	-7,336'	559'	1,394'	9,414'
Lodgepole	9,992'	-7,884'	187'	824'	9,978'	-7,895'	-	835'	9,964'
Lodgepole Fractured Zone	10,179'	-8,071'	38'	637'	-	-	-	-	-
Lodgepole B	10,217'	-8,109'	195'	599'	-	-	-	-	-
Lodgepole C	10,412'	-8,304'	132'	404'	10,400'	-8,317'	134'	413'	10,398'
Lodgepole D	10,544'	-8,436'	114'	272'	10,534'	-8,451'	114'	279'	10,525'
Lodgepole E	10,658'	-8,550'	41'	158'	10,648'	-8,565'	43'	165'	10,640'
False Bakken	10,699'	-8,591'	3'	117'	10,691'	-8,608'	2'	122'	10,689'
Scallion	10,702'	-8,594'	8'	114'	10,693'	-8,610'	10'	120'	10,691'
Upper Bakken Shale	10,710'	-8,602'	11'	106'	10,703'	-8,620'	15'	110'	10,695'
Middle Bakken	10,721'	-8,613'	41'	95'	10,718'	-8,635'	41'	95'	10,709'
Lower Bakken Shale	10,762'	-8,654'	12'	54'	10,759'	-8,676'	12'	54'	10,754'
Pronghorn	10,774'	-8,666'	18'	42'	10,771'	-8,688'	18'	42'	10,765'
<b>Three Forks</b>	10,792'	-8,684'	16'	24'	10,789'	-8,706'	16'	24'	10,779'
Three Forks Target Top	10,808'	-8,700'	8'	8'	10,805'	-8,722'	8'	8'	10,795'
<b>Three Forks Target Landing</b>	10,816'	-8,708'	1'	0'	10,813'	-8,730'	1'	0'	10,803'
Three Forks Target Base	10,817'	-8,709'	2'	-	10,814'	-8,731'	2'	-	10,804'
Claystone	10,819'	-8,711'	-	-	10,816'	-8,733'	-	-	-



# INTERVAL THICKNESS

Oasis Petroleum North America, LLC - Colville 5301 44-12T



# LANDING PROJECTION

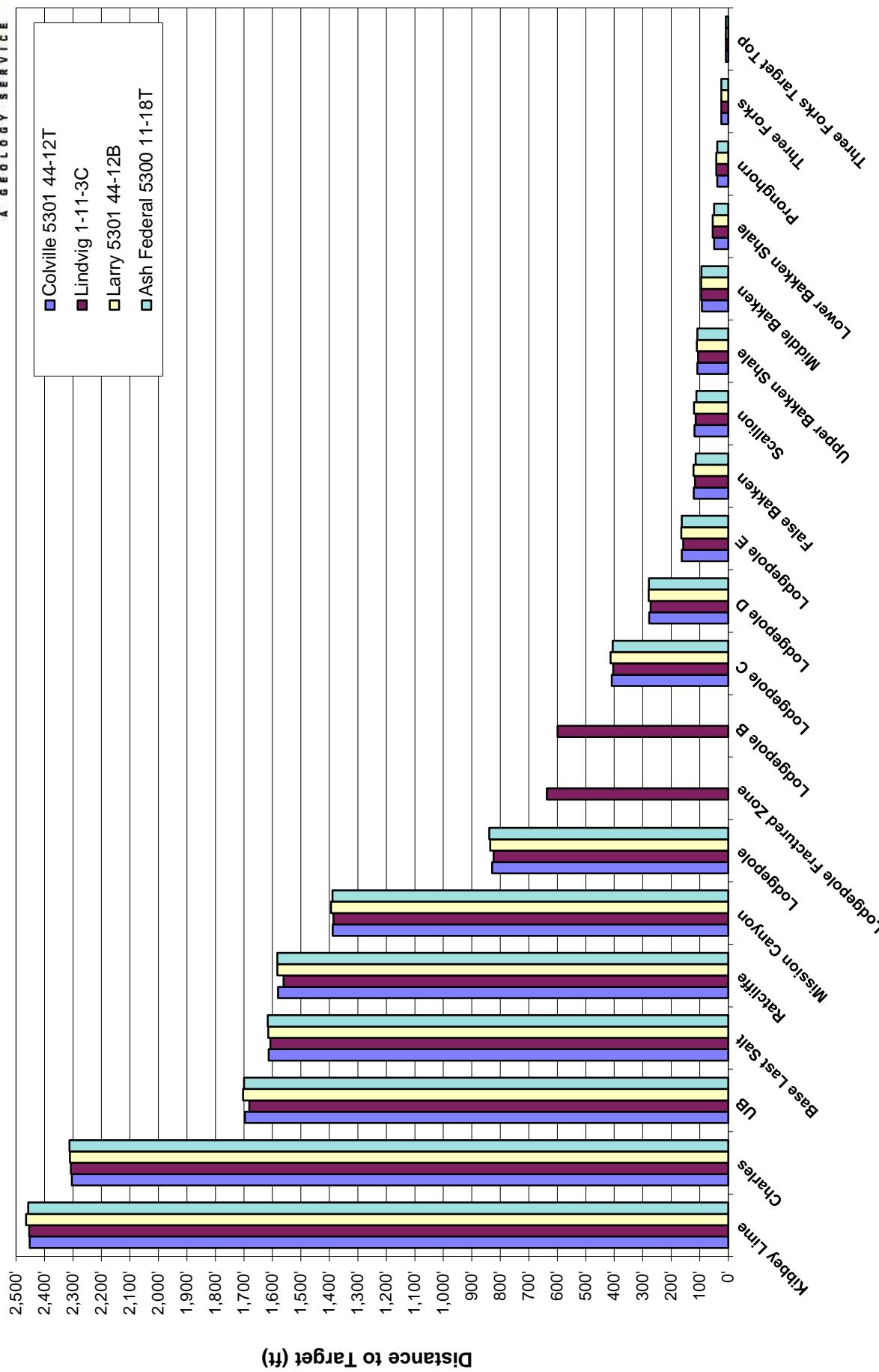
Formation/Zone:	Proposed Top of Target From:			
	Lindvig 1-11-3C	Larry 5301 44-12B	Ash Federal 5300 11-18T	Average of Offset Wells
Kibbey Lime	10,809'	10,820'	10,812'	10,814'
Charles	10,810'	10,814'	10,815'	10,813'
UB	10,792'	10,814'	10,811'	10,806'
Base Last Salt	10,801'	10,809'	10,810'	10,807'
Ratcliff	10,788'	10,810'	10,810'	10,803'
Mission Canyon	10,805'	10,813'	10,808'	10,809'
Lodgepole	10,802'	10,813'	10,817'	10,811'
Lodgepole Fractured Zone	-	-	-	-
Lodgepole B	-	-	-	-
Lodgepole C	10,802'	10,811'	10,803'	10,805'
Lodgepole D	10,802'	10,809'	10,808'	10,806'
Lodgepole E	10,802'	10,809'	10,807'	10,806'
False Bakken	10,803'	10,808'	10,800'	10,804'
Scallion	-	-	-	-
Upper Bakken Shale	10,805'	10,809'	10,807'	10,807'
Middle Bakken	10,810'	10,810'	10,809'	10,810'
Lower Bakken Shale	10,812'	10,812'	10,807'	10,810'
Pronghorn	10,811'	10,811'	10,807'	10,810'
Three Forks	10,807'	10,807'	10,807'	10,807'
Three Forks Target Top	10,807'	10,807'	10,807'	10,807'
Three Forks Target Landing	10,807'	10,807'	10,807'	10,807'

Current Landing Target (24' below the base of the Pronghorn): **10,807'**



## ISOPACH TO TARGET

Oasis Petroleum North America, LLC - Colville 5301 44-12T



## LITHOLOGY

*Rig crews caught lagged samples, under the supervision of Sunburst geologists, in 30' intervals from 8,240' to 10,940', 10' intervals from 10,940' to 11,170' and then 30' intervals from 11,170' to the TD of 21,090'. Sample or gamma ray marker tops have been inserted in the sample descriptions below for reference. Samples were examined wet and dry under a binocular microscope.*

### Drilling in Kibbey Formation

8240-8270 SILTSTONE: orange, red to orange, red brown, friable, blocky, moderately calcite cemented; trace ANHYDRITE: off white to white, microcrystalline, soft, massive, amorphous

8270-8300 SILTSTONE: red to orange, red brown, light orange to off white, trace light brown, trace light gray to medium gray, friable, blocky, moderately calcite cemented; trace ANHYDRITE: off white, cream, microcrystalline, soft, massive, amorphous

8300-8330 SILTSTONE: red to orange, red brown, light orange to off white, trace dark gray, friable, blocky, moderately calcite cemented; ANHYDRITE: off white, microcrystalline, soft, massive, amorphous

### Kibbey "Lime": **8,356' MD 8,355' TVD (-6,270')**

8330-8360 ANHYDRITE: off white, microcrystalline, soft, massive, amorphous; SILTSTONE: red to orange, red brown, light orange to off white, trace light brown, friable, blocky, calcareous cement moderately cemented

8360-8390 LIMESTONE: mudstone, off white, light gray, light gray brown, microcrystalline, friable, dense, earthy, no visible porosity, no visible oil stain; rare ANHYDRITE: as above

8390-8420 SILTSTONE: orange, red orange, dark orange, red brown, light orange to off white, trace light brown, friable, blocky, calcareous cement moderately cemented; trace ANHYDRITE: off white, microcrystalline, soft, massive, amorphous; trace: LIMESTONE: as above

8420-8450 SILTSTONE: red to orange, red brown, light orange to off white, trace light brown, friable, blocky, calcareous cement moderately cemented; trace ANHYDRITE: off white, microcrystalline, soft, massive, amorphous

8450-8480 SILTSTONE: red to orange, red brown, light orange to off white, trace light brown, friable, blocky, calcareous cement moderately cemented; trace ANHYDRITE: off white, microcrystalline, soft, massive, amorphous

### Charles: **8,504' MD 8,503' TVD (-6,418')**

8480-8510 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; ANHYDRITE: off white, microcrystalline, soft, massive, amorphous; trace ARGILLACEOUS LIMESTONE: mudstone, light brown, gray brown, microcrystalline, firm, dense, earthy to crystalline texture

8510-8540 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; trace ANHYDRITE: off white, microcrystalline, soft, massive, amorphous; trace ARGILLACEOUS LIMESTONE: mudstone, light brown, gray brown, microcrystalline, firm, dense, earthy to crystalline texture

8540-8570 SALT: frosted, translucent, rare clear, crystalline, hard, anhedral to subhedral, crystalline texture

8570-8600 SALT: frosted, translucent, rare clear, crystalline, hard, anhedral to subhedral, crystalline texture

8600-8630 SALT: frosted, translucent, rare clear, crystalline, hard, anhedral to subhedral, crystalline texture

8630-8660 SALT: frosted, translucent, rare clear, crystalline, hard, anhedral to subhedral, crystalline texture

8660-8690 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; trace LIMESTONE: mudstone, light brown, gray brown, microcrystalline, firm, dense, earthy to crystalline texture

8690-8720 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; ARGILLACEOUS LIMESTONE: mudstone, light brown, gray brown, microcrystalline, firm, dense, earthy to crystalline texture; trace ANHYDRITE: off white, microcrystalline, soft, massive, amorphous

8720-8750 ARGILLACEOUS ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous; ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray, gray brown, microcrystalline, firm, dense, earthy to crystalline texture; rare SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture

8750-8780 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous; ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray, gray brown, microcrystalline, firm, dense, earthy trace crystalline texture

8780-8810 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray, gray brown, microcrystalline, firm, dense, earthy trace crystalline texture; trace ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous

8810-8840 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray, gray brown, microcrystalline, firm, dense, earthy trace crystalline texture; ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous

8840-8870 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; trace ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray, gray brown, microcrystalline, firm, dense, earthy trace crystalline texture; trace ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous

8870-8900 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; trace ARGILLACEOUS LIMESTONE: mudstone, light brown, light to dark gray, light to dark gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace disseminated pyrite; trace ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous

8900-8930 ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray, light gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace spotty light brown oil stain; ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous; trace SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture

8930-8960 ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous; ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray, light gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace spotty light brown oil stain

8960-8990 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; trace ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous

8990-9020 LIMESTONE: mudstone, light brown, light gray, light gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace spotty light brown oil stain; ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous; trace SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture

9020-9050 LIMESTONE: mudstone, light brown, light gray, light gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace spotty light brown oil stain; ANHYDRITE: off white to light gray, microcrystalline, soft, massive, amorphous

9050-9080 ANHYDRITE: light gray, rare off white, microcrystalline, soft, massive, amorphous; ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray, light gray brown, microcrystalline, firm, dense, earthy trace crystalline texture

9080-9110 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, light brown, gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace disseminated pyrite; rare ANHYDRITE: light gray, rare off white, microcrystalline, soft, massive, amorphous

**Upper Berenton:**

**9,112' MD 9,111' TVD (-7,026')**

9110-9140 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, light brown, gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace disseminated pyrite; rare ANHYDRITE: light gray, rare off white, microcrystalline, soft, massive, amorphous

9140-9170 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, light brown, gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace disseminated pyrite; rare ANHYDRITE: light gray, rare off white, microcrystalline, soft, massive, amorphous

9170-9200 SALT: frosted, translucent, crystalline, hard, anhedral to subhedral, crystalline texture; ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, light brown, gray brown, microcrystalline, firm, dense, earthy trace crystalline texture, trace disseminated pyrite; rare ANHYDRITE: light gray, rare off white, microcrystalline, soft, massive, amorphous

**Base Last Salt:**

**9,195' MD 9,194' TVD (-7,109')**

9200-9230 ARGILLACEOUS LIMESTONE: mudstone, light to gray, light gray tan to gray brown, occasional off white, rare cream, trace tan, microcrystalline, firm, earthy texture, trace disseminated pyrite, no visible porosity; LIMESTONE: tan to gray tan, rare light brown, trace cream, microcrystalline, firm, crystalline texture, possible intercrystalline porosity, no visible oil stain, trace ANHYDRITE: cream to off white, microcrystalline, soft, euhedral, earthy

**Ratcliffe:**

**9,228' MD 9,227' TVD (-7,142')**

9230-9260 LIMESTONE: mudstone, tan to light brown, occasional light gray tan, rare off white, microcrystalline, firm, earthy to crystalline texture, trace disseminated pyrite, possible intercrystalline porosity, no visible oil stain; trace ANHYDRITE: as above

9260-9290 LIMESTONE: mudstone, tan to light brown, occasional light gray tan, rare off white, microcrystalline, firm, earthy to crystalline texture, dolomitic in part, trace disseminated pyrite, possible intercrystalline porosity, trace light brown oil stain; trace ANHYDRITE: as above

9290-9320 LIMESTONE: mudstone, tan to light brown, occasional light gray tan, rare off white, microcrystalline, firm, earthy to crystalline texture, trace disseminated pyrite, possible intercrystalline porosity, trace light brown oil stain; trace ANHYDRITE: as above

9320-9350 LIMESTONE: mudstone, tan to gray tan, light brown gray, occasional light brown, rare off white, microcrystalline, firm, earthy to crystalline texture, trace disseminated pyrite, possible intercrystalline porosity, no visible oil stain; trace ANHYDRITE: as above

9350-9380 LIMESTONE: mudstone, tan, light brown gray, rare cream to buff, rare off white, rare light gray brown to light gray, microcrystalline, firm, earthy texture, trace disseminated pyrite, no visible porosity, no oil stain

9380-9410 LIMESTONE: mudstone, tan, light brown, occasional cream to buff, rare off white, rare light gray brown to light gray, microcrystalline, firm, earthy texture, trace disseminated pyrite, no visible porosity, no oil stain

9410-9420 LIMESTONE: mudstone, tan, light brown, light brown gray, tan gray, common cream to buff, trace light to medium gray, microcrystalline, firm, earthy texture, argillaceous in part, rare disseminated pyrite, trace fossil fragments, no visible porosity, no oil stain

**Mission Canyon:****9,420' MD 9,419' TVD (-7,334')**

9410-9440 LIMESTONE: mudstone, tan, light brown, light brown gray, tan gray, common cream to buff, trace light to medium gray, microcrystalline, firm, earthy texture, argillaceous in part, rare disseminated pyrite, trace fossil fragments, no visible porosity, no oil stain

9440-9470 LIMESTONE: mudstone, tan, light brown, light brown gray, tan gray, common cream to buff, trace light to medium gray, microcrystalline, firm, earthy texture, trace disseminated pyrite, trace fossil fragment, trace ooids, trace stylolite, possible intercrystalline porosity, trace spotty light brown oil stain

9470-9500 LIMESTONE: mudstone, tan, light brown, light brown gray, tan gray, common cream to buff, trace light to medium gray, microcrystalline, firm, earthy texture, trace disseminated pyrite, trace fossil fragment, possible intercrystalline porosity, trace spotty light brown stain

9500-9530 LIMESTONE: mudstone, tan, light brown to light gray brown, tan gray, occasional dark cream to buff, trace light gray, microcrystalline, firm, earthy texture, trace disseminated pyrite, trace fossil fragment, no visible porosity, no oil stain

9530-9560 LIMESTONE: mudstone, light brown, common tan, dark cream, occasional light gray brown, rare brown, trace light gray, microcrystalline, firm, earthy, occasional crystalline texture, trace disseminated pyrite, trace fossil fragment, trace stylolite, trace spotty light brown oil stain, possible intercrystalline porosity

9560-9590 LIMESTONE: mudstone, light brown, light gray brown to brown, occasional cream, rare light gray, trace off white to white, microcrystalline, firm, earthy to crystalline texture, trace disseminated pyrite, rare fossil fragment, trace spotty light brown oil stain

9590-9620 LIMESTONE: mudstone, light brown to brown, gray brown, rare off white, microcrystalline, firm, earthy to crystalline texture, trace disseminated pyrite, rare fossil fragment, trace spotty light brown oil stain

9620-9650 LIMESTONE: mudstone, light brown to brown, gray brown, rare off white, microcrystalline, firm, earthy to crystalline texture, trace disseminated pyrite, rare fossil fragment, trace spotty light brown oil stain

9650-9680 LIMESTONE: mudstone, light brown to brown, dark tan, light brown gray to brown gray, rare off white, microcrystalline, firm, earthy to crystalline texture, trace disseminated pyrite, rare fossil fragment, possible intercrystalline porosity, trace spotty light brown oil stain

9680-9710 LIMESTONE: mudstone, cream, off white, rare tan, trace light to medium brown, microcrystalline, firm, crystalline texture, rare earthy texture, trace disseminated pyrite, trace clear to milky white calcite, no visible porosity, rare light to medium brown spotty oil stain

9710-9740 LIMESTONE: mudstone, cream, off white, rare tan, trace light to medium brown, microcrystalline, firm, crystalline texture, rare earthy texture, trace disseminated pyrite, trace clear to milky white calcite, no visible porosity, rare light to medium brown spotty oil stain

9740-9770 LIMESTONE: mudstone, cream, off white, rare tan, trace light to medium brown, microcrystalline, firm, crystalline texture, rare earthy texture, trace disseminated pyrite, trace clear to milky white calcite, no visible porosity, rare light to medium brown spotty oil stain

9770-9800 LIMESTONE: mudstone, cream, off white, rare tan, trace light to medium brown, microcrystalline, firm, crystalline texture, rare earthy texture, trace dark brown alga material, trace disseminated pyrite, trace clear to milky white calcite, no visible porosity, rare light to medium brown spotty oil stain

9800-9830 LIMESTONE: mudstone, cream, off white, rare tan, trace light to medium brown, microcrystalline, firm, crystalline texture, rare earthy texture, trace dark brown alga material, trace disseminated pyrite, trace clear to milky white calcite, no visible porosity, rare light to medium brown spotty oil stain

9830-9860 LIMESTONE: mudstone, light to dark brown, trace off white, mottled appearance, microcrystalline, friable to firm, crystalline to earthy texture, trace disseminated pyrite, trace clear to milky white calcite, no visible porosity, common light to medium brown spotty to even oil stain

9860-9890 LIMESTONE: mudstone, light to dark brown, trace off white, mottled appearance, microcrystalline, friable to firm, crystalline to earthy texture, trace disseminated pyrite, trace clear to milky white calcite, no visible porosity, common light to medium brown spotty to even oil stain

9890-9920 LIMESTONE: mudstone, off white to cream, light brown, light gray, microcrystalline, friable to firm, crystalline to earthy texture, no visible porosity, trace disseminated pyrite, rare light to medium brown spotty to even oil stain

9920-9950 LIMESTONE: mudstone, light gray, light gray brown, light brown, trace gray, microcrystalline, friable to firm, crystalline to earthy texture, no visible porosity, trace disseminated pyrite, rare light to medium brown spotty to even oil stain

**Lodgepole:** **9,979' MD 9,978' TVD (-7,893')**

9950-9980 ARGILLACEOUS LIMESTONE: mudstone, light gray, light gray brown, light brown, trace gray, microcrystalline, friable to firm, crystalline to earthy texture, no visible porosity, trace disseminated pyrite, trace fossil fragments, rare light to medium brown spotty to even oil stain

9980-10010 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, gray brown, microcrystalline, friable to firm, crystalline to earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10010-10040 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, gray brown, microcrystalline, friable to firm, crystalline to earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10040-10070 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, gray brown, trace off white, microcrystalline, friable to firm, crystalline to earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10070-10100 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, gray brown, trace off white, microcrystalline, friable to firm, crystalline to earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10100-10130 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, gray brown, trace off white, microcrystalline, friable to firm, crystalline to earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10130-10160 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, gray brown, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10160-10190 ARGILLACEOUS LIMESTONE: mudstone, light brown, light gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline to earthy texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10190-10220 LIMESTONE: mudstone, light brown to brown, gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10220-10250 LIMESTONE: mudstone, light brown to brown, gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10250-10300 LIMESTONE: mudstone, light brown to brown, gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10300-10330 LIMESTONE: mudstone, light brown to brown, gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10330-10370 LIMESTONE: mudstone, light brown to brown, gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10370-10400 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, gray brown, light brown, trace off white, microcrystalline, friable to firm, earthy, rarely crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10400-10430 ARGILLACEOUS LIMESTONE: mudstone, light gray to gray, gray brown, light brown, trace off white, microcrystalline, friable to firm, earthy, rarely crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10430-10460 ARGILLACEOUS LIMESTONE: mudstone, light brown, gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10460-10490 LIMESTONE: mudstone, light brown, light brown gray, light gray, trace off white, trace dark gray, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10490-10520 LIMESTONE: mudstone, light brown, gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10520-10550 LIMESTONE: mudstone, light brown, gray brown, light gray, trace off white, microcrystalline, friable to firm, crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10550-10580 LIMESTONE: mudstone, light gray to light brown gray, occasional medium gray, trace tan to light brown, trace off white, microcrystalline, firm, earthy to rare crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10580-10610 LIMESTONE: mudstone, light gray to light brown gray, occasional medium gray, trace tan to light brown, trace off white, microcrystalline, firm, earthy to rare crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10610-10640 LIMESTONE: mudstone, light gray to medium gray, gray, rare light gray tan to light gray brown, trace off white, microcrystalline, firm, earthy to rare crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10640-10670 LIMESTONE: mudstone, light gray to medium gray, gray, rare light gray tan to light gray brown, trace off white, microcrystalline, firm, earthy to rare crystalline texture, trace disseminated pyrite, no visible porosity, no visible oil stain

10670-10700 ARGILLACEOUS LIMESTONE: mudstone, light gray brown, common medium gray brown, occasional light gray, rare dark gray, trace black gray, trace light brown, firm, earthy, common disseminated pyrite, no visible porosity, no visible oil stain

10700-10730 LIMESTONE: mudstone, light gray, light gray brown, gray, trace off white, firm, earthy, common disseminated pyrite, no visible porosity, no visible oil stain

**False Bakken:** **10,744' MD 10,686' TVD (-8,601')**

10730-10760 LIMESTONE: mudstone, light gray, light gray brown, gray, trace off white, firm, earthy, common disseminated pyrite, no visible porosity, no visible oil stain; SHALE: dark gray, gray black, hard, subblocky, earthy, pyritic, petroliferous, carbonaceous

**Scallion:** **10,747' MD 10,689' TVD (-8,604')**

10730-10760 LIMESTONE: mudstone, light gray, light gray brown, gray, trace off white, firm, earthy, common disseminated pyrite, no visible porosity, no visible oil stain; SHALE: dark gray, gray black, hard, subblocky, earthy, pyritic, petroliferous, carbonaceous

**Upper Bakken Shale:** **10,762' MD 10,699' TVD (-8,614')**

10760-10790 SHALE: black, hard, subblocky, firm, earthy, pyritic, petroliferous, carbonaceous, fracture porosity

**Middle Bakken:** **10,792' MD 10,715' TVD (-8,630')**

10790-1820 SILTY SANDSTONE: light gray, light gray tan, very fine grained, friable, subangular to sub rounded, well sorted, calcareous cement, moderately cemented, trace disseminated and nodular pyrite, possible intergranular porosity, occasional medium brown spotty oil stain; rare SILTSTONE: light gray, friable, sub platy to sub blocky, earthy texture, calcareous cement, moderately cemented, trace disseminated pyrite, possible intergranular porosity, occasional medium to dark brown spotty oil stain

10820-10850 SILTY SANDSTONE: light gray, light gray brown, rare buff, very fine grained, friable, subangular to sub rounded, well sorted, calcareous and dolomitic cement, moderately cemented, trace disseminated and nodular pyrite, fair intergranular porosity, occasional medium to dark brown spotty oil stain

10850-10880 SILTY SANDSTONE: light gray, very fine grained, friable, subangular to sub rounded, well sorted, calcareous cement, moderately cemented, trace disseminated and nodular pyrite, possible intergranular porosity, occasional dark brown spotty oil stain

**Lower Bakken Shale:** **10,878' MD 10,758' TVD (-8,673')**

10880-10910 SHALE: black, black gray, hard, subblocky, earthy, pyritic, petroliferous, carbonaceous, fracture porosity

10880-10910 SHALE: black, black gray, hard, subblocky, earthy, pyritic, petroliferous, carbonaceous, fracture porosity

**Pronghorn:** **10,906' MD 10,769' TVD (-8,684')**

10910-10940 SILTSTONE: medium to dark gray, gray brown, friable, sub platy to sub blocky, earthy texture, dolomite cement, moderately cemented, trace disseminated and nodular pyrite, possible intergranular porosity, trace light brown spotty oil stain

11940-11950 SILTSTONE: as above

**Three Forks:** **10,949' MD 10,783' TVD (-8,698')**

10950-10960 SHALE: light green, trace gray, friable, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, tan, pink, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain

10960-10970 SHALE: light green, trace gray, friable, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, tan, pink, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain

10970-10980 SHALE: light green, trace gray, friable, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, tan, pink, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain





11480-11510 DOLOMITE: mudstone, tan, cream, occasional light brown, rare light gray tan, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; rare SHALE: light gray, off white, trace light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

11510-11540 DOLOMITE: mudstone, tan, cream, occasional light brown, rare light gray tan, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; rare SHALE: light gray, off white, trace light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

11540-11570 DOLOMITE: mudstone, tan, cream, occasional light brown, rare light gray tan, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; rare SHALE: light gray, off white, trace light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

11570-11600 DOLOMITE: mudstone, tan, cream, occasional light brown, rare light gray tan, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; rare SHALE: light gray, off white, trace light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

11600-11630 DOLOMITE: mudstone, tan, cream, occasional light brown, rare light gray tan, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; rare SHALE: off white, light gray, trace light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

11630-11660 DOLOMITE: mudstone, cream to off white, occasional tan rare light brown and light gray tan to brown, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; rare SHALE: off white, light gray, trace light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

11660-11690 DOLOMITE: mudstone, cream to off white, occasional tan rare light brown and light gray tan to brown, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; rare SHALE: off white, light gray, trace light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

11690-11720 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain; rare DOLOMITE: as above, slightly white diffuse cut fluorescence, dull yellow residual ring

11720-11750 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

11750-11780 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

11780-11810 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

11810-11840 DOLOMITE: mudstone, cream to off white, occasional tan rare light brown and light gray tan to brown, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; rare SHALE: off white, light gray, trace light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring





12560-12590 DOLOMITE: mudstone, tan to tan pink, cream to off white, rare light brown, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; SHALE: light gray, light green, off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12590-12620 SHALE: light gray to off white, rare light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12620-12650 DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; SHALE: light gray to off white, rare light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12650-12680 SHALE: light gray to off white, rare light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12680-12710 SHALE: light gray to off white, rare light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12710-12740 DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; SHALE: light gray to off white, rare light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12740-12770 DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; SHALE: light gray to off white, rare light green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12770-12800 DOLOMITE: mudstone, tan to tan pink, cream to off white, rare light brown, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; SHALE: light gray, light green, off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12800-12830 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; common SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual ring

12830-12860 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; common SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual ring

12860-12890 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12890-12920 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

12920-12950 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; common SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual ring

12950-12980 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; common SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual ring

12980-13010 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; common SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual ring

13010-13040 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty v brown oil stain; rare SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual

13040-13070 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; common SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual

13070-13100 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; common SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual

13100-13130 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

13130-13160 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

13160-13190 DOLOMITE: mudstone, tan to light brown, common cream, rare off white, rare light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain; common SHALE: light gray green to light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, bright green yellow residual











14690-14720 DOLOMITE: mudstone, light brown to tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green, occasional light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

14720-14750 DOLOMITE: mudstone, light brown, common tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green, occasional light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, moderate blue white diffuse cut fluorescence, yellow residual ring

14750-14780 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green gray to light green, occasional light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

14780-14810 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green, occasional light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

14810-14840 DOLOMITE: mudstone, tan to light brown, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green, occasional light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

14840-14870 DOLOMITE: mudstone, tan to light brown, rare cream to off white, trace light gray brown, trace white to buff, trace light gray, microcrystalline, friable to firm, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green, occasional light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

15870-14900 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

14900-14930 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

14930-14960 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white to dark buff, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, trace medium gray, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

14960-14990 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring



15290-15320 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

15320-15350 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

15350-15380 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

15380-15410 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

15410-15440 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15440-15470 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15440-15500 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15500-15530 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15530-15560 SHALE: light gray green to light green, occasional off white, rare light gray, trace blue green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15560-15590 SHALE: light gray green to light green, occasional off white, rare light gray, trace blue green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15590-15620 SHALE: light gray green to light green, occasional off white, rare light gray, trace blue green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15620-15650 SHALE: light gray green to light green, occasional off white, rare light gray, trace blue green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15650-15680 SHALE: light gray green to light green, occasional off white, rare light gray, trace blue green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15680-15710 SHALE: light green to gray green, occasional off white, rare light gray, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; common DOLOMITE: mudstone, white to off white, cream to tan. rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

15710-15740 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, slightly blue white streaming cut fluorescence, yellow residual ring

15740-15770 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, slightly blue white streaming cut fluorescence, yellow residual ring

15770-15800 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, yellow residual ring

15800-15830 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, yellow residual ring

15830-15860 DOLOMITE: mudstone, tan to cream, common light brown, off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; rare SHALE: light green to light gray green, rare light gray, trace light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, yellow residual ring

15860-15890 DOLOMITE: mudstone, tan to cream, common light brown, off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; rare SHALE: light green to light gray green, rare light gray, trace light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, yellow residual ring













17720-17750 SHALE: light gray to light gray green, occasional off white, rare light green, trace medium gray, trace blue green, firm, subblocky, earthy texture, trace disseminated pyrite, no visible porosity; rare DOLOMITE: mudstone, white to off white, cream to tan, rare tan to tan pink, rare light gray, trace light brown, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, moderate blue white streaming cut fluorescence, bright green yellow residual ring

17750-17780 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty and even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

17780-17810 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty and even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

17810-17840 DOLOMITE: mudstone, light brown, tan, rare cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty and even light brown oil stain; occasional SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

17840-17870 DOLOMITE: mudstone, tan to light gray brown, rare cream to off white, rare light brown, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty and even light brown oil stain; common SHALE: light green to light gray green, common light gray, rare light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, fast blue white streaming cut fluorescence, yellow residual ring

17870-17900 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

17900-17930 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

17930-17960 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

17960-17990 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

17990-17820 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

17820-17850 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18050-18080 DOLOMITE: mudstone, tan to cream, common light brown, off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; rare SHALE: light green to light gray green, rare light gray, trace light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, yellow residual ring





18710-18740 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18740-18770 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18770-18800 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18800-18830 CLAYSTONE: light gray to off, white, rare light gray tan, trace medium gray, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18830-18860 DOLOMITE: as above; occasional CLAYSTONE: light gray to off, white, rare light gray tan, trace medium gray, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18860-18890 CLAYSTONE: light gray to off, white, rare light gray tan, trace medium gray, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18890-18920 CLAYSTONE: light gray to off, white, rare light gray tan, trace medium gray, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18920-18950 CLAYSTONE: light gray to off, white, rare light gray tan, trace medium gray, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18950-18980 CLAYSTONE: light gray to off, white, rare light gray tan, trace medium gray, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

18980-19010 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

19010-19040 CLAYSTONE: light gray, off white to white, trace light gray tan, firm, subblocky, earthy, trace disseminated pyrite, no visible porosity, no visible oil stain, slightly white diffuse cut fluorescence, dull yellow residual ring

19040-19070 DOLOMITE: mudstone, tan to cream, common light brown, off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, rare light gray, trace light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, no visible porosity, moderate blue white streaming cut fluorescence, yellow residual ring

19070-19100 DOLOMITE: mudstone, tan to light brown, occasional cream to off white, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, trace disseminated pyrite, intercrystalline porosity, common spotty to even light brown oil stain; occasional SHALE: light green to light gray green, rare light gray, trace light green blue, rare off white, firm, subblocky, earthy texture, rare disseminated pyrite, contaminated cut fluorescence, yellow residual ring













20900-20930 DOLOMITE: mudstone, light brown to tan, occasional cream to off white, rare medium brown, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, rare disseminated pyrite, intercrystalline porosity, common spotty to even light to medium brown oil stain; occasional SHALE: light green to light gray green, rare light green blue, trace light off white to light gray, firm, subblocky, earthy texture, rare disseminated pyrite, contaminated cut fluorescence

20930-20960 DOLOMITE: mudstone, light brown to tan, occasional cream to off white, rare medium brown, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, rare disseminated pyrite, intercrystalline porosity, common spotty to even light to medium brown oil stain; occasional SHALE: light green to light gray green, rare light green blue, trace light off white to light gray, firm, subblocky, earthy texture, rare disseminated pyrite, contaminated cut fluorescence

20960-20990 DOLOMITE: mudstone, light brown to tan, occasional cream to off white, rare medium brown, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, rare disseminated pyrite, intercrystalline porosity, common spotty to even light to medium brown oil stain; occasional SHALE: light green to light gray green, rare light green blue, trace light off white to light gray, firm, subblocky, earthy texture, rare disseminated pyrite, contaminated cut fluorescence

20990-21020 DOLOMITE: mudstone, light brown to tan, occasional cream to off white, rare medium brown, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, rare disseminated pyrite, intercrystalline porosity, common spotty to even light to medium brown oil stain; occasional SHALE: light green to light gray green, rare light green blue, trace light off white to light gray, firm, subblocky, earthy texture, rare disseminated pyrite, contaminated cut fluorescence

21020-21050 DOLOMITE: mudstone, light brown to tan, occasional cream to off white, rare medium brown, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, rare disseminated pyrite, intercrystalline porosity, common spotty to even light to medium brown oil stain; occasional SHALE: light green to light gray green, rare light green blue, trace light off white to light gray, firm, subblocky, earthy texture, rare disseminated pyrite, contaminated cut fluorescence

21050-21090 DOLOMITE: mudstone, light brown to tan, occasional cream to off white, rare medium brown, trace light gray brown, trace white, trace light gray, microcrystalline, friable, dense, earthy texture, rare disseminated pyrite, intercrystalline porosity, common spotty to even light to medium brown oil stain; occasional SHALE: light green to light gray green, rare light green blue, trace light off white to light gray, firm, subblocky, earthy texture, rare disseminated pyrite, contaminated cut fluorescence



# 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.  
**25571**



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>July 17, 2013</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 checked="" type="checkbox"/> Reclamation   |
| <input checked="" type="checkbox"/> Other     | <b>Intent to reclaim reserve pit</b>              |

Well Name and Number <b>Colville 5301 44-12T</b>					
Footages <b>250 F S L</b>	<b>950 F E L</b>	Qtr-Qtr <b>SESE</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	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s) <b>Neu Construction</b>	Address <b>204 S. Ellery Avenue P.O. Box 461</b>	City <b>Fairview</b>	State <b>MT</b>	Zip Code <b>59221</b>
--	---	-------------------------	--------------------	--------------------------

## DETAILS OF WORK

Oasis Petroleum North America LLC plans to reclaim the reserve pit for the above referenced wells as follows:  
The NDIC field inspector, Rick Dunn and the surface owners, were notified on 07/11/2013.  
Surface owners: Larry Hee, 14075 41st Street NW, Alexander, ND 58831  
Spread material out in pit, cut top edge of liner and fold cuttings, cover entire pit with liner, backfill with clay slope and contour wellsite to ensure proper drainage.

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9591</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature <i>Chelsea Covington</i>	Printed Name <b>Chelsea Covington</b>	
Title <b>Regulatory Assistant</b>	Date <b>July 11, 2013</b>	
Email Address <b>Ccovington@oasispetroleum.com</b>		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>7-15-13</i>	
By <i>Covington</i>	
Title <i>Regulatory Assistant</i>	



# SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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

Well File No.  
**222100-01**

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



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

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

Footages	F	L	F	L	Qtr-Qtr	Section	Township	Range
						<b>12</b>	<b>153 N</b>	<b>101 W</b>
Field	Pool <b>Bakken</b>					County	<b>McKenzie</b>	
<b>Baker</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 permission to add the following wells to CTB # 222100-01.

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

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

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

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

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

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

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

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

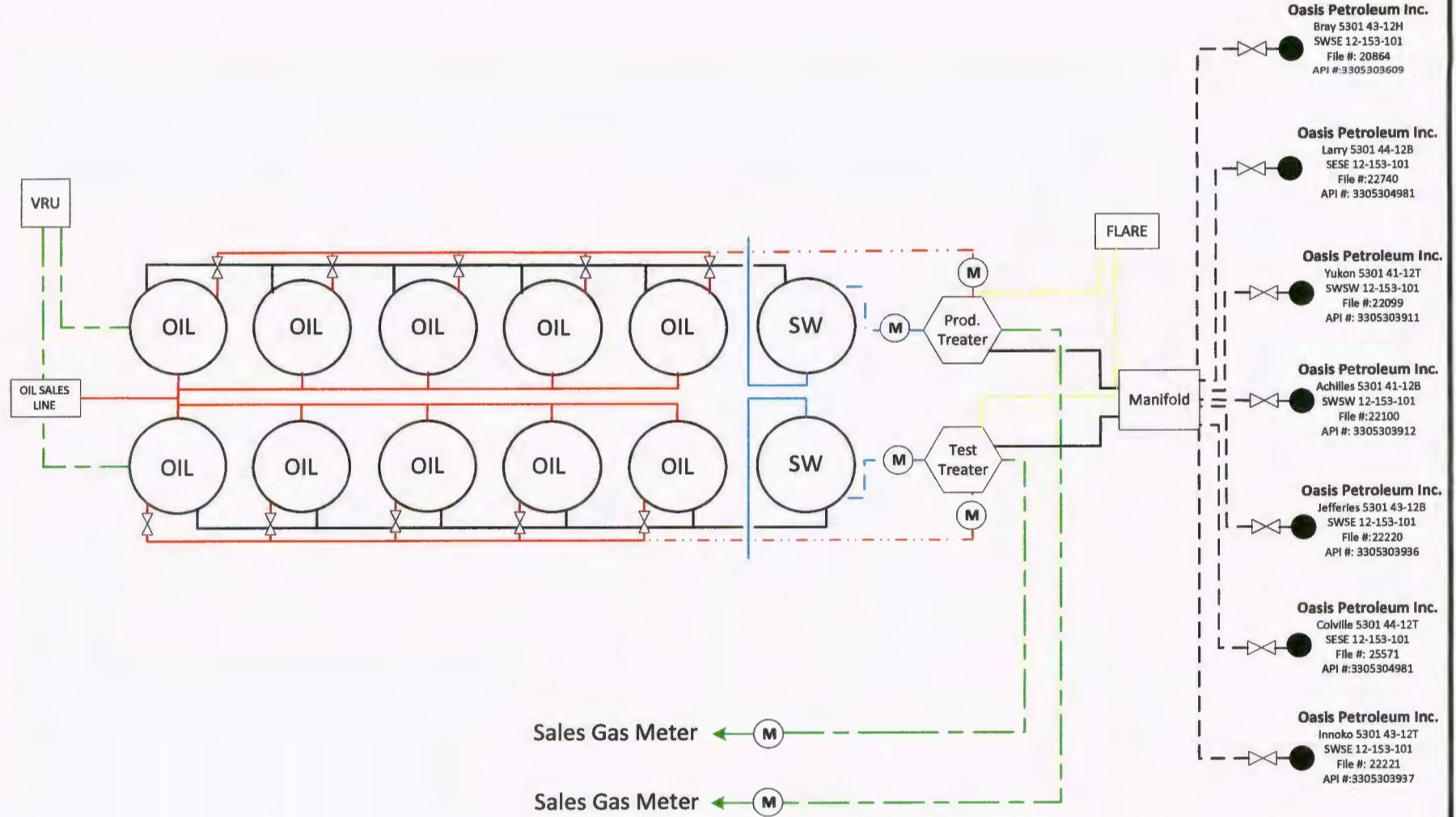
Well File #22740 Larry 5301 44-12B SESE 12-153-101 API 33-053-04071

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

Company <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>July 24, 2013</b>	
Email Address <b>bterry@oasispetroleum.com</b>		

**FOR STATE USE ONLY**

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



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

# COMMINGLING AFFIDAVIT

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

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

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

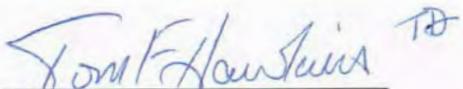
2. Sections 13 and 24, Township 153 North, Range 101 West, 5<sup>th</sup> P.M., McKenzie County, North Dakota constitute a spacing unit in accordance with the applicable orders of the North Dakota Industrial Commission for the Bakken pool.

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

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

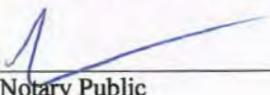
5. All Working Interests, Royalty Interests and Overriding Royalty Interests in the Bray 5301 43-12H, Achilles 5301 41-12B, Jefferies 5301 43-12B, Colville 5301 44-12T, Innoko 5301 43-12T and Yukon 5301 41-12 wells are common.

Dated this 9<sup>th</sup> day of July, 2013.

  
Tom F. Hawkins  
Vice President-Land and Contracts

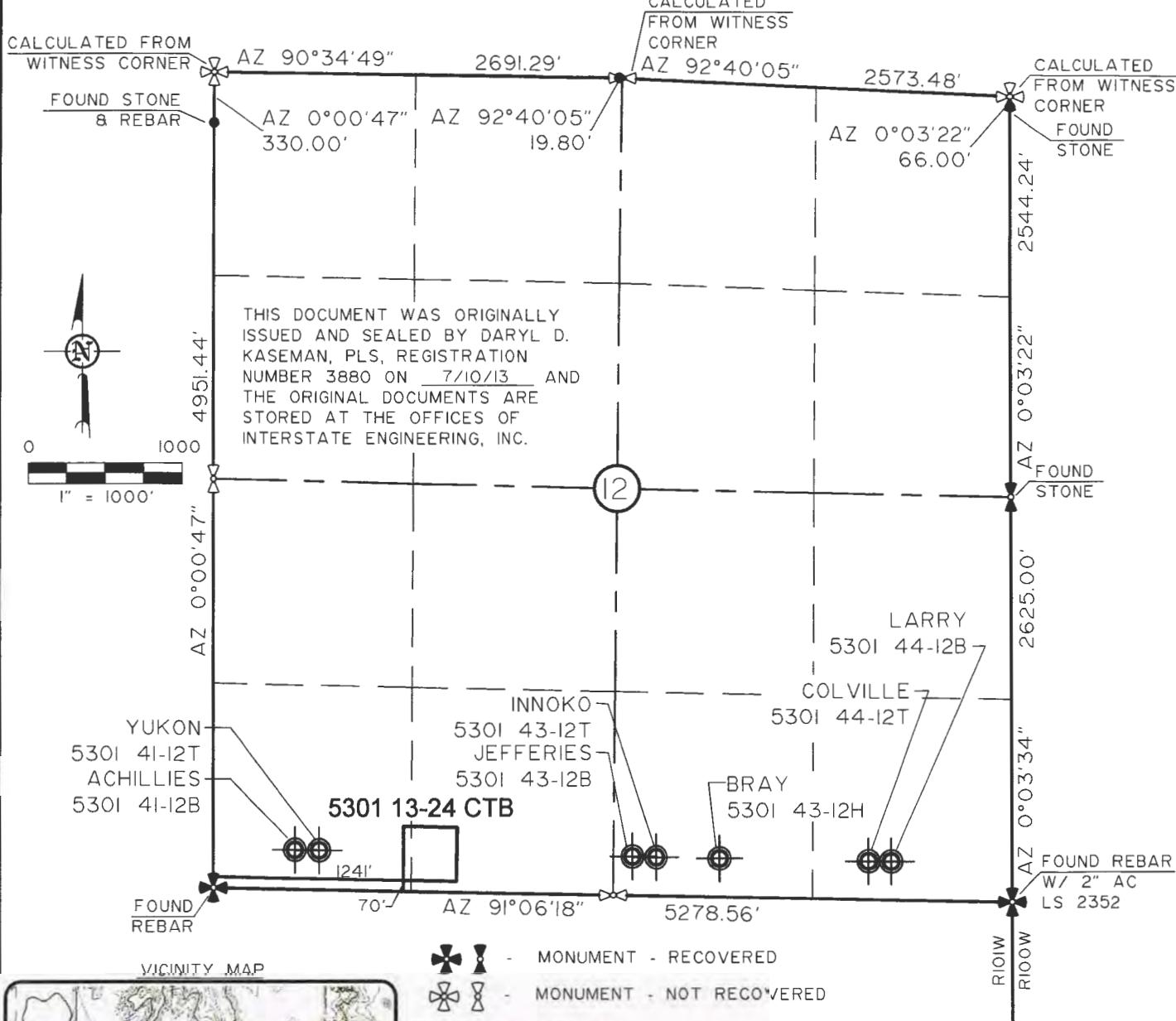
STATE OF TEXAS      )  
                                ) ss.  
COUNTY OF HARRIS     )

Subscribed to and sworn before me this 9<sup>th</sup> day of July, 2013.

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



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



© 2012, INTERSTATE ENGINEERING, INC.

1/5



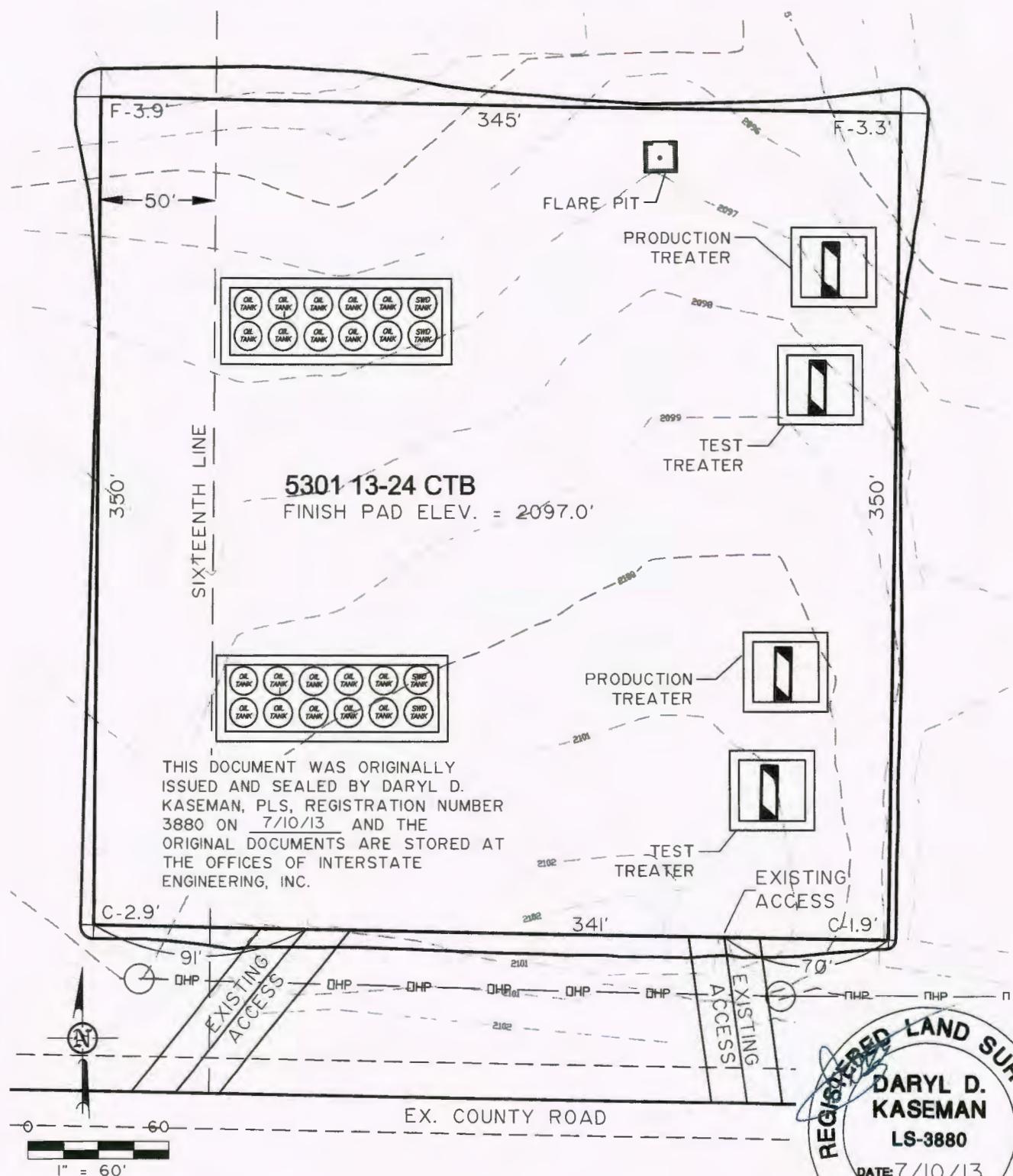
Interstate Engineering, Inc.  
 P.O. Box 648  
 425 East Main Street  
 Sidney, Montana 59270  
 Ph (406) 433-5617  
 Fax (406) 433-5618  
[www.iengi.com](http://www.iengi.com)

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

Revision No.	Date	By	Description
REV 1	7/10/13	J.D.M.	ADDED WELLS

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



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

© 2012, INTERSTATE ENGINEERING, INC.

2/5



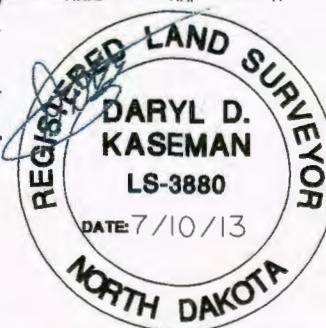
SHEET NO.

Interstate Engineering, Inc.  
P.O. Box 548  
425 East Main Street  
Sidney, Montana 59270  
Ph (406) 433-5617  
Fax (406) 433-5618  
[www.iengi.com](http://www.iengi.com)  
Other offices in Minnesota, North Dakota and South Dakota

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

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

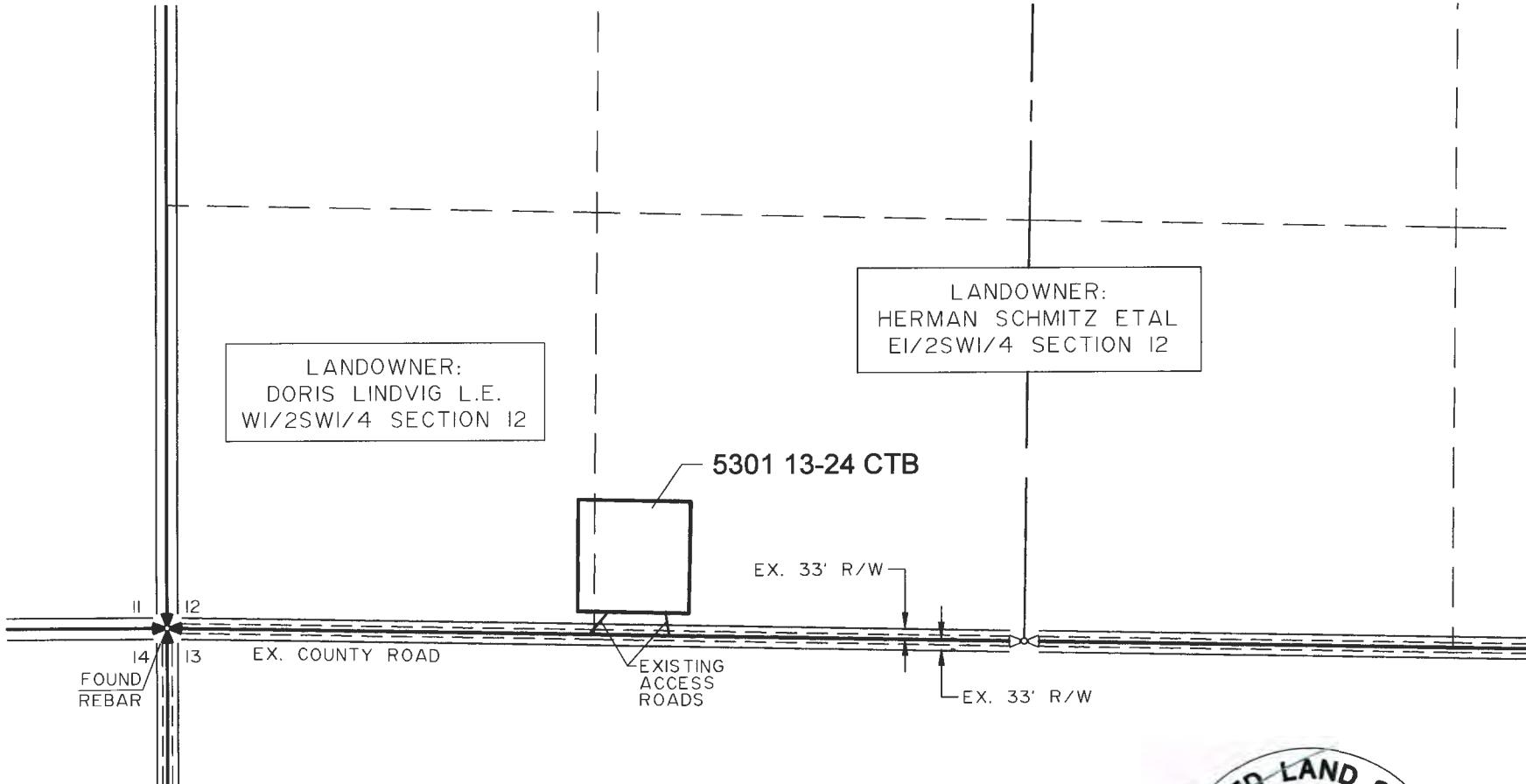
Revision No.	Date	By	Description
REV 1	7/10/13	JDM	ADDED WELLS



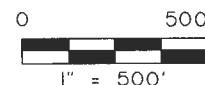
# ACCESS APPROACH

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

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



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



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

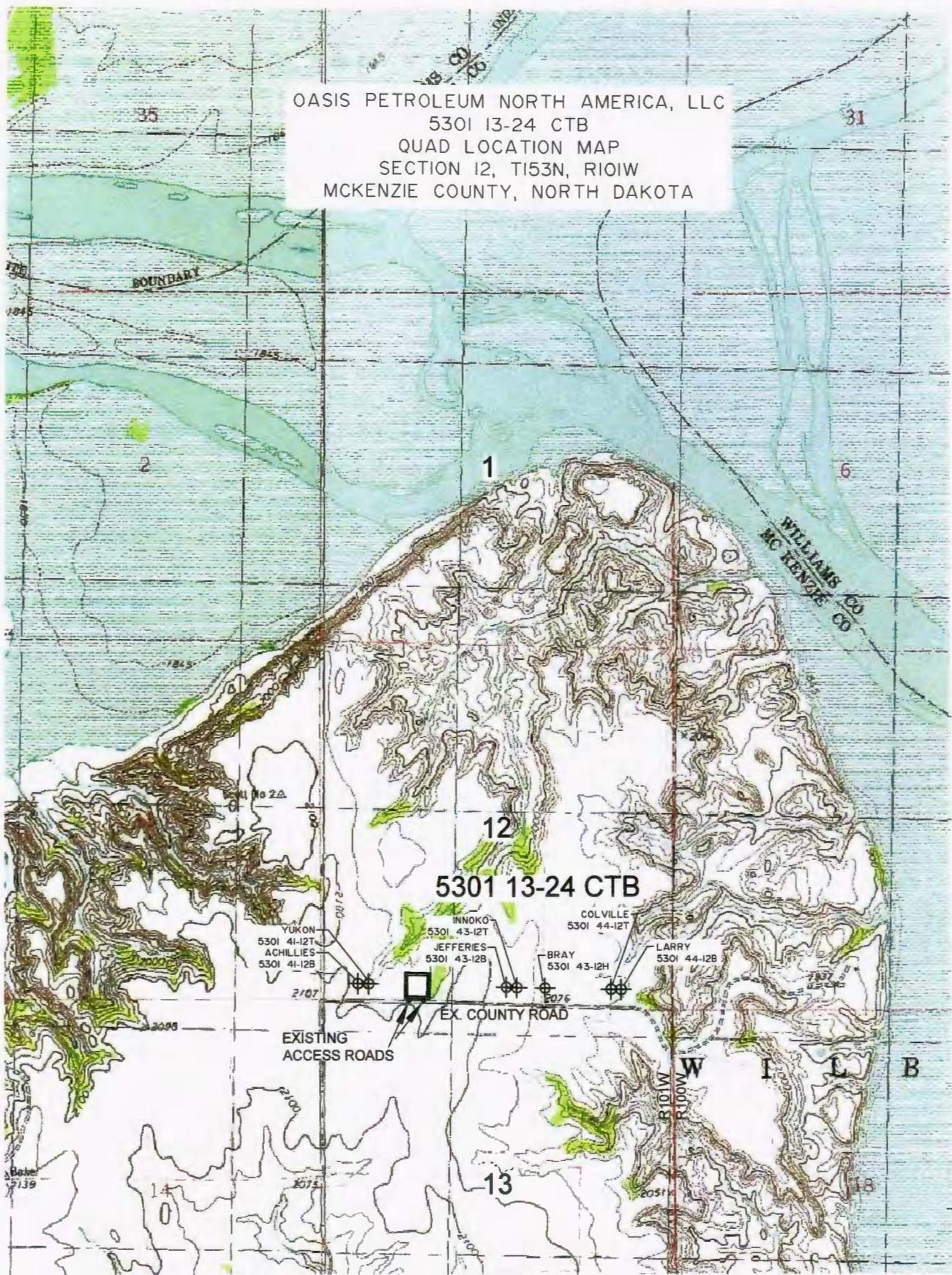


© 2012, INTERSTATE ENGINEERING, INC.

3/5

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  
Other offices in Montana, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
ACCESS APPROACH  
SECTION 12, T153N, R101W  
MCKENZIE COUNTY, NORTH DAKOTA  
Drawn By: J.D.M.  
Checked By: D.D.K.  
Project No.: ST2309-249  
Date: SEPT. 2012



© 2012, INTERSTATE ENGINEERING, INC.

4/5

SHEET NO.



Professionals you need, people you trust.

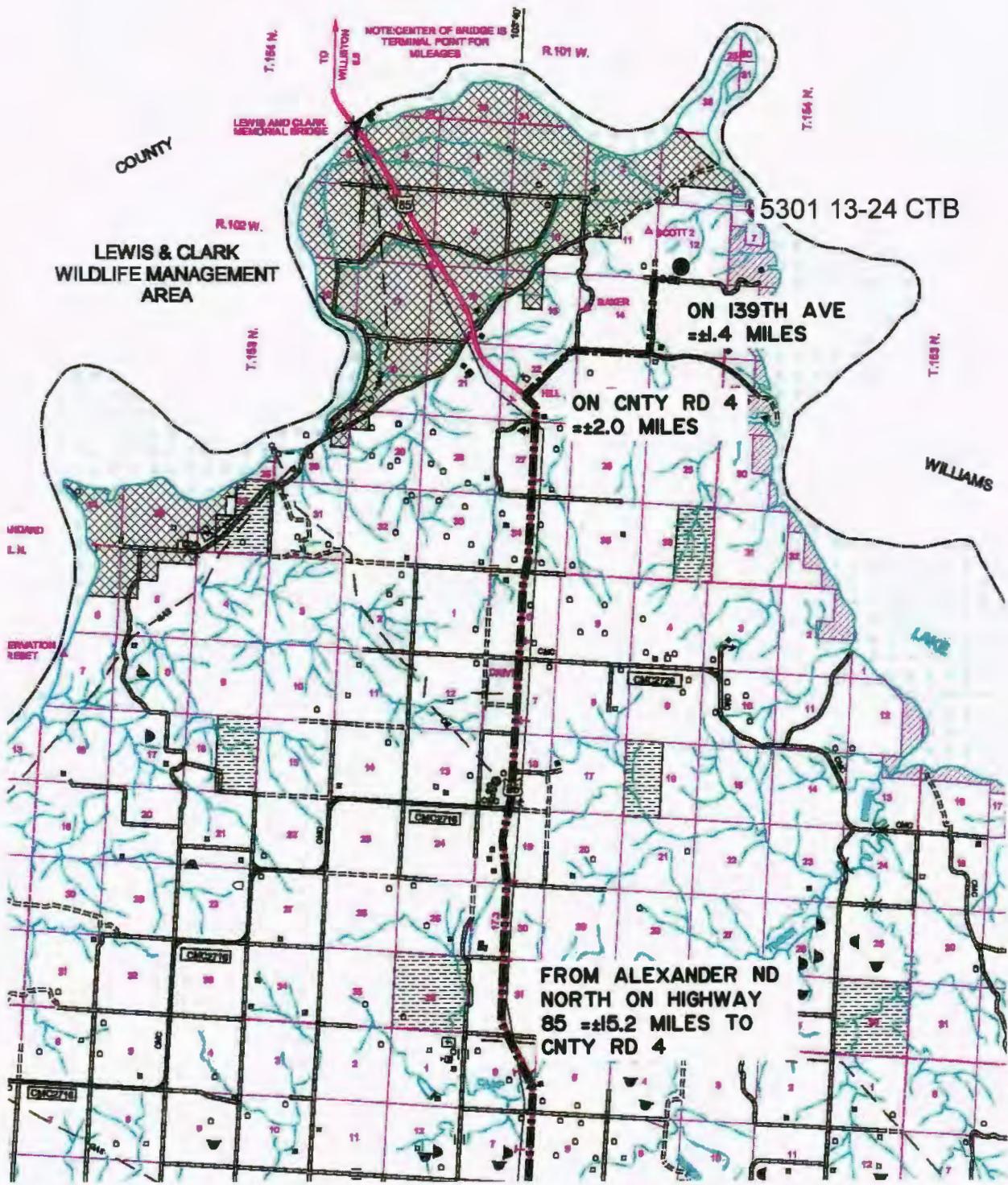
Interstate Engineering, Inc.  
P.O. Box 648  
425 East Main Street  
Sidney, Montana 59270  
Ph (406) 433-5617  
Fax (406) 433-5618  
[www.iengi.com](http://www.iengi.com)  
Other offices in Minnesota, North Dakota and South Dakota

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

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

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

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



© 2012, INTERSTATE ENGINEERING, INC.

SCALE: 1" = 2 MILE

5/5



SHEET NO. Professionals you need, people you trust

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

**INTERSTATE ENGINEERING, INC.**  
P.O. Box 648  
425 East Main Street  
**OASIS PETROLEUM NORTH AMERICA, LLC**  
**COUNTY ROAD MAP**  
SECTION 12, T45R21M, R21W

425 East Main Street  
Sidney, Montana 59270  
Ph (406) 433-5617

SECTION 12, T15S, R10T  
MCKENZIE COUNTY, NORTH DAKOTA

Fax (406) 433-5618  
[www.iengi.com](http://www.iengi.com)  
Other offices in Minnesota, North Dakota and South Dakota

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

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

LAT/LONG PAD CORNERS

345'

48°05'00.01"N  
103°37'13.86"W

48°04'59.95"N  
103°37'08.78"W

5301 13-24 CTB

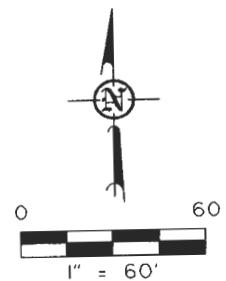
350'

350'

48°04'56.56"N  
103°37'13.89"W

48°04'56.50"N  
103°37'08.87"W

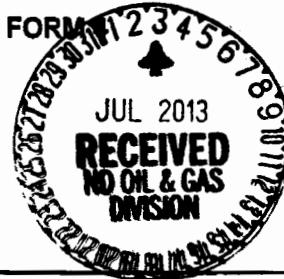
341'





# 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 (08-2006)



Well File No.  
**25571**

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>July 10, 2013</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 checked="" type="checkbox"/> Other	<b>Suspension of Drilling</b>

Well Name and Number  
**Colville 5301 44-12T**

Footages <b>250 F S L 950 F E L</b>	Qtr-Qtr <b>SESE</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	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)  
**Advanced Energy Services**

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

## DETAILS OF WORK

Oasis Petroleum North America LLC requests permission for suspension of drilling for up to 90 days for the referenced well under NDAC 43-02-03-55. Oasis Petroleum North America LLC 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 Petroleum North America LLC understands NDAC 43-02-03-31 requirements regarding confidentiality pertaining to this permit. The drilling pit will be fenced immediately after construction if the well pad is located in a pasture (NDAC 43-02-03-19 & 19.1). Oasis Petroleum North America LLC 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.

*NOTIFY NDIC INSPECTOR RICHARD DUNN AT 701-770-3554 WITH SPUD + TD INFO.*

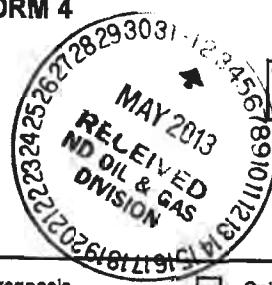
Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>(281) 404-9563</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature <i>Heather McCowan</i>	Printed Name <b>Heather McCowan</b>	
Title <b>Regulatory Assistant</b>	Date <b>July 3, 2013</b>	
Email Address <b>hmccowan@oasispetroleum.com</b>		

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>7/09/13</b>	
By <i>Alicia D. Webber</i>	
Title <b>Engineering Technician</b>	



## SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5748 (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>April 30, 2013</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>Waiver to rule Rule 43-02-03-31</b>

Well Name and Number  
**Colville 5301 44-12T**

Footages	Qtr-Qtr	Section	Township	Range
250 F S L	950 F E L	SESE	12	153 N 101 W
Field	Pool	County		
	Bakken	Williams		

### 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 Gulf Oil /Lindvig 1-11-3C (33053014780000) located within a half mile of the subject well

#9309

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>281-404-9563</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>Heather McCowan</b>	
Title <b>Regulatory Assistant</b>	Date <b>April 24, 2013</b>	
Email Address <b>hmccowan@oasispetroleum.com</b>		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>5-8-2013</b>	
By 	
Title <b>Richard A. Guggs Geologist</b>	



# Oil and Gas Division

25571

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)

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

Date: 5/10/2013

### RE: CORES AND SAMPLES

Well Name: **COLVILLE 5301 44-12T** Well File No.: **25571**  
Location: **SESE 12-153-101** County: **MCKENZIE**  
Permit Type: **Development - HORIZONTAL**  
Field: **BAKER** Target Horizon: **THREE FORKS**

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.

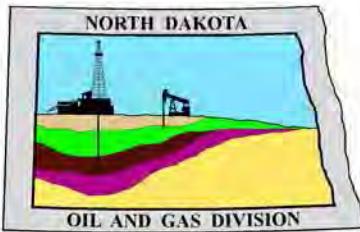
- 3) Cores: ALL CORES cut shall be preserved in correct order, properly boxed, and forwarded to the State Geologist within 90 days of completion of drilling operations. Any extension of time must have written approval from the State Geologist.
- 4) All cores, core chips, and samples must be shipped, 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 8, 2013

Heather McCowan  
Regulatory Assistant  
OASIS PETROLEUM NORTH AMERICA LLC  
1001 Fannin Suite 1500  
Houston, TX 77002

**RE: HORIZONTAL WELL  
COLVILLE 5301 44-12T  
SESE Section 12-153N-101W  
McKenzie County  
Well File # 25571**

Dear Heather:

Pursuant to Commission Order No. 21551, 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** from the north & south boundaries and **500' setback** from the east & west boundaries within the 1280 acre spacing unit consisting of Section 13 & 24 T153N R101W.

**PERMIT STIPULATIONS:** OASIS PETROLEUM NORTH AMERICA LLC must take into consideration NDAC 43-02-03-28 (Safety Regulation) when contemplating simultaneous operations on the above captioned location. Pursuant to NDAC 43-02-03-28 (Safety Regulation) "No boiler, portable electric lighting generator, or treater shall be placed nearer than 150 feet to any producing well or oil tank." Due to surficial water adjacent to the well site, a dike is required surrounding the entire location. In cases where a spacing unit is accessed from an off-site drill pad, an affidavit must be provided affirming that the surface owner of the multi-well pad agrees to accept burial on their property of the cuttings generated from drilling the well(s) into an offsite spacing/drilling unit. OASIS PETRO NO AMER must contact NDIC Field Inspector Richard Dunn at 701-770-3554 prior to location construction.

### Drilling pit

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

### Form 1 Changes & Hard Lines

Any changes, shortening of casing point or lengthening at Total Depth must have prior approval by the NDIC. The proposed directional plan is at a legal location. The minimum legal coordinate from the well head at casing point is: 450' south. Also, based on the azimuth of the proposed lateral the maximum legal coordinate from the well head is: 10570' south.

### **Location Construction Commencement (Three Day Waiting Period)**

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

### **Permit Fee & Notification**

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

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

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

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

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

### **Surface casing cement**

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

### **Logs**

NDAC Section 43-02-03-31 requires the running of (1) a suite of open hole logs from which formation tops and porosity zones can be determined, (2) a Gamma Ray Log run from total depth to ground level elevation of the well bore, and (3) a log from which the presence and quality of cement can be determined (Standard CBL or Ultrasonic cement evaluation log) in every well in which production or intermediate casing has been set, this log must be run prior to completing the well. All logs run must be submitted free of charge, as one digital TIFF (tagged image file format) copy and one digital LAS (log ASCII) formatted copy. Digital logs may be submitted on a standard CD, DVD, or attached to an email sent to [digitallogs@nd.gov](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 / 2013</b>	Confidential Status <b>No</b>
Operator <b>OASIS PETROLEUM NORTH AMERICA LLC</b>		Telephone Number <b>281-404-9563</b>	
Address <b>1001 Fannin Suite 1500</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>COLVILLE</b>			Well Number <b>5301 44-12T</b>				
Surface Footages <b>250 F S L      950 F E L</b>		Qtr-Qtr <b>SESE</b>	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKenzie</b>	
Longstring Casing Point Footages <b>215 F N L      1144 F E L</b>		Qtr-Qtr <b>NENE</b>	Section <b>13</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKenzie</b>	
Longstring Casing Point Coordinates From Well Head <b>465 S From WH      194 W From WH</b>		Azimuth <b>202.6 °</b>	Longstring Total Depth <b>11109 Feet MD      10811 Feet TVD</b>				
Bottom Hole Footages From Nearest Section Line <b>242 F S L      1290 F E L</b>		Qtr-Qtr <b>SESE</b>	Section <b>24</b>	Township <b>153 N</b>	Range <b>101 W</b>	County <b>McKenzie</b>	
Bottom Hole Coordinates From Well Head <b>10528 S From WH      340 W From WH</b>		KOP Lateral 1 <b>10333 Feet MD</b>	Azimuth Lateral 1 <b>180.0 °</b>	Estimated Total Depth Lateral 1 <b>21192 Feet MD      10793 Feet TVD</b>			
Latitude of Well Head <b>48 ° 04 ' 57.78 "</b>	Longitude of Well Head <b>-103 ° 36 ' 28.88 "</b>	NAD Reference <b>NAD83</b>		Description of Spacing Unit: <b>Section 13 &amp; 24 T153N R101W</b> (Subject to NDIC Approval)			
Ground Elevation <b>2060 Feet Above S.L.</b>	Acres in Spacing/Drilling Unit <b>1280</b>	Spacing/Drilling Unit Setback Requirement <b>200 Feet N/S      500 Feet E/W</b>		Industrial Commission Order <b>21551</b>			
North Line of Spacing/Drilling Unit <b>5278 Feet</b>	South Line of Spacing/Drilling Unit <b>5267 Feet</b>	East Line of Spacing/Drilling Unit <b>10520 Feet</b>		West Line of Spacing/Drilling Unit <b>10553 Feet</b>			
Objective Horizons <b>Three Forks</b>						Pierre Shale Top <b>1985</b>	
Proposed Surface Casing	Size <b>9 - 5/8 "</b>	Weight <b>36 Lb./Ft.</b>	Depth <b>2087 Feet</b>	Cement Volume <b>765 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>32 Lb./Ft.</b>	Longstring Total Depth <b>11109 Feet MD      10811 Feet TVD</b>		Cement Volume <b>749 Sacks</b>	Cement Top <b>3939 Feet</b>	Top Dakota Sand <b>5439 Feet</b>
Base Last Charles Salt (If Applicable) <b>9200 Feet</b>		NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.					
Proposed Logs <b>Triple Combo: KOP-KibbyGR/Res to BSC GR-To Surf CND thru Dakota</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**

**Documents forwarded by email:** Drill plan with drilling fluids, Well Summary with casing/cement plans, Directional Plan & Plot, Plats

Lateral 2

KOP Lateral 2 Feet MD	Azimuth Lateral 2 °	Estimated Total Depth Lateral 2 Feet MD      Feet TVD			KOP Coordinates From Well Head From WH      From WH		
Formation Entry Point Coordinates From Well Head From WH		Bottom Hole Coordinates From Well Head From WH			From WH		
KOP Footages From Nearest Section Line F      L		Qtr-Qtr	Section	Township <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 / 24 / 2013

ePermit

Printed Name  
**Heather McCowan**Title  
**Regulatory Assistant****FOR STATE USE ONLY**

Permit and File Number <b>25571</b>	API Number <b>33 - 053 - 04981</b>
Field <b>BAKER</b>	
Pool <b>BAKKEN</b>	Permit Type <b>DEVELOPMENT</b>

**FOR STATE USE ONLY**

Date Approved <b>5 / 8 / 2013</b>
By <b>Nathaniel Erbele</b>
Title <b>Petroleum Resource Specialist</b>

## WELL LOCATION PLAT

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"COLVILLE 5301 44 12T"

"COLVILLE 5301 44-12T"

COLEVILLE 330144-121  
SOUTH LINE AND 050 FEET

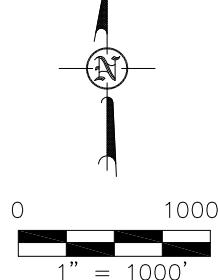
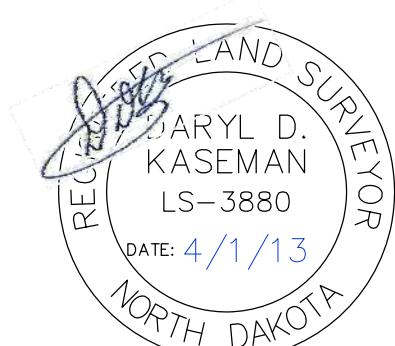
250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

THIS DOCUMENT WAS ORIGINALLY ISSUED AND  
SEALED BY DARYL D. KASEMAN, PLS,  
REGISTRATION NUMBER 3880 ON 4/1/13 AND  
THE ORIGINAL DOCUMENTS ARE STORED AT THE  
OFFICES OF INTERSTATE ENGINEERING, INC.

STAKED ON 3/28/13  
VERTICAL CONTROL DATUM WAS BASED UPON  
CONTROL POINT 13 WITH AN ELEVATION OF 2090.8'

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

DARYL D. KASEMAN LS-3880

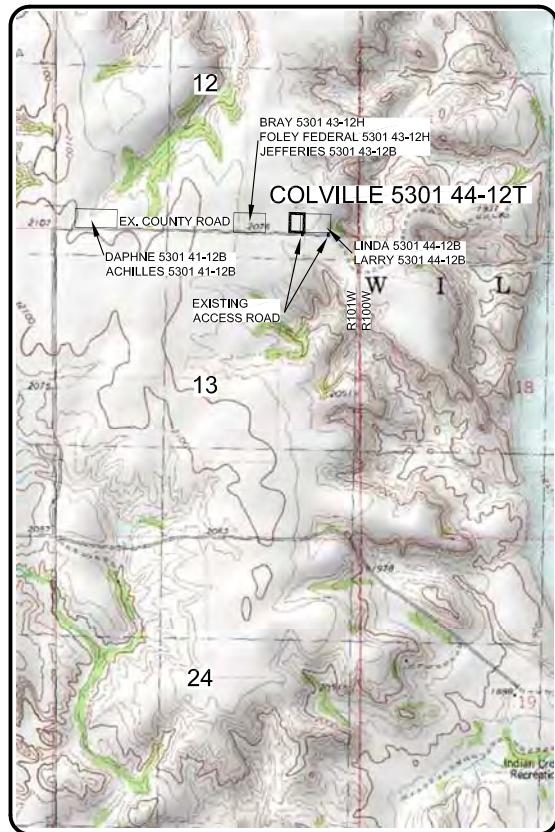


 – MONUMENT – RECOVERED

 — MONUMENT — NOT RECOVERED

ND STONE  
W/ 2" AC  
LS 3884

VICINITY MAP



© 2013, INTERSTATE ENGINEERING, INC.

1/8



HEET NO

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

OASIS PETROLEUM NORTH AMERICA, LLC  
WELL LOCATION PLAT  
SECTION 12, T152N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Revision No.	Date	By	Description
REV 1	4/1/13	BHH	REVISED PAD



**Oasis Petroleum  
Well Summary  
Colville 5301 44-12T  
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)		
	From	To						Minimum	Optimum	Max
9-5/8"	0	2087	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' - 2087'	9-5/8", 36#, J-55, LTC, 8rd	2020 / 2.07	3520 / 3.60	453 / 2.75	

**API Rating & Safety Factor**

- a) Based on full casing evacuation with 9.0 ppg fluid on backside (2087' setting depth).
- b) Burst pressure based on 9 ppg fluid with no fluid on backside (2087' setting depth).
- c) Based on string weight in 9.0 ppg fluid at 2087' TVD plus 100k# overpull. (Buoyed weight equals 65k lbs.)

Cement volumes are based on 9-5/8" casing set in 13-1/2" hole with 60% excess to circulate cement back to surface. Mix and pump the following slurry.

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

**Lead Slurry:**      **428 sks** (221 bbls), 11.5 lb/gal, 2.90 cu. ft./sk Conventional Class G Cement with 4.0% BWOB Extender, 2.0% BWOB Expanding Agent, 2.0% CaCl<sub>2</sub>, and 0.250 lb/sk Lost Circulation Additive

**Tail Slurry:**      **337 sks** (70 bbls), 15.8 lb/gal, 1.16 cu. ft./sk Conventional Class G Cement with 0.25% BWOB CaCl<sub>2</sub>, and 0.250 lb/sk Lost Circulation Agent

**Oasis Petroleum**  
**Well Summary**  
**Colville 5301 44-12T**  
**Section 12 T153N R101W**  
**McKenzie County, ND**

**INTERMEDIATE CASING AND CEMENT DESIGN**

Size	Interval	Weight	Grade	Coupling	I.D.	Drift**	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
7"	0' -11109'	32	HCP-110	LTC	6.094"	6.000***	6,730	8,970	9,870

\*\*Special Drift 7" 32# to 6.0".

Interval	Length	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) c	Condition
0' -11109'	3958'	7", 32#, HCP-110, LTC, 8rd	11,820 / 2.10*	12,460 / 1.19	797/2.03	New
0' -11109'	3958'	7", 32#, HCP-110, LTC, 8rd	11,820 / 1.07**	12,460 / 1.19		New

**API Rating & Safety Factor**

- a. \*Assume full casing evacuation with 10 ppg fluid on backside. \*\*Assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals (from **6375'** to **10333'**).
- 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 **10811'** TVD.
- c. Based on string weight in 10 ppg fluid, (**301k** lbs buoyed weight) plus 100k lbs overpull.

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

**Pre-flush (Spacer):**      **50 bbls** Saltwater  
**20 bbls** CW8  
**20 bbls** Freshwater

**Lead Slurry:**      **184 sks** (85 bbls), 11.8 ppg, 2.59 cu. ft./sk 65:35 POZ Cement with 6% BWOB Extender, 0.15% BWOB Viscosifier, 0.8% BWOB Fluid Loss Additive, 0.2% BWOB Anti Foam, and 0.259 lb/sk Lost Circulation Additive

**Tail Slurry:**      **565 sks** (165 bbls), 15.6 ppg, 1.64 cu. ft./sk Conventional Class G Cement with 10.0% BWOB NaCL, 35.0% BWOB Silica Flour, 0.2% BWOB Fluid Loss, 0.27% BWOB Retarder, 0.2% BWOB Anti Foam, and 0.25 lb/sk Lost Circulation Additive

**Oasis Petroleum**  
**Well Summary**  
**Colville 5301 44-12T**  
**Section 12 T153N R101W**  
**McKenzie County, ND**

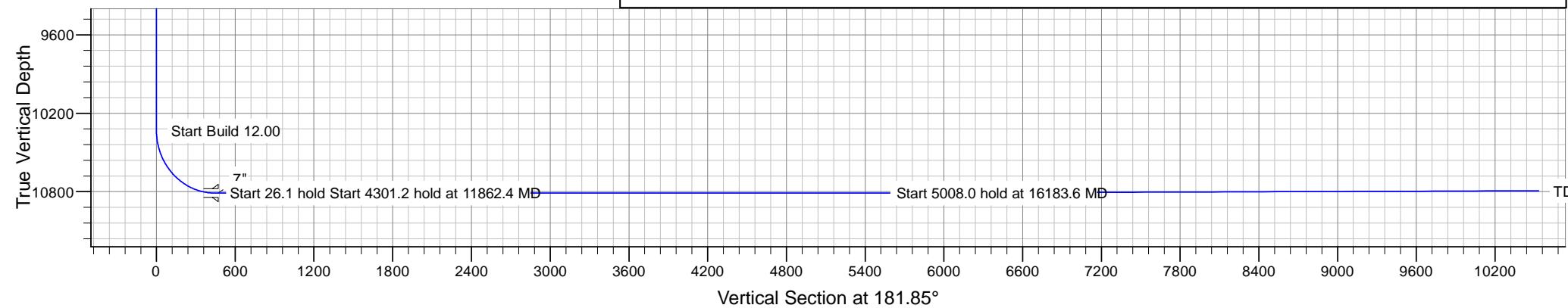
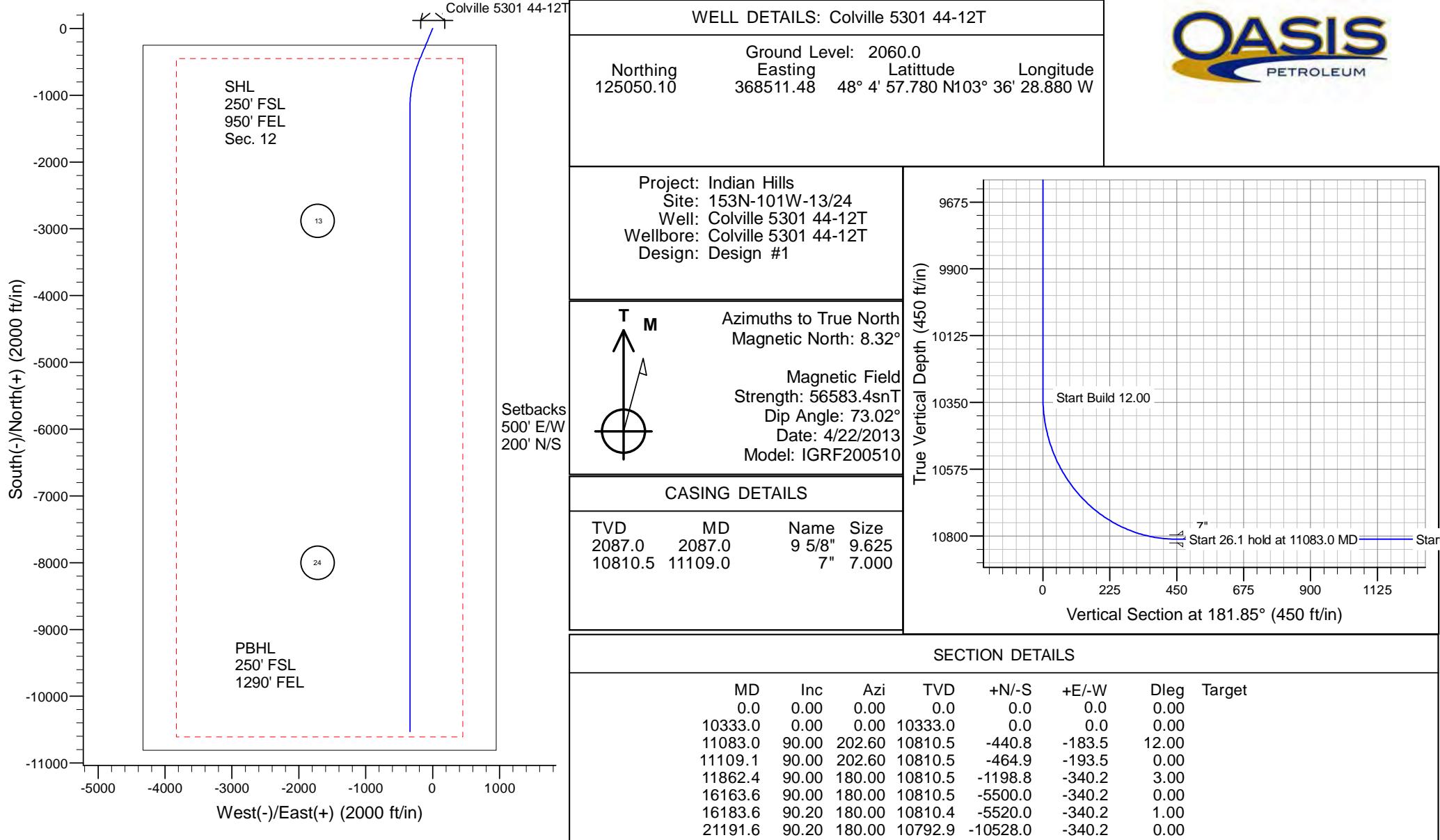
**PRODUCTION LINER**

<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"	10283'-21192'	13.5	P-110	BTC	3.92"	3.795"	2,270	3,020	3,780

<b>Interval</b>	<b>Length</b>	<b>Description</b>	<b>Collapse</b>	<b>Burst</b>	<b>Tension</b>	<b>Condition</b>
			(psi) a	(psi) b	(1000 lbs) c	
10283'-21192'	10909'	4-1/2", 13.5 lb, P-110, BTC	10670 / 2.00	12410 / 1.19	422 / 2.04	New

**API Rating & Safety Factor**

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10811' TVD.
- b) Burst pressure based on 9,000 psi treating pressure with 10.2 ppg internal fluid gradient and 9.0 ppg external fluid gradient @ 10811' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 107k lbs.) plus 100k lbs overpull.



# **Oasis**

**Indian Hills  
153N-101W-13/24  
Colville 5301 44-12T**

**Colville 5301 44-12T**

**Plan: Design #1**

# **Standard Survey Report**

**23 April, 2013**

## Survey Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Colville 5301 44-12T						
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)						
<b>Site:</b>	153N-101W-13/24	<b>MD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)						
<b>Well:</b>	Colville 5301 44-12T	<b>North Reference:</b>	True						
<b>Wellbore:</b>	Colville 5301 44-12T	<b>Survey Calculation Method:</b>	Minimum Curvature						
<b>Design:</b>	Design #1	<b>Database:</b>	OpenWellsCompass - EDM Prod						
<b>Project</b>	Indian Hills								
<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>	153N-101W-13/24								
<b>Site Position:</b>		<b>Northing:</b>	125,067.66 m						
<b>From:</b>	Lat/Long	<b>Easting:</b>	368,214.56 m						
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in						
			<b>Latitude:</b> 48° 4' 57.960 N						
			<b>Longitude:</b> 103° 36' 43.250 W						
			<b>Grid Convergence:</b> -2.32 °						
<b>Well</b>	Colville 5301 44-12T								
<b>Well Position</b>	+N/S +E/W	0.0 ft	<b>Northing:</b> 125,050.10 m						
		0.0 ft	<b>Easting:</b> 368,511.48 m						
<b>Position Uncertainty</b>	0.0 ft		<b>Wellhead Elevation:</b> ft						
			<b>Latitude:</b> 48° 4' 57.780 N						
			<b>Longitude:</b> 103° 36' 28.880 W						
			<b>Ground Level:</b> 2,060.0 ft						
<b>Wellbore</b>	Colville 5301 44-12T								
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b> (°)	<b>Dip Angle</b> (°)	<b>Field Strength</b> (nT)				
	IGRF200510	4/22/2013	8.32	73.02	56,583				
<b>Design</b>	Design #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	181.85				
<b>Survey Tool Program</b>	<b>Date</b>	4/23/2013							
<b>From</b> (ft)	<b>To</b> (ft)	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>					
0.0		21,191.6 Design #1 (Colville 5301 44-12T)	MWD	MWD - Standard					
<b>Planned Survey</b>									
<b>Measured Depth</b> (ft)	<b>Inclination</b> (°)	<b>Azimuth</b> (°)	<b>Vertical Depth</b> (ft)	<b>+N/S</b> (ft)	<b>+E/W</b> (ft)	<b>Vertical Section</b> (ft)	<b>Dogleg Rate</b> (°/100ft)	<b>Build Rate</b> (°/100ft)	<b>Turn Rate</b> (°/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

## Survey Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Colville 5301 44-12T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Site:</b>	153N-101W-13/24	<b>MD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Well:</b>	Colville 5301 44-12T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Colville 5301 44-12T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	OpenWellsCompass - EDM Prod

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)	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	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	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	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	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	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	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	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	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	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	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	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	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	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	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	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	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	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	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	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	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	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	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	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	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	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	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	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	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	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	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	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	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	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	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	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	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	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	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	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	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	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	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00

## Survey Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Colville 5301 44-12T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Site:</b>	153N-101W-13/24	<b>MD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Well:</b>	Colville 5301 44-12T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Colville 5301 44-12T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	OpenWellsCompass - EDM Prod

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)	
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	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	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	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	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	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	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	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	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	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	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	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	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	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	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	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	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	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	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	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	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	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	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	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	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	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	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	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	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	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	0.00
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	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	0.00

## Survey Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Colville 5301 44-12T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Site:</b>	153N-101W-13/24	<b>MD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Well:</b>	Colville 5301 44-12T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Colville 5301 44-12T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	OpenWellsCompass - EDM Prod

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)	
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	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	0.00
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	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	0.00
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,300.0	0.00	0.00	10,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,333.0	0.00	0.00	10,333.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,400.0	8.04	202.60	10,399.8	-4.3	-1.8	4.4	12.00	12.00	0.00	0.00
10,500.0	20.04	202.60	10,496.6	-26.7	-11.1	27.0	12.00	12.00	0.00	0.00
10,600.0	32.04	202.60	10,586.3	-67.1	-27.9	68.0	12.00	12.00	0.00	0.00
10,700.0	44.04	202.60	10,664.9	-123.9	-51.6	125.5	12.00	12.00	0.00	0.00
10,800.0	56.04	202.60	10,729.0	-194.6	-81.0	197.1	12.00	12.00	0.00	0.00
10,900.0	68.04	202.60	10,775.8	-276.0	-114.9	279.5	12.00	12.00	0.00	0.00
11,000.0	80.04	202.60	10,803.3	-364.6	-151.8	369.3	12.00	12.00	0.00	0.00
11,083.0	90.00	202.60	10,810.5	-440.8	-183.5	446.5	12.00	12.00	0.00	0.00
11,100.0	90.00	202.60	10,810.5	-456.5	-190.0	462.4	0.00	0.00	0.00	0.00
11,109.1	90.00	202.60	10,810.5	-464.9	-193.5	470.9	0.00	0.00	0.00	0.00
11,200.0	90.00	199.87	10,810.5	-549.6	-226.4	556.6	3.00	0.00	-3.00	
11,300.0	90.00	196.87	10,810.5	-644.5	-258.0	652.5	3.00	0.00	-3.00	
11,400.0	90.00	193.87	10,810.5	-740.9	-284.5	749.7	3.00	0.00	-3.00	
11,500.0	90.00	190.87	10,810.5	-838.6	-305.9	848.0	3.00	0.00	-3.00	
11,600.0	90.00	187.87	10,810.5	-937.2	-322.2	947.2	3.00	0.00	-3.00	
11,700.0	90.00	184.87	10,810.5	-1,036.6	-333.3	1,046.8	3.00	0.00	-3.00	
11,800.0	90.00	181.87	10,810.5	-1,136.4	-339.2	1,146.8	3.00	0.00	-3.00	
11,862.4	90.00	180.00	10,810.5	-1,198.8	-340.2	1,209.2	3.00	0.00	-3.00	
11,900.0	90.00	180.00	10,810.5	-1,236.4	-340.2	1,246.8	0.00	0.00	0.00	
12,000.0	90.00	180.00	10,810.5	-1,336.4	-340.2	1,346.7	0.00	0.00	0.00	
12,100.0	90.00	180.00	10,810.5	-1,436.4	-340.2	1,446.6	0.00	0.00	0.00	
12,200.0	90.00	180.00	10,810.5	-1,536.4	-340.2	1,546.6	0.00	0.00	0.00	
12,300.0	90.00	180.00	10,810.5	-1,636.4	-340.2	1,646.5	0.00	0.00	0.00	
12,400.0	90.00	180.00	10,810.5	-1,736.4	-340.2	1,746.5	0.00	0.00	0.00	
12,500.0	90.00	180.00	10,810.5	-1,836.4	-340.2	1,846.4	0.00	0.00	0.00	
12,600.0	90.00	180.00	10,810.5	-1,936.4	-340.2	1,946.4	0.00	0.00	0.00	
12,700.0	90.00	180.00	10,810.5	-2,036.4	-340.2	2,046.3	0.00	0.00	0.00	
12,800.0	90.00	180.00	10,810.5	-2,136.4	-340.2	2,146.3	0.00	0.00	0.00	
12,900.0	90.00	180.00	10,810.5	-2,236.4	-340.2	2,246.2	0.00	0.00	0.00	
13,000.0	90.00	180.00	10,810.5	-2,336.4	-340.2	2,346.2	0.00	0.00	0.00	
13,100.0	90.00	180.00	10,810.5	-2,436.4	-340.2	2,446.1	0.00	0.00	0.00	
13,200.0	90.00	180.00	10,810.5	-2,536.4	-340.2	2,546.1	0.00	0.00	0.00	
13,300.0	90.00	180.00	10,810.5	-2,636.4	-340.2	2,646.0	0.00	0.00	0.00	
13,400.0	90.00	180.00	10,810.5	-2,736.4	-340.2	2,746.0	0.00	0.00	0.00	
13,500.0	90.00	180.00	10,810.5	-2,836.4	-340.2	2,845.9	0.00	0.00	0.00	

## Survey Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Colville 5301 44-12T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Site:</b>	153N-101W-13/24	<b>MD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Well:</b>	Colville 5301 44-12T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Colville 5301 44-12T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	OpenWellsCompass - EDM Prod

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
13,600.0	90.00	180.00	10,810.5	-2,936.4	-340.2	2,945.9	0.00	0.00	0.00	0.00
13,700.0	90.00	180.00	10,810.5	-3,036.4	-340.2	3,045.8	0.00	0.00	0.00	0.00
13,800.0	90.00	180.00	10,810.5	-3,136.4	-340.2	3,145.8	0.00	0.00	0.00	0.00
13,900.0	90.00	180.00	10,810.5	-3,236.4	-340.2	3,245.7	0.00	0.00	0.00	0.00
14,000.0	90.00	180.00	10,810.5	-3,336.4	-340.2	3,345.7	0.00	0.00	0.00	0.00
14,100.0	90.00	180.00	10,810.5	-3,436.4	-340.2	3,445.6	0.00	0.00	0.00	0.00
14,200.0	90.00	180.00	10,810.5	-3,536.4	-340.2	3,545.6	0.00	0.00	0.00	0.00
14,300.0	90.00	180.00	10,810.5	-3,636.4	-340.2	3,645.5	0.00	0.00	0.00	0.00
14,400.0	90.00	180.00	10,810.5	-3,736.4	-340.2	3,745.4	0.00	0.00	0.00	0.00
14,500.0	90.00	180.00	10,810.5	-3,836.4	-340.2	3,845.4	0.00	0.00	0.00	0.00
14,600.0	90.00	180.00	10,810.5	-3,936.4	-340.2	3,945.3	0.00	0.00	0.00	0.00
14,700.0	90.00	180.00	10,810.5	-4,036.4	-340.2	4,045.3	0.00	0.00	0.00	0.00
14,800.0	90.00	180.00	10,810.5	-4,136.4	-340.2	4,145.2	0.00	0.00	0.00	0.00
14,900.0	90.00	180.00	10,810.5	-4,236.4	-340.2	4,245.2	0.00	0.00	0.00	0.00
15,000.0	90.00	180.00	10,810.5	-4,336.4	-340.2	4,345.1	0.00	0.00	0.00	0.00
15,100.0	90.00	180.00	10,810.5	-4,436.4	-340.2	4,445.1	0.00	0.00	0.00	0.00
15,200.0	90.00	180.00	10,810.5	-4,536.4	-340.2	4,545.0	0.00	0.00	0.00	0.00
15,300.0	90.00	180.00	10,810.5	-4,636.4	-340.2	4,645.0	0.00	0.00	0.00	0.00
15,400.0	90.00	180.00	10,810.5	-4,736.4	-340.2	4,744.9	0.00	0.00	0.00	0.00
15,500.0	90.00	180.00	10,810.5	-4,836.4	-340.2	4,844.9	0.00	0.00	0.00	0.00
15,600.0	90.00	180.00	10,810.5	-4,936.4	-340.2	4,944.8	0.00	0.00	0.00	0.00
15,700.0	90.00	180.00	10,810.5	-5,036.4	-340.2	5,044.8	0.00	0.00	0.00	0.00
15,800.0	90.00	180.00	10,810.5	-5,136.4	-340.2	5,144.7	0.00	0.00	0.00	0.00
15,900.0	90.00	180.00	10,810.5	-5,236.4	-340.2	5,244.7	0.00	0.00	0.00	0.00
16,000.0	90.00	180.00	10,810.5	-5,336.4	-340.2	5,344.6	0.00	0.00	0.00	0.00
16,100.0	90.00	180.00	10,810.5	-5,436.4	-340.2	5,444.6	0.00	0.00	0.00	0.00
16,163.6	90.00	180.00	10,810.5	-5,500.0	-340.2	5,508.2	0.00	0.00	0.00	0.00
16,183.6	90.20	180.00	10,810.4	-5,520.0	-340.2	5,528.2	1.00	1.00	0.00	0.00
16,200.0	90.20	180.00	10,810.4	-5,536.4	-340.2	5,544.5	0.00	0.00	0.00	0.00
16,300.0	90.20	180.00	10,810.0	-5,636.4	-340.2	5,644.5	0.00	0.00	0.00	0.00
16,400.0	90.20	180.00	10,809.7	-5,736.4	-340.2	5,744.4	0.00	0.00	0.00	0.00
16,500.0	90.20	180.00	10,809.3	-5,836.4	-340.2	5,844.4	0.00	0.00	0.00	0.00
16,600.0	90.20	180.00	10,809.0	-5,936.4	-340.2	5,944.3	0.00	0.00	0.00	0.00
16,700.0	90.20	180.00	10,808.6	-6,036.4	-340.2	6,044.2	0.00	0.00	0.00	0.00
16,800.0	90.20	180.00	10,808.3	-6,136.4	-340.2	6,144.2	0.00	0.00	0.00	0.00
16,900.0	90.20	180.00	10,807.9	-6,236.4	-340.2	6,244.1	0.00	0.00	0.00	0.00
17,000.0	90.20	180.00	10,807.6	-6,336.4	-340.2	6,344.1	0.00	0.00	0.00	0.00
17,100.0	90.20	180.00	10,807.2	-6,436.4	-340.2	6,444.0	0.00	0.00	0.00	0.00
17,200.0	90.20	180.00	10,806.9	-6,536.4	-340.2	6,544.0	0.00	0.00	0.00	0.00
17,300.0	90.20	180.00	10,806.5	-6,636.4	-340.2	6,643.9	0.00	0.00	0.00	0.00
17,400.0	90.20	180.00	10,806.2	-6,736.4	-340.2	6,743.9	0.00	0.00	0.00	0.00
17,500.0	90.20	180.00	10,805.8	-6,836.4	-340.2	6,843.8	0.00	0.00	0.00	0.00
17,600.0	90.20	180.00	10,805.5	-6,936.4	-340.2	6,943.8	0.00	0.00	0.00	0.00
17,700.0	90.20	180.00	10,805.1	-7,036.4	-340.2	7,043.7	0.00	0.00	0.00	0.00

## Survey Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Colville 5301 44-12T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Site:</b>	153N-101W-13/24	<b>MD Reference:</b>	WELL @ 2085.0ft (Original Well Elev)
<b>Well:</b>	Colville 5301 44-12T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Colville 5301 44-12T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	OpenWellsCompass - EDM Prod

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)	
17,800.0	90.20	180.00	10,804.8	-7,136.4	-340.2	7,143.7	0.00	0.00	0.00	
17,900.0	90.20	180.00	10,804.4	-7,236.4	-340.2	7,243.6	0.00	0.00	0.00	
18,000.0	90.20	180.00	10,804.1	-7,336.4	-340.2	7,343.6	0.00	0.00	0.00	
18,100.0	90.20	180.00	10,803.7	-7,436.4	-340.2	7,443.5	0.00	0.00	0.00	
18,200.0	90.20	180.00	10,803.4	-7,536.4	-340.2	7,543.5	0.00	0.00	0.00	
18,300.0	90.20	180.00	10,803.0	-7,636.4	-340.2	7,643.4	0.00	0.00	0.00	
18,400.0	90.20	180.00	10,802.7	-7,736.4	-340.2	7,743.3	0.00	0.00	0.00	
18,500.0	90.20	180.00	10,802.3	-7,836.4	-340.2	7,843.3	0.00	0.00	0.00	
18,600.0	90.20	180.00	10,802.0	-7,936.4	-340.2	7,943.2	0.00	0.00	0.00	
18,700.0	90.20	180.00	10,801.6	-8,036.4	-340.2	8,043.2	0.00	0.00	0.00	
18,800.0	90.20	180.00	10,801.3	-8,136.4	-340.2	8,143.1	0.00	0.00	0.00	
18,900.0	90.20	180.00	10,800.9	-8,236.4	-340.2	8,243.1	0.00	0.00	0.00	
19,000.0	90.20	180.00	10,800.6	-8,336.4	-340.2	8,343.0	0.00	0.00	0.00	
19,100.0	90.20	180.00	10,800.2	-8,436.4	-340.2	8,443.0	0.00	0.00	0.00	
19,200.0	90.20	180.00	10,799.9	-8,536.4	-340.2	8,542.9	0.00	0.00	0.00	
19,300.0	90.20	180.00	10,799.6	-8,636.4	-340.2	8,642.9	0.00	0.00	0.00	
19,400.0	90.20	180.00	10,799.2	-8,736.4	-340.2	8,742.8	0.00	0.00	0.00	
19,500.0	90.20	180.00	10,798.9	-8,836.4	-340.2	8,842.8	0.00	0.00	0.00	
19,600.0	90.20	180.00	10,798.5	-8,936.4	-340.2	8,942.7	0.00	0.00	0.00	
19,700.0	90.20	180.00	10,798.2	-9,036.4	-340.2	9,042.7	0.00	0.00	0.00	
19,800.0	90.20	180.00	10,797.8	-9,136.4	-340.2	9,142.6	0.00	0.00	0.00	
19,900.0	90.20	180.00	10,797.5	-9,236.4	-340.2	9,242.6	0.00	0.00	0.00	
20,000.0	90.20	180.00	10,797.1	-9,336.4	-340.2	9,342.5	0.00	0.00	0.00	
20,100.0	90.20	180.00	10,796.8	-9,436.4	-340.2	9,442.5	0.00	0.00	0.00	
20,200.0	90.20	180.00	10,796.4	-9,536.4	-340.2	9,542.4	0.00	0.00	0.00	
20,300.0	90.20	180.00	10,796.1	-9,636.4	-340.2	9,642.3	0.00	0.00	0.00	
20,400.0	90.20	180.00	10,795.7	-9,736.4	-340.2	9,742.3	0.00	0.00	0.00	
20,500.0	90.20	180.00	10,795.4	-9,836.4	-340.2	9,842.2	0.00	0.00	0.00	
20,600.0	90.20	180.00	10,795.0	-9,936.4	-340.2	9,942.2	0.00	0.00	0.00	
20,700.0	90.20	180.00	10,794.7	-10,036.4	-340.2	10,042.1	0.00	0.00	0.00	
20,800.0	90.20	180.00	10,794.3	-10,136.4	-340.2	10,142.1	0.00	0.00	0.00	
20,900.0	90.20	180.00	10,794.0	-10,236.4	-340.2	10,242.0	0.00	0.00	0.00	
21,191.6	90.20	180.00	10,792.9	-10,528.0	-340.2	10,533.5	0.00	0.00	0.00	

Casing Points										
Measured Depth (ft)	Vertical Depth (ft)	Name			Casing Diameter (in)	Hole Diameter (in)				
2,087.0	2,087.0 9 5/8"				9.625	13.500				
11,109.0	10,810.5 7"				7.000	8.750				

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

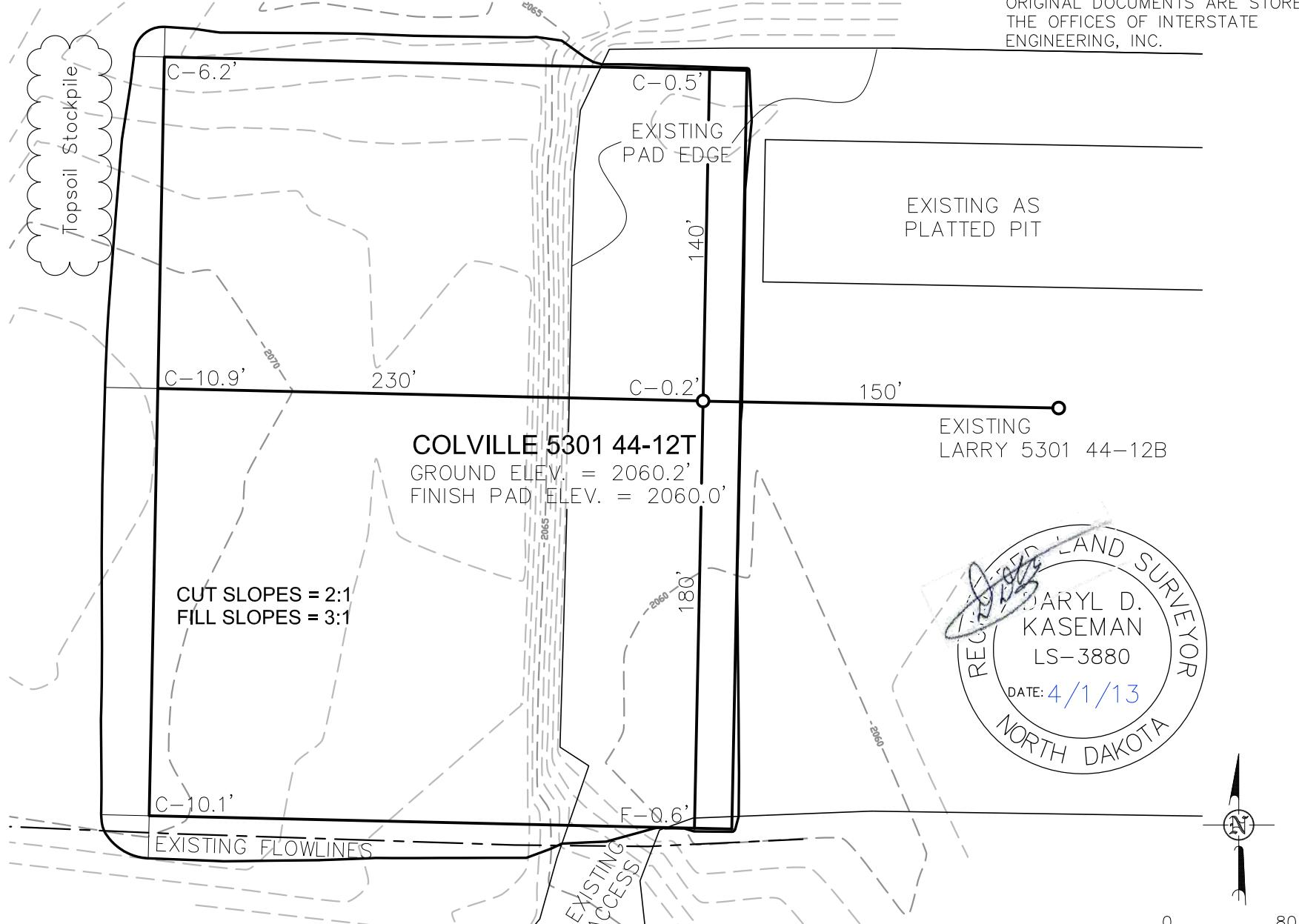


# PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"COLVILLE 5301 44-12T"

250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 ON 4/1/13 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.



0 80' 1" = 80'

© 2013, INTERSTATE ENGINEERING, INC.



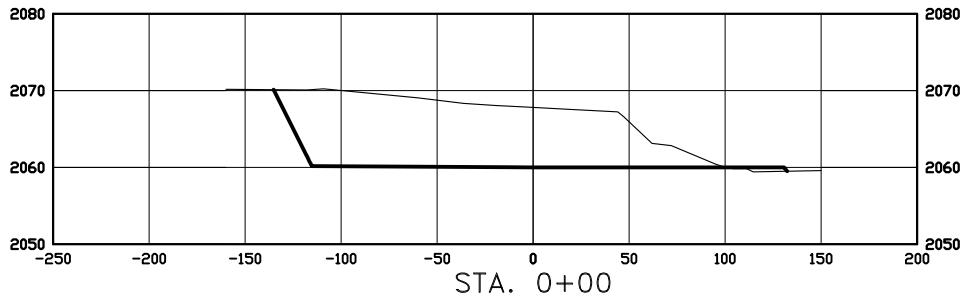
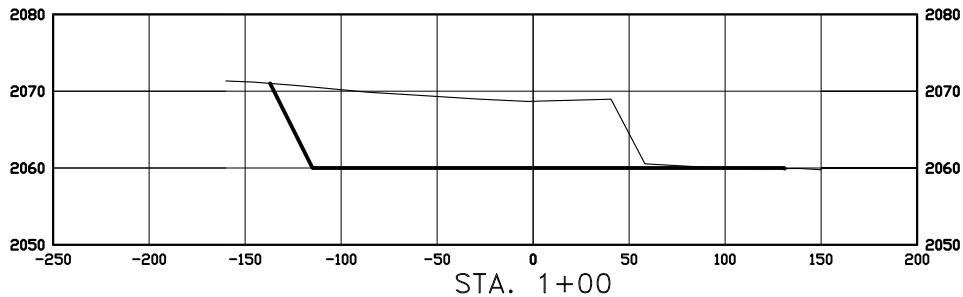
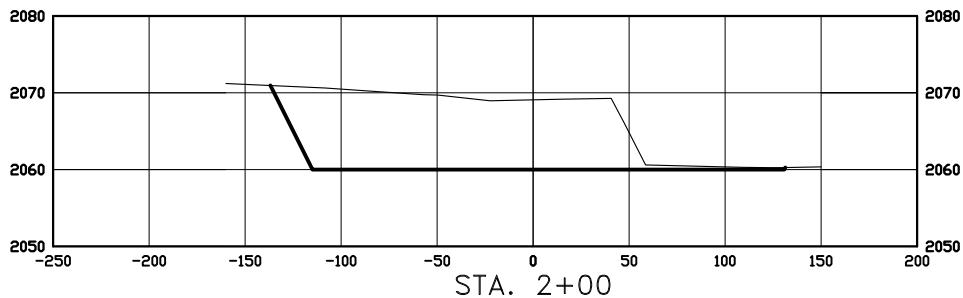
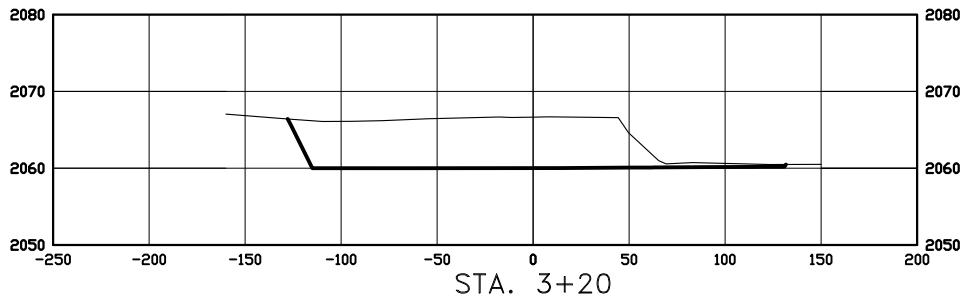
3/8

OASIS PETROLEUM NORTH AMERICA, LLC	
PAD LAYOUT	
SECTION 12, T153N, R101W	
MCKENZIE COUNTY, NORTH DAKOTA	
Drawn By:	D.B.H.
Project No.:	S-3880-58
Checked By:	D.D.K.
Date:	MARCH 2013

RECEIVED LAND SURVEYOR  
DARYL D. KASEMAN  
LS-3880  
DATE: 4/1/13  
NORTH DAKOTA

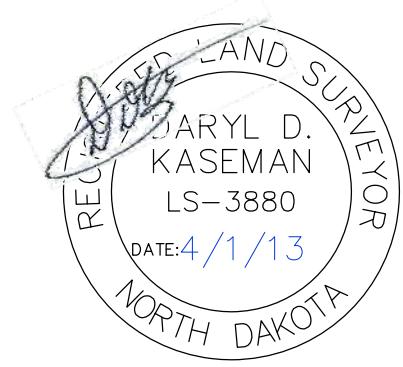
Interstate Engineering, Inc.  
P.O. Box 6468  
425 East Main Street  
Sidney, Montana 59270  
Ph (406) 433-5617  
Fax (406) 433-5618  
[www.interstateeng.com](http://www.interstateeng.com)  
Other offices in Minnesota, North Dakota and South Dakota

**CROSS SECTIONS**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "COLVILLE 5301 44-12T"  
 250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
 SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



THIS DOCUMENT WAS ORIGINALLY  
 ISSUED AND SEALED BY DARYL D.  
 KASEMAN, PLS, REGISTRATION NUMBER  
 3880 ON 4/1/13 AND THE  
 ORIGINAL DOCUMENTS ARE STORED AT  
 THE OFFICES OF INTERSTATE  
 ENGINEERING, INC.

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



© 2013, INTERSTATE ENGINEERING, INC.

7/8



Professionals you need, people you trust

Interstate Engineering, Inc.  
 P.O. Box 648  
 425 East Main Street  
 Sidney, Montana 59270  
 Ph (406) 433-5617  
 Fax (406) 433-5618  
[www.interstateeng.com](http://www.interstateeng.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:	B.H.H.	Project No.:	S13-09-058
Checked By:	D.D.K.	Date:	MARCH 2013

Revision No.	Date	By	Description
REV 1	4/1/13	BHH	REVISED PAD

## WELL LOCATION SITE QUANTITIES

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"COLVILLE 5301 44-12T"

250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL SITE ELEVATION	2060.2
WELL PAD ELEVATION	2060.0
EXCAVATION	19,915
PLUS PIT	0
	<hr/>
	19,915
EMBANKMENT	70
PLUS SHRINKAGE (30%)	21
	<hr/>
	91
STOCKPILE PIT	0
STOCKPILE TOP SOIL (6")	1,686
STOCKPILE FROM PAD	18,138
DISTURBED AREA FROM PAD	2.09 ACRES

NOTE: ALL QUANTITIES ARE IN CUBIC YARDS (UNLESS NOTED)

## CUT END SLOPES AT 2:1

### **FILL END SLOPES AT 3:1**

## WELL SITE LOCATION

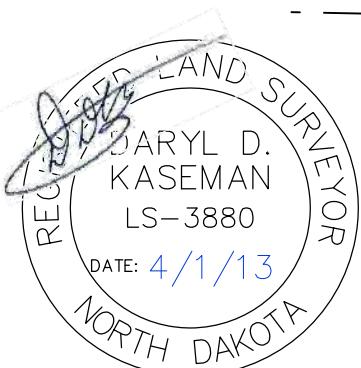
950' FFI

250' FSL

# ACCESS APPROACH

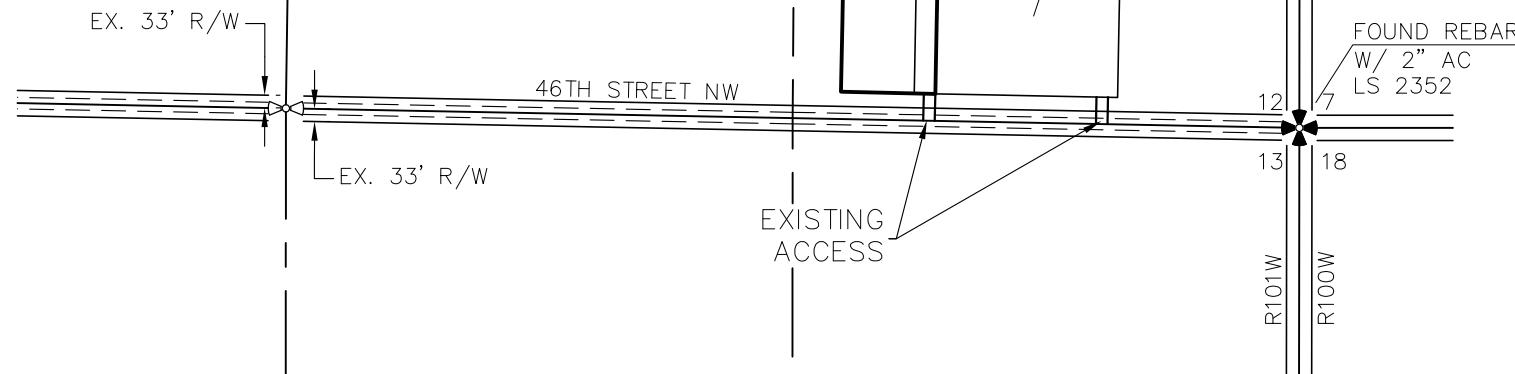
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"COLVILLE 5301 44-12T"

250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



COLVILLE 5301 44-12T

LANDOWNER:  
LAWRENCE HEEN  
SE1/4SE1/4 SEC, 12



THIS DOCUMENT WAS ORIGINALLY  
ISSUED AND SEALED BY DARYL D.  
KASEMAN, PLS, REGISTRATION NUMBER  
3880 ON 4/1/13 AND THE  
ORIGINAL DOCUMENTS ARE STORED AT  
THE OFFICES OF INTERSTATE  
ENGINEERING, INC.

0 500  
1" = 500'

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

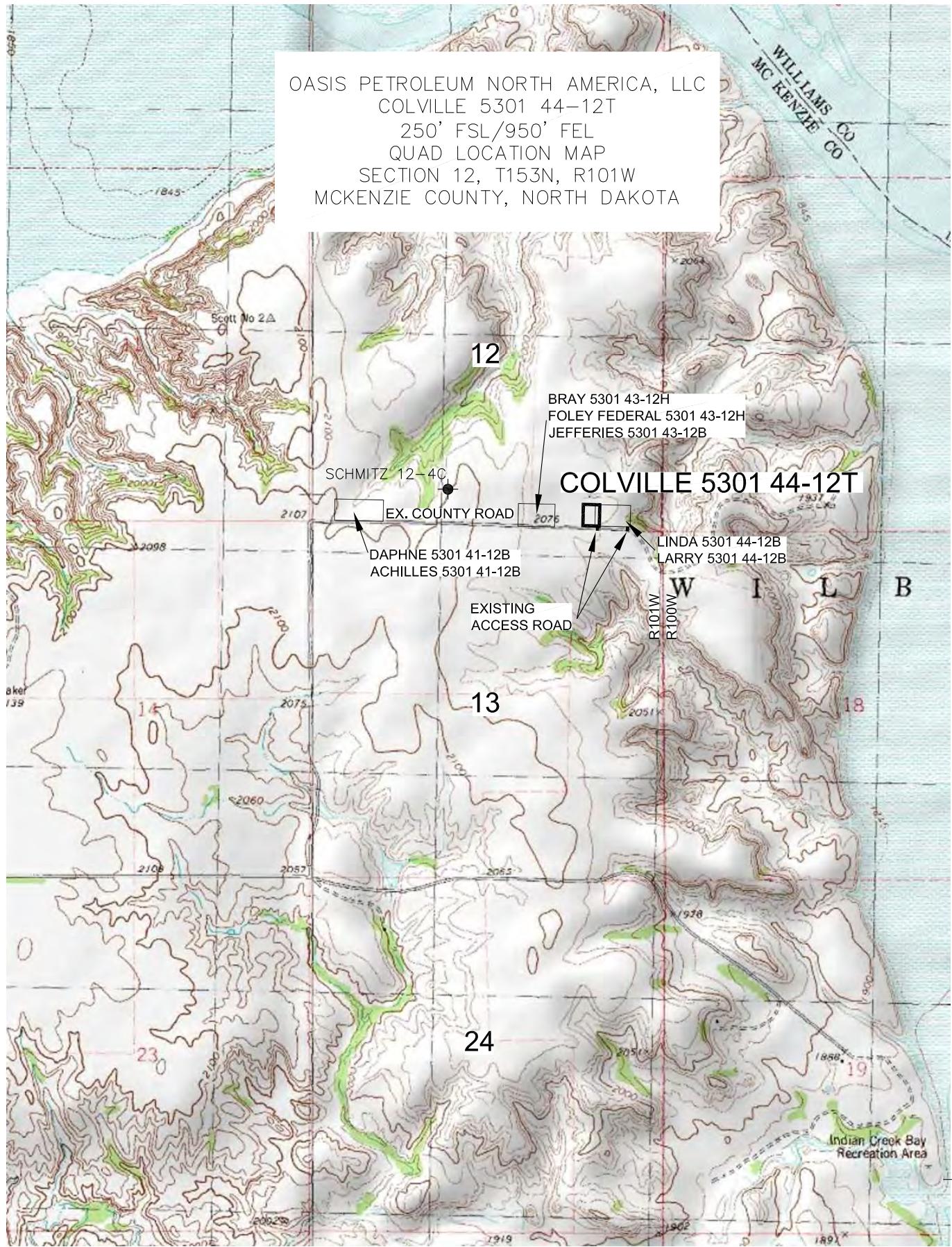
© 2013, INTERSTATE ENGINEERING, INC.



4/8  
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.interstateeng.com](http://www.interstateeng.com)  
Other office in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC		Revision No.	Date	By	Desig/Initial
ACCESS APPROACH	REV 1	4/1/13	BH	REVIEWED/PAD	
SECTION 12, T153N, R101W					
MCKENZIE COUNTY, NORTH DAKOTA					
Project No.: S1349058					
Drawn By: BH					
Checked By: D.D.K.					
Date: MARCH 2013					



© 2013, INTERSTATE ENGINEERING, INC.

5/8



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.Interstateeng.com](http://www.Interstateeng.com)  
Other offices in Minnesota, North Dakota and South Dakota

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

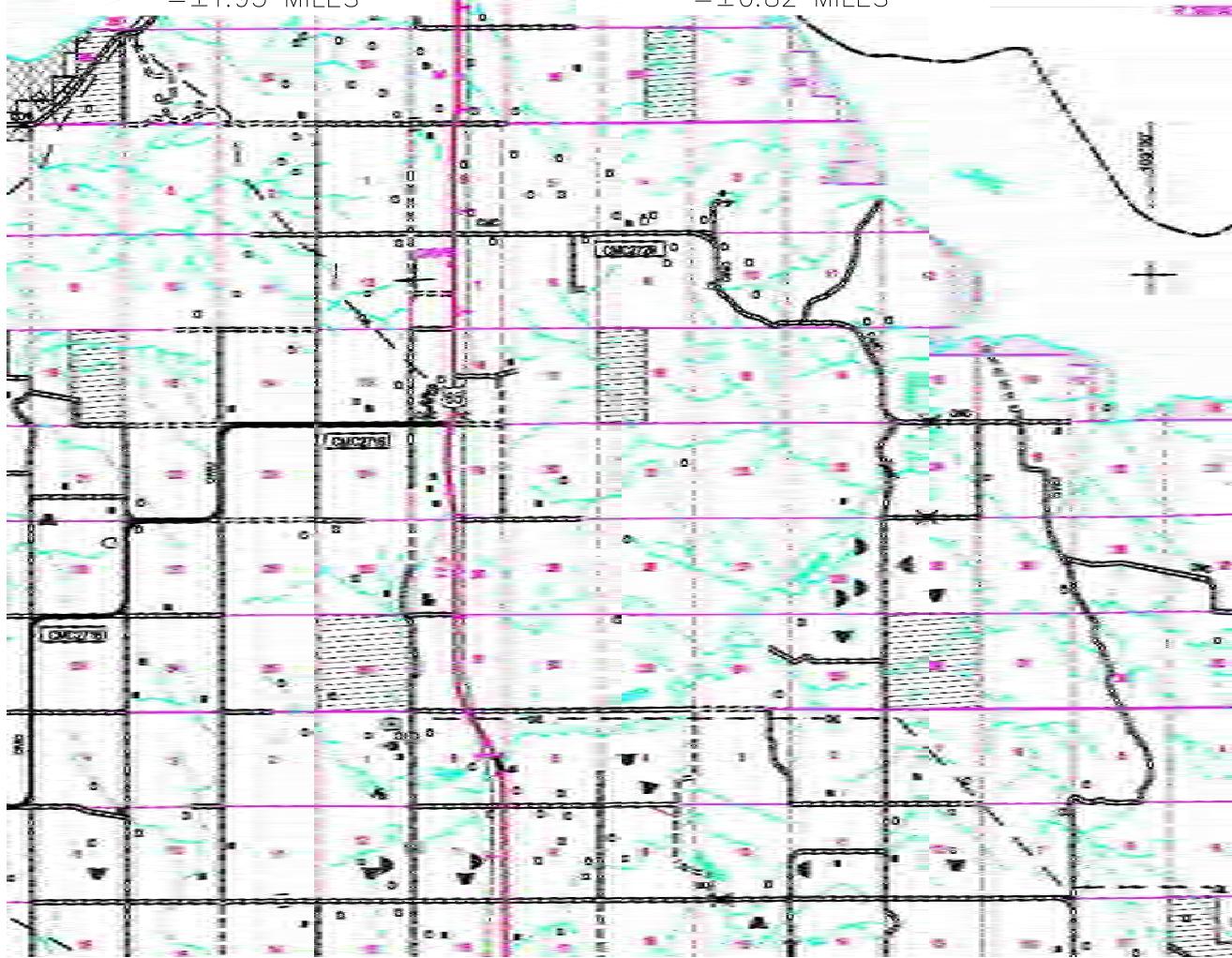
Drawn By: B.H.H. Project No.: S13-09-058  
 Checked By: D.D.K. Date: MARCH 2013

Revision No.	Date	By	Description
REV 1	4/1/13	BHH	REVISED PAD

# COUNTY ROAD MAP

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"COLVILLE 5301 44-12T"

250 FEET FROM SOUTH LINE AND 950 FEET FROM EAST LINE  
SECTION 12, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



© 2013, INTERSTATE ENGINEERING, INC.

SCALE: 1" = 2 MILE

6/8



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

Other offices in Minnesota, North Dakota and South Dakota

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

Drawn By: B.H.H. Project No.: S13-09-058  
Checked By: D.D.K. Date: MARCH 2013

Revision No.	Date	By	Description
REV 1	4/1/13	BHH	REVISED PAD

## Affidavit

STATE OF North Dakota )

COUNTY OF McKenzie )

Lawrence P. Heen, a married man dealing in his sole and separate property, being of lawful age and being sworn upon his oath,  
Deposes and states:

That he is the surface owner of the following described lands in McKenzie County,  
North Dakota:

Township 153 North, Range 101 West  
Section 12: S2SE4

And affiant positively knows that Oasis Petroleum North America LLC has settled Surface damages to accommodate the drilling and production of the Colville 5301 44-12T. Affiant further states that he is fully aware that the cuttings generated from the drilling of the above described wells will be buried on site on the above described location.

Further affiant saith not.

Lawrence P. Heen  
Lawrence P. Heen, a married man dealing his  
Sole and separate property.

STATE OF North Dakota )

COUNTY OF McKenzie )

Before me, the undersigned, a Notary Public, in and for said County and State on this 2nd day of May, 2013, personally appeared Lawrence P Heen, to me known to be the identical person, described in and who executed the foregoing instrument of writing and acknowledged to me that he duly executed the same as his free and voluntary act and deed for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have herein set my hand and affixed my notary seal the day and year last above written.

My Commission Expires:

April 9, 2019

Thomas A. Lenihan  
Thomas A. Lenihan Notary Public

THOMAS A. LENIHAN  
Notary Public  
State of North Dakota  
My Commission Expires April 9, 2019



## 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 (08-2006)

Well File No. \_\_\_\_\_

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>April 30, 2013</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. Approximate Start Date		<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	<b>Waiver to rule Rule 43-02-03-31</b>

Well Name and Number <b>Colville 5301 44-12T</b>					
Footages <b>250 F S L</b>	<b>950 F E L</b>	Qtr-Qtr <b>SESE</b>	Section <b>12</b>	Township <b>153 N</b>	Range <b>101 W</b>
Field	Pool <b>Bakken</b>	County <b>Williams</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 Gulf Oil /Lindvig 1-11-3C (33053014780000) located within a half mile of the subject well

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>281-404-9563</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>Heather McCowan</b>		
Title <b>Regulatory Assistant</b>	Date <b>April 24, 2013</b>		
Email Address <b>hmccowan@oasispetroleum.com</b>			

<input type="checkbox"/> Received	<input type="checkbox"/> Approved
Date	
By	
Title	