

May 26, 2020

Mr. Jonathon Travis  
Ryan, LLC  
2800 Post Oak Boulevard, Suite 4200  
Houston, TX 77056

**RE: Kline Federal #5300 11-18 3T  
Lot 1 Sec. 18, T.153N., R.100W.  
McKenzie County, North Dakota  
Baker Field  
Well File No. 29244  
STRIPPER WELL DETERMINATION**

Dear Mr. Travis:

Oasis Petroleum North America LLC (Oasis) filed with the North Dakota Industrial Commission – Oil and Gas Division (Commission) on May 12, 2020 an application for a Stripper Well Determination for the above captioned well.

Information contained in the application indicates that the above mentioned well is a stripper well pursuant to statute and rule, and Oasis has elected to designate said well as a stripper well. The well produced from a well depth greater than 10000 feet and was completed after June 30, 2013. During the qualifying period, December 1, 2017 through November 30, 2018, the well produced at a maximum efficient rate or was not capable of exceeding the production threshold. The average daily production from the well was 31.6 barrels of oil per day during this period.

It is therefore determined that the above captioned well qualifies as a “Stripper Well” pursuant to Section 57-51.1-01 of the North Dakota Century Code. This determination is applicable only to the Bakken Pool in and under said well.

The Commission shall have continuing jurisdiction, and shall have the authority to review the matter, and to amend or rescind the determination if such action is supported by additional or newly discovered information. If you have any questions, do not hesitate to contact me.

Sincerely,

David J. McCusker  
Petroleum Engineer

Cc: ND Tax Department



# 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.

29244

Received

SEP 29 2016

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

 Notice of Intent

Approximate Start Date

 Report of Work Done

Date Work Completed

September 22, 2016

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

Approximate Start Date

## ND Oil &amp; Gas Division

 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

Well is now on pump

## Well Name and Number

Kline Federal 5300 11-18 3T

Footages	Qtr-Qtr	Section	Township	Range
1020 F N L	290 F W L	LOT1	18	153 N 100 W
Field Baker	Pool Bakken		County McKenzie	

## 24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address	City	State	Zip Code
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## DETAILS OF WORK

Effective 09/22/2016 the above referenced well was converted to rod pump.

End of Tubing: 2-7/8" L-80 tubing @ 9380'

Pump at 9275.72'

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9436</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>Jennifer Swenson</b>	
Title <b>Regulatory Specialist</b>	Date <b>September 22, 2016</b>	
Email Address <b>jswenson@oasispetroleum.com</b>		

## FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>11-2-2016</b>	
By 	
Title <b>TAYLOR ROTH</b>	
Engineering Technician	



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

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. 29244

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

**PLEASE SUBMIT THE ORIGINAL AND ONE COPY.**

**Designate Type of Completion**

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

**Well Name and Number**

**Kline Federal 5300 11-18 3T**

**Sec. 17/18 T153N R100W**

**Operator**  
**Oasis Petroleum North America**

**Telephone Number  
(281) 404-9591**

**Field  
Baker**

**Address**  
**1001 Fannin, Suite 1500**

Pool  
Bakken

**City**

State  
TX

**Zip Code**  
**77002**

**Permit Type**

Development

Extension

### **LOCATION OF WELL**

At Surface		Qtr-Qtr	Section	Township	Range	County	
1020	F N L	290	F WL	18	153 N	100 W	McKenzie
Spud Date <u>2-28-15</u>	Date TD Reached	Drilling Contractor and Rig Number		KB Elevation (Ft)	Graded Elevation (Ft)		
March 21, 2015	May 29, 2015	Xtreme 21		2078	2053		

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

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

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

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

## **PRODUCTION**

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft) <b>Lateral 1- 11101' to 20835'</b>								Name of Zone (If Different from Pool Name)	
Date Well Completed (SEE INSTRUCTIONS) <b>August 29, 2015</b>			Producing Method <b>Flowing</b>		Pumping-Size & Type of Pump			Well Status (Producing or Shut-In) <b>Producing</b>	
Date of Test <b>08/29/2015</b>	Hours Tested <b>24</b>	Choke Size <b>48 /64</b>	Production for Test		Oil (Bbls) <b>465</b>	Gas (MCF) <b>409</b>	Water (Bbls) <b>6179</b>	Oil Gravity-API (Corr.) °	Disposition of Gas <b>Sold</b>
Flowing Tubing Pressure (PSI)		Flowing Casing Pressure (PSI)		Calculated 24-Hour Rate	Oil (Bbls) <b>465</b>	Gas (MCF) <b>409</b>	Water (Bbls) <b>6179</b>	Gas-Oil Ratio <b>880</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 <b>07/17/2015</b>	Stimulated Formation <b>Three Forks</b>		Top (Ft) <b>11101</b>	Bottom (Ft) <b>20835</b>	Stimulation Stages <b>36</b>	Volume <b>208220</b>	Volume Units <b>Barrels</b>
Type Treatment <b>Sand Frac</b>	Acid %	Lbs Proppant <b>4183070</b>	Maximum Treatment Pressure (PSI) <b>9386</b>		Maximum Treatment Rate (BBLS/Min) <b>76.0</b>		
Details <b>100 Mesh White: 301340</b> <b>40/70 White: 1556480</b> <b>30/50 White: 1742280</b> <b>30/50 Resin Coated: 511100</b> <b>20/40 Resin Coated: 71870</b>							
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 <b>jswenson@oasispetroleum.com</b>	Date <b>09/29/2015</b>
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Signature 	Printed Name <b>Jennifer Swenson</b>	Title <b>Regulatory Specialist</b>
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# 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.

29244



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>October 7, 2015</b>
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date

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

## Well Name and Number

**Kline Federal 5300 11-18 3T**

Footages <b>1020 F N L.</b>	<b>290 F W L</b>	Qtr-Qtr <b>LOT1</b>	Section <b>18</b>	Township <b>153 N</b>	Range <b>100 W</b>
Field <b>Baker</b>	Pool <b>Bakken</b>		County <b>McKenzie</b>		

## 24-HOUR PRODUCTION RATE

Before	After
Oil	Bbls
Water	Bbls
Gas	MCF

## Name of Contractor(s)

Address	City	State	Zip Code
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## DETAILS OF WORK

**Effective 10/07/2015 the above referenced well is on pump.**

**End of Tubing: 2-7/8" L-80 tubing @ 10215.85'**

**Pump: ESP @ 9965'**

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9436</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>Jennifer Swenson</b>	
Title <b>Regulatory Specialist</b>	Date <b>October 14, 2015</b>	
Email Address <b>jswenson@oasispetroleum.com</b>		

## FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>10/26/2015</b>	
By 	
Title <b>TAYLOR ROTH</b>	
Engineering Technician	



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

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



Well File No.
29244
NDIC CTB No.
To be assigned

129244

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number <b>KLINE FEDERAL 5300 11-18 3T</b>	Qtr-Qtr LOT1	Section 18	Township 153	Range 100	County McKenzie
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Operator <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>(281) 404-9573</b>	Field <b>BAKER</b>
--	---	-----------------------

Address <b>1001 Fannin, Suite 1500</b>	City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
---	------------------------	--------------------	--------------------------

Name of First Purchaser <b>Oasis Petroleum Marketing LLC</b>	Telephone Number <b>(281) 404-9627</b>	% Purchased <b>100%</b>	Date Effective <b>August 22, 2015</b>
Principal Place of Business <b>1001 Fannin, Suite 1500</b>	City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Field Address	City	State	Zip Code
Transporter <b>Hiland Crude, LLC</b>	Telephone Number <b>(580) 616-2058</b>	% Transported <b>75%</b>	Date Effective <b>August 22, 2015</b>
Address <b>P.O. Box 3886</b>	City <b>Enid</b>	State <b>OK</b>	Zip Code <b>73702</b>
The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.			

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
<b>Power Crude Transport</b>	<b>25%</b>	<b>August 22, 2015</b>
Other Transporters Transporting From This Lease	% Transported	Date Effective
		<b>August 22, 2015</b>
Comments		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date <b>August 22, 2015</b>
Signature 	Printed Name <b>Dina Barron</b> Title <b>Mktg. Contracts Administrator</b>

Above Signature Witnessed By:	Printed Name	Title
Signature 	Printed Name <b>Jeremy Harris</b>	Title <b>Marketing Scheduler</b>

FOR STATE USE ONLY		
Date Approved <b>SEP 18 2015</b>	By 	Title <b>Erie Peterson</b> Oil & Gas Production Analyst

Industrial Commission of North Dakota  
Oil and Gas Division

Well or Facility No  
**29244**

Verbal Approval To Purchase and Transport Oil      Tight Hole    Yes

**OPERATOR**

Operator <b>OASIS PETROLEUM NORTH AMERICA LL</b>	Representative <b>Todd Hanson</b>	Rep Phone <b>(701) 577-1632</b>
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**WELL INFORMATION**

Well Name <b>KLINE FEDERAL 5300 11-18 3T</b>	Inspector <b>Richard Dunn</b>
Well Location      QQ      Sec      Twp      Rng	County <b>MCKENZIE</b>
LOT1      18      153    N      100    W	Field <b>BAKER</b>
Footages      1020      Feet From the N Line	Pool <b>BAKKEN</b>
290      Feet From the W Line	Date of First Production Through Permanent Wellhead <b>This Is Not The First Sales</b>

**PURCHASER / TRANSPORTER**

Purchaser <b>Kinder Morgan</b>	Transporter <b>Kinder Morgan</b>
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**TANK BATTERY**

Single Well Tank Battery Number :
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**SALES INFORMATION**    This Is Not The First Sales

ESTIMATED BARRELS TO BE SOLD	ACTUAL BARRELS SOLD	DATE
15000	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.
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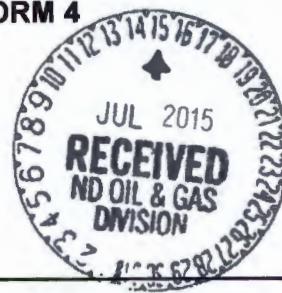
Start Date      8/25/2015
Date Approved 8/25/2015
Approved By    Richard Dunn



# 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.  
**29244**



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 14, 2015</b>	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.		<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
Approximate Start Date		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input type="checkbox"/> Other	<b>Waiver from tubing/packer requirement</b>

Well Name and Number <b>Kline Federal 5300 11-18 3T</b>					
Footages <b>1020 F N L</b>	<b>290 F W L</b>	<b>Qtr-Qtr LOT 1</b>	<b>Section 18</b>	<b>Township 153 N</b>	<b>Range 100 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

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

The following assurances apply:

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

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9436</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>Jennifer Swenson</b>	
Title <b>Regulatory Specialist</b>	Date <b>July 14, 2015</b>	
Email Address <b>jswenson@oasispetroleum.com</b>		

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>July 31 2015</i>	
By 	
Title <b>PETROLEUM ENGINEER</b>	



# SUNDY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 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>August 9, 2015</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	<u>Change well status to CONFIDENTIAL</u>

Well Name and Number <b>Kline Federal 5300 11-18 3T</b>					
Footages	Qtr-Qtr	Section	Township	Range	
1020 F N L	290 F W L	Lot 1	18	153 N	100 W
Field <b>Baker</b>	Pool <b>BAKKEN</b>	County <b>McKenzie</b>			

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

Name of Contractor(s)			
Address	City	State	Zip Code

## DETAILS OF WORK

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

**This well has not been completed**

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9436</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>Jennifer Swenson</b>	
Title <b>Regulatory Specialist</b>	Date <b>August 10, 2015</b>	
Email Address <b>jswenson@oasispetroleum.com</b>		

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>8/12/15</b>	
By 	
Title <b>Engineering Technician</b>	



## Oasis Petroleum North America LLC

### Kline Federal 5300 11-18 3T

1,020' FNL & 290' FWL

Lot 1 Section 18, T153N, R100W

Baker Field / Three Forks

McKenzie County, North Dakota

#### **BOTTOM HOLE LOCATION:**

875.04' south & 9,941.16' east of surface location or approx.

1,895.04' FNL & 314.95' FEL, SE NE Section 17, T153N, R100W

#### **Prepared for:**

Curtis Johnson

Oasis Petroleum

North America, LLC.

1001 Fannin, Suite 1500

Houston, TX 77002

#### **Prepared by:**

Dillon Johnson, Matt Hegland

PO Box 80507; Billings, MT 59108

(406) 259-4124

[geology@sunburstconsulting.com](mailto:geology@sunburstconsulting.com)

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

# WELL EVALUATION

*Oasis Petroleum North America, LLC*  
*Kline Federal 5300 11-18 3T*



**Figure 1.** Xtreme 21 drilling the Oasis Petroleum North America, LLC, *Kline Federal 5300 11-18 3T* well during May of 2015 in Williams County, North Dakota.

## INTRODUCTION

The Oasis Petroleum, North America LLC, *Kline Federal 5300 11-18 3T* well is located approximately 4 miles south of Williston in McKenzie County, North Dakota [Lot 1 Section 18, T153N, R100W]. The *Kline Federal 5300 11-18 3T* is a horizontal first bench, Three Forks well within the Williston Basin consisting of one 9,739' lateral drilled toward the east. The wells surface, vertical and curve sections were previously drilled, and this evaluation will consist of primarily operations and observations made during the lateral section.

## ENGINEERING

The *Kline Federal 5300 11-18 3T* surface, vertical and curve sections were completed earlier in 2015 by a separate drilling rig. Extreme 21 returned to location in May of 2015 to drill the laterals of the *Kline Federal 5300 11-18 3T*, 3T, 2B (**Figure 1**). The *Kline Federal 5300 11-18 3T* was re-entered on May 22, 2015. To start the lateral, a 6" Smith PDC bit, Ryan Directional Services MWD tool, and a 1.5° adjustable Ryan Directional Services mud motor began drilling operations. The complete bottom-hole assembly summary is tabulated as an appendix (BHA Record) to this report. The well reached total depth at 20,840' MD at 12:45 CDT on May 28, 2015, generating an exposure of 9,739' linear feet of 6" hole through the Three Forks target interval. The bottom-hole location (BHL) lies 875.04' south & 9,941.16' east of surface location or approximately 1,895.04' FNL & 314.95' FEL, SE NE Section 17, T153N, R100W.

## **GEOLOGY**

### **Lithology**

Sunburst Geology, Inc. was not present for the vertical and curve holes therefore there is no information for formations and members prior to intermediate casing point.

### ***Three Forks Formation***

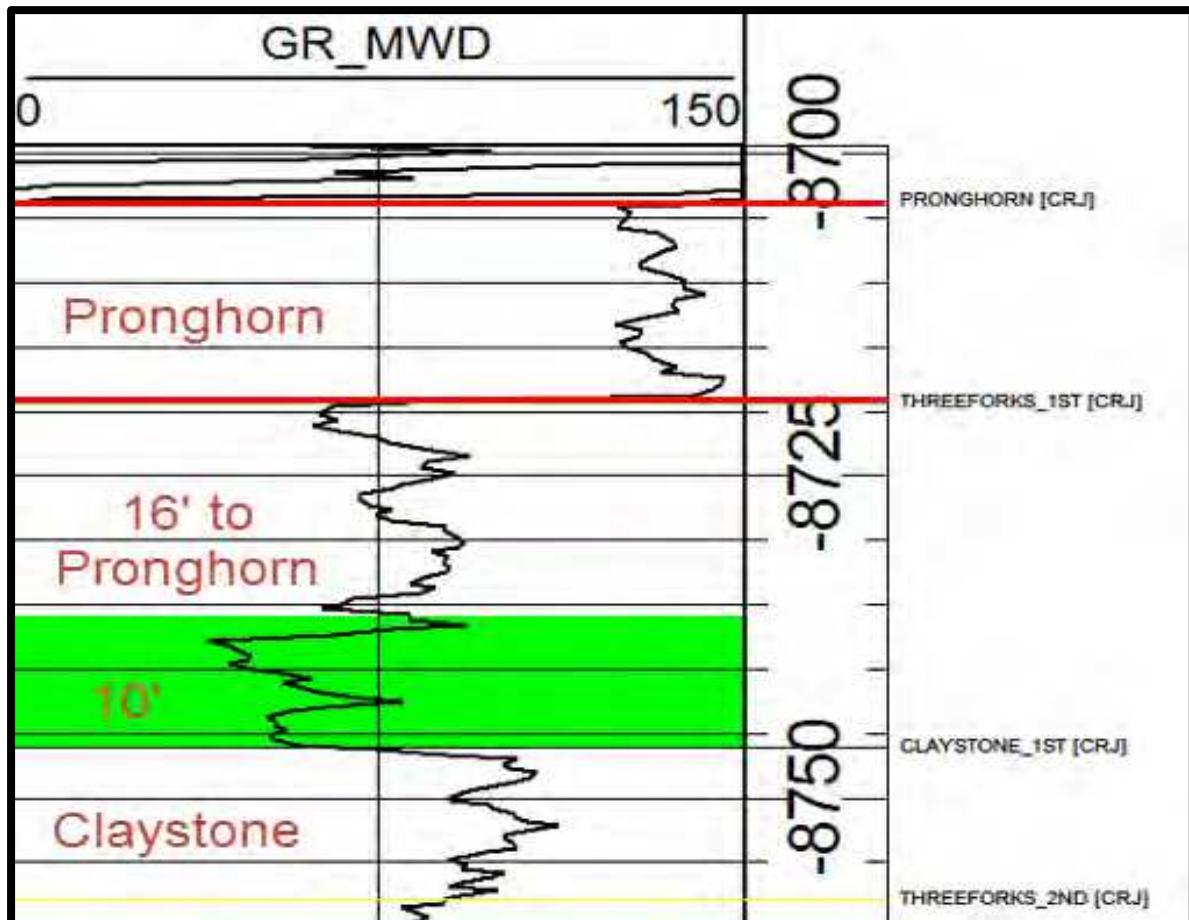
While the curve was being drilled the top of the Three Forks Formation was penetrated at 10,940' MD, 10,775' TVD (-8,706'). The *Kline Federal 5300 11-18 3T* only targeted the upper Three Forks, 1st bench. This bench consisted of two main lithology types; most commonly observed was a dolomite mudstone with lesser amounts of shale (**Figure 2**). The targeted dolomite was most commonly associated with cool gamma markers ranging from 90-50 API counts. The mudstone was light brown to off white in color and was primarily firm to friable but on occasions hard. The mudstone often displayed trace, very fine intercrystalline porosity, trace to rare *light brown spotty oil staining*, and trace amounts of disseminated pyrite and trace to rare amounts of nodular pyrite. Less commonly observed in samples was a light green to light blue-green shale, associated with 110-150 API count gamma signatures. This shale was firm (occasionally soft) with an earthy texture, displayed a sub-blocky texture and contained trace amounts of both disseminated and nodular pyrite, more than that seen throughout the dolomite intervals. Throughout the lateral, samples observed in the upper portion of the target interval displayed more shale than those seen at the base. At the very base of the target zone was a claystone interval. This claystone is what separates the first and second benches of the Three Forks Formation.



**Figure 2.** Dolomite and trace amounts of shale observed throughout the target interval.

## Geosteering

The potential pay zone was identified by evaluating gamma data collected while drilling the *Oasis Petroleum, Kline Federal 5300 41-18 11T2*. The target was determined to be 10' thick, lie 15' below the Pronghorn Member and have the base bounded by a 12' claystone interval. The target zone had a reliable, higher gamma marker at the very top of target, cooler markers throughout the middle of section, and higher gamma counts at the base representing the claystone (**Figure 3**).

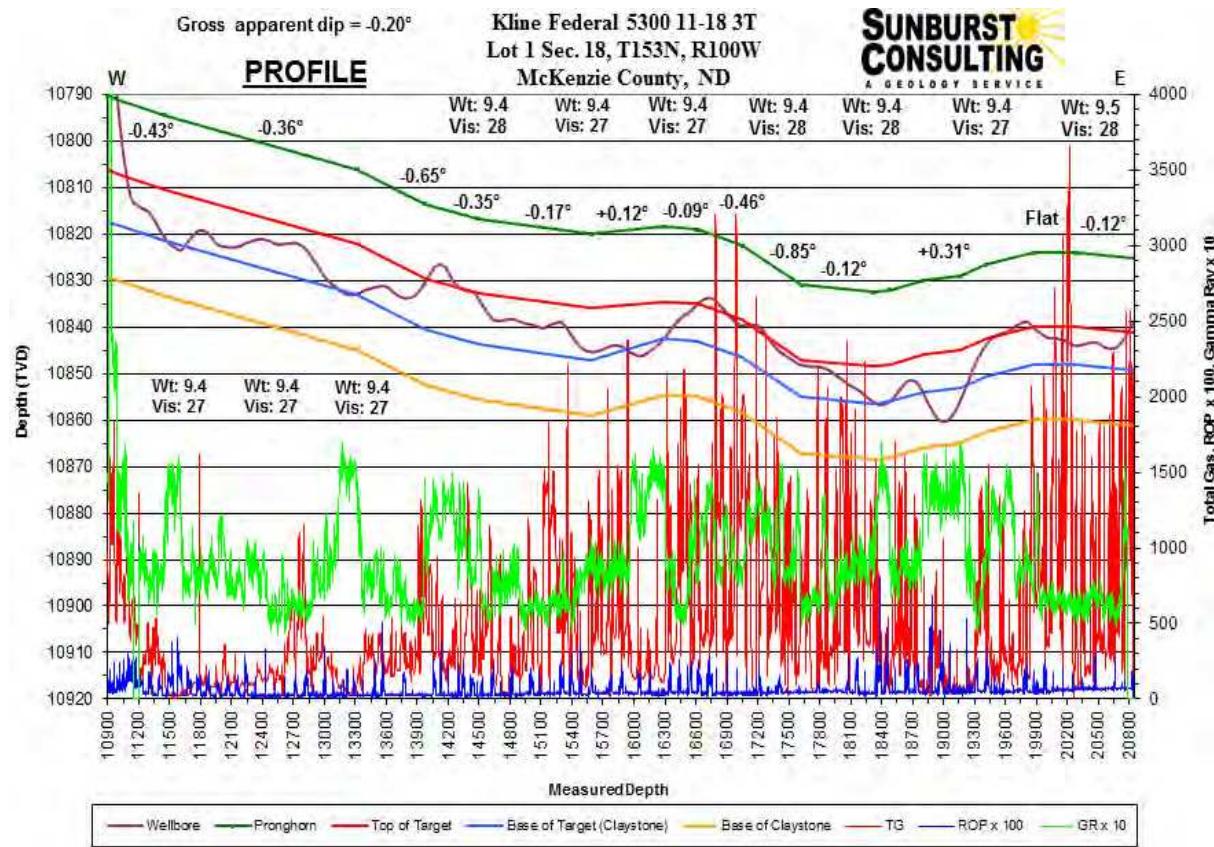


**Figure 3.** Gamma characteristics observed throughout the Three Forks, first bench while drilling the *Oasis Petroleum, Kline Federal 5300 41-18 11T2*.

Structure maps provided by Oasis Petroleum indicated that for the first several thousand feet dip rates would trend downward before flattening near the halfway point and turning up at the toe of the lateral. Upon drilling out of intermediate casing, the plan was to maintain an inclination so the top of the claystone could be confirmed, and be used throughout the rest of the lateral if stratigraphic location was ever in question. As anticipated, structure dipped downward for the first several thousand feet before leveling and turning up around 15,500' MD. Shortly after the dip reversal, formation began to dip downwards again for approximately 1,000', to a depth of ~17,600' MD. Finally, as structure maps indicated, the formation leveled and began to dip favorably upward through total depth (**Figure 4**).

## Hydrocarbon Shows

Oil and gas shows at the beginning of the lateral were relatively low, but as well-bore exposure increased, from ~13,900' to 20,840' MD, were very promising. Gas values rose gradually, with values exceeding 1,500 units toward the middle and end of the lateral section (**Figure 4**). The most promising oil staining observed in samples was observed in the upper half of the target. Consistently, throughout the lateral, this interval displayed trace amounts of *spotty to occasionally even, light to medium brown oil staining*. This upper portion also displayed the more favorable fluorescent cuts. Cuts observed in the upper portion of the target zone reacted moderately fast, and streamed pale yellow to light green. The lower half of the target did not display as encouraging hydrocarbon shows as the upper half, but were still favorable. The lower half displayed almost 100% dolomite that displayed *trace light brown spotty oil staining*. The least promising gas and oil shows were observed when making contact with the claystone, with gas shows rarely exceeded 400 units. Samples throughout the claystone also displayed little, and often no, oil staining. Over the course of the lateral there was no oil observed at the shakers and there was never a need vent or circulate fluid through the gas buster.



**Figure 4.** Cross-sectional interpretation of the *Kline Federal 5300 11-18 3T* borehole with estimated dip based on lithology, MWD data, drill rate, and regional structural data.

## **SUMMARY**

The Oasis Petroleum North America, LLC, *Kline Federal 5300 11-18 3T* lateral hole was drilled by Xtreme 21, from re-entry to total depth in 7 days. The well reached a total depth of 20,840' MD on May 28, 2015. Geologic data, hydrocarbon gas measurements, and sample examination indicate an encouraging hydrocarbon bearing system in the Three Forks. Positive background, connection and survey gas shows were recorded throughout the lateral. Samples consisted of cream to light gray dolomite with very fine intercrystalline porosity and trace light brown oil staining, interbedded with blue-green shale. Samples yielded *faint, light green, moderate, diffuse to streaming cut fluorescence*. The well was within the target zone for 84% of the lateral, successful in exposing 9,739' of potentially productive first bench, Three Forks. The well currently awaits completion operations.

Respectfully submitted,  
Dillon Johnson  
Well-site Geologist  
Sunburst Consulting, Inc.  
May 28, 2015

# **WELL DATA SUMMARY**

<b><u>OPERATOR:</u></b>	Oasis Petroleum North America LLC
<b><u>ADDRESS:</u></b>	1001 Fannin, Suite 1500 Houston, TX 77002
<b><u>WELL NAME:</u></b>	Kline Federal 5300 11-18 3T
<b><u>API #:</u></b>	33-053-06225-00-00
<b><u>WELL FILE #:</u></b>	29244
<b><u>SURFACE LOCATION:</u></b>	1,020' FNL & 290' FWL Lot 1 Section 18, T153N, R100W
<b><u>FIELD/ OBJECTIVE:</u></b>	Baker Field / Three Forks
<b><u>COUNTY, STATE</u></b>	McKenzie County, North Dakota
<b><u>BASIN:</u></b>	Williston
<b><u>WELL TYPE:</u></b>	Three Forks Horizontal
<b><u>ELEVATION:</u></b>	GL: 2,053' KB: 2,069'
<b><u>RE-ENTRY DATE:</u></b>	May 22, 2015
<b><u>BOTTOM HOLE LOCATION:</u></b>	875.04' south & 9,941.16' east of surface location or approx. 1,895.04' FNL & 314.95' FEL, SE NE Section 17, T153N, R100W
<b><u>CLOSURE COORDINATES:</u></b>	Closure Azimuth: 95.03° Closure Distance: 9,979.59'
<b><u>TOTAL DEPTH / DATE:</u></b>	20,840' on May 28, 2015 84% within target interval
<b><u>TOTAL DRILLING DAYS:</u></b>	7 days
<b><u>CONTRACTOR:</u></b>	Xtreme #21

<b><u>PUMPS:</u></b>	Continental-Emsco F1600 (12" stroke length; 5 ½" liners) Output: 0.0838 bbls/stk at 95% efficiency
<b><u>TOOLPUSHERS:</u></b>	Josh Barkell, Allen Franklin
<b><u>FIELD SUPERVISORS:</u></b>	Miles Gordon, Derek Ramsdell
<b><u>CHEMICAL COMPANY:</u></b>	MiSwaco
<b><u>MUD ENGINEER:</u></b>	Justin McNicholas
<b><u>MUD TYPE:</u></b>	Salt water in the lateral
<b><u>PROSPECT GEOLOGIST:</u></b>	Curtis Johnson
<b><u>WELLSITE GEOLOGISTS:</u></b>	Dillon Johnson, Matt Hegland
<b><u>GEOSTEERING SYSTEM:</u></b>	Sunburst Digital Wellsite Geological System
<b><u>ROCK SAMPLING:</u></b>	50' from 11,250' - 20,840'
<b><u>SAMPLE EXAMINATION:</u></b>	Binocular microscope & fluoroscope
<b><u>SAMPLE CUTS:</u></b>	Trichloroethylene
<b><u>GAS DETECTION:</u></b>	MSI (Mudlogging Systems, Inc.) TGC - total gas with chromatograph Serial Number(s): ML-488
<b><u>DIRECTIONAL DRILLERS:</u></b>	RPM Consulting, Inc. Miles Gordon, Derek Ramsdell
<b><u>MWD:</u></b>	Gyro/data in vertical in curve Ryan Directional Service in lateral Carlo Marrufo, David Foley
<b><u>CASING:</u></b>	Surface: 9 5/8" 36# J-55 set to 2,138' Intermediate: 7" 29# & 32# HCP-110 set to 11,101'
<b><u>SAFETY/ H,S MONITORING:</u></b>	Oilind Safety

**WELL LOCATION PLAT**

OASIS PETROLEUM NORTH AMERICA, LLC

1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"KLINE FEDERAL 5300 11-18 3T"

SECTION 18, T153N, R100W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

1020 FEET FROM NORTH LINE AND 390 FEET FROM WEST LINE



KLINE FEDERAL 5300 11-18 3T  
GROUND ELEV. 2053.2'  
LATITUDE 48°04'45.09"N  
LONGITUDE 103°36'10.59"W  
GPS SURVEY DATUM: NAD 83



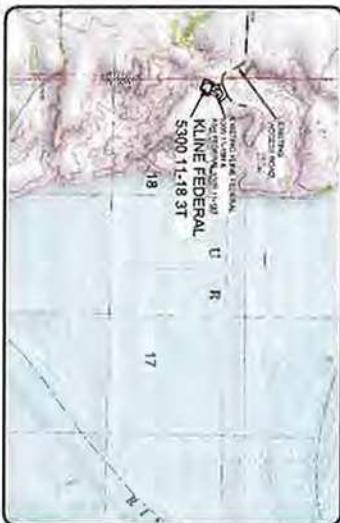
STAKED ON 5/18/14  
VERTICAL CONTROL DATUM WAS BASED UPON  
CONTROL POINT 4 WITH AN ELEVATION OF 2090.8'

THIS DOCUMENT WAS ORIGINALLY  
ISSUED AND SEALED BY DARYL D.  
KASEMAN, PLS. REGISTRATION NUMBER  
3880 ON 5/21/14 AND THE  
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DARYL D. KASEMAN LS-3880



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425 East Main Street  
Sidney, Montana 59270  
Ph: (406) 433-5617  
Fax: (406) 433-5618  
[www.interstateeng.com](http://www.interstateeng.com)

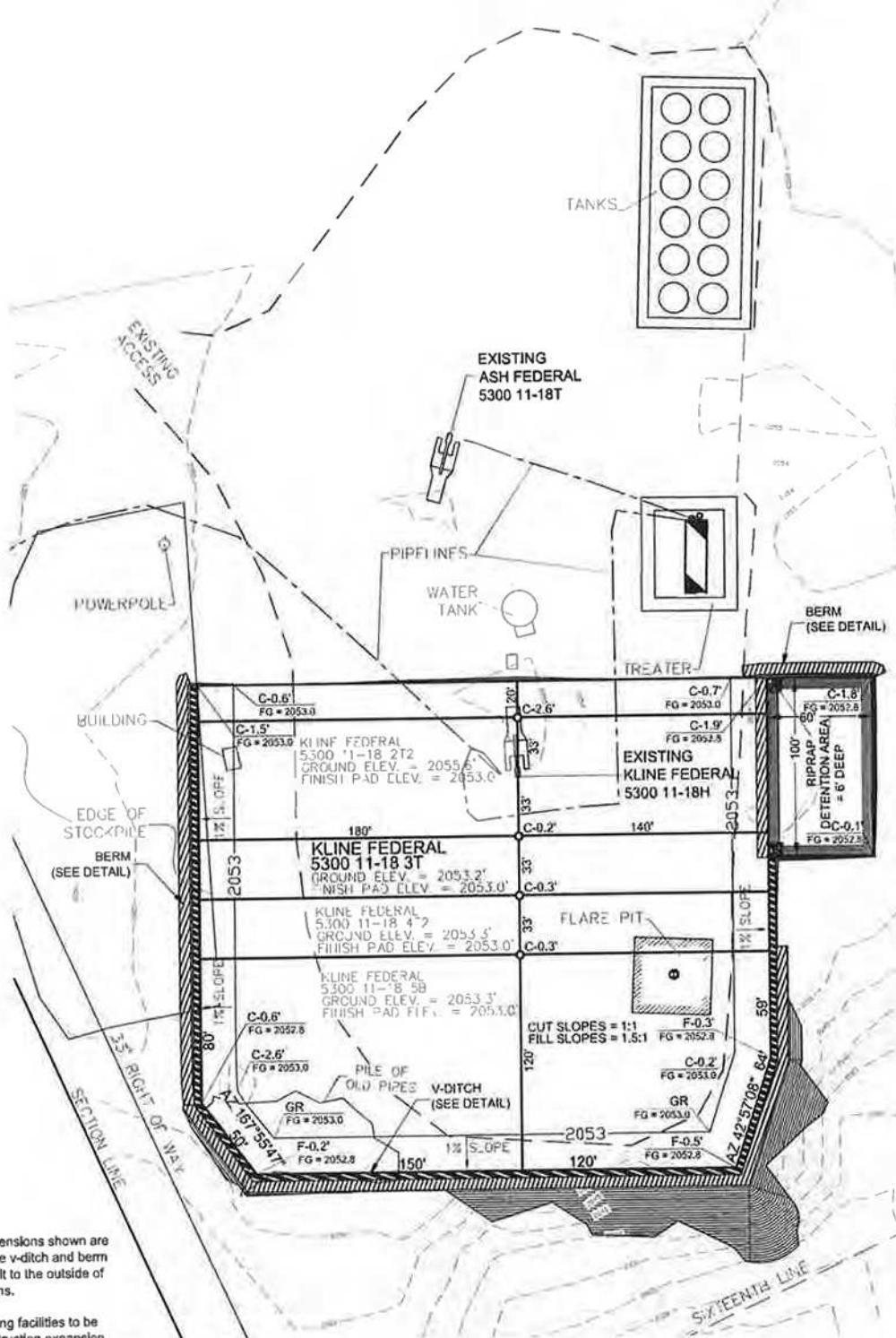
OASIS PETROLEUM NORTH AMERICA, LLC  
WELL LOCATION PLAT  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: D. Kase  
Project No.: 514-00-127-01  
Checked By: D. Kase  
Date: 5/28/2014

Number	Date	By	Description
REV 1	5/18/14	BMS	WELL WELLS



**PAD LAYOUT**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "KLINE FEDERAL 5300 11-18 3T"  
 1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
 SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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Fax: (406) 433-5619  
www.interstateeng.com  
Our offices in Billings, Helena, Missoula and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
PAD LAYOUT  
SECTION 18, T153N, R100W

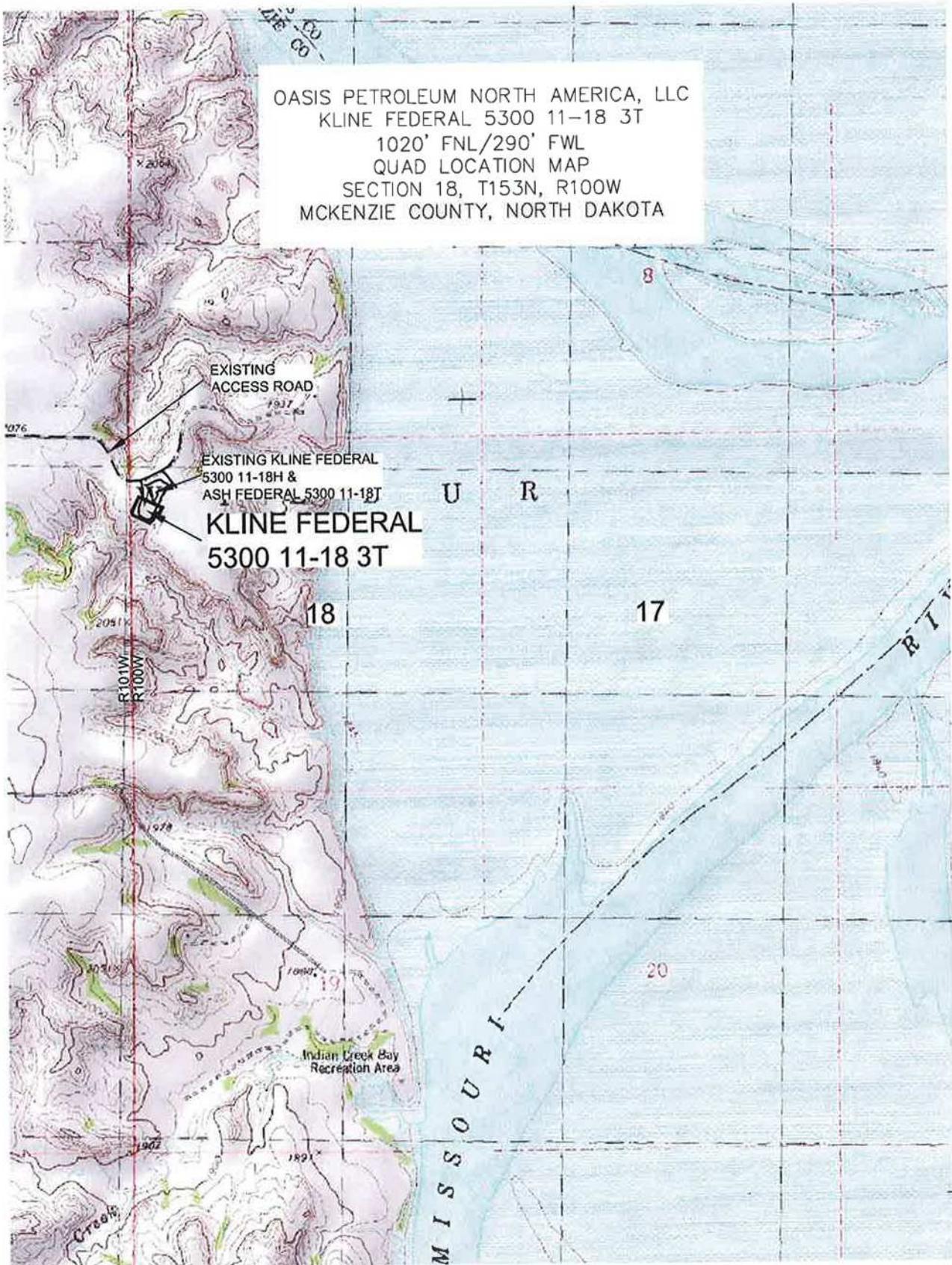
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: S.H.S. Project No.: 01408127.01  
Checked By: D.D.K. Date: 10/08/2014

Product No.	Date	Wk	Description



0 60'  
1' = 60'



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ENGINEERING**

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Ph (406) 433-5617  
Fax (406) 433-5618  
[www.interstateeng.com](http://www.interstateeng.com)

OASIS PETROLEUM NORTH AMERICA, LLC  
 QUAD LOCATION MAP  
 SECTION 18, T153N, R100W  
**MCKENZIE COUNTY, NORTH DAKOTA**

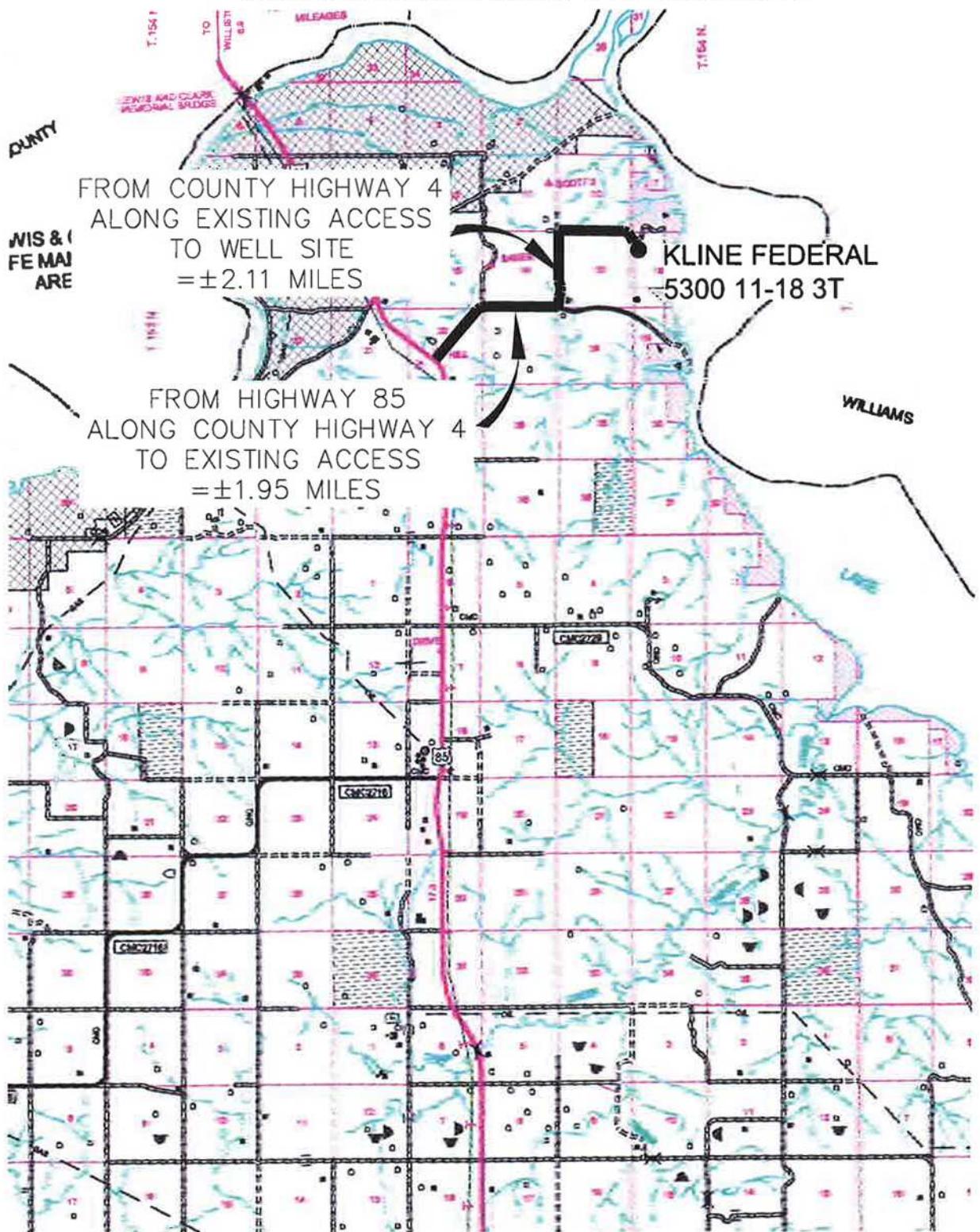
Revision No.	Date	By	Description
REV 1	8/18/14	BHM	MOVED WELLS

# COUNTY ROAD MAP

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"KLINE FEDERAL 5300 11-18 3T"

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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Operates in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
COUNTY ROAD MAP  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

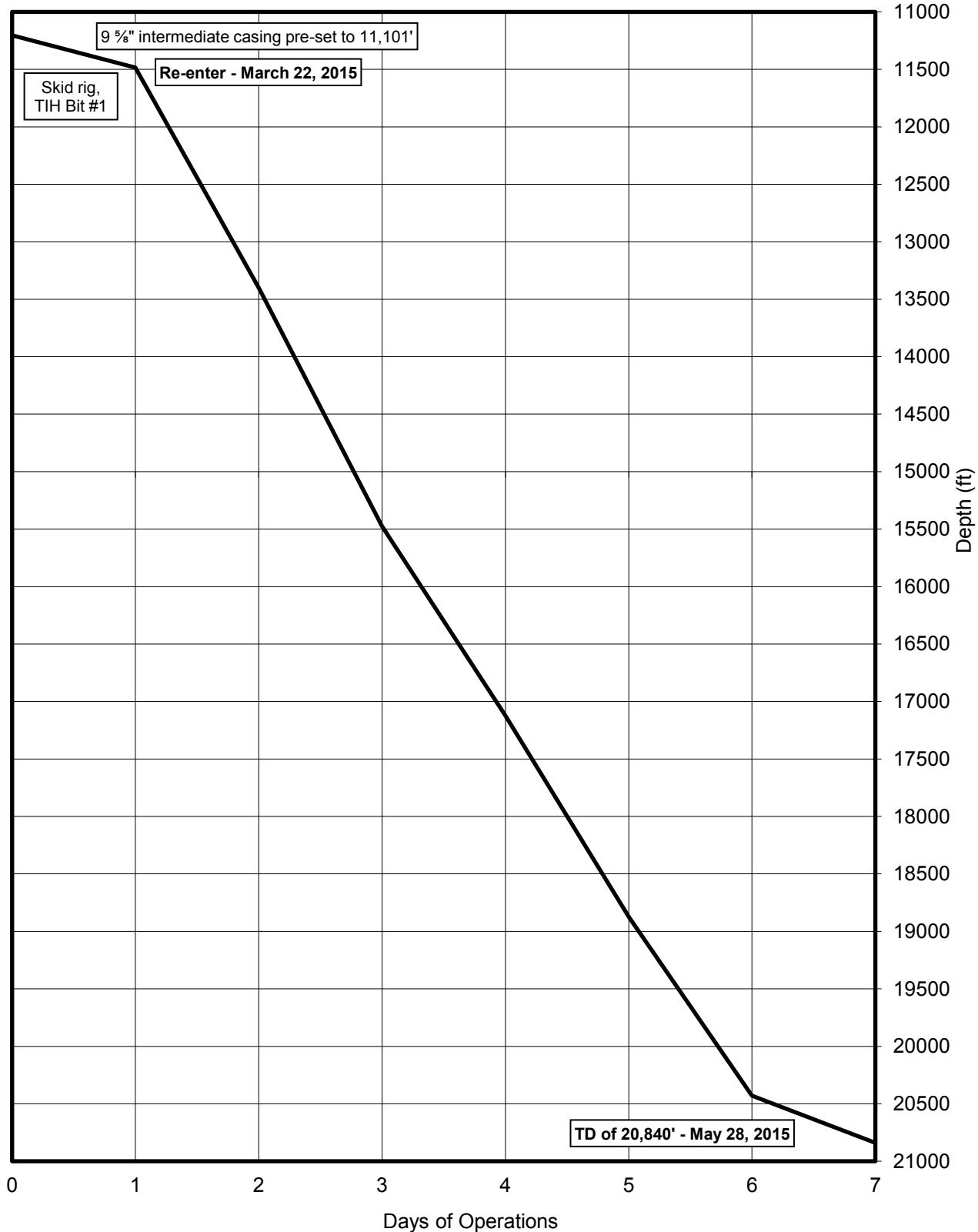
Drawn By: B.H.H. Project No.: S14-09-127.01  
Checked By: D.D.K. Date: APRIL 2014

Revised No.	Date	By	Description
REV. 1	8/8/14	BHE	HOMED WELLS

# TIME VS. DEPTH

Oasis Petroleum North America LLC

Kline Federal 5300 11-18 3T



# MORNING REPORT SUMMARY

Day	Date 2015	Depth (0600 Hrs)	24 Hr Footage	Bit #	WOB (Klbs) RT	RPM (RT)	WOB (Klbs) MM	RPM (MM)	PP			SPM 1	SPM 2	GPM		Formation
									24 Hr Activity Summary							
0	5/22	11,204'	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	5/23	11,485'	281'	1	20	40	20	260	3500	90	0	325	Drill F/11,204'-11,485'.	Skid rig. Test BOP. Pick up BHA. TH. Drill out cement. FIT test. Slip and cut.	Three Forks	
2	5/24	13,400'	1,915'	1	19	40	40	259	4050	0	90	324	Drill F/11,485'-12,170'. Lubricate rig. Drill F/12,170'-13,400'.	Drill F/13,400'-14,355'. Lubricate rig. Drill 14,355'-15,476'.	Three Forks	
3	5/25	15,476'	2,076'	1	25	40	50	253	3900	0	88	316	Drill F/13,400'-14,355'. Lubricate rig. Drill 14,355'-15,476'.	Drill F/15,476'-16,231'. Lubricate rig. Drill F/16,231'-17,189'.	Three Forks	
4	5/26	17,124'	1,648'	1	27	40	57	253	4300	0	88	316	Drill F/15,476'-16,231'. Lubricate rig. Drill F/16,231'-17,189'.	Drill F/17,189'-18,148'. Lubricate rig. Drill 18,148'-18,875'.	Three Forks	
5	5/27	18,875'	1,751'	1	28	39	70	244	4000	85	0	305	Drill F/17,189'-18,148'. Lubricate rig. Drill 18,148'-18,875'.	Drill F/18,875'-19,490'. Lubricate rig. Drill F/19,490'-20,430'.	Three Forks	
6	5/28	20,430'	1,555'	1	28	40	75	238	4000	0	83	298	Drill F/20,430'-20,840'. Circulate and condition mud. TOOH for short trip. TH.	Circulate and condition mud. TOOH for liner run	Three Forks	
7	5/29	20,840'	410'	1	28	40	75	238	4000	0	83	298	Drill F/20,430'-20,840'. Circulate and condition mud. TOOH for short trip. TH.	Circulate and condition mud. TOOH for liner run	Three Forks	

# DAILY MUD SUMMARY

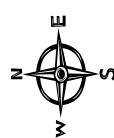
## BOTTOM HOLE ASSEMBLY RECORD

Bit #	Bit Data							Motor Data				Reason For Removal			
	Size (in.)	Type	Make	Model	Depth In	Depth Out	Footage	Hours	Σ hrs	Vert. Dev.	Make	Model	Bend	Rev/Gal	
1	6	PDC	Smith	Z613	11,204'	20,840'	9,636'	111	111	Lateral	Ryan	-	1.5	0.8	TD lateral



## PLAN VIEW

Note: 1.280 acre laydown spacing unit  
with 500' N/S & 200' E/W setbacks

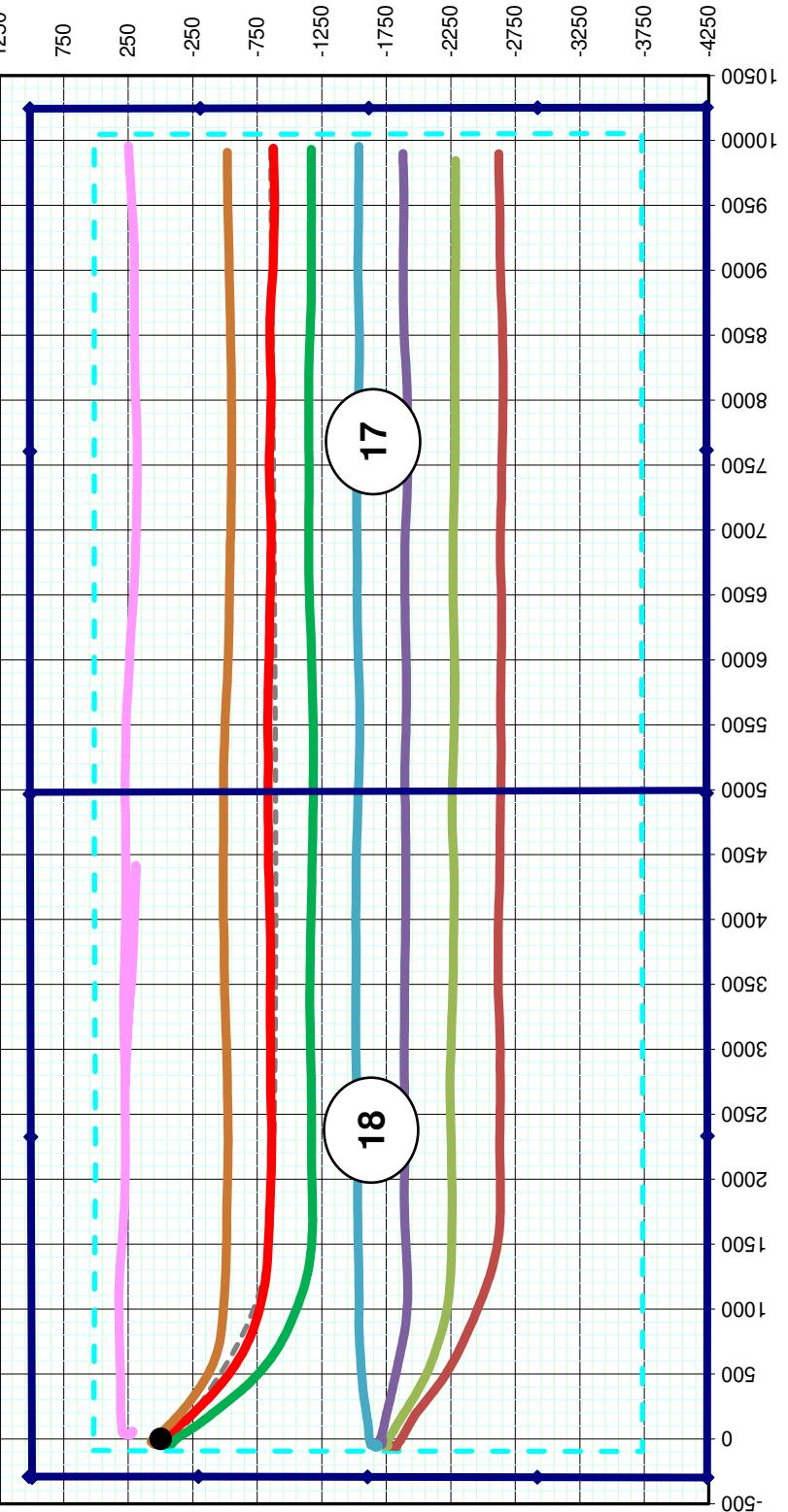


Oasis Petroleum North America LLC  
Kline Federal 5300 11-18 3T

### Surface Location

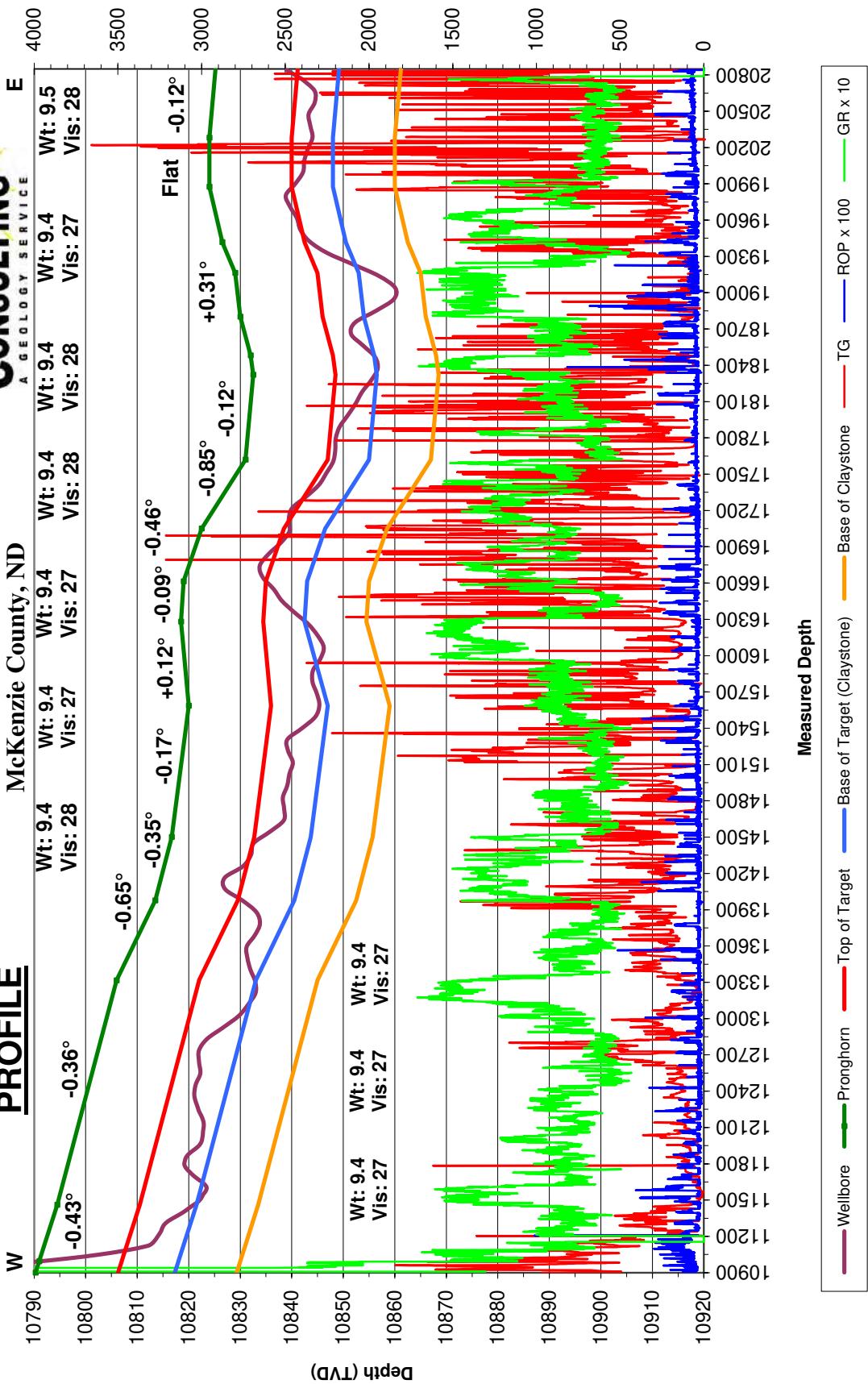
1,020' FNL & 290' FWL  
Lot 1 Sec. 18, T153N, R100W

Bottom Hole Location  
875.04' S & 9,941.16' E  
of surface location or approx.  
1,895.04' FNL & 314.95' FEL  
Lot 1 Sec. 17, T153N, R100W



Gross apparent dip = -0.20°  
 Kline Federal 5300 11-18 3T  
 Lot 1 Sec. 18, T153N, R100W  
 McKenzie County, ND

## PROFILE



# FORMATION MARKERS & DIP ESTIMATES

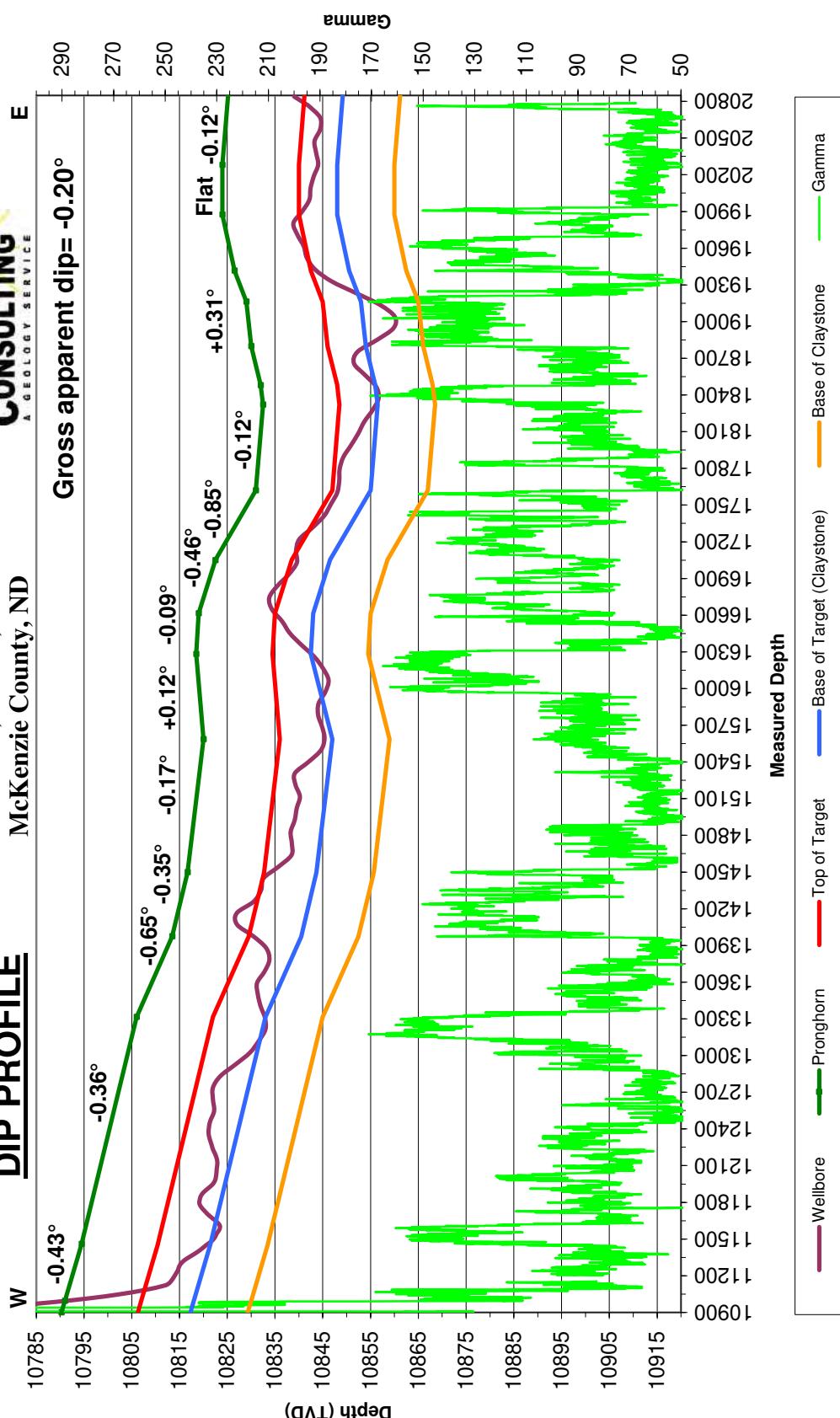
*Oasis Petroleum North America LLC - Kline Federal 5300 11-18 3T*

Dip Change Points Projected to Pronghorn	MD	TVD	TVD diff.	MD diff.	Dip	Dipping up/down	Type of Marker
Marker							
Target entry	11,075'	10,791.60					Gamma
Top of claystone	11,460'	10,794.50	2.90	385.00	-0.43	Down	Gamma
Top of claystone	13,315'	10,806.00	11.50	1855.00	-0.36	Down	Gamma
Top of claystone	13,975'	10,813.50	7.50	660.00	-0.65	Down	Gamma
Top of claystone	14,500'	10,816.70	3.20	525.00	-0.35	Down	Gamma
Warm just above claystone	15,585'	10,820.00	3.30	1085.00	-0.17	Down	Gamma
Top of claystone	16,281'	10,818.50	-1.50	696.00	0.12	Up	Gamma
Warm at top of target	16,614'	10,819.00	0.50	333.00	-0.09	Down	Gamma
Warm at top of target	17,050'	10,822.50	3.50	436.00	-0.46	Down	Gamma
Warm at top of target	17,620'	10,831.00	8.50	570.00	-0.85	Down	Gamma
Top of claystone	18,320'	10,832.50	1.50	700.00	-0.12	Down	Gamma
Top of claystone	18,480'	10,832.00	-0.50	160.00	0.18	Up	Gamma
Top of claystone	18,800'	10,830.00	-2.00	320.00	0.36	Up	Gamma
Top of claystone	19,162'	10,829.00	-1.00	362.00	0.16	Up	Gamma
Warm at top of target	19,417'	10,826.50	-2.50	255.00	0.56	Up	Gamma
Warm at top of target	19,875'	10,824.00	-2.50	458.00	0.31	Up	Gamma
Cool near the center of target	20,280'	10,824.00	0.00	405.00	0.00	Flat	Gamma
Warm at top of target	20,840'	10,825.20	1.20	560.00	-0.12	Down	Gamma
<b>Gross Dip</b>							
Initial Target Contact	11,075'	10,791.60					
Projected Final Target Contact	20,840'	10,825.20	33.60	9765.00	-0.20	Down	Projection

Oasis Petroleum North America LLC  
 Kline Federal 5300 11-18 3T  
 Lot 1 Sec. 18, T153N, R100W  
 McKenzie County, ND



## DIP PROFILE



&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America LLC	Kick-off:	5/22/2015
Well:	Kline Federal 5300 11-18 3T	Finish:	5/28/2015
Surface Coordinates:	1,020' FNL & 290' FWL		
Surface Location:	Lot 1 Sec. 18, T153N, R100W	Directional Supervision:	
County State:	McKenzie County, ND	RPM Directional Inc.	

Minimum Curvature Method (SPE-3362)

Proposed dir [ ] 94.89

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

No.	MD	INC	TRUE				DLS/ 100
			AZM	TVD	N-S	E-W	
Tie	2084.00	0.50	95.30	2083.79	3.41	-4.87	-5.14
1	2176.00	1.10	95.00	2175.78	3.30	-3.59	-3.86
2	2270.00	0.50	245.30	2269.78	3.05	-3.06	-3.31
3	2365.00	0.80	289.20	2364.77	3.09	-4.07	-4.32
4	2459.00	1.20	301.20	2458.76	3.82	-5.53	-5.83
5	2553.00	1.60	317.30	2552.73	5.29	-7.26	-7.69
6	2647.00	1.10	275.70	2646.70	6.34	-9.05	-9.56
7	2742.00	1.90	286.60	2741.67	6.89	-11.47	-12.01
8	2836.00	1.10	300.50	2835.64	7.79	-13.74	-14.35
9	2930.00	1.00	227.50	2929.63	7.69	-15.12	-15.72
10	3025.00	1.50	247.70	3024.60	6.66	-16.88	-17.39
11	3119.00	1.60	247.60	3118.57	5.69	-19.23	-19.65
12	3213.00	1.50	255.00	3212.53	4.88	-21.63	-21.97
13	3307.00	1.30	255.00	3306.51	4.28	-23.85	-24.13
14	3401.00	1.20	249.80	3400.48	3.66	-25.81	-26.02
15	3496.00	1.10	261.80	3495.47	3.19	-27.64	-27.81
16	3590.00	1.10	244.70	3589.45	2.68	-29.35	-29.47
17	3684.00	0.90	247.30	3683.43	2.01	-30.85	-30.91
18	3778.00	0.80	248.50	3777.42	1.48	-32.14	-32.15
19	3872.00	0.80	253.40	3871.41	1.05	-33.38	-33.35
20	3966.00	0.70	247.90	3965.41	0.65	-34.54	-34.47
21	4060.00	0.50	263.20	4059.40	0.38	-35.48	-35.38
22	4154.00	0.40	283.10	4153.40	0.41	-36.21	-36.11
23	4249.00	0.50	270.30	4248.40	0.49	-36.94	-36.85
24	4343.00	0.50	291.40	4342.39	0.64	-37.73	-37.65
25	4437.00	0.50	283.70	4436.39	0.89	-38.51	-38.45
26	4531.00	0.30	306.20	4530.39	1.13	-39.11	-39.07
27	4626.00	0.50	299.70	4625.38	1.48	-39.67	-39.65
28	4720.00	0.40	291.00	4719.38	1.80	-40.34	-40.34
29	4813.00	0.40	349.80	4812.38	2.24	-40.70	-40.74
30	4907.00	0.20	327.40	4906.38	2.70	-40.84	-40.92
31	5001.00	0.50	307.70	5000.38	3.09	-41.26	-41.37
32	5096.00	0.60	273.70	5095.37	3.37	-42.08	-42.21
33	5190.00	0.20	210.80	5189.37	3.26	-42.65	-42.78
34	5284.00	0.70	243.80	5283.37	2.87	-43.25	-43.34
35	5378.00	0.60	214.10	5377.36	2.21	-44.05	-44.07
36	5473.00	0.80	203.20	5472.35	1.19	-44.59	-44.52
37	5567.00	1.10	195.00	5566.34	-0.29	-45.08	-44.89

&lt;

# SUNBURST CONSULTING, INC.

&gt;

Operator:	Oasis Petroleum North America LLC	Kick-off:	5/22/2015
Well:	Kline Federal 5300 11-18 3T	Finish:	5/28/2015
Surface Coordinates:	1,020' FNL & 290' FWL		
Surface Location:	Lot 1 Sec. 18, T153N, R100W	Directional Supervision:	
County State:	McKenzie County, ND	RPM Directional Inc.	

Minimum Curvature Method (SPE-3362)

Proposed dir [ ] 94.89

[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		
38	5661.00	1.10	197.70	5660.32	-2.02	-45.59	-45.25	0.06
39	5756.00	0.60	151.60	5755.31	-3.32	-45.63	-45.18	0.85
40	5850.00	0.40	212.30	5849.31	-4.03	-45.57	-45.06	0.57
41	5944.00	0.40	178.80	5943.31	-4.64	-45.74	-45.17	0.25
42	6038.00	0.10	283.40	6037.31	-4.95	-45.81	-45.22	0.46
43	6132.00	0.40	352.00	6131.31	-4.61	-45.93	-45.37	0.40
44	6226.00	0.70	17.60	6225.30	-3.73	-45.81	-45.32	0.41
45	6320.00	0.90	3.60	6319.29	-2.45	-45.59	-45.21	0.30
46	6414.00	1.30	0.40	6413.28	-0.65	-45.53	-45.31	0.43
47	6509.00	1.00	357.40	6508.26	1.26	-45.56	-45.50	0.32
48	6603.00	1.00	2.40	6602.24	2.90	-45.57	-45.65	0.09
49	6697.00	0.80	25.70	6696.23	4.31	-45.25	-45.45	0.44
50	6791.00	0.40	161.10	6790.23	4.59	-44.86	-45.08	1.19
51	6885.00	0.20	310.80	6884.23	4.39	-44.87	-45.08	0.62
52	6979.00	0.70	56.50	6978.22	4.81	-44.52	-44.77	0.83
53	7074.00	0.70	55.20	7073.22	5.46	-43.56	-43.87	0.02
54	7168.00	0.80	54.70	7167.21	6.17	-42.55	-42.92	0.11
55	7262.00	0.80	43.00	7261.20	7.03	-41.57	-42.02	0.17
56	7356.00	0.60	107.30	7355.19	7.36	-40.65	-41.13	0.81
57	7450.00	0.20	49.70	7449.19	7.32	-40.06	-40.53	0.55
58	7544.00	0.40	25.70	7543.19	7.72	-39.79	-40.30	0.25
59	7639.00	0.60	165.40	7638.19	7.54	-39.52	-40.02	0.99
60	7733.00	0.30	185.80	7732.19	6.82	-39.42	-39.86	0.36
61	7827.00	0.10	24.70	7826.19	6.65	-39.41	-39.83	0.42
62	7921.00	0.00	8.80	7920.19	6.72	-39.38	-39.81	0.11
63	8016.00	0.20	346.50	8015.19	6.89	-39.41	-39.86	0.21
64	8109.00	0.30	36.30	8108.19	7.24	-39.31	-39.78	0.25
65	8204.00	0.30	50.00	8203.18	7.60	-38.97	-39.48	0.08
66	8298.00	0.20	133.80	8297.18	7.65	-38.66	-39.17	0.36
67	8392.00	0.40	89.90	8391.18	7.53	-38.22	-38.72	0.31
68	8486.00	0.50	86.20	8485.18	7.56	-37.48	-37.99	0.11
69	8580.00	0.70	67.40	8579.17	7.81	-36.54	-37.07	0.30
70	8674.00	0.60	58.50	8673.17	8.29	-35.59	-36.17	0.15
71	8769.00	0.80	52.70	8768.16	8.95	-34.64	-35.28	0.22
72	8863.00	0.70	61.00	8862.15	9.62	-33.61	-34.31	0.16
73	8957.00	1.10	225.40	8956.15	9.27	-33.76	-34.42	1.90
74	9051.00	1.20	232.70	9050.13	8.04	-35.18	-35.74	0.19
75	9146.00	0.80	240.80	9145.11	7.11	-36.55	-37.02	0.45

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# SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America LLC	Kick-off:	5/22/2015
Well:	Kline Federal 5300 11-18 3T	Finish:	5/28/2015
Surface Coordinates:	1,020' FNL & 290' FWL		
Surface Location:	Lot 1 Sec. 18, T153N, R100W	Directional Supervision:	
County State:	McKenzie County, ND	RPM Directional Inc.	

Minimum Curvature Method (SPE-3362)

Proposed dir [ ] 94.89

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

No.	MD	INC	TRUE				DLS/ 100
			AZM	TVD	N-S	E-W	
76	9240.00	0.70	259.80	9239.11	6.69	-37.69	-38.12 0.28
77	9334.00	0.60	245.30	9333.10	6.38	-38.70	-39.10 0.20
78	9428.00	0.40	284.40	9427.10	6.26	-39.47	-39.86 0.41
79	9523.00	0.20	279.40	9522.10	6.37	-39.95	-40.35 0.21
80	9617.00	0.20	291.70	9616.10	6.46	-40.27	-40.67 0.05
81	9711.00	0.20	314.00	9710.10	6.63	-40.54	-40.95 0.08
82	9805.00	0.20	345.20	9804.09	6.90	-40.70	-41.14 0.11
83	9899.00	0.10	252.70	9898.09	7.04	-40.82	-41.27 0.24
84	9993.00	0.20	46.50	9992.09	7.13	-40.78	-41.23 0.31
85	10087.00	0.50	10.80	10086.09	7.64	-40.58	-41.08 0.38
86	10182.00	0.70	20.10	10181.09	8.59	-40.30	-40.89 0.23
87	10226.00	1.10	22.00	10225.08	9.24	-40.05	-40.69 0.91
88	10263.00	1.00	26.00	10262.08	9.86	-39.78	-40.47 0.33
89	10294.00	2.50	101.40	10293.06	9.97	-39.00	-39.70 7.89
90	10326.00	6.50	115.60	10324.96	9.05	-36.68	-37.31 12.88
91	10357.00	10.80	121.30	10355.60	6.78	-32.61	-33.07 14.13
92	10388.00	14.80	124.80	10385.82	3.01	-26.88	-27.03 13.14
93	10420.00	19.20	128.30	10416.42	-2.59	-19.39	-19.09 14.11
94	10451.00	23.80	131.50	10445.25	-9.90	-10.70	-9.81 15.31
95	10483.00	28.00	134.90	10474.04	-19.48	-0.53	1.13 13.92
96	10514.00	31.30	135.90	10500.97	-30.41	10.23	12.78 10.76
97	10545.00	33.00	138.40	10527.22	-42.50	21.44	24.98 6.96
98	10577.00	35.20	140.80	10553.72	-56.17	33.05	37.72 8.06
99	10608.00	37.70	142.20	10578.65	-70.58	44.51	50.37 8.50
100	10639.00	40.20	142.90	10602.76	-86.06	56.36	63.49 8.19
101	10671.00	43.40	142.40	10626.61	-103.01	69.30	77.83 10.05
102	10702.00	46.70	140.90	10648.51	-120.20	82.92	92.86 11.18
103	10734.00	50.20	140.80	10669.73	-138.77	98.03	109.51 10.94
104	10765.00	53.10	141.20	10688.96	-157.67	113.33	126.36 9.41
105	10796.00	55.10	140.50	10707.14	-177.14	129.18	143.81 6.71
106	10828.00	57.80	139.80	10724.82	-197.61	146.27	162.59 8.63
107	10859.00	60.50	138.30	10740.72	-217.70	163.72	181.68 9.65
108	10890.00	64.40	136.50	10755.06	-237.92	182.32	201.94 13.59
109	10922.00	67.10	135.70	10768.20	-258.94	202.55	223.89 8.74
110	10953.00	70.90	135.60	10779.30	-279.63	222.78	245.81 12.26
111	10984.00	74.60	136.60	10788.50	-300.96	243.30	268.07 12.33
112	11016.00	77.50	135.90	10796.21	-323.39	264.78	291.38 9.31
113	11047.00	80.20	134.90	10802.20	-345.05	286.13	314.50 9.27

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# SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America LLC	Kick-off:	5/22/2015
Well:	Kline Federal 5300 11-18 3T	Finish:	5/28/2015
Surface Coordinates:	1,020' FNL & 290' FWL		
Surface Location:	Lot 1 Sec. 18, T153N, R100W	Directional Supervision:	
County State:	McKenzie County, ND	RPM Directional Inc.	

Minimum Curvature Method (SPE-3362)

Proposed dir 94.89

[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		
114	11079.00	82.10	134.20	10807.13	-367.23	308.66	338.84	6.32
115	11110.00	84.00	134.10	10810.88	-388.66	330.74	362.67	6.14
116	11140.00	88.40	133.50	10812.87	-409.37	352.34	385.96	14.80
117	11236.00	89.60	129.10	10814.54	-472.71	424.43	463.18	4.75
118	11267.00	89.30	128.10	10814.84	-492.05	448.66	488.97	3.37
119	11298.00	89.10	127.50	10815.27	-511.04	473.15	514.99	2.04
120	11329.00	87.80	125.50	10816.11	-529.48	498.06	541.38	7.69
121	11360.00	87.60	125.20	10817.36	-547.40	523.33	568.08	1.16
122	11391.00	87.70	124.80	10818.63	-565.16	548.70	594.88	1.33
123	11421.00	88.30	122.40	10819.67	-581.75	573.67	621.17	8.24
124	11452.00	88.10	122.00	10820.65	-598.26	599.89	648.70	1.44
125	11483.00	87.90	121.90	10821.73	-614.66	626.17	676.29	0.72
126	11514.00	89.60	119.40	10822.41	-630.46	652.83	704.20	9.75
127	11545.00	89.00	117.50	10822.78	-645.22	680.09	732.61	6.43
128	11576.00	89.00	117.10	10823.33	-659.44	707.63	761.27	1.29
129	11607.00	90.50	114.90	10823.46	-673.03	735.49	790.18	8.59
130	11638.00	91.60	114.60	10822.89	-686.00	763.64	819.33	3.68
131	11669.00	92.00	113.50	10821.92	-698.63	791.93	848.60	3.77
132	11699.00	91.50	110.50	10821.00	-709.86	819.73	877.26	10.13
133	11730.00	91.30	109.80	10820.24	-720.54	848.82	907.16	2.35
134	11761.00	91.30	108.80	10819.54	-730.78	878.07	937.17	3.22
135	11792.00	90.10	107.20	10819.16	-740.36	907.55	967.36	6.45
136	11822.00	89.60	106.90	10819.24	-749.16	936.24	996.69	1.94
137	11853.00	89.50	106.10	10819.48	-757.96	965.96	1027.05	2.60
138	11883.00	88.30	104.00	10820.06	-765.75	994.92	1056.57	8.06
139	11915.00	88.30	103.90	10821.01	-773.46	1025.96	1088.16	0.31
140	11946.00	88.40	103.70	10821.90	-780.85	1056.06	1118.77	0.72
141	11978.00	89.70	101.60	10822.43	-787.86	1087.27	1150.47	7.72
142	12010.00	89.60	101.50	10822.63	-794.26	1118.62	1182.26	0.44
143	12042.00	90.00	101.60	10822.74	-800.67	1149.98	1214.04	1.29
144	12074.00	89.80	99.10	10822.80	-806.42	1181.45	1245.89	7.84
145	12105.00	89.80	98.60	10822.90	-811.19	1212.08	1276.82	1.61
146	12137.00	90.20	97.90	10822.90	-815.78	1243.75	1308.76	2.52
147	12168.00	90.50	96.20	10822.72	-819.58	1274.52	1339.74	5.57
148	12200.00	90.60	96.00	10822.41	-822.98	1306.33	1371.73	0.70
149	12232.00	90.80	94.80	10822.02	-826.00	1338.19	1403.73	3.80
150	12264.00	90.10	93.30	10821.77	-828.26	1370.11	1435.72	5.17
151	12359.00	90.70	92.80	10821.10	-833.31	1464.97	1530.67	0.82

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# SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America LLC	Kick-off:	5/22/2015
Well:	Kline Federal 5300 11-18 3T	Finish:	5/28/2015
Surface Coordinates:	1,020' FNL & 290' FWL	Directional Supervision:	
Surface Location:	Lot 1 Sec. 18, T153N, R100W	RPM Directional Inc.	
County State:	McKenzie County, ND		

Minimum Curvature Method (SPE-3362)

Proposed dir 94.89

[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		
152	12453.00	89.00	92.70	10821.35	-837.82	1558.86	1624.60	1.81
153	12547.00	89.90	92.50	10822.25	-842.08	1652.75	1718.52	0.98
154	12642.00	90.40	92.00	10822.00	-845.81	1747.68	1813.42	0.74
155	12738.00	89.60	92.60	10822.00	-849.67	1843.60	1909.32	1.04
156	12832.00	88.50	92.70	10823.56	-854.01	1937.49	2003.23	1.18
157	12928.00	87.70	91.70	10826.74	-857.69	2033.36	2099.07	1.33
158	13024.00	88.70	90.90	10829.76	-859.87	2129.29	2194.83	1.33
159	13120.00	89.10	90.50	10831.60	-861.04	2225.26	2290.56	0.59
160	13213.00	89.20	90.60	10832.98	-861.94	2318.25	2383.28	0.15
161	13308.00	90.90	88.70	10832.90	-861.36	2413.24	2477.88	2.68
162	13403.00	90.20	87.90	10831.99	-858.54	2508.19	2572.25	1.12
163	13498.00	90.50	88.20	10831.41	-855.31	2603.13	2666.57	0.45
164	13593.00	89.70	90.20	10831.24	-853.98	2698.12	2761.09	2.27
165	13689.00	88.40	89.20	10832.83	-853.48	2794.10	2856.68	1.71
166	13783.00	90.40	90.00	10833.82	-852.82	2888.09	2950.27	2.29
167	13879.00	90.40	90.10	10833.15	-852.90	2984.08	3045.93	0.10
168	13975.00	92.80	89.40	10830.47	-852.49	3080.04	3141.50	2.60
169	14070.00	91.30	89.20	10827.07	-851.33	3174.97	3235.98	1.59
170	14164.00	88.80	90.10	10826.99	-850.75	3268.96	3329.58	2.83
171	14258.00	86.90	90.10	10830.51	-850.92	3362.89	3423.18	2.02
172	14353.00	91.20	90.70	10832.09	-851.58	3457.85	3517.85	4.57
173	14449.00	88.20	90.70	10832.59	-852.75	3553.83	3613.59	3.13
174	14543.00	88.00	90.20	10835.71	-853.49	3647.78	3707.25	0.57
175	14638.00	88.70	89.80	10838.44	-853.49	3742.73	3801.87	0.85
176	14733.00	91.20	89.10	10838.52	-852.58	3837.72	3896.43	2.73
177	14828.00	89.10	88.50	10838.28	-850.59	3932.70	3990.89	2.30
178	14925.00	89.90	88.50	10839.12	-848.05	4029.66	4087.28	0.82
179	15022.00	89.60	88.50	10839.55	-845.51	4126.62	4183.68	0.31
180	15117.00	89.60	88.80	10840.21	-843.27	4221.59	4278.11	0.32
181	15212.00	91.50	87.60	10839.30	-840.29	4316.54	4372.45	2.37
182	15306.00	88.70	88.10	10839.13	-836.76	4410.46	4465.74	3.03
183	15401.00	87.80	90.20	10842.03	-835.35	4505.40	4560.21	2.40
184	15496.00	89.10	90.70	10844.60	-836.10	4600.36	4654.89	1.47
185	15592.00	90.00	89.50	10845.36	-836.27	4696.35	4750.55	1.56
186	15687.00	90.60	88.40	10844.86	-834.53	4791.34	4845.03	1.32
187	15782.00	90.40	89.60	10844.03	-832.87	4886.32	4939.53	1.28
188	15877.00	89.50	90.60	10844.11	-833.03	4981.31	5034.19	1.42
189	15973.00	88.80	90.90	10845.54	-834.29	5077.29	5129.93	0.79

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# SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America LLC	Kick-off:	5/22/2015
Well:	Kline Federal 5300 11-18 3T	Finish:	5/28/2015
Surface Coordinates:	1,020' FNL & 290' FWL		
Surface Location:	Lot 1 Sec. 18, T153N, R100W	Directional Supervision:	
County State:	McKenzie County, ND	RPM Directional Inc.	

Minimum Curvature Method (SPE-3362)

Proposed dir 94.89

[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		
190	16069.00	90.40	90.40	10846.21	-835.38	5173.28	5225.66	1.75
191	16166.00	91.00	89.30	10845.02	-835.13	5270.27	5322.28	1.29
192	16262.00	91.20	88.70	10843.18	-833.45	5366.24	5417.75	0.66
193	16358.00	92.00	89.70	10840.50	-832.11	5462.19	5513.24	1.33
194	16454.00	90.90	90.40	10838.07	-832.19	5558.16	5608.87	1.36
195	16551.00	91.00	90.20	10836.46	-832.70	5655.14	5705.54	0.23
196	16647.00	91.50	90.90	10834.37	-833.62	5751.11	5801.24	0.90
197	16742.00	89.20	91.70	10833.79	-835.78	5846.08	5896.05	2.56
198	16838.00	88.80	92.10	10835.46	-838.96	5942.01	5991.90	0.59
199	16935.00	88.30	91.80	10837.92	-842.26	6038.93	6088.74	0.60
200	17030.00	89.70	90.70	10839.58	-844.33	6133.89	6183.53	1.87
201	17124.00	90.50	90.50	10839.41	-845.32	6227.88	6277.27	0.88
202	17220.00	88.70	91.00	10840.08	-846.57	6323.86	6373.01	1.95
203	17317.00	88.00	91.40	10842.88	-848.60	6420.80	6469.77	0.83
204	17412.00	89.10	91.10	10845.28	-850.68	6515.75	6564.55	1.20
205	17508.00	89.20	91.10	10846.70	-852.52	6611.72	6660.32	0.10
206	17603.00	89.20	91.00	10848.03	-854.26	6706.69	6755.10	0.11
207	17698.00	90.30	90.70	10848.44	-855.67	6801.68	6849.86	1.20
208	17794.00	89.60	90.80	10848.53	-856.93	6897.67	6945.61	0.74
209	17891.00	89.50	88.90	10849.29	-856.67	6994.66	7042.23	1.96
210	17987.00	88.60	88.70	10850.88	-854.66	7090.63	7137.67	0.96
211	18083.00	89.60	87.80	10852.39	-851.73	7186.57	7233.02	1.40
212	18180.00	88.90	88.80	10853.66	-848.85	7283.52	7329.37	1.26
213	18276.00	89.00	88.20	10855.42	-846.34	7379.47	7424.75	0.63
214	18372.00	89.50	88.70	10856.67	-843.74	7475.42	7520.14	0.74
215	18468.00	91.10	91.60	10856.17	-843.99	7571.41	7615.80	3.45
216	18562.00	91.70	91.90	10853.88	-846.86	7665.34	7709.63	0.71
217	18658.00	91.10	91.60	10851.53	-849.79	7761.26	7805.45	0.70
218	18753.00	88.00	92.20	10852.28	-852.94	7856.20	7900.31	3.32
219	18851.00	87.20	91.80	10856.38	-856.36	7954.05	7998.10	0.91
220	18947.00	88.70	90.40	10859.81	-858.20	8049.96	8093.82	2.14
221	19041.00	91.00	88.00	10860.06	-856.89	8143.94	8187.34	3.54
222	19138.00	92.70	87.70	10856.93	-853.25	8240.82	8283.56	1.78
223	19234.00	93.30	88.60	10851.90	-850.16	8336.64	8378.76	1.13
224	19329.00	92.80	89.20	10846.85	-848.34	8431.48	8473.11	0.82
225	19425.00	91.30	89.30	10843.42	-847.08	8527.41	8568.58	1.57
226	19520.00	90.80	91.60	10841.67	-847.83	8622.39	8663.27	2.48
227	19615.00	90.00	93.60	10841.01	-852.14	8717.28	8758.19	2.27

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# SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America LLC	Kick-off:	5/22/2015
Well:	Kline Federal 5300 11-18 3T	Finish:	5/28/2015
Surface Coordinates:	1,020' FNL & 290' FWL		
Surface Location:	Lot 1 Sec. 18, T153N, R100W	Directional Supervision:	
County State:	McKenzie County, ND	RPM Directional Inc.	

Minimum Curvature Method (SPE-3362)

Proposed dir [ ] 94.89

[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		
228	19710.00	91.60	94.50	10839.68	-858.85	8812.03	8853.17	1.93
229	19805.00	89.40	93.50	10838.86	-865.47	8906.79	8948.14	2.54
230	19900.00	88.40	93.20	10840.68	-871.02	9001.61	9043.09	1.10
231	19996.00	89.80	91.50	10842.19	-874.96	9097.51	9138.98	2.29
232	20091.00	89.90	91.90	10842.44	-877.78	9192.47	9233.83	0.43
233	20187.00	89.30	91.10	10843.11	-880.29	9288.43	9329.66	1.04
234	20283.00	89.60	90.80	10844.03	-881.88	9384.41	9425.43	0.44
235	20379.00	90.90	91.20	10843.61	-883.55	9480.39	9521.20	1.42
236	20475.00	89.50	89.50	10843.27	-884.14	9576.39	9616.90	2.29
237	20571.00	89.10	88.70	10844.45	-882.63	9672.37	9712.40	0.93
238	20668.00	90.90	88.80	10844.45	-880.52	9769.34	9808.84	1.86
239	20764.00	92.00	88.10	10842.02	-877.92	9865.27	9904.20	1.36
240	20775.00	92.30	87.80	10841.60	-877.53	9876.26	9915.11	3.86
241	20840.00	92.30	87.80	10839.00	-875.04	9941.16	9979.56	0.00

# DEVIATION SURVEYS

Depth	Inclination	Azimuth
0	0.00	0.00
132	0.90	144.50
224	1.20	153.80
314	1.70	133.30
399	0.60	159.80
389	0.80	265.10
579	1.00	273.20
663	0.90	266.60
751	0.40	297.80
840	0.80	258.90
927	0.40	291.60
1015	0.50	281.30
1101	1.00	276.90
1188	0.40	308.00
1277	0.50	287.90
1365	0.60	270.00
1450	0.60	284.90
1539	0.80	329.60
1628	1.20	18.40
1714	0.70	31.60
1803	0.70	24.10
1889	1.10	23.80
1987	1.00	23.10

# FORMATION TOPS & STRUCTURAL RELATIONSHIPS

Subject Well:						
<b>Oasis Petroleum North America LLC</b>						
<b>Kline Federal 5300 11-18 T</b>						
1,020' FNL & 290' FWL						
Formation/ Marker	Prog. Top	Prog. Datum (MSL)	Driller's Depth Top (MD)	Driller's Depth Top (TVD)	Datum (MSL)	Interval Thickness to Target
Elevation: GL: 2,053'	Sub: 16'	KB: 2,069'				
Kibbey Lime	8,366'	-6,297'	8,363'	8,362'	-6,293'	150'
First Charles Salts	8,516'	-6,447'	8,513'	8,512'	-6,443'	616'
Upper Berenton	9,167'	-7,098'	9,129'	9,128'	-7,059'	72'
Base Last Salt	9,215'	-7,146'	9,201'	9,200'	-7,131'	49'
Ratcliffe	9,263'	-7,194'	9,250'	9,249'	-7,180'	182'
Mission Canyon	9,439'	-7,370'	9,432'	9,431'	-7,362'	550'
Lodgepole	10,001'	-7,932'	9,982'	9,981'	-7,912'	712'
False Bakken	10,697'	-8,628'	10,771'	10,693'	-8,624'	10'
Upper Bakken Shale	10,707'	-8,638'	10,789'	10,703'	-8,634'	19'
Middle Bakken	10,721'	-8,652'	10,822'	10,722'	-8,653'	40'
Lower Bakken Shale	10,766'	-8,697'	10,907'	10,762'	-8,693'	13'
Pronghorn	10,780'	-8,711'	10,940'	10,775'	-8,706'	16'
Three Forks	10,792'	-8,723'	10,994'	10,791'	-8,722'	-
						22'
						1'

## LITHOLOGY

*Rig crews caught lagged samples in 50' intervals under the supervision of a Sunburst geologist. A detailed list of sampling intervals is included in the well data summary page. Samples were examined wet and dry conditions under a binocular microscope and checked for hydrocarbon cut fluorescence with Entron. Sample descriptions began in the Three Forks. The drilling fluid was salt water brine solution in the lateral.*

### **(Re-Enter Lateral)**

#### **Three Forks Formation**      **10,994' MD; 10,791' TVD (-8,722')**

11,204-11,250 DOLOMITE: mudstone, light tan, light orange, off white, light gray-brown, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: light blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite, trace nodular pyrite; slow white streaming becoming diffuse cut fluorescence

11,250-11,300 DOLOMITE: mudstone, off white, light tan, light orange, medium gray-brown, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow white streaming becoming diffuse cut fluorescence

11,300-11,350 DOLOMITE: mudstone, cream, light brown-gray, off white, medium gray-brown, microcrystalline, firm, rare friable, dense, earthy, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow white diffuse cut fluorescence

11,350-11,400 DOLOMITE: mudstone, light gray, off white, cream, trace pink, microcrystalline, firm, dense, earthy, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; slow white diffuse cut fluorescence

11,400-11,450 DOLOMITE: mudstone, tan, cream, off white, microcrystalline, firm, dense, earthy, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; slow light yellow diffuse cut fluorescence

11,450-11,500 DOLOMITE: mudstone, off white-tan, microcrystalline, firm, dense, occasional earthy, trace intercrystalline porosity, trace light brown spotty oil stain; CLAYSTONE: light blue gray, cream, rare light brown-gray, firm-friable, platy, smooth-silty texture, common disseminated pyrite, trace nodular pyrite, no visible oil stain; slightly pale yellow diffuse cut fluorescence

11,500-11,550 CLAYSTONE: light gray, light blue, firm, platy, smooth-silty texture, trace disseminated pyrite, trace nodular pyrite, no visible oil stain; slow poor pale yellow diffuse cut fluorescence

11,550-11,600 CLAYSTONE: cream, light gray, light blue, firm, platy, silty texture, trace disseminated pyrite, trace nodular pyrite, no visible oil stain; slow poor pale yellow diffuse cut fluorescence

11,600-11,650 CLAYSTONE: light blue, cream, light gray, firm, platy, silty texture, trace disseminated pyrite, trace nodular pyrite, intercrystalline porosity, no visible oil stain; DOLOMITE: mudstone, pink, light brown-gray, cream, microcrystalline, firm, dense, occasional earthy, trace intercrystalline porosity, trace light brown spotty oil stain; slow poor pale yellow diffuse cut fluorescence

11,650-11,700 DOLOMITE: mudstone, cream, off white, light gray, microcrystalline, firm, rare friable, dense, earthy, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; slow white occasional pale yellow diffuse cut fluorescence

11,700-11,750 DOLOMITE: mudstone, off white, light pink, light tan, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light to medium brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow white diffuse cut fluorescence

11,750-11,800 DOLOMITE: mudstone, light gray, tan, cream, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: pale green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

11,800-11,850 DOLOMITE: mudstone, cream, off white, light to medium gray, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, pale green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow off white diffuse cut fluorescence

11,850-11,900 DOLOMITE: mudstone, tan, light brown, cream, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite; slow white diffuse cut fluorescence

11,900-11,950 DOLOMITE: mudstone, light to medium gray, tan, light brown, cream, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light to medium brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite; slow white diffuse cut fluorescence

11,950-12,000 DOLOMITE: mudstone, off white, light pink, light tan, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light to medium brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow white diffuse cut fluorescence

12,000-12,050 DOLOMITE: mudstone, light to medium gray, tan, cream, occasional pink, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: pale green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,050-12,100 DOLOMITE: mudstone, light tan, light orange, off white, gray-brown, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; very slow pale yellow streaming becoming diffuse cut fluorescence

12,100-12,150 DOLOMITE: mudstone, light brown, tan, light orange, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; very slow pale yellow streaming becoming diffuse cut fluorescence

12,150-12,200 DOLOMITE: mudstone, tan, light orange-light brown, off white, gray, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; very slow pale yellow streaming becoming diffuse cut fluorescence

12,200-12,250 DOLOMITE: mudstone, light brown-gray, tan, light orange, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; very slow pale yellow diffuse cut fluorescence

12,250-12,300 DOLOMITE: mudstone, tan, light orange, medium brown-gray, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; very slow pale yellow diffuse cut fluorescence

12,300-12,350 DOLOMITE: mudstone, orange, tan, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; very slow pale yellow diffuse cut fluorescence

12,350-12,400 DOLOMITE: mudstone, orange, tan, medium brown-gray, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; very slow pale yellow diffuse cut fluorescence

12,400-12,450 DOLOMITE: mudstone, orange, tan, light brown-gray, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; very slow pale yellow diffuse cut fluorescence

12,450-12,500 DOLOMITE: mudstone, orange, tan, off white light brown-gray, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite, trace nodular pyrite; very slow pale yellow diffuse cut fluorescence

12,500-12,550 DOLOMITE: mudstone, orange, tan, off white, light brown-gray, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; very slow pale yellow diffuse cut fluorescence

12,550-12,600 DOLOMITE: mudstone, orange, tan, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,600-12,650 DOLOMITE: mudstone, orange, tan-light brown, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,650-12,700 DOLOMITE: mudstone, orange, tan-light brown, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,700-12,750 DOLOMITE: mudstone, light to medium brown, orange, tan, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,750-12,800 DOLOMITE: mudstone, light to medium brown-gray, off white, tan, light orange, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,800-12,850 DOLOMITE: mudstone, orange, tan to medium brown, off white, gray, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,850-12,900 DOLOMITE: mudstone, orange, tan to medium brown, off white, gray, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,900-12,950 DOLOMITE: mudstone, light to medium brown-gray, cream, orange, tan to medium brown, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

12,950-13,000 DOLOMITE: mudstone, light to medium brown-gray, cream, orange, tan, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,000-13,050 DOLOMITE: mudstone, light to medium brown-gray, off white, orange, tan to medium brown, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,050-13,100 DOLOMITE: mudstone, light orange, tan to medium brown, brown-gray, off white, orange, tan to medium brown, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,100-13,150 DOLOMITE: mudstone, medium brown-gray, orange, tan to medium brown, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,150-13,200 CLAYSTONE: cream, light gray, light blue, firm, platy, silty texture, trace disseminated pyrite, trace nodular pyrite, no visible oil stain; very slow poor pale yellow diffuse cut fluorescence

13,200-13,250 CLAYSTONE: cream, light blue, firm, platy, silty texture, trace disseminated pyrite, trace nodular pyrite, no visible oil stain; very slow poor pale yellow diffuse cut fluorescence

13,250-13,300 CLAYSTONE: cream, light blue, firm, platy, silty texture, trace disseminated pyrite, trace nodular pyrite, no visible oil stain; very slow poor pale yellow diffuse cut fluorescence

13,300-13,350 DOLOMITE: mudstone, cream, light gray, medium brown, off white, microcrystalline, firm, dense, earthy texture, trace intercrystalline porosity, trace light brown spotty oil stain; slow pale yellow diffuse cut fluorescence

13,350-13,400 DOLOMITE: mudstone, tan, off white, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,400-13,450 DOLOMITE: mudstone, off white, cream, light to medium gray, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace medium brown spotty oil stain; occasional SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,450-13,500 DOLOMITE: mudstone, off white, cream, light to medium gray, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: pale green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,500-13,550 DOLOMITE: mudstone, light gray, off white, tan, light brown-gray, medium-dark gray, microcrystalline, firm, dense, earthy texture, trace intercrystalline porosity, trace medium brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow-moderate pale yellow streaming cut fluorescence

13,550-13,600 DOLOMITE: mudstone, off white, tan, light brown-gray, medium gray, microcrystalline, firm, dense, earthy texture, trace intercrystalline porosity, trace medium brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow-moderate pale yellow diffuse cut fluorescence

13,600-13,650 DOLOMITE: mudstone, off white, tan, light brown-gray, medium gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace medium brown spotty oil stain; trace SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

13,700-13,750 DOLOMITE: mudstone, off white, cream, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace medium brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow-moderate pale yellow streaming cut fluorescence

13,700-13,750 DOLOMITE: mudstone, light gray, off white, cream, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace medium brown spotty oil stain; slow-moderate pale yellow streaming cut fluorescence

13,750-13,800 DOLOMITE: mudstone, cream, light brown, light to medium gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace medium brown spotty oil stain; slow-moderate pale yellow streaming cut fluorescence

13,800-13,850 DOLOMITE: mudstone, light brown, off white, cream, trace light gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace medium brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,850-13,900 DOLOMITE: mudstone, light brown, off white, cream, trace light gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace medium brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

13,900-13,950 DOLOMITE: mudstone, light brown, light brown-gray, off white, tan, trace pink, microcrystalline, firm, dense, earthy, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow streaming cut fluorescence

13,950-14,000 DOLOMITE: mudstone, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; slow pale yellow diffuse cut fluorescence

14,000-14,050 DOLOMITE: mudstone, light brown, light brown-gray, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite; slow pale yellow diffuse cut fluorescence

14,050-14,100 DOLOMITE: mudstone, light brown, off white, cream, light gray, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite; moderate pale yellow streaming becoming diffuse cut fluorescence

14,100-14,150 DOLOMITE: mudstone, off white, cream, light gray, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow streaming becoming diffuse cut fluorescence

14,150-14,200 DOLOMITE: mudstone, light brown, cream, tan, trace light gray, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite; moderate pale yellow streaming becoming diffuse cut fluorescence

14,200-14,250 DOLOMITE: mudstone, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,250-14,300 DOLOMITE: mudstone, tan, light orange, off white, gray-brown, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,300-14,350 DOLOMITE: mudstone, tan, light orange-medium brown, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,350-14,400 DOLOMITE: mudstone, light to medium brown, tan, light orange, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,400-14,450 DOLOMITE: mudstone, off white, light gray-brown, tan, light orange, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,450-14,500 DOLOMITE: mudstone, off white, light gray-brown, tan, light orange, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; abundant SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,500-14,550 DOLOMITE: mudstone, light to medium gray, off white, tan, light orange, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,550-14,600 DOLOMITE: mudstone, light to medium gray, off white, tan, light orange, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,600-14,650 DOLOMITE: mudstone, light to medium gray, off white, tan, light orange, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,650-14,700 DOLOMITE: mudstone, light to medium gray-brown, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,700-14,750 DOLOMITE: mudstone, off white, light to medium gray-brown, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,750-14,800 DOLOMITE: mudstone, orange, tan, off white, light to medium gray-brown, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: pale green, light blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,800-14,850 DOLOMITE: mudstone, orange, tan, medium brown, off white, gray-brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,850-14,900 DOLOMITE: mudstone, orange, tan, light to medium brown, off white, gray-brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,900-14,950 DOLOMITE: mudstone, orange, tan, light to medium brown, off white, gray-brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; moderate pale yellow diffuse cut fluorescence

14,950-15,000 DOLOMITE: mudstone, light to medium gray-brown, off white, orange, tan, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; moderate pale yellow diffuse cut fluorescence, sample moderately contaminated with lube

15,000-15,050 DOLOMITE: mudstone, light to medium gray-brown, off white, orange, tan, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; moderate pale yellow diffuse cut fluorescence, sample moderately contaminated with lube

15,050-15,100 DOLOMITE: mudstone, off white, light to medium gray-brown, orange, tan, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; moderate pale yellow diffuse cut fluorescence, sample moderately contaminated with lube

15,100-15,150 DOLOMITE: mudstone, light to medium gray-brown, orange, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; moderate pale yellow diffuse cut fluorescence, sample moderately contaminated with lube

15,150-15,200 DOLOMITE: mudstone, medium brown, light gray, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; moderate pale yellow diffuse cut fluorescence, sample moderately contaminated with lube

15,200-15,250 DOLOMITE: mudstone, tan, light orange, off white, gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; moderate pale yellow diffuse cut fluorescence, sample moderately contaminated with lube

15,250-15,300 DOLOMITE: mudstone, light to medium gray-brown, cream, tan, light orange, gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

15,300-15,350 DOLOMITE: mudstone, light brown, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

15,350-15,400 DOLOMITE: mudstone, light brown, light to medium gray, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

15,400-15,450 DOLOMITE: mudstone, light gray, off white, cream, light brown, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

15,450-15,500 DOLOMITE: mudstone, off white, cream, light brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

15,500-15,550 DOLOMITE: mudstone, tan, light brown, cream, off white, trace light gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

15,550-15,600 DOLOMITE: mudstone, light brown, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

15,600-15,650 DOLOMITE: mudstone, off white, cream, tan, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

15,650-15,700 DOLOMITE: mudstone, light brown, light to medium gray, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

15,700-15,750 DOLOMITE: mudstone, light brown, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

15,750-15,800 DOLOMITE: mudstone, light to medium gray, light brown, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, trace disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

15,800-15,850 DOLOMITE: mudstone, off white, cream, tan, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

15,850-15,900 DOLOMITE: mudstone, light brown, light to medium gray, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

15,900-15,950 DOLOMITE: mudstone, light brown, light brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

15,950-16,000 CLAYSTONE: light blue, light brown-gray, cream, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

16,000-16,050 CLAYSTONE: light blue, light brown-gray, cream, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

16,050-16,100 CLAYSTONE: light to medium blue gray, light brown, off white, firm, platy, silty texture, rare disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

16,100-16,150 CLAYSTONE: light to medium blue gray, off white, firm, platy, silty texture, rare disseminated pyrite, trace nodular pyrite, no visible oil stain; sample moderately contaminated with lube

16,150-16,200 CLAYSTONE: gray-brown, light blue gray, off white, firm, platy, silty texture, rare disseminated pyrite, trace nodular pyrite, no visible oil stain; sample moderately contaminated with lube

16,200-16,250 CLAYSTONE: light to medium gray-brown, off white, blue gray, firm, platy, silty texture, rare disseminated pyrite, trace nodular pyrite, no visible oil stain; sample moderately contaminated with lube

16,250-16,300 CLAYSTONE: light blue gray, medium gray-brown, off white, firm, platy, silty texture, occasional disseminated pyrite, trace nodular pyrite, no visible oil stain; sample moderately contaminated with lube

16,300-16,350 DOLOMITE: mudstone, light brown, light brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

16,350-16,400 DOLOMITE: mudstone, medium brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

16,400-16,450 DOLOMITE: mudstone, orange, tan, light brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

16,450-16,500 DOLOMITE: mudstone, light orange, tan, off white, medium brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,500-16,550 DOLOMITE: mudstone, medium brown-gray, tan, off white, medium brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,550-16,600 DOLOMITE: mudstone, medium brown-gray, orange, tan, off white, medium brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,600-16,650 DOLOMITE: mudstone, medium brown-gray, orange, tan, off white, medium brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,650-16,700 DOLOMITE: mudstone, light to medium brown, tan, gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,700-16,750 DOLOMITE: mudstone, off white, light brown-gray, orange, tan, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,750-16,800 DOLOMITE: mudstone, medium gray-brown, orange, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,800-16,850 DOLOMITE: mudstone, medium gray-brown, orange, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,850-16,900 DOLOMITE: mudstone, orange, tan, off white, gray, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

16,900-16,950 DOLOMITE: mudstone, light brown, gray, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

16,950-17,000 DOLOMITE: mudstone, light orange, tan, off white, medium brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

17,000-17,050 DOLOMITE: mudstone, light brown, cream, off white, light brown-gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

17,050-17,100 DOLOMITE: mudstone, light brown, cream, off white, light brown-gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

17,100-17,150 DOLOMITE: mudstone, light orange, tan, off white, medium brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample moderately contaminated with lube

17,150-17,200 DOLOMITE: mudstone, tan, cream, light brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

17,200-17,250 DOLOMITE: mudstone, light brown, light to medium gray, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

17,250-17,300 DOLOMITE: mudstone, light brown, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, trace disseminated pyrite; sample moderately contaminated with lube

17,300-17,350 DOLOMITE: mudstone, light brown, light brown-gray, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: green, blue-green, firm, smooth, sub-blocky, trace disseminated pyrite; sample moderately contaminated with lube

17,350-17,400 DOLOMITE: mudstone, off white, medium brown, trace light gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

17,400-17,450 DOLOMITE: mudstone, light brown, off white, cream, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, firm, smooth, sub-blocky, trace disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

17,450-17,500 DOLOMITE: mudstone, light brown, light to medium gray, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

17,500-17,550 DOLOMITE: mudstone, light to medium gray, off white, light brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

17,550-17,600 DOLOMITE: mudstone, tan, cream, light brown, light to medium gray, trace dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: pale green, firm, smooth, sub-blocky, trace disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

17,600-17,650 DOLOMITE: mudstone, light gray, light brown, cream, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

17,650-17,700 DOLOMITE: mudstone, light gray, light brown, cream, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

17,700-17,750 DOLOMITE: mudstone, off white, medium brown, trace light gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

17,750-17,800 DOLOMITE: mudstone, medium brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

17,800-17,850 DOLOMITE: mudstone, tan, cream, light brown, light to medium gray, dark gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: pale green, firm, smooth, sub-blocky, trace disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

17,850-17,900 DOLOMITE: mudstone, tan, cream, light brown, light gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: pale green, firm, smooth, sub-blocky, trace disseminated pyrite, rare nodular pyrite; sample moderately contaminated with lube

17,900-17,950 DOLOMITE: mudstone, off white, cream, light brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, pale green, firm, smooth, sub-blocky, rare disseminated pyrite trace nodular pyrite; sample moderately contaminated with lube

17,950-18,000 DOLOMITE: mudstone, light brown, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, trace disseminated pyrite; sample moderately contaminated with lube

18,000-18,050 DOLOMITE: mudstone, light brown, gray, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,050-18,100 DOLOMITE: mudstone, light brown-gray, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,100-18,150 DOLOMITE: mudstone, light brown-gray, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,150-18,200 DOLOMITE: mudstone, tan, light orange, light brown-gray, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,200-18,250 DOLOMITE: mudstone, off white, tan, light orange, light brown-gray, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,250-18,300 DOLOMITE: mudstone, medium gray, light to medium brown, off white, tan, light orange, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,300-18,350 DOLOMITE: mudstone, medium gray, light to medium brown, off white, tan, light orange, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,350-18,400 CLAYSTONE: light blue, light brown-gray, cream, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, intercrystalline porosity, no visible oil stain; sample moderately contaminated with lube

18,400-18,450 CLAYSTONE: light blue gray, cream, medium brown-gray, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, intercrystalline porosity, no visible oil stain; sample moderately contaminated with lube

18,450-18,500 DOLOMITE: mudstone, medium gray, light to medium brown, off white, tan, light orange, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,500-18,550 DOLOMITE: mudstone, tan, light to medium brown-gray, off white, microcrystalline, firm, dense, earthy texture, occasional disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,550-18,600 DOLOMITE: mudstone, light to medium brown-gray, off white, orange, tan, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,600-18,650 DOLOMITE: mudstone, tan, tan, light orange, off white, medium gray, microcrystalline, firm, dense, earthy texture, occasional disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,650-18,700 DOLOMITE: mudstone, gray-brown, off white, tan, microcrystalline, firm, dense, earthy texture, occasional disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,700-18,750 DOLOMITE: mudstone, light to medium gray, tan, off white, microcrystalline, firm, dense, earthy texture, occasional disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

18,750-18,800 DOLOMITE: mudstone, light to medium gray, tan, off white, microcrystalline, firm, dense, earthy texture, occasional disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional CLAYSTONE: light blue gray, cream, medium brown-gray, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, no visible oil stain; sample moderately contaminated with lube

18,800-18,850 CLAYSTONE: light blue gray, cream, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

18,850-18,900 CLAYSTONE: light blue gray, cream, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

18,900-18,950 CLAYSTONE: light blue gray, cream, firm, occasional hard, platy, silty texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, no visible oil stain; sample moderately contaminated with lube

18,950-19,000 CLAYSTONE: light blue gray, cream, firm, occasional hard, platy, silty texture, trace disseminated pyrite, trace nodular pyrite, no visible oil stain; sample moderately contaminated with lube

19,000-19,050 CLAYSTONE: light to medium gray, off white, light blue-green, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

19,050-19,100 CLAYSTONE: light to medium gray, off white, light blue-green, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

19,100-19,150 CLAYSTONE: light to medium gray, off white, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

19,150-19,200 CLAYSTONE: light to medium gray, off white, light blue-green, firm, friable, trace hard, platy, silty texture, trace disseminated pyrite, trace nodular pyrite, no visible oil stain; sample moderately contaminated with lube

19,200-19,250 DOLOMITE: mudstone, off white, light brown, light gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace CLAYSTONE: light blue gray, cream, medium brown-gray, firm, platy, silty texture, trace disseminated pyrite, rare nodular pyrite, no visible oil stain; sample moderately contaminated with lube

19,250-19,300 DOLOMITE: mudstone, medium brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

19,300-19,350 DOLOMITE: mudstone, medium brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

19,350-19,400 DOLOMITE: mudstone, light brown, medium gray, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

19,400-19,450 DOLOMITE: mudstone, light brown, medium gray, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample moderately contaminated with lube

19,450-19,500 DOLOMITE: mudstone, light brown, medium gray, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,500-19,550 DOLOMITE: mudstone, tan, light brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,550-19,600 DOLOMITE: mudstone, gray, tan, light brown, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,600-19,650 DOLOMITE: mudstone, medium brown, off white, tan, light brown-gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,650-19,700 DOLOMITE: mudstone, off white, tan, light brown-gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,700-19,750 DOLOMITE: mudstone, off white, tan, light brown-gray, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,750-19,800 DOLOMITE: mudstone, tan-medium brown, gray, off white, tan, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,800-19,850 DOLOMITE: mudstone, light gray-brown, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,850-19,900 DOLOMITE: mudstone, light gray-brown, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,900-19,950 DOLOMITE: mudstone, medium brown, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

19,950-20,000 DOLOMITE: mudstone, tan, light orange, light to medium gray-brown, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

20,000-20,050 DOLOMITE: mudstone, light to medium gray-brown, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

20,050-20,100 DOLOMITE: mudstone, tan, medium gray, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

20,100-20,150 DOLOMITE: mudstone, light brown, medium gray, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, rare disseminated pyrite; sample heavily contaminated with lube

20,150-20,200 DOLOMITE: mudstone, tan, off white, gray-brown, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample heavily contaminated with lube

20,200-20,250 DOLOMITE: mudstone, light to medium brown-gray, tan, off white, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub-blocky, occasional disseminated pyrite; sample heavily contaminated with lube

20,250-20,300 DOLOMITE: mudstone, light brown, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub blocky, rare disseminated pyrite; sample moderately contaminated with lube

20,300-20,350 DOLOMITE: mudstone, light brown, tan, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub blocky, rare disseminated pyrite; sample moderately contaminated with lube

20,350-20,400 DOLOMITE: mudstone, tan, off white, gray-brown, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub blocky, trace disseminated pyrite; sample heavily contaminated with lube

20,400-20,450 DOLOMITE: mudstone, light brown, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, firm, smooth, sub blocky, trace disseminated pyrite; sample heavily contaminated with lube

20,450-20,500 DOLOMITE: mudstone, off white, light gray, rare light brown, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: pale green, firm, smooth, sub blocky, trace disseminated pyrite; sample heavily contaminated with lube

20,500-20,550 DOLOMITE: mudstone, off white, light gray, rare light brown, off white, microcrystalline, firm, occasional hard, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: light blue-green, firm, smooth, sub blocky, trace disseminated pyrite, rare nodular pyrite; sample heavily contaminated with lube

20,550-20,600 DOLOMITE: mudstone, medium brown-gray, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, rare nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; trace SHALE: blue-green, firm, smooth, sub blocky, rare disseminated pyrite; sample moderately contaminated with lube

20,600-20,650 DOLOMITE: mudstone, light to medium gray-brown, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub blocky, rare disseminated pyrite; sample heavily contaminated with lube

20,650-20,700 DOLOMITE: mudstone, tan, off white, medium gray, microcrystalline, firm, dense, earthy texture, occasional disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; rare SHALE: blue-green, firm, smooth, sub blocky, rare disseminated pyrite; sample moderately contaminated with lube

20,700-20,750 DOLOMITE: mudstone, light brown, light gray, cream, off white, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: blue-green, firm, smooth, sub blocky, trace disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

20,750-20,800 DOLOMITE: mudstone, off white, cream, light brown, microcrystalline, firm, dense, earthy texture, trace disseminated pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; occasional SHALE: pale green, light blue-green, firm, smooth, sub blocky, rare disseminated pyrite, trace nodular pyrite; sample moderately contaminated with lube

20,800-20,840 DOLOMITE: mudstone, medium gray, light to medium brown, off white, tan, light orange, microcrystalline, firm, dense, earthy texture, rare disseminated pyrite, trace nodular pyrite, trace intercrystalline porosity, trace light brown spotty oil stain; common SHALE: blue-green, firm, smooth, sub blocky, rare disseminated pyrite; sample moderately contaminated with lube



## Directional Survey Certification

**Operator:** Oasis Petroleum LLC    **Well Name:** Kline Federal 5300 11-18 3T    **API:** 33-053-06225

**Enseco Job#:** S15091-02    **Job Type:** MWD D&I    **County, State:** McKenzie County, N. Dakota

**Well Surface Hole Location (SHL):** Lot 1, Sec. 18, T153N, R100W (1020' FNL & 290 FWL)

**Latitude:** 48° 04' 45.090 N    **Longitude:** 103° 36' 10.590 W    **Datum:** Nad 83

**Final MWD Report Date:** March 3, 2015    **MWD Survey Run Date:** March 1, 2015 to March 2, 2015

**Tied In to Surveys Provided By:** Enseco Directional Drilling D&I MWD    **MD:** Surface

**MWD Surveyed from** 00 ft to 2,084.0 ft MD    **Survey Type:** Positive Pulse D&I MWD    **Sensor to Bit:** 63 ft

**Rig Contractor:** Noble    **Rig Number:** 2    **RKB Height:** 2,056.0 ft    **GL Elevation:** 2,056.0 ft

**MWD Surveyor Name:** David Hopper

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

Jonathan Hovland, Well Planner

**Enseco Representative Name, Title**

Jonathan Hovland

**Signature**

**March 6th 2015**

**Date Signed**

On this the \_\_\_ day of \_\_\_, 20\_\_\_, before me personally appeared First & Last Name, to me known as the person described in and who executed the foregoing instrument and acknowledged the (s)he executed the same as his/her free act and deed.

**Seal:** \_\_\_\_\_  
**Notary Public**

**Commission Expiry**



# Enseco Survey Report

06 March, 2015

## Oasis Petroleum LLC

McKenzie County, North Dakota  
Lot 1 Sec.18 Twp.153N Rge.100W  
Kline Federal 5300 11-18 3T  
Job # S15091-02  
API#: 33-053-06225

**Survey: Final Surveys Vertical Section**



<b>Company:</b>	Oasis Petroleum LLC	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	McKenzie County, North Dakota	<b>Ground Level Elevation:</b>	2,056.00usft
<b>Site:</b>	Lot 1 Sec.18 Twp.153N Rge.100W	<b>Wellhead Elevation:</b>	WELL @ 2056.00usft (Original Well Elev)
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Job # S15091-02	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Final Surveys Vertical Section	<b>Database:</b>	EDM5000

<b>Project</b>	McKenzie County, North Dakota		
<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		Using geodetic scale factor

<b>Site</b>	Lot 1 Sec.18 Twp.153N Rge.100W		
<b>Site Position:</b>		<b>Northing:</b>	408,992.30 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,210,243.30 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "

<b>Well</b>	Kline Federal 5300 11-18 3T	API#: 33-053-06225		
<b>Well Position</b>	+N/-S +E/-W	-59.79 usft -27.16 usft	<b>Northing:</b> <b>Easting:</b>	408,933.65 usft 1,210,213.75 usft
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	usft
				<b>Latitude:</b> 48° 4' 45.680 N <b>Longitude:</b> 103° 36' 10.190 W <b>Grid Convergence:</b> -2.309°

<b>Wellbore</b>	Job # S15091-02				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	3/6/2015	8.302	72.945	56,270

<b>Design:</b>	Final Surveys Vertical Section	<b>Survey Error Model:</b>	Standard ISCWSA MWD Tool
<b>Audit Notes:</b>			
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL
<b>Vertical Section:</b>		<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>
		0.00	0.00
			<b>+E/-W (usft)</b>
			0.00
			<b>Direction (°)</b>
			305.01

<b>Company:</b>	Oasis Petroleum LLC	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	McKenzie County, North Dakota	<b>Ground Level Elevation:</b>	2,056.00usft
<b>Site:</b>	Lot 1 Sec.18 Twp.153N Rge.100W	<b>Wellhead Elevation:</b>	WELL @ 2056.00usft (Original Well Elev)
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Job # S15091-02	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Final Surveys Vertical Section	<b>Database:</b>	EDM5000

Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (%/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>Tie-in from Surface</b>										
0.00	0.00	0.00	0.00	2,056.00	0.00	0.00	0.00	0.00	0.00	0.00
132.00	0.90	144.50	131.99	1,924.01	-0.84	0.60	-0.98	0.68	0.68	0.00
224.00	1.20	153.80	223.98	1,832.02	-2.30	1.45	-2.50	0.37	0.33	10.11
314.00	1.70	133.30	313.95	1,742.05	-4.06	2.83	-4.65	0.79	0.56	-22.78
399.00	0.60	159.80	398.93	1,657.07	-5.34	3.91	-6.26	1.40	-1.29	31.18
489.00	0.80	265.10	488.93	1,567.07	-5.84	3.44	-6.17	1.24	0.22	117.00
579.00	1.00	273.20	578.92	1,477.08	-5.85	2.03	-5.02	0.26	0.22	9.00
663.00	0.90	266.60	662.91	1,393.09	-5.84	0.64	-3.88	0.18	-0.12	-7.86
751.00	0.40	297.80	750.90	1,305.10	-5.74	-0.32	-3.03	0.68	-0.57	35.45
840.00	0.80	258.90	839.90	1,216.10	-5.72	-1.20	-2.29	0.62	0.45	-43.71
927.00	0.40	291.60	926.89	1,129.11	-5.72	-2.08	-1.58	0.59	-0.46	37.59
1,015.00	0.50	281.30	1,014.89	1,041.11	-5.53	-2.74	-0.93	0.15	0.11	-11.70
1,101.00	1.00	276.90	1,100.88	955.12	-5.37	-3.86	0.08	0.58	0.58	-5.12
1,188.00	0.40	308.00	1,187.87	868.13	-5.09	-4.85	1.05	0.79	-0.69	35.75
1,277.00	0.50	287.90	1,276.87	779.13	-4.78	-5.46	1.73	0.21	0.11	-22.58
1,365.00	0.60	270.00	1,364.87	691.13	-4.66	-6.29	2.48	0.22	0.11	-20.34
1,450.00	0.60	284.90	1,449.86	606.14	-4.55	-7.17	3.26	0.18	0.00	17.53
1,539.00	0.80	329.60	1,538.86	517.14	-3.89	-7.93	4.26	0.63	0.22	50.22
1,628.00	1.20	18.40	1,627.84	428.16	-2.47	-7.95	5.09	1.01	0.45	54.83
1,714.00	0.70	31.60	1,713.83	342.17	-1.17	-7.39	5.38	0.63	-0.58	15.35
1,803.00	0.70	24.10	1,802.83	253.17	-0.21	-6.88	5.52	0.10	0.00	-8.43
1,889.00	1.10	23.80	1,888.81	167.19	1.02	-6.34	5.78	0.47	0.47	-0.35
1,987.00	1.00	23.10	1,986.80	69.20	2.67	-5.62	6.14	0.10	-0.10	-0.71
<b>Last MWD Survey</b>										
2,084.00	0.50	95.30	2,083.79	-27.79	3.41	-4.87	5.94	1.00	-0.52	74.43

Survey Annotations					
Local Coordinates					
MD (usft)	TVD (usft)	+N/S (usft)	+E/W (usft)	Comment	
0.00	0.00	0.00	0.00	Tie-in from Surface	
2,084.00	2,083.79	3.41	-4.87	Last MWD Survey	



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

Thursday, June 11, 2015

State of North Dakota

Subject: **Surveys**

Re: **Oasis**  
**Kline Federal 5300 11-18 3T**  
**McKenzie, ND**

Enclosed, please find the original and one copy of the survey performed on the above-referenced well by Ryan Directional Services, Inc.. 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</b>	<b>TD Straight Line Projection</b>
David Foley	MWD Operator	O.H.	2084'	20775'	03/27/15	05/28/15	MWD	20840'

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



**RYAN DIRECTIONAL SERVICES, INC.**

A NABORS COMPANY

Ryan Directional Services, Inc.

19510 Oil Center Blvd.

Houston, Texas 77073

Bus: 281.443.1414

Fax: 281.443.1676

Thursday, May 28, 2015

State of North Dakota  
County of McKenzie

Subject: **Survey Certification Letter**

Survey Company: Ryan Directional Services, Inc.

Job Number: 8982

Survey Job Type: Ryan MWD

Customer: Oasis Petroleum North America LLC

Well Name: Kline Federal 5300 11-18 3T

Rig Name: Xtreme 21

Surface: 48° 4' 45.090 N / 103° 36' 10.590 W

A.P.I. No: 33-053-06225

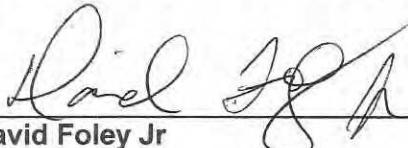
Location: McKenzie, ND

RKB Height: 2069'

Distance to Bit: 65'

<i>Surveyor Name</i>	<i>Surveyor Title</i>	<i>Borehole Number</i>	<i>Start Depth</i>	<i>End Depth</i>	<i>Start Date</i>	<i>End Date</i>	<i>Type of</i>	<i>TD Straight Line Projection</i>
David Foley Jr	MWD Supervisor	OH	2084'	20775'	03/27/15	05/28/15	MWD	20840'

The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by Ryan Directional Services, Inc. I am authorized and qualified to review the data, calculations and these reports; the reports represents true and correct Directional Surveys of this well based on the original data, the minimum curvature method, corrected to True North and obtained at the well site.

  
**David Foley Jr**  
MWD Supervisor  
Ryan Directional Services, Inc.



## SURVEY REPORT

Customer: **Oasis Petroleum, Inc**  
Well Name: **Kline Federal 5300 11-18 3T**  
Rig #: **Xtreme 21**  
API #: **33-053-06225**  
Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **David Foley / David Unger**  
Directional Drillers: **RPM**  
Survey Corrected To: **True North**  
Vertical Section Direction: **94.89**  
Total Correction: **8.30**  
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>2084</b>	<b>0.50</b>	<b>95.30</b>		<b>2083.79</b>	<b>-5.14</b>	<b>3.41</b>	<b>-4.87</b>	<b>1.00</b>
1	2176	1.10	95.00	64.00	2175.78	-3.86	3.30	-3.59	0.65
2	2270	0.50	245.30	66.00	2269.78	-3.31	3.05	-3.06	1.65
3	2365	0.80	289.20	68.00	2364.77	-4.32	3.09	-4.07	0.59
4	2459	1.20	301.20	69.00	2458.76	-5.83	3.82	-5.53	0.48
<b>5</b>	<b>2553</b>	<b>1.60</b>	<b>317.30</b>	<b>69.00</b>	<b>2552.73</b>	<b>-7.69</b>	<b>5.29</b>	<b>-7.26</b>	<b>0.59</b>
6	2647	1.10	275.70	71.00	2646.70	-9.56	6.34	-9.05	1.13
7	2742	1.90	286.60	73.00	2741.67	-12.01	6.89	-11.47	0.89
8	2836	1.10	300.50	73.00	2835.64	-14.35	7.79	-13.74	0.93
9	2930	1.00	227.50	75.00	2929.63	-15.72	7.69	-15.12	1.33
<b>10</b>	<b>3025</b>	<b>1.50</b>	<b>247.70</b>	<b>77.00</b>	<b>3024.60</b>	<b>-17.39</b>	<b>6.66</b>	<b>-16.88</b>	<b>0.69</b>
11	3119	1.60	247.60	78.00	3118.57	-19.65	5.69	-19.23	0.11
12	3213	1.50	255.00	80.00	3212.53	-21.97	4.88	-21.63	0.24
13	3307	1.30	255.00	82.00	3306.51	-24.13	4.28	-23.85	0.21
14	3401	1.20	249.80	84.00	3400.48	-26.02	3.66	-25.81	0.16
<b>15</b>	<b>3496</b>	<b>1.10</b>	<b>261.80</b>	<b>86.00</b>	<b>3495.47</b>	<b>-27.81</b>	<b>3.19</b>	<b>-27.64</b>	<b>0.27</b>
16	3590	1.10	244.70	87.00	3589.45	-29.47	2.68	-29.35	0.35
17	3684	0.90	247.30	87.00	3683.43	-30.91	2.01	-30.85	0.22
18	3778	0.80	248.50	89.00	3777.42	-32.15	1.48	-32.14	0.11
19	3872	0.80	253.40	91.00	3871.41	-33.35	1.05	-33.38	0.07
<b>20</b>	<b>3966</b>	<b>0.70</b>	<b>247.90</b>	<b>93.00</b>	<b>3965.41</b>	<b>-34.47</b>	<b>0.65</b>	<b>-34.54</b>	<b>0.13</b>
21	4060	0.50	263.20	93.00	4059.40	-35.38	0.38	-35.48	0.27
22	4154	0.40	283.10	95.00	4153.40	-36.11	0.41	-36.21	0.20
23	4249	0.50	270.30	96.00	4248.40	-36.85	0.49	-36.94	0.15
24	4343	0.50	291.40	98.00	4342.39	-37.65	0.64	-37.73	0.19
<b>25</b>	<b>4437</b>	<b>0.50</b>	<b>283.70</b>	<b>100.00</b>	<b>4436.39</b>	<b>-38.45</b>	<b>0.89</b>	<b>-38.51</b>	<b>0.07</b>
26	4531	0.30	306.20	102.00	4530.39	-39.07	1.13	-39.11	0.27
27	4626	0.50	299.70	104.00	4625.38	-39.65	1.48	-39.67	0.22
28	4720	0.40	291.00	105.00	4719.38	-40.34	1.80	-40.34	0.13
29	4813	0.40	349.80	105.00	4812.38	-40.74	2.24	-40.70	0.42
<b>30</b>	<b>4907</b>	<b>0.20</b>	<b>327.40</b>	<b>107.00</b>	<b>4906.38</b>	<b>-40.92</b>	<b>2.70</b>	<b>-40.84</b>	<b>0.24</b>
31	5001	0.50	307.70	109.00	5000.38	-41.37	3.09	-41.26	0.34
32	5096	0.60	273.70	111.00	5095.37	-42.21	3.37	-42.08	0.35
33	5190	0.20	210.80	111.00	5189.37	-42.78	3.26	-42.65	0.57
34	5284	0.70	243.80	113.00	5283.37	-43.34	2.87	-43.25	0.58
<b>35</b>	<b>5378</b>	<b>0.60</b>	<b>214.10</b>	<b>113.00</b>	<b>5377.36</b>	<b>-44.07</b>	<b>2.21</b>	<b>-44.05</b>	<b>0.37</b>
36	5473	0.80	203.20	113.00	5472.35	-44.52	1.19	-44.59	0.25
37	5567	1.10	195.00	114.00	5566.34	-44.89	-0.29	-45.08	0.35
38	5661	1.10	197.70	116.00	5660.32	-45.25	-2.02	-45.59	0.06
39	5756	0.60	151.60	116.00	5755.31	-45.18	-3.32	-45.63	0.85
<b>40</b>	<b>5850</b>	<b>0.40</b>	<b>212.30</b>	<b>118.00</b>	<b>5849.31</b>	<b>-45.06</b>	<b>-4.03</b>	<b>-45.57</b>	<b>0.57</b>
41	5944	0.40	178.80	120.00	5943.31	-45.17	-4.64	-45.74	0.25
42	6038	0.10	283.40	122.00	6037.31	-45.22	-4.95	-45.81	0.46
43	6132	0.40	352.00	123.00	6131.31	-45.37	-4.61	-45.93	0.40
44	6226	0.70	17.60	125.00	6225.30	-45.32	-3.73	-45.81	0.41
<b>45</b>	<b>6320</b>	<b>0.90</b>	<b>3.60</b>	<b>127.00</b>	<b>6319.29</b>	<b>-45.21</b>	<b>-2.45</b>	<b>-45.59</b>	<b>0.30</b>
46	6414	1.30	0.40	129.00	6413.28	-45.31	-0.65	-45.53	0.43
47	6509	1.00	357.40	131.00	6508.26	-45.50	1.26	-45.56	0.32
48	6603	1.00	2.40	125.00	6602.24	-45.65	2.90	-45.57	0.09
49	6697	0.80	25.70	127.00	6696.23	-45.45	4.31	-45.25	0.44
<b>50</b>	<b>6791</b>	<b>0.40</b>	<b>161.10</b>	<b>132.00</b>	<b>6790.23</b>	<b>-45.08</b>	<b>4.59</b>	<b>-44.86</b>	<b>1.19</b>
51	6885	0.20	310.80	134.00	6884.23	-45.08	4.39	-44.87	0.62
52	6979	0.70	56.50	136.00	6978.22	-44.77	4.81	-44.52	0.83
53	7074	0.70	55.20	138.00	7073.22	-43.87	5.46	-43.56	0.02
54	7168	0.80	54.70	140.00	7167.21	-42.92	6.17	-42.55	0.11
<b>55</b>	<b>7262</b>	<b>0.80</b>	<b>43.00</b>	<b>141.00</b>	<b>7261.20</b>	<b>-42.02</b>	<b>7.03</b>	<b>-41.57</b>	<b>0.17</b>
56	7356	0.60	107.30	141.00	7355.19	-41.13	7.36	-40.65	0.81
57	7450	0.20	49.70	145.00	7449.19	-40.53	7.32	-40.06	0.55
58	7544	0.40	25.70	147.00	7543.19	-40.30	7.72	-39.79	0.25
59	7639	0.60	165.40	149.00	7638.19	-40.02	7.54	-39.52	0.99
<b>60</b>	<b>7733</b>	<b>0.30</b>	<b>185.80</b>	<b>150.00</b>	<b>7732.19</b>	<b>-39.86</b>	<b>6.82</b>	<b>-39.42</b>	<b>0.36</b>



## SURVEY REPORT

Customer: **Oasis Petroleum, Inc**  
Well Name: **Kline Federal 5300 11-18 3T**  
Rig #: **Xtreme 21**  
API #: **33-053-06225**  
Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **David Foley / David Unger**  
Directional Drillers: **RPM**  
Survey Corrected To: **True North**  
Vertical Section Direction: **94.89**  
Total Correction: **8.30**  
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
61	7827	0.10	24.70	154.00	7826.19	-39.83	6.65	-39.41	0.42
62	7921	0.00	8.80	154.00	7920.19	-39.81	6.72	-39.38	0.11
63	8016	0.20	346.50	154.00	8015.19	-39.86	6.89	-39.41	0.21
64	8109	0.30	36.30	154.00	8108.19	-39.78	7.24	-39.31	0.25
65	<b>8204</b>	<b>0.30</b>	<b>50.00</b>	<b>158.00</b>	<b>8203.18</b>	<b>-39.48</b>	<b>7.60</b>	<b>-38.97</b>	<b>0.08</b>
66	8298	0.20	133.80	159.00	8297.18	-39.17	7.65	-38.66	0.36
67	8392	0.40	89.90	161.00	8391.18	-38.72	7.53	-38.22	0.31
68	8486	0.50	86.20	161.00	8485.18	-37.99	7.56	-37.48	0.11
69	8580	0.70	67.40	143.00	8579.17	-37.07	7.81	-36.54	0.30
70	<b>8674</b>	<b>0.60</b>	<b>58.50</b>	<b>149.00</b>	<b>8673.17</b>	<b>-36.17</b>	<b>8.29</b>	<b>-35.59</b>	<b>0.15</b>
71	8769	0.80	52.70	154.00	8768.16	-35.28	8.95	-34.64	0.22
72	8863	0.70	61.00	158.00	8862.15	-34.31	9.62	-33.61	0.16
73	8957	1.10	225.40	161.00	8956.15	-34.42	9.27	-33.76	1.90
74	9051	1.20	232.70	167.00	9050.13	-35.74	8.04	-35.18	0.19
75	<b>9146</b>	<b>0.80</b>	<b>240.80</b>	<b>167.00</b>	<b>9145.11</b>	<b>-37.02</b>	<b>7.11</b>	<b>-36.55</b>	<b>0.45</b>
76	9240	0.70	259.80	170.00	9239.11	-38.12	6.69	-37.69	0.28
77	9334	0.60	245.30	168.00	9333.10	-39.10	6.38	-38.70	0.20
78	9428	0.40	284.40	174.00	9427.10	-39.86	6.26	-39.47	0.41
79	9523	0.20	279.40	174.00	9522.10	-40.35	6.37	-39.95	0.21
80	<b>9617</b>	<b>0.20</b>	<b>291.70</b>	<b>177.00</b>	<b>9616.10</b>	<b>-40.67</b>	<b>6.46</b>	<b>-40.27</b>	<b>0.05</b>
81	9711	0.20	314.00	176.00	9710.10	-40.95	6.63	-40.54	0.08
82	9805	0.20	345.20	177.00	9804.09	-41.14	6.90	-40.70	0.11
83	9899	0.10	252.70	179.00	9898.09	-41.27	7.04	-40.82	0.24
84	9993	0.20	46.50	183.00	9992.09	-41.23	7.13	-40.78	0.31
85	<b>10087</b>	<b>0.50</b>	<b>10.80</b>	<b>183.00</b>	<b>10086.09</b>	<b>-41.08</b>	<b>7.64</b>	<b>-40.58</b>	<b>0.38</b>
86	10182	0.70	20.10	185.00	10181.09	-40.89	8.59	-40.30	0.23
87	10226	1.10	22.00	185.00	10225.08	-40.69	9.24	-40.05	0.91
88	10263	1.00	26.00	172.00	10262.08	-40.47	9.86	-39.78	0.33
89	10294	2.50	101.40	172.00	10293.06	-39.70	9.97	-39.00	7.89
90	<b>10326</b>	<b>6.50</b>	<b>115.60</b>	<b>176.00</b>	<b>10324.96</b>	<b>-37.31</b>	<b>9.05</b>	<b>-36.68</b>	<b>12.88</b>
91	10357	10.80	121.30	176.00	10355.60	-33.07	6.78	-32.61	14.13
92	10388	14.80	124.80	176.00	10385.82	-27.03	3.01	-26.88	13.14
93	10420	19.20	128.30	181.00	10416.42	-19.09	-2.59	-19.39	14.11
94	10451	23.80	131.50	183.00	10445.25	-9.81	-9.90	-10.70	15.31
95	<b>10483</b>	<b>28.00</b>	<b>134.90</b>	<b>185.00</b>	<b>10474.04</b>	<b>1.13</b>	<b>-19.48</b>	<b>-0.53</b>	<b>13.92</b>
96	10514	31.30	135.90	185.00	10500.97	12.78	-30.41	10.23	10.76
97	10545	33.00	138.40	186.00	10527.22	24.98	-42.50	21.44	6.96
98	10577	35.20	140.80	186.00	10553.72	37.72	-56.17	33.05	8.06
99	10608	37.70	142.20	186.00	10578.65	50.37	-70.58	44.51	8.50
100	<b>10639</b>	<b>40.20</b>	<b>142.90</b>	<b>188.00</b>	<b>10602.76</b>	<b>63.49</b>	<b>-86.06</b>	<b>56.36</b>	<b>8.19</b>
101	10671	43.40	142.40	188.00	10626.61	77.83	-103.01	69.30	10.05
102	10702	46.70	140.90	190.00	10648.51	92.86	-120.20	82.92	11.18
103	10734	50.20	140.80	190.00	10669.73	109.51	-138.77	98.03	10.94
104	10765	53.10	141.20	190.00	10688.96	126.36	-157.67	113.33	9.41
105	<b>10796</b>	<b>55.10</b>	<b>140.50</b>	<b>192.00</b>	<b>10707.14</b>	<b>143.81</b>	<b>-177.14</b>	<b>129.18</b>	<b>6.71</b>
106	10828	57.80	139.80	192.00	10724.82	162.59	-197.61	146.27	8.63
107	10859	60.50	138.30	192.00	10740.72	181.68	-217.70	163.72	9.65
108	10890	64.40	136.50	192.00	10755.06	201.94	-237.92	182.32	13.59
109	10922	67.10	135.70	192.00	10768.20	223.89	-258.94	202.55	8.74
110	<b>10953</b>	<b>70.90</b>	<b>135.60</b>	<b>192.00</b>	<b>10779.30</b>	<b>245.81</b>	<b>-279.63</b>	<b>222.78</b>	<b>12.26</b>
111	10984	74.60	136.60	194.00	10788.50	268.07	-300.96	243.30	12.33
112	11016	77.50	135.90	194.00	10796.21	291.38	-323.39	264.78	9.31
113	11047	80.20	134.90	194.00	10802.20	314.50	-345.05	286.13	9.27
114	11079	82.10	134.20	195.00	10807.13	338.84	-367.23	308.66	6.32
115	<b>11110</b>	<b>84.00</b>	<b>134.10</b>	<b>195.00</b>	<b>10810.88</b>	<b>362.67</b>	<b>-388.66</b>	<b>330.74</b>	<b>6.14</b>
116	11140	88.40	133.50	197.00	10812.87	385.96	-409.37	352.34	14.80
117	11236	89.60	129.10	235.00	10814.54	463.18	-472.71	424.43	4.75
118	11267	89.30	128.10	235.00	10814.84	488.97	-492.05	448.66	3.37
119	11298	89.10	127.50	235.00	10815.27	514.99	-511.04	473.15	2.04
120	<b>11329</b>	<b>87.80</b>	<b>125.50</b>	<b>235.00</b>	<b>10816.11</b>	<b>541.38</b>	<b>-529.48</b>	<b>498.06</b>	<b>7.69</b>



## SURVEY REPORT

Customer: **Oasis Petroleum, Inc**  
Well Name: **Kline Federal 5300 11-18 3T**  
Rig #: **Xtreme 21**  
API #: **33-053-06225**  
Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **David Foley / David Unger**  
Directional Drillers: **RPM**  
Survey Corrected To: **True North**  
Vertical Section Direction: **94.89**  
Total Correction: **8.30**  
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
121	11360	87.60	125.20	237.00	10817.36	568.08	-547.40	523.33	1.16
122	11391	87.70	124.80	237.00	10818.63	594.88	-565.16	548.70	1.33
123	11421	88.30	122.40	237.00	10819.67	621.17	-581.75	573.67	8.24
124	11452	88.10	122.00	233.00	10820.65	648.70	-598.26	599.89	1.44
125	<b>11483</b>	<b>87.90</b>	<b>121.90</b>	<b>235.00</b>	<b>10821.73</b>	<b>676.29</b>	<b>-614.66</b>	<b>626.17</b>	<b>0.72</b>
126	11514	89.60	119.40	237.00	10822.41	704.20	-630.46	652.83	9.75
127	11545	89.00	117.50	233.00	10822.78	732.61	-645.22	680.09	6.43
128	11576	89.00	117.10	235.00	10823.33	761.27	-659.44	707.63	1.29
129	11607	90.50	114.90	237.00	10823.46	790.18	-673.03	735.49	8.59
130	<b>11638</b>	<b>91.60</b>	<b>114.60</b>	<b>239.00</b>	<b>10822.89</b>	<b>819.33</b>	<b>-686.00</b>	<b>763.64</b>	<b>3.68</b>
131	11669	92.00	113.50	239.00	10821.92	848.60	-698.63	791.93	3.77
132	11699	91.50	110.50	239.00	10821.00	877.26	-709.86	819.73	10.13
133	11730	91.30	109.80	237.00	10820.24	907.16	-720.54	848.82	2.35
134	11761	91.30	108.80	239.00	10819.54	937.17	-730.78	878.07	3.22
135	<b>11792</b>	<b>90.10</b>	<b>107.20</b>	<b>240.00</b>	<b>10819.16</b>	<b>967.36</b>	<b>-740.36</b>	<b>907.55</b>	<b>6.45</b>
136	11822	89.60	106.90	240.00	10819.24	996.69	-749.16	936.24	1.94
137	11853	89.50	106.10	240.00	10819.48	1027.05	-757.96	965.96	2.60
138	11883	88.30	104.00	240.00	10820.06	1056.57	-765.75	994.92	8.06
139	11915	88.30	103.90	240.00	10821.01	1088.16	-773.46	1025.96	0.31
140	<b>11946</b>	<b>88.40</b>	<b>103.70</b>	<b>240.00</b>	<b>10821.90</b>	<b>1118.77</b>	<b>-780.85</b>	<b>1056.06</b>	<b>0.72</b>
141	11978	89.70	101.60	242.00	10822.43	1150.47	-787.86	1087.27	7.72
142	12010	89.60	101.50	244.00	10822.63	1182.26	-794.26	1118.62	0.44
143	12042	90.00	101.60	244.00	10822.74	1214.04	-800.67	1149.98	1.29
144	12074	89.80	99.10	244.00	10822.80	1245.89	-806.42	1181.45	7.84
145	<b>12105</b>	<b>89.80</b>	<b>98.60</b>	<b>244.00</b>	<b>10822.90</b>	<b>1276.82</b>	<b>-811.19</b>	<b>1212.08</b>	<b>1.61</b>
146	12137	90.20	97.90	244.00	10822.90	1308.76	-815.78	1243.75	2.52
147	12168	90.50	96.20	244.00	10822.72	1339.74	-819.58	1274.52	5.57
148	12200	90.60	96.00	246.00	10822.41	1371.73	-822.98	1306.33	0.70
149	12232	90.80	94.80	244.00	10822.02	1403.73	-826.00	1338.19	3.80
150	<b>12264</b>	<b>90.10</b>	<b>93.30</b>	<b>244.00</b>	<b>10821.77</b>	<b>1435.72</b>	<b>-828.26</b>	<b>1370.11</b>	<b>5.17</b>
151	12359	90.70	92.80	248.00	10821.10	1530.67	-833.31	1464.97	0.82
152	12453	89.00	92.70	249.00	10821.35	1624.60	-837.82	1558.86	1.81
153	12547	89.90	92.50	251.00	10822.25	1718.52	-842.08	1652.75	0.98
154	12642	90.40	92.00	253.00	10822.00	1813.42	-845.81	1747.68	0.74
155	<b>12738</b>	<b>89.60</b>	<b>92.60</b>	<b>251.00</b>	<b>10822.00</b>	<b>1909.32</b>	<b>-849.67</b>	<b>1843.60</b>	<b>1.04</b>
156	12832	88.50	92.70	251.00	10823.56	2003.23	-854.01	1937.49	1.18
157	12928	87.70	91.70	255.00	10826.74	2099.07	-857.69	2033.36	1.33
158	13024	88.70	90.90	255.00	10829.76	2194.83	-859.87	2129.29	1.33
159	13119	89.10	90.50	257.00	10831.58	2289.56	-861.03	2224.26	0.60
160	<b>13213</b>	<b>89.20</b>	<b>90.60</b>	<b>255.00</b>	<b>10832.98</b>	<b>2383.28</b>	<b>-861.93</b>	<b>2318.25</b>	<b>0.15</b>
161	13308	90.90	88.70	257.00	10832.89	2477.88	-861.35	2413.24	2.68
162	13403	90.20	87.90	258.00	10831.98	2572.25	-858.54	2508.19	1.12
163	13498	90.50	88.20	257.00	10831.40	2666.57	-855.30	2603.13	0.45
164	13593	89.70	90.20	258.00	10831.24	2761.09	-853.98	2698.12	2.27
165	<b>13689</b>	<b>88.40</b>	<b>89.20</b>	<b>260.00</b>	<b>10832.83</b>	<b>2856.68</b>	<b>-853.47</b>	<b>2794.10</b>	<b>1.71</b>
166	13783	90.40	90.00	258.00	10833.81	2950.27	-852.82	2888.09	2.29
167	13879	90.40	90.10	260.00	10833.14	3045.93	-852.90	2984.09	0.10
168	13975	92.80	89.40	262.00	10830.46	3141.50	-852.48	3080.04	2.60
169	14070	91.30	89.20	257.00	10827.06	3235.98	-851.32	3174.97	1.59
170	<b>14164</b>	<b>88.80</b>	<b>90.10</b>	<b>258.00</b>	<b>10826.98</b>	<b>3329.58</b>	<b>-850.75</b>	<b>3268.96</b>	<b>2.83</b>
171	14258	86.90	90.10	260.00	10830.51	3423.18	-850.91	3362.89	2.02
172	14353	91.20	90.70	260.00	10832.08	3517.85	-851.58	3457.85	4.57
173	14449	88.20	90.70	260.00	10832.59	3613.59	-852.75	3553.83	3.13
174	14543	88.00	90.20	262.00	10835.70	3707.25	-853.49	3647.78	0.57
175	<b>14638</b>	<b>88.70</b>	<b>89.80</b>	<b>262.00</b>	<b>10838.44</b>	<b>3801.87</b>	<b>-853.49</b>	<b>3742.73</b>	<b>0.85</b>
176	14733	91.20	89.10	264.00	10838.52	3896.43	-852.58	3837.72	2.73
177	14828	89.10	88.50	264.00	10838.27	3990.89	-850.59	3932.70	2.30
178	14925	89.90	88.50	266.00	10839.12	4087.28	-848.05	4029.66	0.82
179	15022	89.60	88.50	264.00	10839.54	4183.68	-845.51	4126.62	0.31
180	<b>15117</b>	<b>89.60</b>	<b>88.80</b>	<b>266.00</b>	<b>10840.20</b>	<b>4278.11</b>	<b>-843.27</b>	<b>4221.59</b>	<b>0.32</b>



## SURVEY REPORT

Customer: **Oasis Petroleum, Inc**  
Well Name: **Kline Federal 5300 11-18 3T**  
Rig #: **Xtreme 21**  
API #: **33-053-06225**  
Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **David Foley / David Unger**  
Directional Drillers: **RPM**  
Survey Corrected To: **True North**  
Vertical Section Direction: **94.89**  
Total Correction: **8.30**  
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS	
181	15212	91.50	87.60	266.00	10839.29	4372.45	-840.29	4316.54	2.37	
182	15306	88.70	88.10	264.00	10839.13	4465.74	-836.76	4410.46	3.03	
183	15401	87.80	90.20	264.00	10842.03	4560.21	-835.35	4505.40	2.40	
184	15496	89.10	90.70	262.00	10844.60	4654.89	-836.10	4600.36	1.47	
185	<b>15592</b>	<b>90.00</b>	<b>89.50</b>	<b>264.00</b>	<b>10845.35</b>	<b>4750.55</b>	<b>-836.26</b>	<b>4696.35</b>	<b>1.56</b>	
186	15687	90.60	88.40	266.00	10844.86	4845.03	-834.52	4791.34	1.32	
187	15782	90.40	89.60	266.00	10844.03	4939.53	-832.87	4886.32	1.28	
188	15877	89.50	90.60	266.00	10844.11	5034.19	-833.03	4981.31	1.42	
189	15973	88.80	90.90	267.00	10845.53	5129.93	-834.29	5077.29	0.79	
190	<b>16069</b>	<b>90.40</b>	<b>90.40</b>	<b>269.00</b>	<b>10846.20</b>	<b>5225.66</b>	<b>-835.38</b>	<b>5173.28</b>	<b>1.75</b>	
191	16166	91.00	89.30	269.00	10845.02	5322.28	-835.12	5270.27	1.29	
192	16262	91.20	88.70	271.00	10843.18	5417.75	-833.45	5366.24	0.66	
193	16358	92.00	89.70	269.00	10840.50	5513.24	-832.11	5462.19	1.33	
194	16454	90.90	90.40	269.00	10838.07	5608.87	-832.19	5558.16	1.36	
195	<b>16551</b>	<b>91.00</b>	<b>90.20</b>	<b>269.00</b>	<b>10836.46</b>	<b>5705.54</b>	<b>-832.70</b>	<b>5655.14</b>	<b>0.23</b>	
196	16647	91.50	90.90	271.00	10834.36	5801.24	-833.62	5751.11	0.90	
197	16742	89.20	91.70	271.00	10833.78	5896.05	-835.78	5846.08	2.56	
198	16838	88.80	92.10	273.00	10835.46	5991.90	-838.96	5942.01	0.59	
199	16935	88.30	91.80	271.00	10837.91	6088.74	-842.26	6038.93	0.60	
200	<b>17030</b>	<b>89.70</b>	<b>90.70</b>	<b>273.00</b>	<b>10839.57</b>	<b>6183.53</b>	<b>-844.33</b>	<b>6133.89</b>	<b>1.87</b>	
201	17124	90.50	90.50	273.00	10839.41	6277.27	-845.31	6227.88	0.88	
202	17220	88.70	91.00	273.00	10840.08	6373.01	-846.57	6323.86	1.95	
203	17317	88.00	91.40	273.00	10842.87	6469.77	-848.60	6420.80	0.83	
204	17412	89.10	91.10	273.00	10845.27	6564.55	-850.67	6515.75	1.20	
205	<b>17508</b>	<b>89.20</b>	<b>91.10</b>	<b>275.00</b>	<b>10846.70</b>	<b>6660.32</b>	<b>-852.52</b>	<b>6611.72</b>	<b>0.10</b>	
206	17603	89.20	91.00	275.00	10848.03	6755.10	-854.26	6706.69	0.11	
207	17698	90.30	90.70	275.00	10848.44	6849.86	-855.67	6801.68	1.20	
208	17794	89.60	90.80	275.00	10848.52	6945.61	-856.92	6897.67	0.74	
209	17891	89.50	88.90	273.00	10849.29	7042.23	-856.67	6994.66	1.96	
210	<b>17987</b>	<b>88.60</b>	<b>88.70</b>	<b>273.00</b>	<b>10850.88</b>	<b>7137.67</b>	<b>-854.66</b>	<b>7090.63</b>	<b>0.96</b>	
211	18083	89.60	87.80	267.00	10852.38	7233.02	-851.73	7186.57	1.40	
212	18180	88.90	88.80	273.00	10853.65	7329.37	-848.85	7283.52	1.26	
213	18276	89.00	88.20	273.00	10855.41	7424.75	-846.34	7379.47	0.63	
214	18372	89.50	88.70	273.00	10856.67	7520.14	-843.74	7475.42	0.74	
215	<b>18468</b>	<b>91.10</b>	<b>91.60</b>	<b>271.00</b>	<b>10856.17</b>	<b>7615.79</b>	<b>-843.99</b>	<b>7571.41</b>	<b>3.45</b>	
216	18562	91.70	91.90	273.00	10853.87	7709.63	-846.86	7665.34	0.71	
217	18658	91.10	91.60	273.00	10851.53	7805.45	-849.79	7761.26	0.70	
218	18753	88.00	92.20	273.00	10852.27	7900.31	-852.94	7856.20	3.32	
219	18851	87.20	91.80	271.00	10856.38	7998.10	-856.36	7954.05	0.91	
220	<b>18947</b>	<b>88.70</b>	<b>90.40</b>	<b>271.00</b>	<b>10859.81</b>	<b>8093.82</b>	<b>-858.20</b>	<b>8049.96</b>	<b>2.14</b>	
221	19041	91.00	88.00	271.00	10860.06	8187.34	-856.89	8143.94	3.54	
222	19138	92.70	87.70	275.00	10856.92	8283.56	-853.25	8240.82	1.78	
223	19234	93.30	88.60	275.00	10851.90	8378.76	-850.16	8336.64	1.13	
224	19329	92.80	89.20	275.00	10846.85	8473.11	-848.33	8431.48	0.82	
225	<b>19425</b>	<b>91.30</b>	<b>89.30</b>	<b>273.00</b>	<b>10843.41</b>	<b>8568.58</b>	<b>-847.08</b>	<b>8527.41</b>	<b>1.57</b>	
226	19520	90.80	91.60	275.00	10841.67	8663.27	-847.82	8622.39	2.48	
227	19615	90.00	93.60	276.00	10841.01	8758.19	-852.13	8717.28	2.27	
228	19710	91.60	94.50	276.00	10839.68	8853.17	-858.84	8812.03	1.93	
229	19805	89.40	93.50	275.00	10838.85	8948.14	-865.47	8906.79	2.54	
230	<b>19900</b>	<b>88.40</b>	<b>93.20</b>	<b>276.00</b>	<b>10840.68</b>	<b>9043.09</b>	<b>-871.02</b>	<b>9001.61</b>	<b>1.10</b>	
231	19996	89.80	91.50	275.00	10842.18	9138.98	-874.95	9097.51	2.29	
232	20091	89.90	91.90	276.00	10842.43	9233.83	-877.77	9192.47	0.43	
233	20187	89.30	91.10	276.00	10843.10	9329.66	-880.29	9288.43	1.04	
234	20283	89.60	90.80	276.00	10844.02	9425.43	-881.88	9384.41	0.44	
235	<b>20379</b>	<b>90.90</b>	<b>91.20</b>	<b>276.00</b>	<b>10843.60</b>	<b>9521.20</b>	<b>-883.55</b>	<b>9480.39</b>	<b>1.42</b>	
236	20475	89.50	89.50	275.00	10843.27	9616.90	-884.14	9576.39	2.29	
237	20571	89.10	88.70	276.00	10844.44	9712.40	-882.63	9672.37	0.93	
238	20668	90.90	88.80	276.00	10844.44	9808.84	-880.51	9769.34	1.86	
239	20764	92.00	88.10	276.00	10842.01	9904.20	-877.92	9865.27	1.36	
240	<b>20775</b>	<b>92.30</b>	<b>87.80</b>	<b>276.00</b>	<b>10841.60</b>	<b>9915.11</b>	<b>-877.53</b>	<b>9876.26</b>	<b>3.86</b>	
	Projection	20840	92.30	87.80		10838.99	9979.56	-875.03	9941.16	0.00



## 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  
SPN 5749 (09-2006)



Well File No.  
**29244**

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 9, 2015</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>Suspension of Drilling</b>

Well Name and Number

**Kline Federal 5300 11-18 3T**

Footages	Qtr-Qtr	Section	Township	Range
1020 F N L 290 F W L	11	18	153 N	100 W
Field <b>Baker</b>	Pool <b>Bakken</b>	County <b>McKenzie</b>		

### 24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

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

### DETAILS OF WORK

Oasis Petroleum requests permission for suspension of drilling for approximately 55 days for the referenced well under NDAC 43-02-03-055. Oasis would like to suspend drilling on this well in order to drill the approved Carson SWD 5301 12-24 (well file #90329). The current rig will move to the Carson SWD pad once the vertical well bores have been drilled for all 3 wells on the Kline 11-18 pad. Oasis will return to the Kline 11-18 pad with a second rig on approximately June 6, 2015, to drill the lateral portion of the referenced well to TD.

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9575</b>
Address <b>1001 Fannin St, Suite 1500</b>	
City <b>Houston</b>	State <b>TX</b>
Signature 	Printed Name <b>Michael Kukuk</b>
Title <b>Regulatory Supervisor</b>	Date <b>March 26, 2015</b>
Email Address <b>mkukuk@oasispetroleum.com</b>	

### FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>4/8/15</b>	By 
Title <b>Mineral Resources Permit Manager</b>	

**Holweger, Todd L.**

---

**From:** Michael Kukuk <mkukuk@oasispetroleum.com>  
**Sent:** Thursday, March 26, 2015 6:40 PM  
**To:** Holweger, Todd L.  
**Cc:** Regulatory; APD; Karyme Martin; Jason Swaren  
**Subject:** SOD sundries for the Kline Federal 5300 11-18 pad  
**Attachments:** Kline Federal 11-18 SOD sundries.pdf; ATT00001.txt

**Importance:** High

Good Evening Todd,

Per our conversation I have attached the SOD sundries for the 3 wells on the Kline pad. A few key points:

- 1) We will move the rig to the Carson SWD pad once we have finished drilling the vertical portions of all 3 wells on this pad.
- 2) We will finish drilling the vertical portion of the third well, the Kline Federal 5300 11-18 2B, on April 9<sup>th</sup>.
- 3) We will utilize a 2<sup>nd</sup> rig to drill the lateral portions of the 3 wells on this pad.
- 4) The 2<sup>nd</sup> rig is currently drilling wells on a different pad and is scheduled to reach TD on the final well in late May/early June, leaving a gap of approximately 55 days.
- 5) We will be able to return to the Kline Federal 5300 11-18 pad on or before June 6<sup>th</sup>.

Given the time sensitive nature of this request, expedited review of these sundries would be greatly appreciated.

Thank you for your consideration,

**Michael P. Kukuk**  
**Regulatory Supervisor**  
1001 Fannin, Suite 1500  
Houston, Texas 77002  
281-404-9575  
281-382-5877 (cell)

[mkukuk@oasispetroleum.com](mailto:mkukuk@oasispetroleum.com)





## 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.  
29244

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

Notice of Intent

Approximate Start Date  
**August 22, 2014**

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      Address

### Well Name and Number

**Kline Federal 5300 11-18 3T**

Footages	Qtr-Qtr	Section	Township	Range
1020 F N L	290 F W L	LOT1	18	153 N 100 W
Field	Pool	County		
Baker	Bakken	McKenzie		

### 24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address

City

State

Zip Code

### DETAILS OF WORK

Oasis Petroleum respectfully submits the below physical address for the above referenced well:

13798 46th Street NW, Pad 2  
Alexander, ND 58831

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>August 22, 2014</b>	
Email Address <b>hmccowan@oasispetroleum.com</b>		

### FOR STATE USE ONLY

Received       Approved

Date  
**3/17/2015**

By

Title  
**ENGINEERING TECHNICIAN**



# SUNDRY NOTICES AND REPORTS ON WELLS - FORM

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



Well File No.  
**29244**

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

Notice of Intent

Approximate Start Date  
**April 14, 2015**

Report of Work Done

Date Work Completed

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

Approximate Start Date

Drilling Prognosis

Spill Report

Redrilling or Repair

Shooting

Casing or Liner

Acidizing

Plug Well

Fracture Treatment

Supplemental History

Change Production Method

Temporarily Abandon

Reclamation

Other

**Change to Original APD**

Well Name and Number

**Kline Federal 5300 11-18 3T**

Footages	Qtr-Qtr	Section	Township	Range
1020 F N L	290 F W L	NWNW	18	153 N 100 W
Field	Pool		County	
Baker	Bakken		McKenzie	

## 24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address

City

State

Zip Code

## DETAILS OF WORK

Oasis Petroleum respectfully requests approval to make the following changes to the original APD as follows:

*255' NPIC calc*

BHL change: 1875' FNL & 250' FEL Sec 17 T153N R100W

(previously: 2030' FNL & 206' FEL)

Surface casing design:

Surface Casing of 13 3/8" set at 2068' (previously 9 5/8")

Contingency Casing of 9 5/8" set at 6447'

Intermediate Casing of 7" with weight of 32 set at 11,080' (previously set at 11,085)

Production liner of 4 1/2" set from 10,283' to 20924' (previously set from 10,287' to 21,039')

See attached supporting documents.

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 	Printed Name <b>Victoria Siemieniewski</b>	
Title <b>Regulatory Specialist</b>	Date <b>February 5, 2015</b>	
Email Address <b>vsiemieniewski@oasispetroleum.com</b>		

## FOR STATE USE ONLY

Received  Approved

Date *02-17-2015*

By *David Burns*

**David Burns**  
Engineering Tech.

**WELL LOCATION PLAT**  
ASIS PETROLEUM NORTH AMERICA, LLC  
FANNIN, SUITE 1500, HOUSTON, TX 77002  
"KLINE FEDERAL 5300 11-18 3T"

1020 FEET FROM NORTH LINE AND 280 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

"KLINE FEDERAL 5300 11-18 3T"

"KLINE FEDERAL 5300 11-18 3T"

10.00 ACRES LOCATED 1.5 MILES SOUTH OF THE TOWN OF MCKEEBIE, 1.5 MILES WEST OF THE CROWN CITY HIGHWAY, 1.5 MILES EAST OF THE CROWN CITY HIGHWAY, 1.5 MILES NORTH OF THE CROWN CITY HIGHWAY, AND 1.5 MILES SOUTH OF THE CROWN CITY HIGHWAY.

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 12, T15S, R13W, S. 24, D.M., MCKENZIE COUNTY, NORTH DAKOTA

**SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA**

THIS DOCUMENT WAS ORIGINALLY  
ISSUED AND SEALED BY DARYL D.  
KASEMAN, PLS, REGISTRATION NUMBER  
3880 ON 1/29/15 AND THE  
ORIGINAL DOCUMENTS ARE STORED AT  
THE OFFICES OF INTERSTATE  
ENGINEERING, INC.

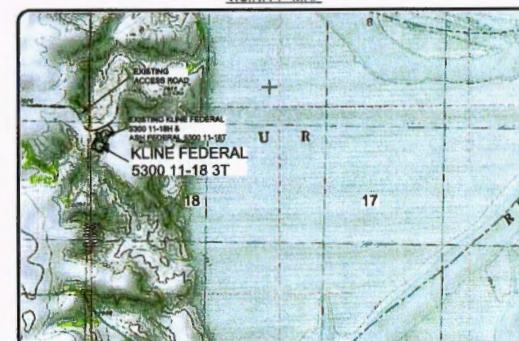


  - MONUMENT - RECOVERED  
  - MONUMENT - NOT RECOVERED

STAKED ON 6/18/14  
VERTICAL CONTROL DATUM WAS BASED UPON  
CONTROL POINT 4 WITH AN ELEVATION OF 2090.8'

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

DARYL D. KASEMAN LS-3880



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Revision	Date	By	Description
REV 1	8/6/74	BHN	Moved wells
REV 2	12/20/74	JLS	Changed well name & BH
REV 3	7/27/75	BHN	Changed well names & BH.

OASIS PETROLEUM NORTH AMERICA, LLC	
WELL LOCATION PLAT	
SECTION 18, T15S33N, R100W	
MCKENZIE COUNTY, NORTH DAKOTA	
Drawn By:	B.A.H.
Checked By:	D.D.K.
Project No.:	9144-051721
Date:	April 2014

**Intermediate Engineering, Inc.**  
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**Oasis Petroleum**  
**Well Summary**  
**Kline Federal 5300 11-18 3T**  
**Section 18 T153N R100W**  
**McKenzie County, ND**

**Contingency INTERMEDIATE CASING AND CEMENT DESIGN**

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
9-5/8"	0' - 6447'	36	HCL-80	LTC	8.835"	8.75"	5450	7270	9090

Interval	Description	Collapse	Burst	Tension
		(psi) / a	(psi) / b	(1000 lbs) / c
0' - 6447'	9-5/8", 36#, J-55, LTC, 8rd	2020 / 2.16	3520 / 1.28	453 / 1.53

**API Rating & Safety Factor**

- a) Collapse based on full casing evacuation with 10.4 ppg fluid on backside (6447' setting depth).
- b) Burst pressure calculated from a gas kick coming from the production zone (Bakken Pool) at 9,000psi and a subsequent breakdown at the 9-5/8" shoe, based on a 15.2#/ft fracture gradient. Backup of 9 ppg fluid..
- c) Tension based on string weight in 10.4 ppg fluid at 6447' TVD plus 100k# overpull. (Buoyed weight equals 195k lbs.)

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

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

**Lead Slurry:** 568 sks (293 bbls), 2.90 ft3/sk, 11.5 lb/gal Conventional system with 94 lb/sk cement, 4% D079 extender, 2% D053 expanding agent, 2% CaCl2 and 0.250 lb/sk D130 lost circulation control agent.

**Tail Slurry:** 610 sks (126 bbls), 1.16 ft3/sk 15.8 lb/gal Conventional system with 94 lb/sk cement, 0.25% CaCl2, and 0.250 lb/sk lost circulation control agent

**Oasis Petroleum**  
**Well Summary**  
**Kline Federal 5300 11-18 3T**  
**Section 18 T153N R100W**  
**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' - 11080'	32	HCP-110	LTC	6.094"	6.000***	6730	8970	9870

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

Interval	Length	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) / c
0' - 11080'	11080'	7", 32#, HCP-110, LTC, 8rd	11820 / 2.10*	12460 / 1.28	897 / 2.24
6785' - 9216'	2431'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.06**	12460 / 1.30	

**API Rating & Safety Factor**

- a) \*Assume full casing evacuation with 10 ppg fluid on backside. \*\*Assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals.
- b) Burst pressure based on 9000 psig max press for stimulation plus 10.2 ppg fluid in casing and 9 ppg fluid on backside-to 10810' TVD.
- c) Based on string weight in 10 ppg fluid, (300k lbs buoyed weight) plus 100k lbs overpull.

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

Mix and pump the following slurry

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

**Lead Slurry:**                   **176 sks** (81 bbls), 11.8 ppg, 2.55 cu. ft./sk Econocem Cement with .3% Fe-2 and .25 lb/sk Lost Circulation Additive

**Tail Slurry:**                   **586 sks** (171 bbls), 14.0 ppg, 1.55 cu. ft./sk Extendcem System with .2% HR-5 Retarder and .25 lb/sk Lost Circulation Additive

**Oasis Petroleum**  
**Well Summary**  
**Kline Federal 5300 11-18 3T**  
**Section 18 T153N R100W**  
**McKenzie County, ND**

PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
4-1/2"	10283' - 20924'	13.5	P-110	BTC	3.920"	3.795"	2270	3020	3780

Interval	Length	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) c
10283' - 20924'	10641	4-1/2", 13.5 lb, P-110, BTC	10670 / 1.98	12410 / 1.28	443 / 1.98

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10862' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10862' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 123k lbs.) plus 100k lbs overpull.

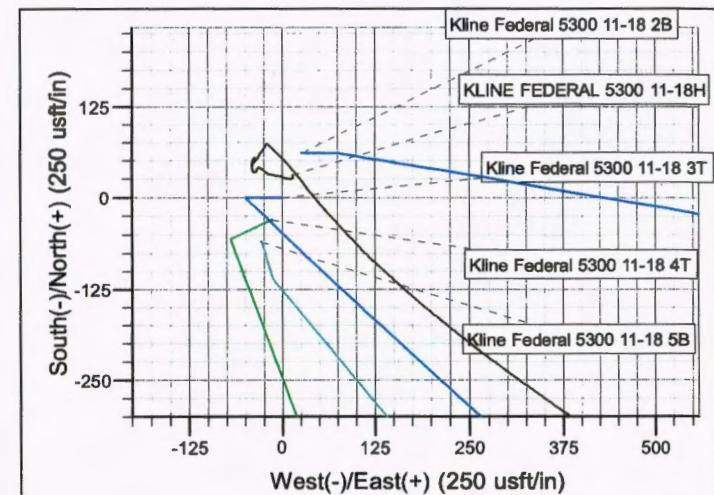
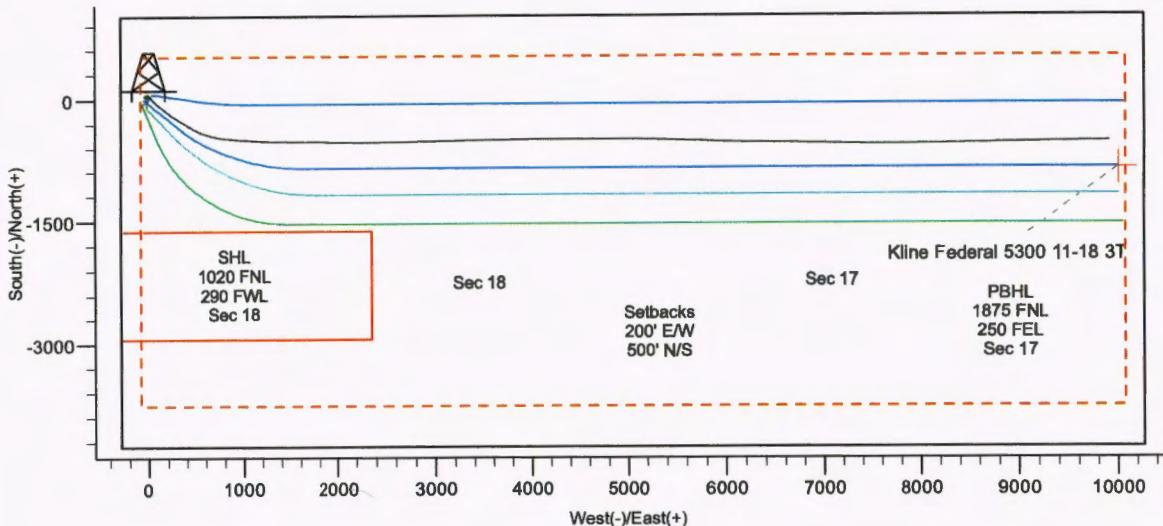
DRILLING PLAN							
<b>OPERATOR</b>	Oasis Petroleum			<b>COUNTY/STATE</b>	McKenzie Co., ND		
<b>WELL NAME</b>	Kline Federal 5300 11-18 3T			<b>RIG</b>	0		
<b>WELL TYPE</b>	Horizontal Upper Three Forks						
<b>LOCATION</b>	NW NW 18-153N-100W			Surface Location (survey plat):	1020' fsl	290' fsl	
<b>EST. T.D.</b>	20,924'						
<b>TOTAL LATERAL</b>	8,844'			<b>GROUND ELEV:</b>	2053	Finished Pad Elev	<b>Sub Height:</b> 25
<b>PROGNOSIS:</b>	Based on 2,078' KB(est)			<b>KB ELEV:</b>	2078		
<b>MARKER</b>	<b>DEPTH (Surf Loc)</b>	<b>DATUM (Surf Loc)</b>	<b>LOGS:</b>	<b>Type</b>	<b>Interval</b>		
Pierre	NDIC MAP	1,988		OH Logs:	Triple Combo KOP to Kirby (or min run of 1800' whichever is greater); GR/Res to BSC; GR to surf; CND through the Dakota		
Greenhorn		4,615	(2,537)	CBL/Gt:	Above top of cement/GR to base of casing		
Mowry		5,021	(2,943)	MWD Gt:	KOP to lateral TD		
Dakota		5,448	(3,370)				
Rierdon		6,447	(4,369)	<b>DEVIATION:</b>			
Dunham Salt		6,785	(4,707)	Surf:	3 deg. max, 1 deg / 100'; surv every 500'		
Dunham Salt Base		6,896	(4,818)	Prod:	5 deg. max, 1 deg / 100'; surv every 100'		
Spearfish		6,993	(4,915)				
Pine Salt		7,248	(5,170)	<b>DST'S:</b>			
Pine Salt Base		7,296	(5,218)				
Opeche Salt		7,341	(5,283)	<b>CORES:</b>			
Opeche Salt Base		7,371	(5,293)				
Broom Creek (Top of Minnelusa Gp.)		7,573	(5,495)	<b>MUDLOGGING:</b>			
Amsden		7,653	(5,575)	Two-Man:	8,317		
Tyler		7,821	(5,743)				
Otter (Base of Minnelusa Gp.)		8,012	(5,934)				
Kibbey Lime		8,367	(5,289)				
Charles Salt		8,517	(6,439)				
UB		9,141	(7,063)				
<b>Base Last Salt</b>		9,216	(7,138)	<b>BDP:</b>			
Ratcliffe		9,264	(7,186)				
Mission Canyon		9,440	(7,362)				
Lodgepole		10,002	(7,924)				
Lodgepole Fracture Zone		10,208	(8,130)				
False Bakken		10,696	(8,620)				
Upper Bakken		10,708	(8,630)				
Middle Bakken		10,722	(8,644)				
Lower Bakken		10,767	(8,689)				
Pronghorn		10,781	(8,703)				
Three Forks		10,793	(8,715)				
TF Target Top		10,805	(8,727)				
TF Target Base		10,815	(8,737)				
Claystone		10,816	(8,738)				
Dip Rate:	0.3						
<b>Max. Anticipated BHP:</b>	4682			<b>Surface Formation:</b>	Glacial till		
<b>MUD:</b>	<b>Interval</b>	<b>Type</b>		<b>WT</b>	<b>Vis</b>	<b>WL</b>	<b>Remarks</b>
Surface:	0' -	2,068'	FW/Gel - Lime Sweeps	8.4-9.0	28-32	NC	Circ Mud Tanks
Intermediate:	2,068' -	11,080'	Invert	9.5-10.4	40-50	30+HHP	Circ Mud Tanks
Lateral:	11,080' -	20,924'	Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks
<b>CASING:</b>	<b>Size</b>	<b>Wt ppf</b>	<b>Hole</b>	<b>Depth</b>	<b>Cement</b>	<b>WOC</b>	<b>Remarks</b>
Surface:	13-3/8"	54.5#	17-1/2"	2,068'	To Surface	12	100' into Pierre
Intermediate (Dakota):	9-5/8"	36#	12-1/4"	6,447'	To Surface	24	Set Casing across Dakota
Intermediate:	7"	32#	8-3/4"	11,080'	4948	24	500' above Dakota
Production Liner:	4-1/2"	13.5#	6"	20,924'	TOL @ 10,283'		50' above KOP
<b>PROBABLE PLUGS, IF REQ'D:</b>							
<b>OTHER:</b>	<b>MD</b>	<b>TVD</b>	<b>ENL/FSL</b>	<b>FEL/FWL</b>	<b>S-T-R</b>	<b>AZI</b>	
Surface:	2,068	2,068	1020' FNL	290' FWL	SEC 18-T153N-R100W		
KOP:	10,333'	10,333'	1020' FNL	240' FWL	SEC 18-T153N-R100W		
EOC:	11,080'	10,810'	1348' FNL	584' FWL	SEC 18-T153N-R100W	133.60	
Casing Point:	11,080'	10,810'	1348' FNL	584' FWL	SEC 18-T153N-R100W	133.60	
Threeforks Lateral TD:	20,924'	10,862'	1875' FNL	250' FEL	SEC 17-T153N-R100W	90.00	
<b>Comments:</b>							
Request a Sundry for an Open Hole Log Waiver							
Exception well: Oasis Petroleum's Kline 5300 11-18H.							
Completion Notes: 35 packers, 35 sleeves, no frac string							
Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations.							
68334-30-5 (Primary Name: Fuels, diesel) 68476-34-6 (Primary Name: Fuels, diesel, No. 2) 68476-30-2 (Primary Name: Fuel oil No. 2) 68476-31-7 (Primary Name: Fuel oil, No. 4) 68476-20-6 (Primary Name: Kerosene)							
<b>OASIS</b> PETROLEUM							
Geology: M. Steed (4/3/2014)				Engineering: hbader rpm 5/30/14			

Project: Indian Hills  
 Site: 153N-100W-17/18  
 Well: Kline Federal 5300 11-18 3T  
 Wellbore: Kline Federal 5300 11-18 3T  
 Design: Design #5

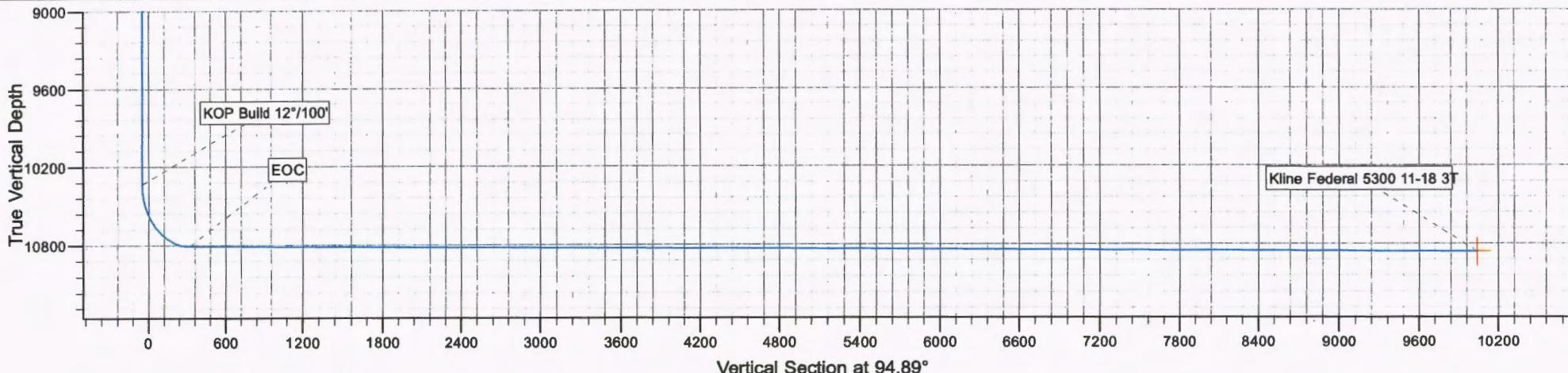


### WELL DETAILS: Kline Federal 5300 11-18 3T

Ground Level: 2053.0  
 Northing 408933.65  
 Easting 1210213.75  
 Latitude 48° 4' 45.090 N  
 Longitude 103° 36' 10.590 W



CASING DETAILS		Azimuths to True North Magnetic North: 8.28		SECTION DETAILS						
TVD	MD	Name	Size	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg
2068.0	2068.0	13 3/8"	13.375	0.0	0.00	0.00	0.0	0.0	0.0	0.00
6446.9	6447.0	9 5/8"	9.625	2500.0	0.00	0.00	2500.0	0.0	0.0	0.00
10810.0	11080.2	7"	7.000	2516.7	0.50	270.00	2516.7	0.0	-0.1	3.00
				8226.7	0.50	270.00	8226.4	0.0	-49.9	0.00
				8243.3	0.00	0.00	8243.1	0.0	-50.0	3.00
				10332.7	0.00	0.00	10332.5	0.0	-50.0	0.00
				11080.2	89.70	133.60	10810.0	-327.5	294.0	12.00
				12533.4	89.70	90.00	10818.0	-854.3	1610.9	3.00
				20923.6	89.70	90.00	10862.0	-855.0	10001.0	0.00



# **Oasis**

**Indian Hills**

**153N-100W-17/18**

**Kline Federal 5300 11-18 3T**

**Plan: Design #5**

## **Standard Planning Report**

**27 January, 2015**

## Planning Report

<b>Database:</b>	OpenWellCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	RKB @ 2078.0usft
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	RKB @ 2078.0usft
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Kline Federal 5300 11-18 3T		
<b>Design:</b>	Design #5		

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

<b>Site</b>	153N-100W-17/18
<b>Site Position:</b>	
<b>From:</b>	Lat/Long
<b>Position Uncertainty:</b>	0.0 usft

Northing: 408,962.44 usft Latitude: 48° 4' 45.380 N  
 Easting: 1,210,229.18 usft Longitude: 103° 36' 10.380 W  
 Slot Radius: 13.200 in Grid Convergence: -2.31 °

<b>Well</b>	Kline Federal 5300 11-18 3T				
<b>Well Position</b>	+N-S	-29.4 usft	Northing: 408,933.65 usft	Latitude: 48° 4' 45.090 N	
	+E/W	-14.3 usft	Easting: 1,210,213.75 usft	Longitude: 103° 36' 10.590 W	
<b>Position Uncertainty</b>	Wellhead Elevation: Ground Level: 2,053.0 usft				

<b>Wellbore</b>	Kline Federal 5300 11-18 3T				
<b>Magnetics</b>	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/22/2014	8.28	73.00	56,450

<b>Design</b>	Design #5
<b>Audit Notes:</b>	
<b>Version:</b>	Phase: PROTOTYPE Tie On Depth: 0.0
<b>Vertical Section:</b>	Depth From (TVD) +N-S (usft) +E/W (usft) Direction (°)
	0.0 0.0 0.0 94.89

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E/W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,516.7	0.50	270.00	2,516.7	0.0	-0.1	3.00	3.00	0.00	270.00	
8,226.7	0.50	270.00	8,226.4	0.0	-49.9	0.00	0.00	0.00	0.00	
8,243.3	0.00	0.00	8,243.1	0.0	-50.0	3.00	-3.00	0.00	180.00	
10,332.7	0.00	0.00	10,332.5	0.0	-50.0	0.00	0.00	0.00	0.00	
11,080.2	89.70	133.60	10,810.0	-327.5	294.0	12.00	12.00	0.00	133.60	
12,533.4	89.70	90.00	10,818.0	-854.3	1,610.9	3.00	0.00	-3.00	-90.12	
20,923.6	89.70	90.00	10,862.0	-855.0	10,001.0	0.00	0.00	0.00	0.00	Kline Federal 5300 11

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	RKB @ 2078.0usft
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	RKB @ 2078.0usft
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Kline Federal 5300 11-18 3T		
<b>Design:</b>	Design #5		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,516.7	0.50	270.00	2,516.7	0.0	-0.1	-0.1	3.00	3.00	0.00	
2,600.0	0.50	270.00	2,600.0	0.0	-0.8	-0.8	0.00	0.00	0.00	
2,700.0	0.50	270.00	2,700.0	0.0	-1.7	-1.7	0.00	0.00	0.00	
2,800.0	0.50	270.00	2,800.0	0.0	-2.5	-2.5	0.00	0.00	0.00	
2,900.0	0.50	270.00	2,900.0	0.0	-3.4	-3.4	0.00	0.00	0.00	
3,000.0	0.50	270.00	3,000.0	0.0	-4.3	-4.3	0.00	0.00	0.00	
3,100.0	0.50	270.00	3,100.0	0.0	-5.2	-5.1	0.00	0.00	0.00	
3,200.0	0.50	270.00	3,200.0	0.0	-6.0	-6.0	0.00	0.00	0.00	
3,300.0	0.50	270.00	3,300.0	0.0	-6.9	-6.9	0.00	0.00	0.00	
3,400.0	0.50	270.00	3,400.0	0.0	-7.8	-7.8	0.00	0.00	0.00	
3,500.0	0.50	270.00	3,500.0	0.0	-8.7	-6.6	0.00	0.00	0.00	
3,600.0	0.50	270.00	3,600.0	0.0	-9.5	-9.5	0.00	0.00	0.00	
3,700.0	0.50	270.00	3,700.0	0.0	-10.4	-10.4	0.00	0.00	0.00	
3,800.0	0.50	270.00	3,800.0	0.0	-11.3	-11.2	0.00	0.00	0.00	
3,900.0	0.50	270.00	3,899.9	0.0	-12.1	-12.1	0.00	0.00	0.00	
4,000.0	0.50	270.00	3,999.9	0.0	-13.0	-13.0	0.00	0.00	0.00	
4,100.0	0.50	270.00	4,099.9	0.0	-13.9	-13.8	0.00	0.00	0.00	
4,200.0	0.50	270.00	4,199.9	0.0	-14.8	-14.7	0.00	0.00	0.00	
4,300.0	0.50	270.00	4,299.9	0.0	-15.6	-15.6	0.00	0.00	0.00	
4,400.0	0.50	270.00	4,399.9	0.0	-16.5	-16.4	0.00	0.00	0.00	
4,500.0	0.50	270.00	4,499.9	0.0	-17.4	-17.3	0.00	0.00	0.00	
4,600.0	0.50	270.00	4,599.9	0.0	-18.3	-18.2	0.00	0.00	0.00	
4,700.0	0.50	270.00	4,699.9	0.0	-19.1	-19.1	0.00	0.00	0.00	
4,800.0	0.50	270.00	4,799.9	0.0	-20.0	-19.9	0.00	0.00	0.00	
4,900.0	0.50	270.00	4,899.9	0.0	-20.9	-20.8	0.00	0.00	0.00	
5,000.0	0.50	270.00	4,999.9	0.0	-21.7	-21.7	0.00	0.00	0.00	
5,100.0	0.50	270.00	5,099.9	0.0	-22.6	-22.5	0.00	0.00	0.00	
5,200.0	0.50	270.00	5,199.9	0.0	-23.5	-23.4	0.00	0.00	0.00	
5,300.0	0.50	270.00	5,299.9	0.0	-24.4	-24.3	0.00	0.00	0.00	
5,400.0	0.50	270.00	5,399.9	0.0	-25.2	-25.1	0.00	0.00	0.00	
5,500.0	0.50	270.00	5,499.9	0.0	-26.1	-26.0	0.00	0.00	0.00	
5,600.0	0.50	270.00	5,599.9	0.0	-27.0	-26.9	0.00	0.00	0.00	
5,700.0	0.50	270.00	5,699.9	0.0	-27.9	-27.8	0.00	0.00	0.00	
5,800.0	0.50	270.00	5,799.9	0.0	-28.7	-28.6	0.00	0.00	0.00	
5,900.0	0.50	270.00	5,899.9	0.0	-29.6	-29.5	0.00	0.00	0.00	
6,000.0	0.50	270.00	5,999.9	0.0	-30.5	-30.4	0.00	0.00	0.00	
6,100.0	0.50	270.00	6,099.9	0.0	-31.3	-31.2	0.00	0.00	0.00	
6,200.0	0.50	270.00	6,199.9	0.0	-32.2	-32.1	0.00	0.00	0.00	
6,300.0	0.50	270.00	6,299.9	0.0	-33.1	-33.0	0.00	0.00	0.00	
6,400.0	0.50	270.00	6,399.9	0.0	-34.0	-33.8	0.00	0.00	0.00	
6,447.0	0.50	270.00	6,446.9	0.0	-34.4	-34.2	0.00	0.00	0.00	
<b>9 5/8"</b>										
6,500.0	0.50	270.00	6,499.8	0.0	-34.8	-34.7	0.00	0.00	0.00	
6,600.0	0.50	270.00	6,599.8	0.0	-35.7	-35.6	0.00	0.00	0.00	
6,700.0	0.50	270.00	6,699.8	0.0	-36.6	-36.4	0.00	0.00	0.00	
6,800.0	0.50	270.00	6,799.8	0.0	-37.5	-37.3	0.00	0.00	0.00	
6,900.0	0.50	270.00	6,899.8	0.0	-38.3	-38.2	0.00	0.00	0.00	
7,000.0	0.50	270.00	6,999.8	0.0	-39.2	-39.1	0.00	0.00	0.00	
7,100.0	0.50	270.00	7,099.8	0.0	-40.1	-39.9	0.00	0.00	0.00	
7,200.0	0.50	270.00	7,199.8	0.0	-40.9	-40.8	0.00	0.00	0.00	
7,300.0	0.50	270.00	7,299.6	0.0	-41.8	-41.7	0.00	0.00	0.00	
7,400.0	0.50	270.00	7,399.8	0.0	-42.7	-42.5	0.00	0.00	0.00	
7,500.0	0.50	270.00	7,499.8	0.0	-43.6	-43.4	0.00	0.00	0.00	
7,600.0	0.50	270.00	7,599.8	0.0	-44.4	-44.3	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	RKB @ 2078.0usft
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	RKB @ 2078.0usft
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Kline Federal 5300 11-18 3T		
<b>Design:</b>	Design #5		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,700.0	0.50	270.00	7,899.8	0.0	-45.3	-45.1	0.00	0.00	0.00
7,800.0	0.50	270.00	7,799.8	0.0	-46.2	-46.0	0.00	0.00	0.00
7,900.0	0.50	270.00	7,899.8	0.0	-47.1	-46.9	0.00	0.00	0.00
8,000.0	0.50	270.00	7,999.8	0.0	-47.9	-47.7	0.00	0.00	0.00
8,100.0	0.50	270.00	8,099.8	0.0	-48.8	-48.6	0.00	0.00	0.00
8,200.0	0.50	270.00	8,199.8	0.0	-49.7	-49.5	0.00	0.00	0.00
8,226.7	0.50	270.00	8,226.4	0.0	-49.9	-49.7	0.00	0.00	0.00
8,243.3	0.00	0.00	8,243.1	0.0	-50.0	-49.8	3.00	-3.00	0.00
8,300.0	0.00	0.00	8,299.8	0.0	-50.0	-49.8	0.00	0.00	0.00
8,400.0	0.00	0.00	8,399.8	0.0	-50.0	-49.8	0.00	0.00	0.00
8,500.0	0.00	0.00	8,499.8	0.0	-50.0	-49.8	0.00	0.00	0.00
8,600.0	0.00	0.00	8,599.8	0.0	-50.0	-49.8	0.00	0.00	0.00
8,700.0	0.00	0.00	8,699.8	0.0	-50.0	-49.8	0.00	0.00	0.00
8,800.0	0.00	0.00	8,799.8	0.0	-50.0	-49.8	0.00	0.00	0.00
8,900.0	0.00	0.00	8,899.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,000.0	0.00	0.00	8,999.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,100.0	0.00	0.00	9,099.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,200.0	0.00	0.00	9,199.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,300.0	0.00	0.00	9,299.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,400.0	0.00	0.00	9,399.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,500.0	0.00	0.00	9,499.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,600.0	0.00	0.00	9,599.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,700.0	0.00	0.00	9,699.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,800.0	0.00	0.00	9,799.8	0.0	-50.0	-49.8	0.00	0.00	0.00
9,900.0	0.00	0.00	9,899.8	0.0	-50.0	-49.8	0.00	0.00	0.00
10,000.0	0.00	0.00	9,999.8	0.0	-50.0	-49.8	0.00	0.00	0.00
10,100.0	0.00	0.00	10,099.8	0.0	-50.0	-49.8	0.00	0.00	0.00
10,200.0	0.00	0.00	10,199.8	0.0	-50.0	-49.8	0.00	0.00	0.00
10,300.0	0.00	0.00	10,299.8	0.0	-50.0	-49.8	0.00	0.00	0.00
10,332.7	0.00	0.00	10,332.5	0.0	-50.0	-49.8	0.00	0.00	0.00
<b>KOP Build 12°/100'</b>									
10,350.0	2.07	133.60	10,349.8	-0.2	-49.7	-49.5	11.98	11.98	0.00
10,375.0	5.07	133.60	10,374.7	-1.3	-48.8	-48.3	12.00	12.00	0.00
10,400.0	8.07	133.60	10,399.6	-3.3	-46.5	-46.1	12.00	12.00	0.00
10,425.0	11.07	133.60	10,424.2	-6.1	-43.5	-42.9	12.00	12.00	0.00
10,450.0	14.07	133.60	10,448.6	-9.9	-39.6	-38.6	12.00	12.00	0.00
10,475.0	17.07	133.60	10,472.7	-14.5	-34.7	-33.4	12.00	12.00	0.00
10,500.0	20.07	133.60	10,496.4	-20.0	-29.0	-27.2	12.00	12.00	0.00
10,525.0	23.07	133.60	10,519.6	-26.3	-22.3	-20.0	12.00	12.00	0.00
10,550.0	26.07	133.60	10,542.4	-33.5	-14.8	-11.9	12.00	12.00	0.00
10,575.0	29.07	133.60	10,564.5	-41.5	-6.4	-2.9	12.00	12.00	0.00
10,600.0	32.07	133.60	10,586.0	-50.3	2.8	7.1	12.00	12.00	0.00
10,625.0	35.07	133.60	10,606.9	-59.8	12.8	17.9	12.00	12.00	0.00
10,650.0	38.07	133.60	10,626.9	-70.1	23.6	29.5	12.00	12.00	0.00
10,675.0	41.07	133.60	10,646.2	-81.0	35.1	41.9	12.00	12.00	0.00
10,700.0	44.07	133.60	10,664.6	-92.7	47.4	55.1	12.00	12.00	0.00
10,725.0	47.07	133.60	10,682.1	-105.0	60.3	69.0	12.00	12.00	0.00
10,750.0	50.07	133.60	10,698.7	-117.9	73.9	83.7	12.00	12.00	0.00
10,775.0	53.07	133.60	10,714.2	-131.4	88.1	98.9	12.00	12.00	0.00
10,800.0	56.07	133.60	10,728.7	-145.5	102.8	114.8	12.00	12.00	0.00
10,825.0	59.07	133.60	10,742.1	-160.0	118.1	131.3	12.00	12.00	0.00
10,850.0	62.07	133.60	10,754.4	-175.1	133.9	148.3	12.00	12.00	0.00
10,875.0	65.07	133.60	10,765.5	-190.5	150.1	185.7	12.00	12.00	0.00
10,900.0	68.07	133.60	10,775.4	-206.3	166.7	183.6	12.00	12.00	0.00
10,925.0	71.07	133.60	10,784.2	-222.5	183.6	201.9	12.00	12.00	0.00

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	RKB @ 2078.0usft
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	RKB @ 2078.0usft
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Kline Federal 5300 11-18 3T		
<b>Design:</b>	Design #5		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
10,950.0	74.07	133.60	10,791.6	-238.9	200.9	220.5	12.00	12.00	0.00	
10,975.0	77.07	133.60	10,797.9	-255.6	218.4	239.4	12.00	12.00	0.00	
11,000.0	80.07	133.60	10,802.8	-272.5	236.2	258.5	12.00	12.00	0.00	
11,025.0	83.07	133.60	10,806.5	-289.6	254.1	277.8	12.00	12.00	0.00	
11,050.0	86.07	133.60	10,808.9	-306.7	272.1	297.2	12.00	12.00	0.00	
11,075.0	89.07	133.60	10,809.9	-323.9	290.2	316.7	12.00	12.00	0.00	
11,080.2	89.70	133.60	10,810.0	-327.5	294.0	320.8	12.00	12.00	0.00	
<b>EOC - 7"</b>										
11,100.0	89.70	133.01	10,810.1	-341.1	308.4	336.3	3.00	0.01	-3.00	
11,200.0	89.69	130.01	10,810.6	-407.4	383.2	416.6	3.00	-0.01	-3.00	
11,300.0	89.69	127.01	10,811.1	-469.6	461.5	499.8	3.00	0.00	-3.00	
11,400.0	89.68	124.01	10,811.7	-527.7	542.9	585.9	3.00	0.00	-3.00	
11,500.0	89.68	121.01	10,812.2	-581.4	627.2	674.5	3.00	0.00	-3.00	
11,600.0	89.68	118.01	10,812.8	-630.7	714.2	765.4	3.00	0.00	-3.00	
11,700.0	89.68	115.01	10,813.4	-675.3	803.7	858.3	3.00	0.00	-3.00	
11,800.0	89.68	112.01	10,813.9	-715.2	895.4	953.1	3.00	0.00	-3.00	
11,900.0	89.68	109.01	10,814.5	-750.2	989.0	1,049.4	3.00	0.00	-3.00	
12,000.0	89.68	106.01	10,815.1	-780.3	1,084.4	1,146.9	3.00	0.00	-3.00	
12,100.0	89.68	103.01	10,815.6	-805.3	1,181.2	1,245.5	3.00	0.00	-3.00	
12,200.0	89.68	100.01	10,816.2	-825.3	1,279.2	1,344.8	3.00	0.00	-3.00	
12,300.0	89.69	97.01	10,816.7	-840.1	1,378.1	1,444.6	3.00	0.00	-3.00	
12,400.0	89.69	94.01	10,817.3	-849.7	1,477.6	1,544.6	3.00	0.00	-3.00	
12,500.0	89.70	91.01	10,817.8	-854.0	1,577.5	1,844.5	3.00	0.01	-3.00	
12,533.4	89.70	90.00	10,818.0	-854.3	1,610.9	1,877.8	3.00	0.01	-3.00	
12,600.0	89.70	90.00	10,818.3	-854.3	1,677.5	1,744.2	0.00	0.00	0.00	
12,700.0	89.70	90.00	10,818.8	-854.3	1,777.5	1,843.8	0.00	0.00	0.00	
12,800.0	89.70	90.00	10,819.4	-854.3	1,877.5	1,943.4	0.00	0.00	0.00	
12,900.0	89.70	90.00	10,819.9	-854.4	1,977.5	2,043.1	0.00	0.00	0.00	
13,000.0	89.70	90.00	10,820.4	-854.4	2,077.5	2,142.7	0.00	0.00	0.00	
13,100.0	89.70	90.00	10,820.9	-854.4	2,177.5	2,242.3	0.00	0.00	0.00	
13,200.0	89.70	90.00	10,821.5	-854.4	2,277.5	2,342.0	0.00	0.00	0.00	
13,300.0	89.70	90.00	10,822.0	-854.4	2,377.5	2,441.6	0.00	0.00	0.00	
13,400.0	89.70	90.00	10,822.5	-854.4	2,477.5	2,541.2	0.00	0.00	0.00	
13,500.0	89.70	90.00	10,823.0	-854.4	2,577.5	2,640.9	0.00	0.00	0.00	
13,600.0	89.70	90.00	10,823.6	-854.4	2,677.5	2,740.5	0.00	0.00	0.00	
13,700.0	89.70	90.00	10,824.1	-854.4	2,777.5	2,840.1	0.00	0.00	0.00	
13,800.0	89.70	90.00	10,824.6	-854.4	2,877.5	2,939.8	0.00	0.00	0.00	
13,900.0	89.70	90.00	10,825.1	-854.4	2,977.5	3,039.4	0.00	0.00	0.00	
14,000.0	89.70	90.00	10,825.7	-854.4	3,077.5	3,139.1	0.00	0.00	0.00	
14,100.0	89.70	90.00	10,826.2	-854.4	3,177.5	3,238.7	0.00	0.00	0.00	
14,200.0	89.70	90.00	10,826.7	-854.5	3,277.5	3,338.3	0.00	0.00	0.00	
14,300.0	89.70	90.00	10,827.2	-854.5	3,377.5	3,438.0	0.00	0.00	0.00	
14,400.0	89.70	90.00	10,827.8	-854.5	3,477.5	3,537.6	0.00	0.00	0.00	
14,500.0	89.70	90.00	10,828.3	-854.5	3,577.5	3,637.2	0.00	0.00	0.00	
14,600.0	89.70	90.00	10,828.8	-854.5	3,677.5	3,736.9	0.00	0.00	0.00	
14,700.0	89.70	90.00	10,829.3	-854.5	3,777.5	3,836.5	0.00	0.00	0.00	
14,800.0	89.70	90.00	10,829.9	-854.5	3,877.4	3,936.1	0.00	0.00	0.00	
14,900.0	89.70	90.00	10,830.4	-854.5	3,977.4	4,035.8	0.00	0.00	0.00	
15,000.0	89.70	90.00	10,830.9	-854.5	4,077.4	4,135.4	0.00	0.00	0.00	
15,100.0	89.70	90.00	10,831.4	-854.5	4,177.4	4,235.1	0.00	0.00	0.00	
15,200.0	89.70	90.00	10,832.0	-854.5	4,277.4	4,334.7	0.00	0.00	0.00	
15,300.0	89.70	90.00	10,832.5	-854.5	4,377.4	4,434.3	0.00	0.00	0.00	
15,400.0	89.70	90.00	10,833.0	-854.6	4,477.4	4,534.0	0.00	0.00	0.00	
15,500.0	89.70	90.00	10,833.5	-854.6	4,577.4	4,633.6	0.00	0.00	0.00	
15,600.0	89.70	90.00	10,834.1	-854.6	4,677.4	4,733.2	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	RKB @ 2078.0usft
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	RKB @ 2078.0usft
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Kline Federal 5300 11-18 3T		
<b>Design:</b>	Design #5		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (/100ft)	Build Rate (/100ft)	Turn Rate (/100ft)	
15,700.0	89.70	90.00	10,834.6	-854.6	4,777.4	4,832.9	0.00	0.00	0.00	
15,800.0	89.70	90.00	10,835.1	-854.6	4,877.4	4,932.5	0.00	0.00	0.00	
15,900.0	89.70	90.00	10,835.6	-854.6	4,977.4	5,032.1	0.00	0.00	0.00	
16,000.0	89.70	90.00	10,836.2	-854.6	5,077.4	5,131.8	0.00	0.00	0.00	
16,100.0	89.70	90.00	10,836.7	-854.6	5,177.4	5,231.4	0.00	0.00	0.00	
16,200.0	89.70	90.00	10,837.2	-854.6	5,277.4	5,331.0	0.00	0.00	0.00	
16,300.0	89.70	90.00	10,837.7	-854.6	5,377.4	5,430.7	0.00	0.00	0.00	
16,400.0	89.70	90.00	10,838.3	-854.6	5,477.4	5,530.3	0.00	0.00	0.00	
16,500.0	89.70	90.00	10,838.8	-854.6	5,577.4	5,630.0	0.00	0.00	0.00	
16,600.0	89.70	90.00	10,839.3	-854.6	5,677.4	5,729.6	0.00	0.00	0.00	
16,700.0	89.70	90.00	10,839.8	-854.7	5,777.4	5,829.2	0.00	0.00	0.00	
16,800.0	89.70	90.00	10,840.4	-854.7	5,877.4	5,928.9	0.00	0.00	0.00	
16,900.0	89.70	90.00	10,840.9	-854.7	5,977.4	6,028.5	0.00	0.00	0.00	
17,000.0	89.70	90.00	10,841.4	-854.7	6,077.4	6,128.1	0.00	0.00	0.00	
17,100.0	89.70	90.00	10,841.9	-854.7	6,177.4	6,227.8	0.00	0.00	0.00	
17,200.0	89.70	90.00	10,842.5	-854.7	6,277.4	6,327.4	0.00	0.00	0.00	
17,300.0	89.70	90.00	10,843.0	-854.7	6,377.4	6,427.0	0.00	0.00	0.00	
17,400.0	89.70	90.00	10,843.5	-854.7	6,477.4	6,526.7	0.00	0.00	0.00	
17,500.0	89.70	90.00	10,844.0	-854.7	6,577.4	6,626.3	0.00	0.00	0.00	
17,600.0	89.70	90.00	10,844.6	-854.7	6,677.4	6,725.9	0.00	0.00	0.00	
17,700.0	89.70	90.00	10,845.1	-854.7	6,777.4	6,825.6	0.00	0.00	0.00	
17,800.0	89.70	90.00	10,845.6	-854.7	6,877.4	6,925.2	0.00	0.00	0.00	
17,900.0	89.70	90.00	10,846.1	-854.6	6,977.4	7,024.9	0.00	0.00	0.00	
18,000.0	89.70	90.00	10,846.7	-854.8	7,077.4	7,124.5	0.00	0.00	0.00	
18,100.0	89.70	90.00	10,847.2	-854.8	7,177.4	7,224.1	0.00	0.00	0.00	
18,200.0	89.70	90.00	10,847.7	-854.8	7,277.4	7,323.8	0.00	0.00	0.00	
18,300.0	89.70	90.00	10,848.2	-854.8	7,377.4	7,423.4	0.00	0.00	0.00	
18,400.0	89.70	90.00	10,848.8	-854.8	7,477.4	7,523.0	0.00	0.00	0.00	
18,500.0	89.70	90.00	10,849.3	-854.8	7,577.4	7,622.7	0.00	0.00	0.00	
18,600.0	89.70	90.00	10,849.8	-854.8	7,677.4	7,722.3	0.00	0.00	0.00	
18,700.0	89.70	90.00	10,850.3	-854.8	7,777.4	7,821.9	0.00	0.00	0.00	
18,800.0	89.70	90.00	10,850.9	-854.8	7,877.4	7,921.6	0.00	0.00	0.00	
18,900.0	89.70	90.00	10,851.4	-854.8	7,977.4	8,021.2	0.00	0.00	0.00	
19,000.0	89.70	90.00	10,851.9	-854.8	8,077.4	8,120.8	0.00	0.00	0.00	
19,100.0	89.70	90.00	10,852.4	-854.8	8,177.4	8,220.5	0.00	0.00	0.00	
19,200.0	89.70	90.00	10,853.0	-854.9	8,277.4	8,320.1	0.00	0.00	0.00	
19,300.0	89.70	90.00	10,853.5	-854.9	8,377.4	8,419.8	0.00	0.00	0.00	
19,400.0	89.70	90.00	10,854.0	-854.9	8,477.4	8,519.4	0.00	0.00	0.00	
19,500.0	89.70	90.00	10,854.5	-854.9	8,577.4	8,619.0	0.00	0.00	0.00	
19,600.0	89.70	90.00	10,855.1	-854.9	8,677.4	8,718.7	0.00	0.00	0.00	
19,700.0	89.70	90.00	10,855.6	-854.9	8,777.4	8,818.3	0.00	0.00	0.00	
19,800.0	89.70	90.00	10,856.1	-854.9	8,877.4	8,917.9	0.00	0.00	0.00	
19,900.0	89.70	90.00	10,856.6	-854.9	8,977.4	9,017.6	0.00	0.00	0.00	
20,000.0	89.70	90.00	10,857.2	-854.9	9,077.4	9,117.2	0.00	0.00	0.00	
20,100.0	89.70	90.00	10,857.7	-854.9	9,177.4	9,216.8	0.00	0.00	0.00	
20,200.0	89.70	90.00	10,858.2	-854.9	9,277.4	9,318.5	0.00	0.00	0.00	
20,300.0	89.70	90.00	10,858.7	-854.9	9,377.4	9,416.1	0.00	0.00	0.00	
20,400.0	89.70	90.00	10,859.3	-855.0	9,477.4	9,515.8	0.00	0.00	0.00	
20,500.0	89.70	90.00	10,859.8	-855.0	9,577.4	9,615.4	0.00	0.00	0.00	
20,600.0	89.70	90.00	10,860.3	-855.0	9,677.4	9,715.0	0.00	0.00	0.00	
20,700.0	89.70	90.00	10,860.8	-855.0	9,777.4	9,814.7	0.00	0.00	0.00	
20,800.0	89.70	90.00	10,861.4	-855.0	9,877.4	9,914.3	0.00	0.00	0.00	
20,900.0	89.70	90.00	10,861.9	-855.0	9,977.4	10,013.9	0.00	0.00	0.00	
20,923.6	89.70	90.00	10,862.0	-855.0	10,001.0	10,037.5	0.00	0.00	0.00	

Kline Federal 5300 11-18 3T

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	RKB @ 2078.0usft
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	RKB @ 2078.0usft
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Kline Federal 5300 11-18 3T		
<b>Design:</b>	Design #5		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)

Design Targets										
Target Name	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape	(°)		(°)		(usft)		(usft)		(usft)	
Kline Federal 5300 11-11	0.00		0.00		10,862.0		-855.0		10,001.0	
- plan hits target center										
- Point										

Casing Points									
Measured Depth (usft)	Vertical Depth (usft)	Name				Casing Diameter (in)	Hole Diameter (in)		
2,068.0	2,068.0 13 3/8"					13.375	17.500		
6,447.0	6,446.9 9 5/8"					9.625	12.250		
11,080.2	10,810.0 7"					7.000	8.750		

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	RKB @ 2078.0usft
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	RKB @ 2078.0usft
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Kline Federal 5300 11-18 3T		
<b>Design:</b>	Design #5		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,968.0	1,988.0	Pierre			
4,615.1	4,615.0	Greenhorn			
5,021.1	5,021.0	Mowry			
5,448.1	5,448.0	Dakota			
6,447.1	6,447.0	Rierdon			
6,785.2	6,785.0	Dunham Salt			
6,896.2	6,896.0	Dunham Salt Base			
6,993.2	6,993.0	Spearfish			
7,248.2	7,248.0	Pine Salt			
7,296.2	7,296.0	Pine Salt Base			
7,341.2	7,341.0	Opeche Salt			
7,371.2	7,371.0	Opeche Salt Base			
7,573.2	7,573.0	Broom Creek (Top of Minnelusa Gp.)			
7,653.2	7,653.0	Arnsden			
7,821.2	7,821.0	Tyler			
8,012.2	8,012.0	Otter (Base of Minnelusa Gp.)			
8,367.2	8,367.0	Kibbey Lime			
8,517.2	8,517.0	Charles Salt			
9,141.2	9,141.0	UB			
9,216.2	9,216.0	Base Last Salt			
9,284.2	9,284.0	Ratcliffe			
9,440.2	9,440.0	Mission Canyon			
10,002.2	10,002.0	Lodgepole			
10,208.2	10,208.0	Lodgepole Fracture Zone			
10,749.0	10,698.0	False Bakken			
10,784.8	10,708.0	Upper Bakken			
10,788.2	10,722.0	Middle Bakken			
10,878.6	10,767.0	Lower Bakken			
10,915.5	10,781.0	Pronghorn			
10,955.0	10,793.0	Three Forks			
11,013.7	10,805.0	TF Target Top			
11,989.7	10,815.0	TF Target Base			
12,168.6	10,816.0	Claystone			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/S (usft)	+E/W (usft)		
10,332.7	10,332.5	0.0	-50.0	KOP Build 12°/100'	
11,080.2	10,810.0	-327.5	294.0	EOC	

**Oasis Petroleum**  
**Well Summary**  
**Kline Federal 5300 11-18 3T**  
**Section 18 T153N R100W**  
**McKenzie County, ND**

**SURFACE CASING AND CEMENT DESIGN**

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
13-3/8"	0' - 2068'	54.5	J-55	STC	12.615"	12.459"	4100	5470	6840

Interval	Description	Collapse (psi) / a	Burst (psi) / b	Tension (1000 lbs) / c
0' - 2068'	13-3/8", 54.5#, J-55, LTC, 8rd	1130 / 1.16	2730 / 1.95	514 / 2.60

**API Rating & Safety Factor**

- a) Collapse based on full casing evacuation with 9 ppg fluid on backside (2068' setting depth).
- b) Burst pressure based on 13 ppg fluid with no fluid on backside (2068' setting depth).
- c) Based on string weight in 9 ppg fluid at 2068' TVD plus 100k# overpull. (Buoyed weight equals 97k lbs.)

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

Mix and pump the following slurry.

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

**Lead Slurry:**      **694 sks** (358 bbls), 11.5 lb/gal, 2.97 cu. Ft/sk Varicem Cement with 0.125 il/sk Lost Circulation Additive

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

**SECTION BREAKDOWN**  
ASIS PETROLEUM NORTH AMERICA, LLC  
FANNIN, SUITE 1500, HOUSTON, TX 77002

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTIONS 17 & 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

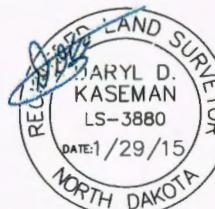
"KLINE FEDERAL 5300 11-18 3T"

ON NORTH LINE AND 290 FEET FROM WEST

33N R100W 5th R M MCKENZIE COUNTY

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ALL AZIMUTHS ARE BASED ON G.P.S. OBSERVATIONS. THE ORIGINAL SURVEY OF THIS AREA FOR THE GENERAL LAND OFFICE (G.L.O.) WAS 1891. THE CORNERS FOUND ARE AS INDICATED AND ALL OTHERS ARE COMPUTED FROM THOSE CORNERS FOUND AND BASED ON G.L.O. DATA. THE MAPPING ANGLE FOR THIS AREA IS APPROXIMATELY 003°.



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Revision No.	Date	By	Description
REV 1	8/16/14	BPHS	Moved Wells
REV 2	12/20/14	45B	Changed Well Name & BBL
REV 3	1/27/15	BPHS	CHANGED WELL NAMES & BBL

OASIS PETROLEUM NORTH AMERICA, LLC	Project No.:
SECTION BREAKDOWN	Date:
SECTIONS 17 & 18, T153N, R100W	APRIL 2014
MKENZIE COUNTY, NORTH DAKOTA	
Drawn By: B.M.H.	
Checked By: D.D.K.	

**Interstate Engineering, Inc.**  
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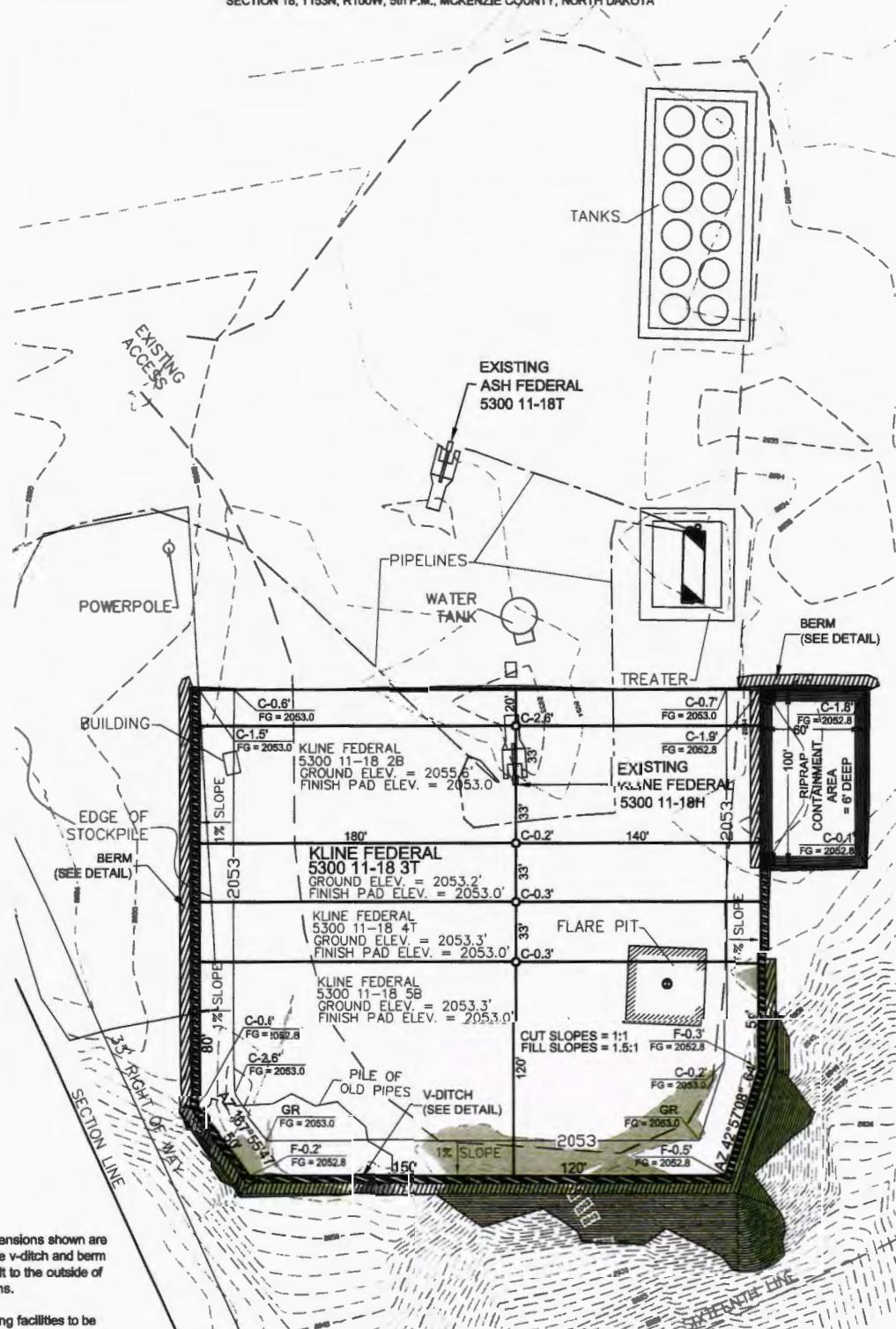
2/8

PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

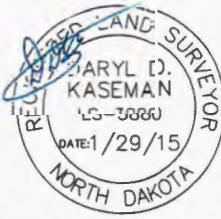
"KLINE FEDERAL 5300 11-18-3T"

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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0 60  
1" = 60'

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Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC

PAD LAYOUT

SECTION 18, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: 514-09-127-01

Checked By: D.D.K. Date: APRIL 2014

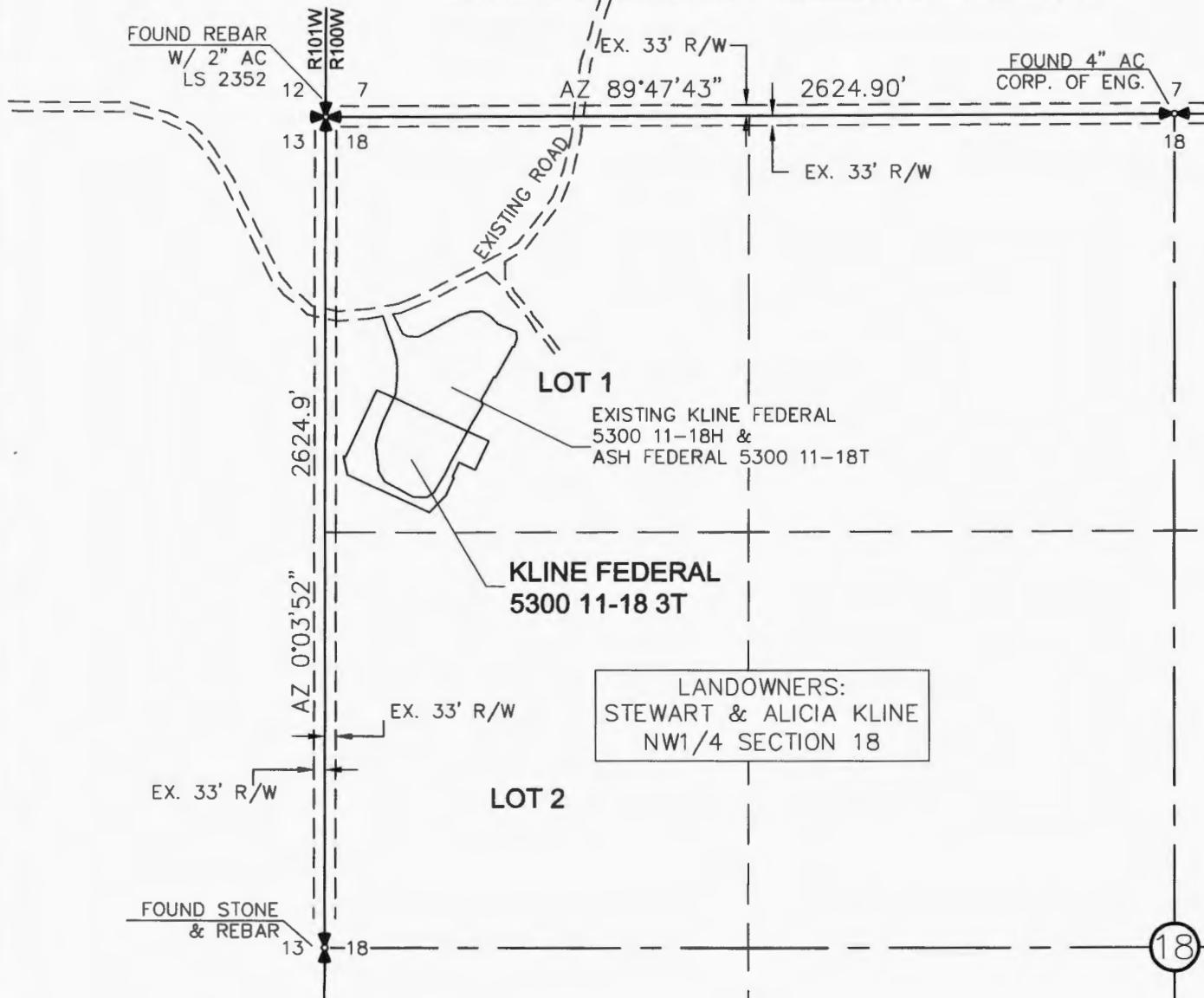
Revision No.	Date	By	Description
REV 1	8/16/14	BHH	MOVED WELLS
REV 2	12/30/14	JDS	CHANGED WELL NAME & BH
REV 3	1/27/15	BHH	CHANGED WELL NAMES & BH

Informational Format 5300 11-18-3T Revision 1-03-15 (Rev. 1-03-15) Date: 1-27-15

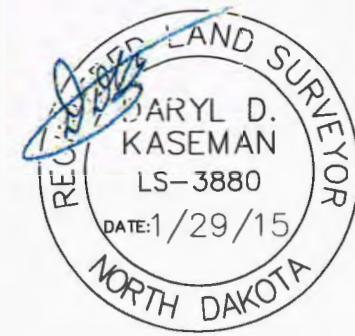
# ACCESS APPROACH

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"KLINE FEDERAL 5300 11-18 3T"

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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



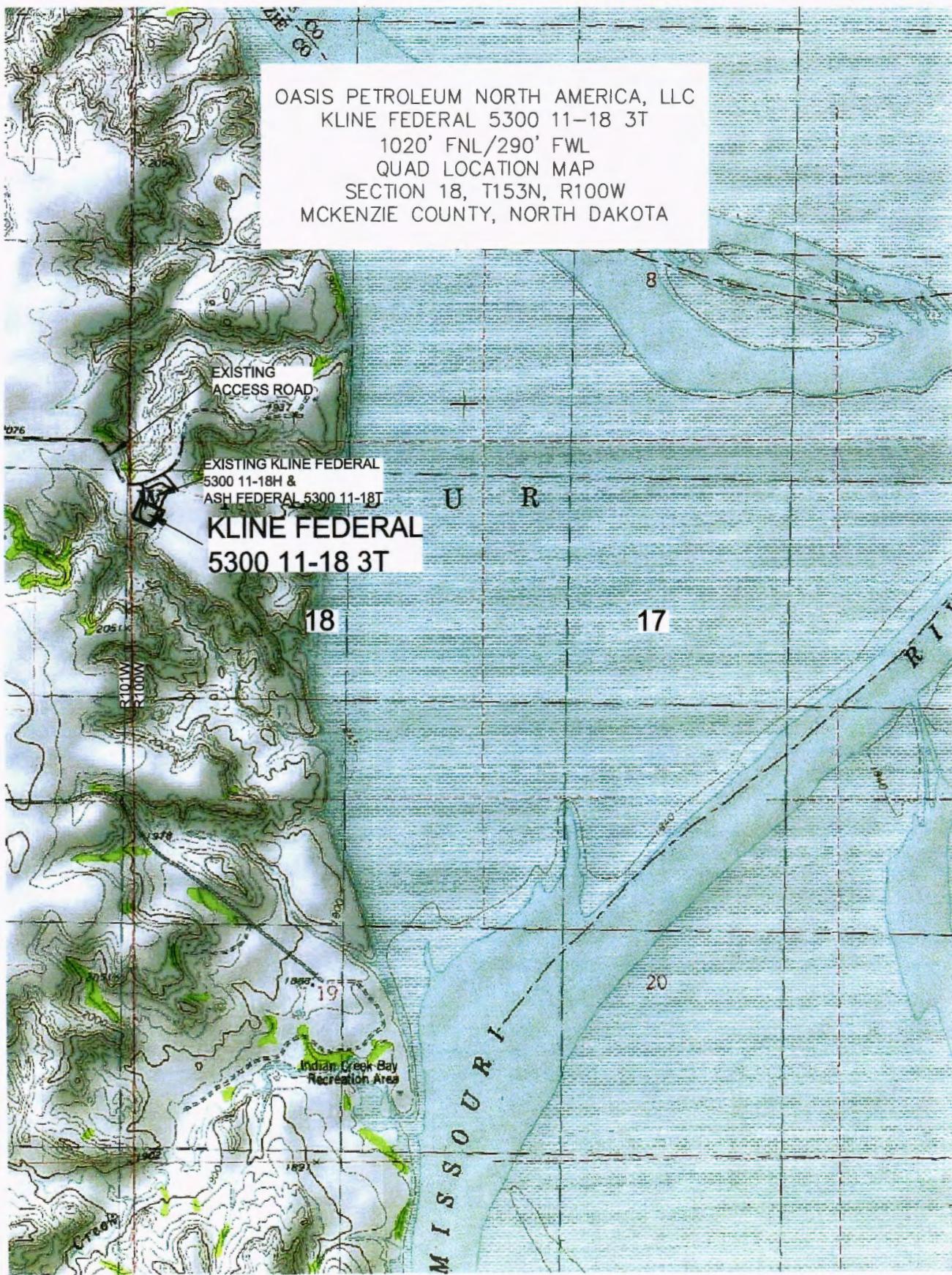
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OASIS PETROLEUM NORTH AMERICA, LLC  
QUAD LOCATION MAP  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	B.H.H.	Project No.:	S14-09-127-01
Checked By:	D.D.K.	Date:	APRIL 2014

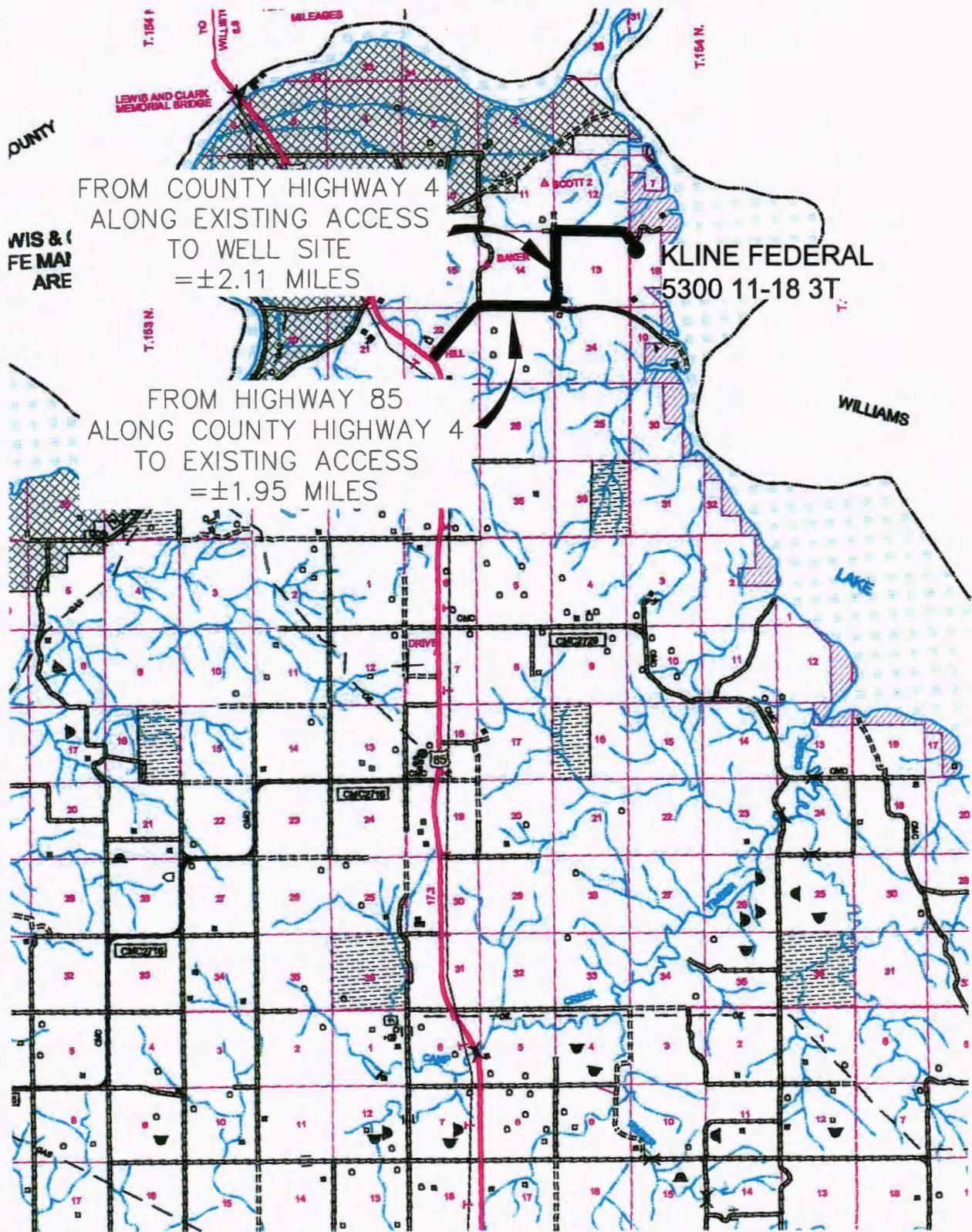
Revision No.	Date	By	Description
REV 1	6/16/14	BHH	MOVED WELLS
REV 2	12/30/14	JJS	CHANGED WELL NAME & BH
REV 3	1/27/15	BHH	CHANGED WELL NAMES & BH

# COUNTY ROAD MAP

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"KLINE FEDERAL 5300 11-18 3T"

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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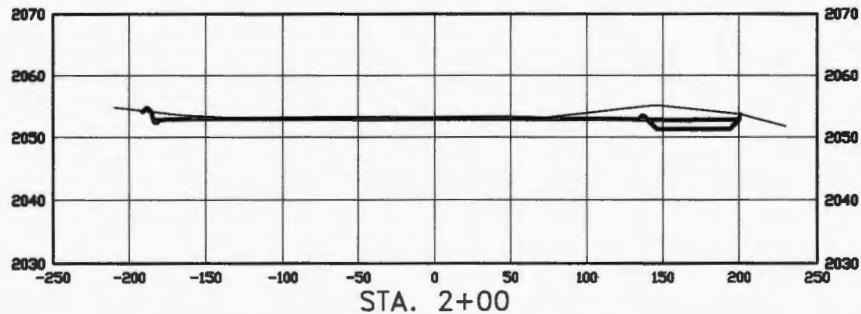
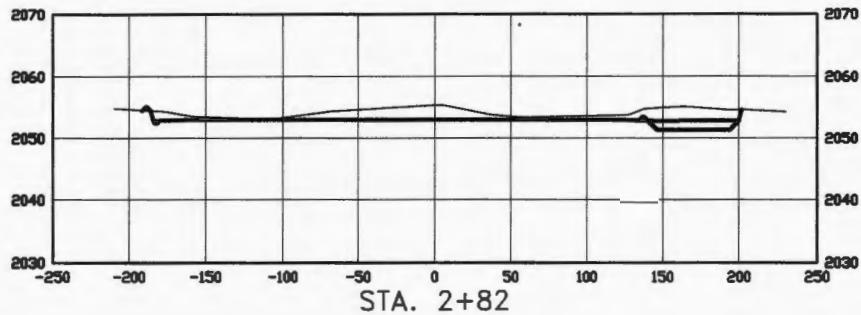
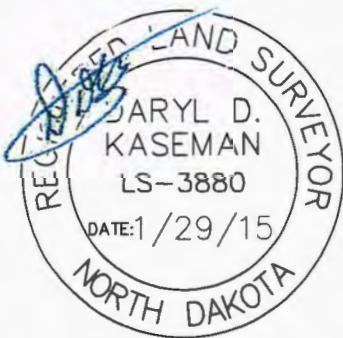
OASIS PETROLEUM NORTH AMERICA, LLC  
COUNTY ROAD MAP  
SECTION 18, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

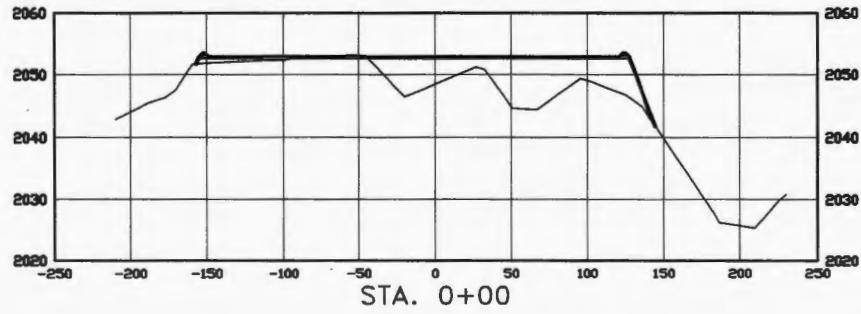
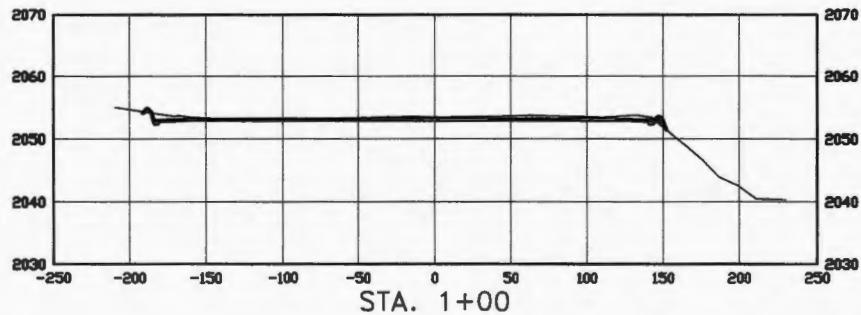
Drawn By: B.H.H. Project No.: S14-09-127.01  
Checked By: D.D.K. Date: APRIL 2014

Revision No.	Date	By	Description
REV 1	6/16/14	B.H.H.	MOVED WELLS
REV 2	12/30/14	JJS	CHANGED WELL NAME & BH
REV 3	1/27/15	B.H.H.	CHANGED WELL NAMES & BH

**CROSS SECTIONS**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "KLINE FEDERAL 5300 11-18 3T"  
 1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
 SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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PAD CROSS SECTIONS  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA  
Drawn By: B.H.H. Project No.: S14-09-127.01  
Checked By: D.D.K. Date: APRIL 2014

Revision No.	Date	By	Description
REV 1	6/16/14	BHH	Moved wells
REV 2	12/30/14	JAS	Changed well name & BH
REV 3	1/27/15	BHH	Changed well names & BH

**WELL LOCATION SITE QUANTITIES**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "KLINE FEDERAL 5300 11-18 3T"  
 1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
 SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL SITE ELEVATION	2053.2
WELL PAD ELEVATION	2053.0
EXCAVATION	1,906
PLUS PIT	0
	<u>1,906</u>
EMBANKMENT	869
PLUS SHRINKAGE (30%)	261
	<u>1,130</u>
STOCKPILE PIT	0
STOCKPILE TOP SOIL (6")	1,934
BERMS	883 LF = 286 CY
DITCHES	727 LF = 111 CY
CONTAINMENT AREA	1,112 CY
ADDITIONAL MATERIAL NEEDED	221
DISTURBED AREA FROM PAD	2.40 ACRES

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

CUT END SLOPES AT 1:1

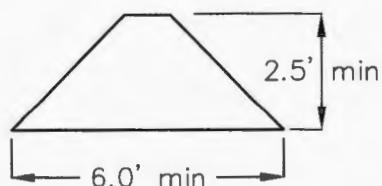
FILL END SLOPES AT 1.5:1

**WELL SITE LOCATION**

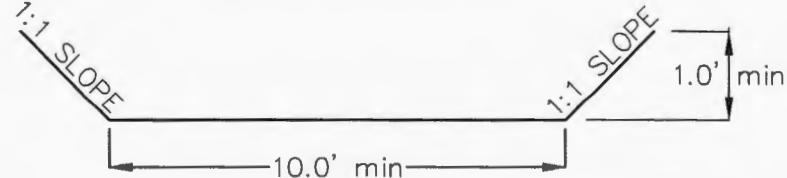
1020' FNL

290' FWL

**BERM DETAIL**



**DIVERSION DITCH DETAIL**



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Interstate offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
 QUANTITIES  
 SECTION 18, T153N, R100W  
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S14-09-127.01  
 Checked By: D.D.K. Date: APRIL 2014

Revision No.	Date	By	Description
REV 1	6/16/14	BH&H	Moved wells
REV 2	12/30/14	JS	Changed well name & BH
REV 3	1/27/15	BH&H	Changed well names & BH



# Oil and Gas Division 29244

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/)

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

Date: 9/2/2014

**RE: CORES AND SAMPLES**

Well Name: **KLINE FEDERAL 5300 11-18 3T** Well File No.: **29244**  
Location: **LOT1 18-153-100** County: **MCKENZIE**  
Permit Type: **Development - HORIZONTAL**  
Field: **BAKER** Target Horizon: **THREE FORKS B1**

Dear BRANDI TERRY:

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

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

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

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

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

Sincerely

Stephen Fried  
Geologist



## SUNDY NOTICES AND REPORTS ON WELLS - FORM 4

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

Well File No.

29244

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 2, 2014</b>
<input type="checkbox"/> Report of Work Done	Date Work Completed
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03. Approximate Start Date	

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

Well Name and Number  
**KLINE FEDERAL 5300 11-18 3T**

Footages <b>1020 F N L 290 F WL</b>	Qtr-Qtr <b>LOT 1</b>	Section <b>18</b>	Township <b>153 N</b>	Range <b>100 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) 720-3554 WITH SPUD & TO WFO

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>July 2, 2014</b>	
Email Address <b>hmccowan@oasispetroleum.com</b>		

### FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>8/26/2014</b>	
By 	
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 5749 (09-2006)

Well File No. 29244

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 2, 2014</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 checked="" 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  
**Kline Federal 5300 11-18 3T**

Footages	Qtr-Qtr	Section	Township	Range
1020 F N L	290 F W L	NW NW	18	153 N 100 W
Field <b>Baker</b>	Pool <b>Bakken</b>	County <b>McKenzie</b>		

## 24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

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

## DETAILS OF WORK

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

The Oasis Petroleum/ Kline Federal 5300 11-18H located within a mile of the subject well

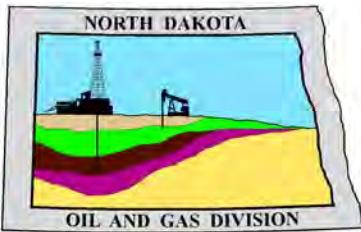
If this exception is approved, Oasis Petroleum will run a CBL on the intermediate string, and we will also run GR to surface. Oasis Petroleum will also submit two digital copies of each cased hole log and a copy of the mud log containing MWD gamma ray.

Approved Per #20275

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 2, 2014</b>	
Email Address <b>hmccowan@oasp petroleum.com</b>		

## FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>8/26/2014</b>	
By <b>Matthew Messana</b>	
Title <b>Engineering Tech</b>	



# 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)

August 26, 2014

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

**RE: HORIZONTAL WELL  
KLINE FEDERAL 5300 11-18 3T  
LOT1 Section 18-153N-100W  
McKenzie County  
Well File # 29244**

Dear Heather:

Pursuant to Commission Order No. 23752, approval to drill the above captioned well is hereby given. The approval is granted on the condition that all portions of the well bore not isolated by cement, be no closer than the **500' setback** from the north & south boundaries and **200' setback** from the east & west boundaries within the 1280 acre spacing unit consisting of Sections 18 & 17, T153N R100W.

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

### Drilling pit

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

### Form 1 Changes & Hard Lines

Any changes, shortening of casing point or lengthening at Total Depth must have prior approval by the NDIC. The proposed directional plan is at a legal location. Based on the azimuth of the proposed lateral the maximum legal coordinate from the well head is: 10028E.

### **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,

Matt Messana  
Engineering Technician



# APPLICATION FOR PERMIT TO DRILL HORIZONTAL WELL - FORM 1H

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

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Type of Work <b>New Location</b>	Type of Well <b>Oil &amp; Gas</b>	Approximate Date Work Will Start <b>10 / 1 / 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>KLINE FEDERAL</b>			Well Number <b>5300 11-18 3T</b>				
Surface Footages <b>1020 F N L      290 F W L</b>		Qtr-Qtr <b>LOT1</b>	Section <b>18</b>	Township <b>153 N</b>	Range <b>100 W</b>	County <b>McKenzie</b>	
Longstring Casing Point Footages <b>1367 F N L      562 F W L</b>		Qtr-Qtr <b>LOT1</b>	Section <b>18</b>	Township <b>153 N</b>	Range <b>100 W</b>	County <b>McKenzie</b>	
Longstring Casing Point Coordinates From Well Head <b>347 S From WH      272 E From WH</b>		Azimuth <b>137 °</b>	Longstring Total Depth <b>11084 Feet MD      10813 Feet TVD</b>				
Bottom Hole Footages From Nearest Section Line <b>2030 F N L      206 F E L</b>		Qtr-Qtr <b>SENE</b>	Section <b>17</b>	Township <b>153 N</b>	Range <b>100 W</b>	County <b>McKenzie</b>	
Bottom Hole Coordinates From Well Head <b>1010 S From WH      10051 E From WH</b>		KOP Lateral 1 <b>10337 Feet MD</b>		Azimuth Lateral 1 <b>90 °</b>		Estimated Total Depth Lateral 1 <b>21039 Feet MD      10865 Feet TVD</b>	
Latitude of Well Head <b>48 ° 04 ' 45.09 "</b>	Longitude of Well Head <b>-103 ° 36 ' 10.59 "</b>	NAD Reference <b>NAD83</b>		Description of Spacing Unit: <b>Sections 18 &amp; 17 T153N R100W</b> (Subject to NDIC Approval)			
Ground Elevation <b>2053 Feet Above S.L.</b>	Acres in Spacing/Drilling Unit <b>1280</b>	Spacing/Drilling Unit Setback Requirement <b>500 Feet N/S      200 Feet E/W</b>		Industrial Commission Order <b>23752</b>			
North Line of Spacing/Drilling Unit <b>10544 Feet</b>	South Line of Spacing/Drilling Unit <b>10489 Feet</b>	East Line of Spacing/Drilling Unit <b>5244 Feet</b>		West Line of Spacing/Drilling Unit <b>5256 Feet</b>			
Objective Horizons <b>Three Forks B1</b>						Pierre Shale Top <b>1967</b>	
Proposed Surface Casing	Size <b>9 - 5/8 "</b>	Weight <b>36 Lb./Ft.</b>	Depth <b>2068 Feet</b>	Cement Volume <b>984 Sacks</b>	NOTE: Surface hole must be drilled with fresh water and surface casing must be cemented back to surface.		
Proposed Longstring Casing	Size <b>7 - "</b>	Weight(s) <b>29/32 Lb./Ft.</b>	Longstring Total Depth <b>11084 Feet MD      10813 Feet TVD</b>		Cement Volume <b>832 Sacks</b>	Cement Top <b>3947 Feet</b>	Top Dakota Sand <b>5447 Feet</b>
Base Last Charles Salt (If Applicable) <b>9215 Feet</b>		NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.					
Proposed Logs <b>Triple Combo: KOP to Kibby GR/Res to BSC GR to surf CND through the 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, Plots**

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

7 / 02 / 2014

ePermit

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

Permit and File Number <b>29244</b>	API Number <b>33 - 053 - 06225</b>
Field <b>BAKER</b>	
Pool <b>BAKKEN</b>	Permit Type <b>DEVELOPMENT</b>

**FOR STATE USE ONLY**

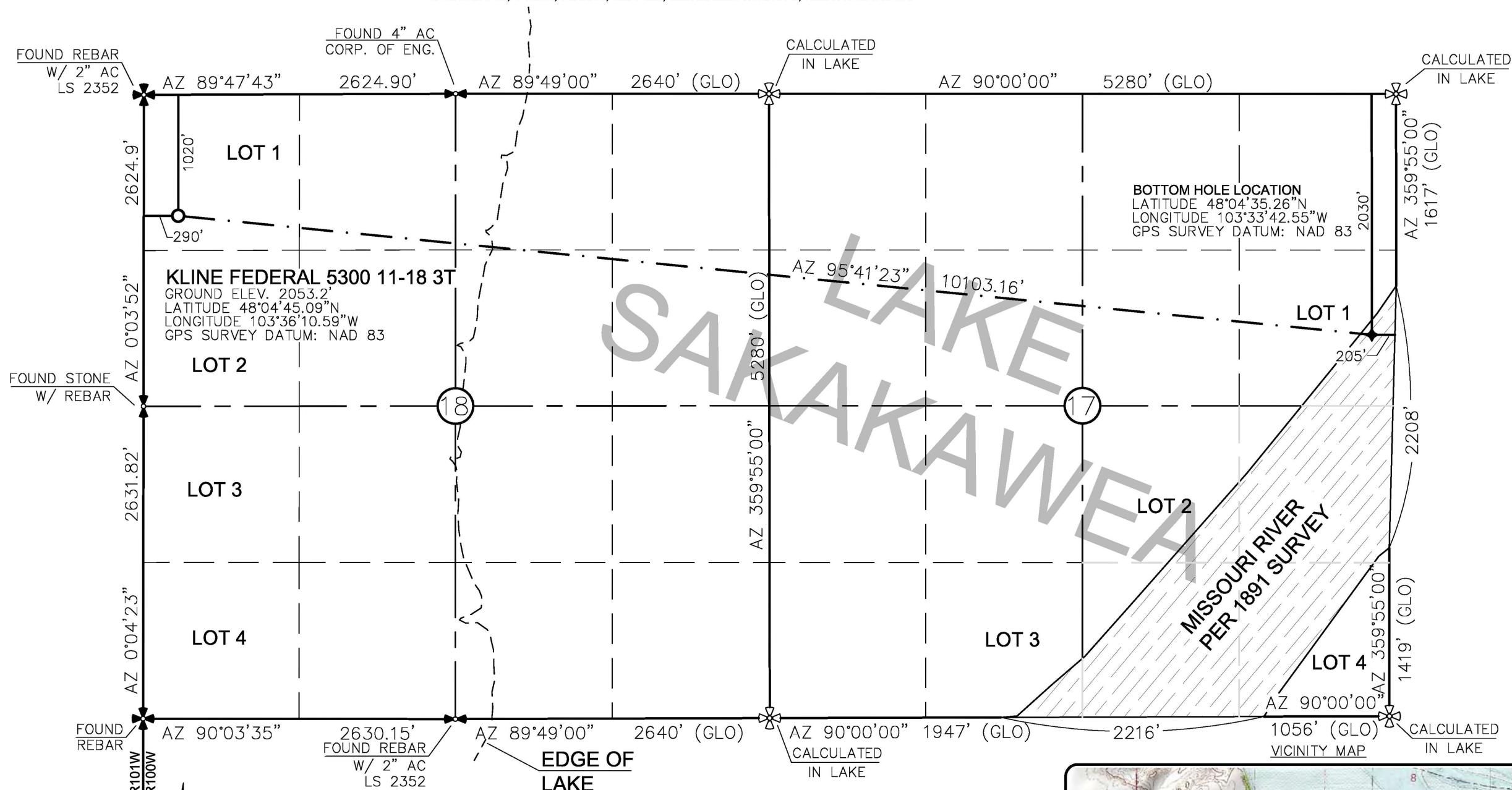
Date Approved <b>8 / 26 / 2014</b>
By <b>Matt Messana</b>
Title <b>Engineering Technician</b>

# WELL LOCATION PLAT

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"KLINE FEDERAL 5300 11-18 3T"

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

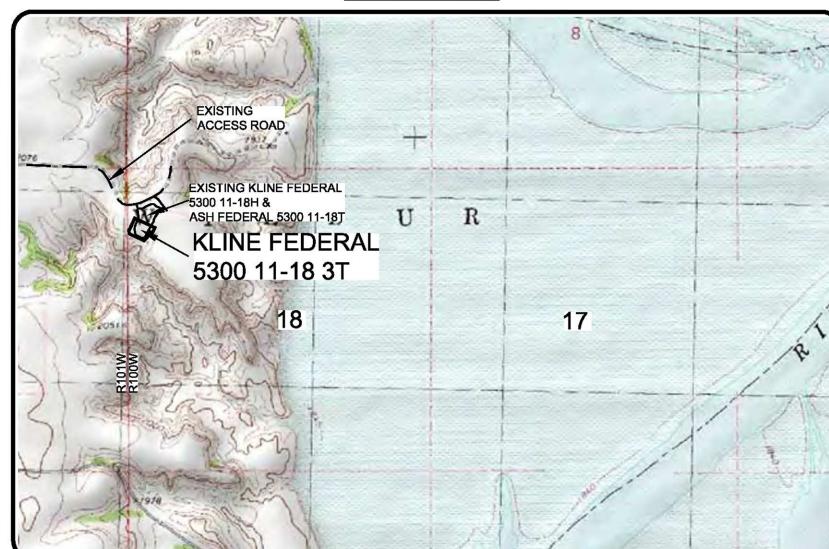
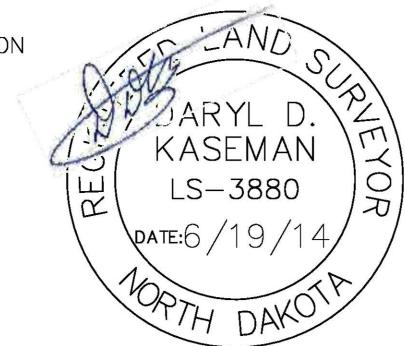


THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 ON 6/19/14 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.

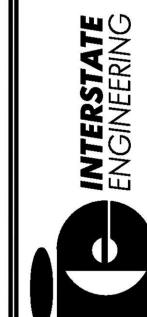
0  
1" = 1000'

- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED

DARYL D. KASEMAN LS-3880



1/8



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

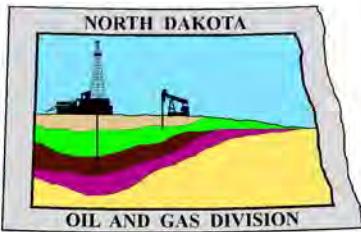
Other offices in Missoula, North Dakota and South Dakota

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WELL LOCATION PLAT  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA  
Drawn By: BHH  
Checked By: DDK  
Project No.: S14-09-1227-01  
Date: APRIL 2014

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WELL LOCATION PLAT  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA  
Drawn By: BHH  
Checked By: DDK  
Project No.: S14-09-1227-01  
Date: APRIL 2014

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# 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)

April 9, 2014

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

Dear Operator,

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

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

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

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

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

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

Thank you for your cooperation.

Sincerely,

*Bruce E. Hicks*

Assistant Director

DRILLING PLAN											
OPERATOR	Oasis Petroleum	COUNTY/STATE	McKenzie Co., ND								
WELL NAME	Kline Federal 5300 11-18 3T	RIG	0								
WELL TYPE	Horizontal Upper Three Forks	Surface Location (survey plat)	1020' fnl 290' fwl								
LOCATION	NWNW 18-153N-100W	GROUND ELEV:	2052 Finished Pad Elev. Sub Height: 25								
EST. T.D.	21,039'	KB ELEV:	2077								
TOTAL LATERA	9,954'	LOGS:	Type	Interval							
PROGNOSIS:	Based on 2,077' KB(est)	OH Logs: Triple Combo KOP to Kirby (or min run of 1800' whichever is greater); GR/Res to BSC; GR to surf; CND through the Dakota CBL/GR: Above top of cement/GR to base of casing MWD GR: KOP to lateral TD									
MARKER	DEPTH (Surf Loc)	DATUM (Surf Loc)	DEVIATION:								
Pierre	NDIC MAP	1,967	110	Surf: 3 deg. max., 1 deg / 100'; svry every 500' Prod: 5 deg. max., 1 deg / 100'; svry every 100'							
Greenhorn		4,614	(2,537)								
Mowry		5,020	(2,943)								
Dakota		5,447	(3,370)								
Rierdon		6,446	(4,369)								
Dunham Salt		6,784	(4,707)								
Dunham Salt Base		6,895	(4,818)								
Spearfish		6,992	(4,915)								
Pine Salt		7,247	(5,170)								
Pine Salt Base		7,295	(5,218)								
Opeche Salt		7,340	(5,263)								
Opeche Salt Base		7,370	(5,293)	DST'S:							
Broom Creek (Top of Minnelusa Gp.)		7,572	(5,495)	None planned							
Amsden		7,652	(5,575)								
Tyler		7,820	(5,743)								
Otter (Base of Minnelusa Gp.)		8,011	(5,934)	CORES:							
Kibbey Lime		8,366	(6,289)	None planned							
Charles Salt		8,516	(6,439)								
UB		9,140	(7,063)								
Base Last Salt		9,215	(7,138)	MUDLOGGING:							
Ratcliffe		9,263	(7,186)	Two-Man: 8,316'							
Mission Canyon		9,439	(7,362)	~200' above the Charles (Kibbey) to Casing point; Casing point to TD							
Lodgepole		10,001	(7,924)	30' samples at direction of wellsite geologist; 10' through target @ curve land							
Lodgepole Fracture Zone		10,207	(8,130)								
False Bakken		10,697	(8,620)								
Upper Bakken		10,707	(8,630)								
Middle Bakken		10,721	(8,644)								
Lower Bakken		10,766	(8,689)								
Pronghorn		10,780	(8,703)								
Three Forks		10,792	(8,715)	BOP:							
TF Target Top		10,804	(8,727)	11" 5000 psi blind, pipe & annular							
TF Target Base		10,814	(8,737)								
Claystone		10,815	(8,738)								
Dip Rate:	-0.3										
Max. Anticipated BHP:	4682	Surface Formation: Glacial till									
MUD:	Interval	Type	WT	Vis	WL	Remarks					
Surface:	0' -	2,068'	FW/Gel - Lime Sweeps	8.4-9.0	28-32	NC	Circ Mud Tanks				
Intermediate:	2,068' -	11,085'	Invert	9.5-10.4	40-50	30+HHP	Circ Mud Tanks				
Lateral:	11,085' -	21,039'	Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks				
CASING:	Size	Wt pfp	Hole	Depth	Cement	WOC	Remarks				
Surface:	13-3/8"	54.5#	17-1/2"	2,068'	To Surface	12	100' into Pierre				
Intermediate (Dakota):	9-5/8"	40#	12-1/4"	6,100'	To Surface	24	Set Casing across Dakota				
Intermediate:	7"	29/32#	8-3/4"	11,085'	3947	24	1500' above Dakota				
Production Liner:	4-1/2"	13.5#	6"	21,039'	TOL @ 10,287'	50'	above KOP				
PROBABLE PLUGS, IF REQ'D:											
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI					
Surface:	2,068	2,068	1020' FNL	290' FWL	SEC 18-T153N-R100W	Survey Company:					
KOP:	10,337'	10,335'	1020' FNL	238' FWL	SEC 18-T153N-R100W	Build Rate:	12 deg /100'				
EOC:	11,085'	10,813'	1367' FNL	562' FWL	SEC 18-T153N-R100W	137.00					
Casing Point:	11,085'	10,813'	1367' FNL	562' FWL	SEC 18-T153N-R100W	137.00					
Threeforks Lateral TD:	21,039'	10,865'	2030' FNL	205' FEL	SEC 17-T153N-R100W	90.00					
Comments:											
<b>Request a Sundry for an Open Hole Log Waiver</b>											
<b>Exception well:</b> Oasis Petroleum's Kline 5300 11-18H											
Completion Notes: 35 packers, 35 sleeves, no frac string											
Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations.											
68334-30-5 (Primary Name: Fuels, diesel) 68476-34-6 (Primary Name: Fuels, diesel, No. 2) 68476-30-2 (Primary Name: Fuel oil No. 2)											
68476-31-3 (Primary Name: Fuel oil, No. 4) 8008-20-6 (Primary Name: Kerosene)											
<b>OASIS</b> PETROLEUM				Geology: M. Steed (4/3/2014) Engineering: hbader rpm 5/30/14							

**Oasis Petroleum  
Well Summary**  
**Kline Federal 5300 11-18 3T**  
**Sec. 18 T153N R100W**  
**McKenzie County, North Dakota**

**SURFACE CASING AND CEMENT DESIGN**

Make-up Torque (ft-lbs)									
Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Minimum	Optimum	Max
13-3/8"	0' to 2,068'	54.5	J-55	STC	12.615"	12.459"	4,100	5,470	6,840

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' to 2,068'	13-3/8", 54.5#, J-55, STC, 8rd	1130 / 1.17	2730 / 2.82	514 / 2.61

**API Rating & Safety Factor**

- a) Collapse pressure based on full casing evacuation with 9 ppg fluid on backside (2068' setting depth).
- b) Burst pressure based on 9 ppg fluid with no fluid on backside (2068' setting depth).
- c) Based on string weight in 9 ppg fluid at 2068' TVD plus 100k# overpull. (Buoyed weight equals 97k lbs.)

Cement volumes are based on 13-3/8" casing set in 17-1/2" hole with 50% excess to circulate cement back to surface.  
Mix and pump the following slurry.

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

**Lead Slurry:** **635 sks** (328 bbls) 2.9 yield conventional system with 94 lb/sk cement, .25 lb/sk D130 Lost Circulation Control Agent, 2% CaCL2, 4% D079 Extender, and 2% D053 Expanding Agent.

**Tail Slurry:** **349 sks** (72 bbls) 1.16 yield conventional system with 94 lb/sk cement, .25 lb/sk Lost Circulation Control Agent, and .25% CaCL2.

**Oasis Petroleum  
Well Summary**  
**Kline Federal 5300 11-18 3T**  
**Sec. 18 T153N R100W**  
**McKenzie County, North Dakota**

**CONTINGENCY INTERMEDIATE CASING AND CEMENT DESIGN**

Make-up Torque (ft-lbs)									
Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Minimum	Optimum	Max
9-5/8"	0' - 6101'	40	HCL-80	LTC	8.835"	8.75"**	5,450	7,270	9,090

\*\*Special Drift

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' - 6101'	9-5/8", 40#, HCL-80, LTC, 8rd	4230 / 5.33	5750 / 1.23	837 / 2.73

**API Rating & Safety Factor**

- a. Collapse pressure based on 11.5ppg fluid on backside and 9ppg fluid inside of casing.
- b. Burst pressure calculated from a gas kick coming from the production zone (Bakken Pool) at 9,000psi and a subsequent breakdown at the 9-5/8" shoe, based on a 13.5#/ft fracture gradient. Backup of 9 ppg fluid.
- c. Yield based on string weight in 10 ppg fluid, (207k lbs buoied weight) plus 100k lbs overpull.

Cement volumes are estimates based on 9-5/8" casing set in a 12-1/4" hole with **10%** excess in OH and **0%** excess inside surface casing. TOC at surface.

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

**Lead Slurry:** **598 sks (309 bbls)** Conventional system with 75 lb/sk cement, 0.5lb/sk lost circulation, 10% expanding agent, 2% extender, 2% CaCl2, 0.2% anti foam, and 0.4% fluid loss

**Tail Slurry:** **349 sks (72 bbls)** Conventional system with 94 lb/sk cement, 0.3% anti-settling agent, 0.3% fluid loss agent, 0.3 lb/sk lost circulation control agent, 0.2% anti foam, and 0.1% retarder

**Oasis Petroleum**  
**Well Summary**  
**Kline Federal 5300 11-18 3T**  
**Sec. 18 T153N R100W**  
**McKenzie County, North Dakota**

**INTERMEDIATE CASING AND CEMENT DESIGN**

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
7"	0' - 6634'	29	P-110	LTC	6.184"	6.059"	5980	7970	8770
7"	6634' - 10337'	32	HCP-110	LTC	6.094"	6.000***	6730	8970	9870
7"	10337' - 11085'	29	P-110	LTC	6.184"	6.059"	5980	7970	8770

\*\*Special Drift

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' - 6634'	7", 29#, P-110, LTC, 8rd	8530 / 2.47*	11220 / 1.19	797 / 2.08
6634' - 10337'	7", 32#, HCP-110, LTC, 8rd	11820 / 2.19*	12460 / 1.29	
6634' - 10337'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.28**	12460 / 1.29	
10337' - 11085'	7", 29#, P-110, LTC, 8rd	8530 / 1.51*	11220 / 1.15	

**API Rating & Safety Factor**

- a. \*Assume full casing evacuation with 10 ppg fluid on backside. \*\*Assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals.
- b. Burst pressure based on 9000 psig max press for stimulation plus 10.2 ppg fluid in casing and 9 ppg fluid on backside-to 10,813' 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**

**40 bbls Weighted MudPush Express**

**Lead Slurry:** **207 sks (81 bbls)** 2.21 yield conventional system with 47 lb/sk cement, 37 lb/sk D035 Extender, 3.0% KCl, 3.0% D154 Extender, 0.3% D208 Viscosifier, 0.07% Retarder, 0.2% Anti Foam, 0.5lb/sk D130 LCM

**Tail Slurry:** **625 sks (171 bbls)** 1.54 yield conventional system with 94 lb/sk cement, 3.0% KCl, 35.0% Silica, 0.5% Retarder, 0.2% Fluid Loss, 0.2% Anti Foam, 0.5 lb/sk LCM

**Oasis Petroleum  
Well Summary**  
**Kline Federal 5300 11-18 3T**  
**Sec. 18 T153N R100W**  
**McKenzie County, North Dakota**

**PRODUCTION LINER**

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Torque
4-1/2"	10,287' – 21,039'	13.5	P-110	BTC	3.92"	3.795"	4,500

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
10,287' – 21,039'	4-1/2", 13.5 lb, P-110, BTC, 8rd	10680 / 1.99	12410 / 1.28	443 / 1.98

**API Rating & Safety Factor**

- a) Collapse pressure based on full casing evacuation with 9.5 ppg fluid on backside @ 10865' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10865' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 124k lbs.) plus 100k lbs overpull.

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

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



Company: Oasis Petroleum  
 Field: Indian Hills  
 Location: 153N-100W-17/18  
 Well: Kline Federal 5300 11-18 3T  
 Wellbore #1

Plan: Design #6 (Kline Federal 5300 11-18 3T/Wellbore #1)

**gyro**/data  
 Precision Wellbore Placement

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Ddeg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	
2	2500.0	0.00	0.00	2500.0	0.0	0.0	0.0	0.00	0.0	
3	2650.0	3.00	270.00	2649.9	0.0	-3.9	2.00	270.00	-3.9	
4	3501.2	3.00	270.00	3500.0	0.0	-48.2	0.00	0.00	-48.2	
5	3651.2	0.00	0.00	3649.9	0.0	-52.4	2.00	180.00	-52.1	
6	10336.6	0.00	0.00	10335.3	0.0	-52.4	0.00	0.00	-52.1	
7	11084.1	89.70	137.00	10812.8	-347.4	271.5	12.00	137.00	304.9	
8	11099.1	89.70	137.00	10812.8	-358.3	281.8	0.00	0.00	316.2	
9	12655.6	89.70	90.30	10821.5	-965.6	1668.4	3.00	-90.13	1756.6	PBHL Kline Federal 5300 11-18 3T
10	21038.5	89.70	90.30	10865.4	-1010.0	10051.0	0.00	0.00	10101.6	PBHL Kline Federal 5300 11-18 3T

WELL DETAILS: Kline Federal 5300 11-18 3T

+N/S	+E/W	Northing	Ground Level: 2053.0	Easting	Latitude	Longitude	Slot
0.0	0.0	408933.65		1210213.75	48° 4' 45.090 N	103° 36' 10.590 W	

WELLBORE TARGET DETAILS

Name	TVD	+N/S	+E/W	Latitude	Longitude	Shape
PBHL Kline Federal 5300 11-18 3T	10865.0	-1010.0	10051.0	48° 4' 35.096 N	103° 33' 42.573 W	Point

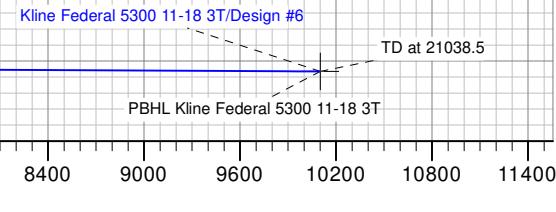
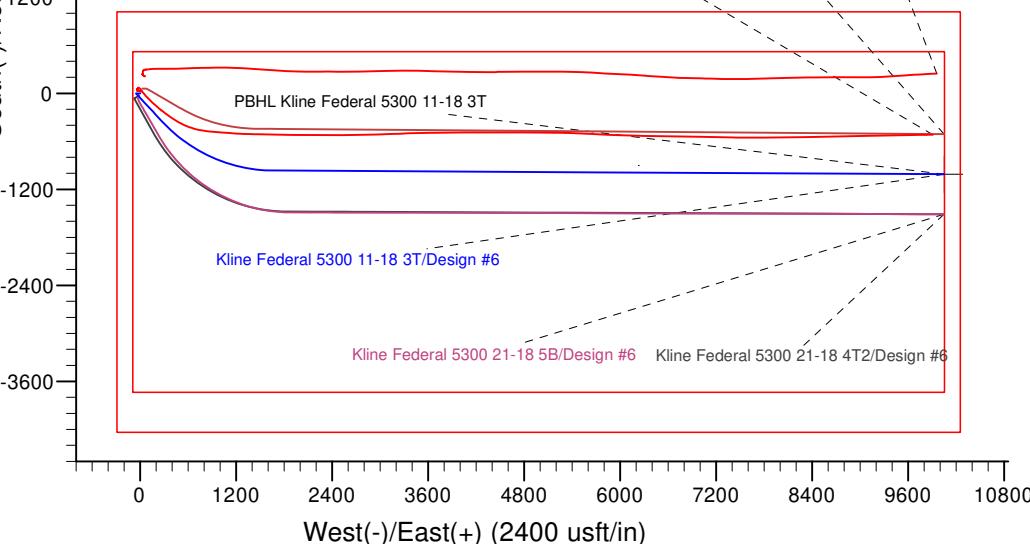
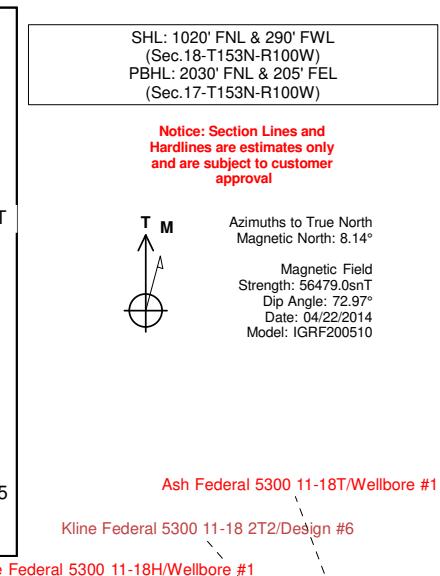
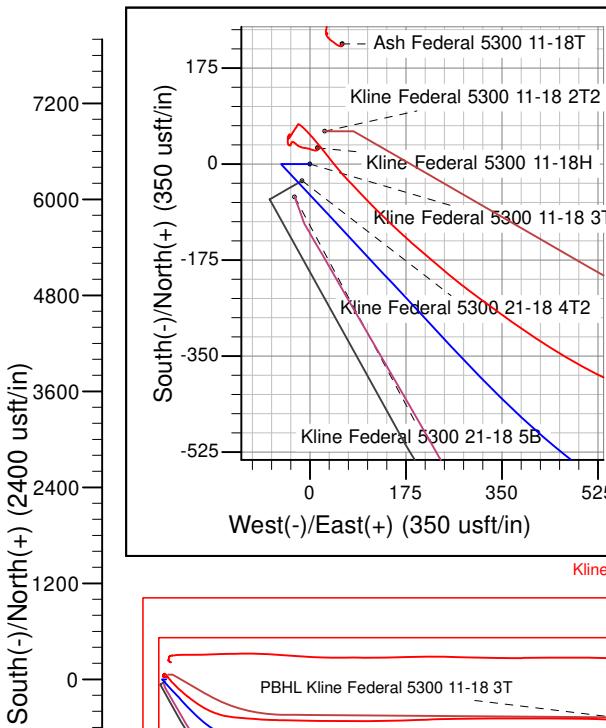
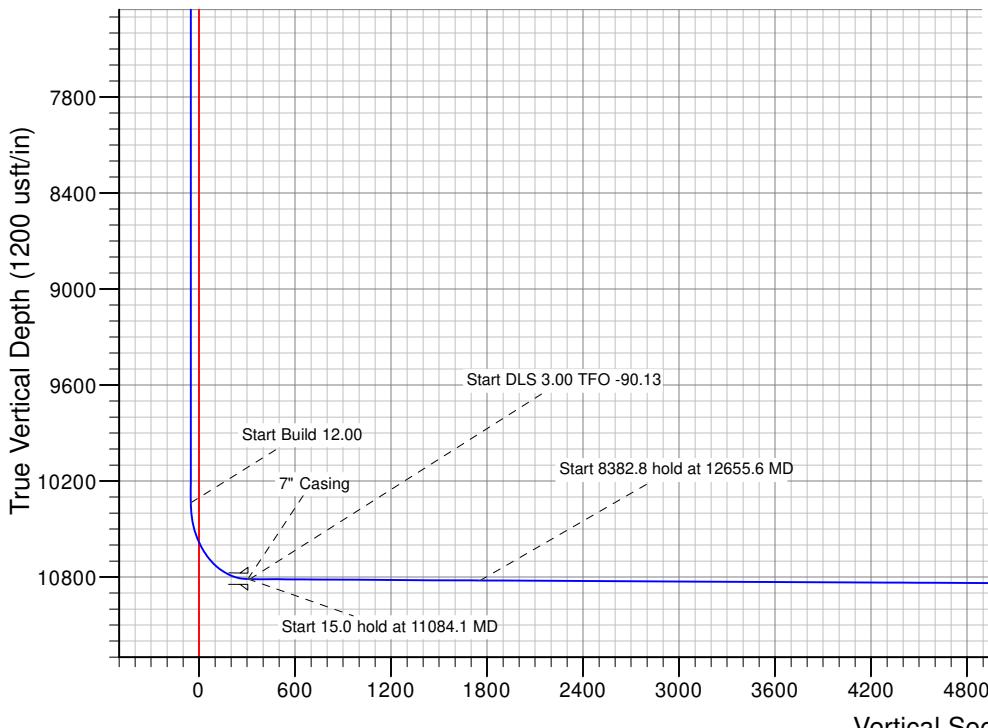
ANNOTATIONS

CASING DETAILS

TVD	MD	Annotation	TVD	MD	Name	Size
2500.0	2500.0	Start Build 2.00	2068.0	2068.0	13 3/8"	Casing
2649.9	2650.0	Start 851.2 hold at 2650.0 MD	10812.8	11085.0	7"	Casing
3500.0	3501.2	Start DLS 2.00 TFO 180.00	6100.0	6101.3	9 5/8"	Casing
3649.9	3651.2	Start 6685.4 hold at 3651.2 MD				
10335.3	10336.6	Start Build 12.00				
10812.8	11084.1	Start 15.0 hold at 11084.1 MD				
11099.1	11099.1	Start DLS 3.00 TFO -90.13				
10821.5	12655.6	Start 8382.8 hold at 12655.6 MD				
10865.4	21038.5	TD at 21038.5				

Plan: Design #6 (Kline Federal 5300 11-18 3T/Wellbore #1)

Created By: M. Loucks Date: 15:28, June 30 2014





## Oasis Petroleum

Indian Hills  
153N-100W-17/18  
Kline Federal 5300 11-18 3T

Wellbore #1

Plan: Design #6

## Standard Planning Report

30 June, 2014

**gyro***data*  
Precision Wellbore Placement

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

<b>Project</b>	Indian Hills	
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>
<b>Geo Datum:</b>	North American Datum 1983	Mean Sea Level
<b>Map Zone:</b>	North Dakota Northern Zone	

<b>Site</b>	153N-100W-17/18			
<b>Site Position:</b>		<b>Northing:</b>	408,992.30 usft	<b>Latitude:</b>
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,210,243.30 usft	<b>Longitude:</b>
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>

<b>Well</b>	Kline Federal 5300 11-18 3T				
<b>Well Position</b>	+N/S +E/W	-59.8 usft -27.2 usft	<b>Northing:</b> <b>Easting:</b>	408,933.65 usft 1,210,213.75 usft	<b>Latitude:</b> <b>Longitude:</b>
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b> (°)	<b>Dip Angle</b> (°)	<b>Field Strength</b> (nT)
	IGRF200510	04/22/14	8.14	72.97	56,479

<b>Design</b>	Design #6				
<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>		<b>Depth From (TVD)</b> (usft)	<b>+N/S</b> (usft)	<b>+E/W</b> (usft)	<b>Direction</b> (°)
		0.0	0.0	0.0	95.74

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,650.0	3.00	270.00	2,649.9	0.0	-3.9	2.00	2.00	0.00	0.00	270.00
3,501.2	3.00	270.00	3,500.0	0.0	-48.5	0.00	0.00	0.00	0.00	0.00
3,651.2	0.00	0.00	3,649.9	0.0	-52.4	2.00	-2.00	60.00	180.00	
10,336.6	0.00	0.00	10,335.3	0.0	-52.4	0.00	0.00	0.00	0.00	0.00
11,084.1	89.70	137.00	10,812.8	-347.4	271.5	12.00	12.00	0.00	0.00	137.00
11,099.1	89.70	137.00	10,812.8	-358.3	281.8	0.00	0.00	0.00	0.00	0.00
12,655.6	89.70	90.30	10,821.5	-965.6	1,668.4	3.00	0.00	-3.00	-90.13	PBHL Kline Federal 5
21,038.5	89.70	90.30	10,865.4	-1,010.0	10,051.0	0.00	0.00	0.00	0.00	PBHL Kline Federal 5

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,968.0	0.00	0.00	1,968.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Pierre</b>									
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,068.0	0.00	0.00	2,068.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>13 3/8" Casing</b>									
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Start Build 2.00</b>									
2,600.0	2.00	270.00	2,600.0	0.0	-1.7	-1.7	2.00	2.00	0.00
2,650.0	3.00	270.00	2,649.9	0.0	-3.9	-3.9	2.00	2.00	0.00
<b>Start 851.2 hold at 2650.0 MD</b>									
2,700.0	3.00	270.00	2,699.9	0.0	-6.5	-6.5	0.00	0.00	0.00
2,800.0	3.00	270.00	2,799.7	0.0	-11.8	-11.7	0.00	0.00	0.00
2,900.0	3.00	270.00	2,899.6	0.0	-17.0	-16.9	0.00	0.00	0.00
3,000.0	3.00	270.00	2,999.5	0.0	-22.2	-22.1	0.00	0.00	0.00
3,100.0	3.00	270.00	3,099.3	0.0	-27.5	-27.3	0.00	0.00	0.00
3,200.0	3.00	270.00	3,199.2	0.0	-32.7	-32.5	0.00	0.00	0.00
3,300.0	3.00	270.00	3,299.0	0.0	-37.9	-37.8	0.00	0.00	0.00
3,400.0	3.00	270.00	3,398.9	0.0	-43.2	-43.0	0.00	0.00	0.00
3,501.2	3.00	270.00	3,500.0	0.0	-48.5	-48.2	0.00	0.00	0.00
<b>Start DLS 2.00 TFO 180.00</b>									
3,600.0	1.02	270.00	3,598.7	0.0	-51.9	-51.7	2.00	-2.00	0.00
3,651.2	0.00	0.00	3,649.9	0.0	-52.4	-52.1	2.00	-2.00	175.66
<b>Start 6685.4 hold at 3651.2 MD</b>									
3,700.0	0.00	0.00	3,698.7	0.0	-52.4	-52.1	0.00	0.00	0.00
3,800.0	0.00	0.00	3,798.7	0.0	-52.4	-52.1	0.00	0.00	0.00
3,900.0	0.00	0.00	3,898.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,000.0	0.00	0.00	3,998.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,100.0	0.00	0.00	4,098.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,200.0	0.00	0.00	4,198.7	0.0	-52.4	-52.1	0.00	0.00	0.00

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (/100usft)	Build Rate (/100usft)	Turn Rate (/100usft)
4,300.0	0.00	0.00	4,298.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,400.0	0.00	0.00	4,398.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,500.0	0.00	0.00	4,498.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,600.0	0.00	0.00	4,598.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,616.3	0.00	0.00	4,615.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Greenhorn</b>									
4,700.0	0.00	0.00	4,698.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,800.0	0.00	0.00	4,798.7	0.0	-52.4	-52.1	0.00	0.00	0.00
4,900.0	0.00	0.00	4,898.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,000.0	0.00	0.00	4,998.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,022.3	0.00	0.00	5,021.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Mowry</b>									
5,100.0	0.00	0.00	5,098.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,200.0	0.00	0.00	5,198.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,300.0	0.00	0.00	5,298.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,398.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,449.3	0.00	0.00	5,448.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Dakota</b>									
5,500.0	0.00	0.00	5,498.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,598.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,700.0	0.00	0.00	5,698.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,798.7	0.0	-52.4	-52.1	0.00	0.00	0.00
5,900.0	0.00	0.00	5,898.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,998.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,100.0	0.00	0.00	6,098.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,101.3	0.00	0.00	6,100.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>9 5/8" Casing</b>									
6,200.0	0.00	0.00	6,198.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,300.0	0.00	0.00	6,298.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,398.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,448.3	0.00	0.00	6,447.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Rierdon</b>									
6,500.0	0.00	0.00	6,498.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,598.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,700.0	0.00	0.00	6,698.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,786.3	0.00	0.00	6,785.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Dunham Salt</b>									
6,800.0	0.00	0.00	6,798.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,897.3	0.00	0.00	6,896.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Dunham Salt Base</b>									
6,900.0	0.00	0.00	6,898.7	0.0	-52.4	-52.1	0.00	0.00	0.00
6,994.3	0.00	0.00	6,993.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Spearfish</b>									
7,000.0	0.00	0.00	6,998.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,100.0	0.00	0.00	7,098.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,200.0	0.00	0.00	7,198.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,249.3	0.00	0.00	7,248.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Pine Salt</b>									
7,297.3	0.00	0.00	7,296.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Pine Salt Base</b>									
7,300.0	0.00	0.00	7,298.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,342.3	0.00	0.00	7,341.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Opeche Salt</b>									

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<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,372.3	0.00	0.00	7,371.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Opeche Salt Base</b>									
7,400.0	0.00	0.00	7,398.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,500.0	0.00	0.00	7,498.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,574.3	0.00	0.00	7,573.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Broom Creek (Top of Minnelusa Gp.)</b>									
7,600.0	0.00	0.00	7,598.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,654.3	0.00	0.00	7,653.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Amson</b>									
7,700.0	0.00	0.00	7,698.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,800.0	0.00	0.00	7,798.7	0.0	-52.4	-52.1	0.00	0.00	0.00
7,822.3	0.00	0.00	7,821.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Tyler</b>									
7,900.0	0.00	0.00	7,898.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,000.0	0.00	0.00	7,998.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,013.3	0.00	0.00	8,012.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Otter (Base of Minnelusa Gp.)</b>									
8,100.0	0.00	0.00	8,098.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,200.0	0.00	0.00	8,198.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,300.0	0.00	0.00	8,298.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,368.3	0.00	0.00	8,367.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Kibby</b>									
8,400.0	0.00	0.00	8,398.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,500.0	0.00	0.00	8,498.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,518.3	0.00	0.00	8,517.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Charles Salt</b>									
8,600.0	0.00	0.00	8,598.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,700.0	0.00	0.00	8,698.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,800.0	0.00	0.00	8,798.7	0.0	-52.4	-52.1	0.00	0.00	0.00
8,900.0	0.00	0.00	8,898.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,000.0	0.00	0.00	8,998.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,100.0	0.00	0.00	9,098.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,142.3	0.00	0.00	9,141.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>UB</b>									
9,200.0	0.00	0.00	9,198.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,217.3	0.00	0.00	9,216.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Base Last Salt</b>									
9,265.3	0.00	0.00	9,264.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Ratcliffe</b>									
9,300.0	0.00	0.00	9,298.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,400.0	0.00	0.00	9,398.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,441.3	0.00	0.00	9,440.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Mission Canyon</b>									
9,500.0	0.00	0.00	9,498.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,600.0	0.00	0.00	9,598.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,700.0	0.00	0.00	9,698.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,800.0	0.00	0.00	9,798.7	0.0	-52.4	-52.1	0.00	0.00	0.00
9,900.0	0.00	0.00	9,898.7	0.0	-52.4	-52.1	0.00	0.00	0.00
10,000.0	0.00	0.00	9,998.7	0.0	-52.4	-52.1	0.00	0.00	0.00
10,003.3	0.00	0.00	10,002.0	0.0	-52.4	-52.1	0.00	0.00	0.00
<b>Lodgepole</b>									
10,100.0	0.00	0.00	10,098.7	0.0	-52.4	-52.1	0.00	0.00	0.00

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<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (/100usft)	Build Rate (/100usft)	Turn Rate (/100usft)	
10,200.0	0.00	0.00	10,198.7	0.0	-52.4	-52.1	0.00	0.00	0.00	0.00
10,209.3	0.00	0.00	10,208.0	0.0	-52.4	-52.1	0.00	0.00	0.00	0.00
<b>Lodgepole Fracture Zone (LP_B)</b>										
10,300.0	0.00	0.00	10,298.7	0.0	-52.4	-52.1	0.00	0.00	0.00	0.00
10,336.6	0.00	0.00	10,335.3	0.0	-52.4	-52.1	0.00	0.00	0.00	0.00
<b>Start Build 12.00</b>										
10,350.0	1.61	137.00	10,348.7	-0.1	-52.3	-52.0	12.00	12.00	1,022.67	
10,375.0	4.61	137.00	10,373.7	-1.1	-51.4	-51.0	12.00	12.00	0.00	
10,400.0	7.61	137.00	10,398.5	-3.1	-49.5	-49.0	12.00	12.00	0.00	
10,425.0	10.61	137.00	10,423.2	-6.0	-46.8	-46.0	12.00	12.00	0.00	
10,450.0	13.61	137.00	10,447.6	-9.8	-43.3	-42.1	12.00	12.00	0.00	
10,475.0	16.61	137.00	10,471.8	-14.6	-38.8	-37.2	12.00	12.00	0.00	
10,500.0	19.61	137.00	10,495.5	-20.2	-33.5	-31.3	12.00	12.00	0.00	
10,525.0	22.61	137.00	10,518.8	-26.8	-27.4	-24.6	12.00	12.00	0.00	
10,550.0	25.61	137.00	10,541.7	-34.3	-20.4	-16.9	12.00	12.00	0.00	
10,575.0	28.61	137.00	10,563.9	-42.6	-12.6	-8.3	12.00	12.00	0.00	
10,600.0	31.61	137.00	10,585.5	-51.8	-4.1	1.1	12.00	12.00	0.00	
10,625.0	34.61	137.00	10,606.5	-61.8	5.2	11.4	12.00	12.00	0.00	
10,650.0	37.61	137.00	10,626.7	-72.6	15.3	22.4	12.00	12.00	0.00	
10,675.0	40.61	137.00	10,646.1	-84.1	26.0	34.3	12.00	12.00	0.00	
10,700.0	43.61	137.00	10,664.6	-96.3	37.4	46.9	12.00	12.00	0.00	
10,725.0	46.61	137.00	10,682.3	-109.3	49.5	60.2	12.00	12.00	0.00	
10,748.5	49.43	137.00	10,698.0	-122.1	61.5	73.4	12.00	12.00	0.00	
<b>False Bakken</b>										
10,750.0	49.61	137.00	10,698.9	-122.9	62.2	74.2	12.00	12.00	0.00	
10,764.2	51.31	137.00	10,708.0	-130.9	69.7	82.4	12.00	12.00	0.00	
<b>Upper Bakken</b>										
10,775.0	52.61	137.00	10,714.6	-137.1	75.5	88.8	12.00	12.00	0.00	
10,787.3	54.09	137.00	10,722.0	-144.4	82.2	96.2	12.00	12.00	0.00	
<b>Middle Bakken</b>										
10,800.0	55.61	137.00	10,729.3	-151.9	89.3	104.0	12.00	12.00	0.00	
10,825.0	58.61	137.00	10,742.9	-167.3	103.6	119.8	12.00	12.00	0.00	
10,850.0	61.61	137.00	10,755.3	-183.2	118.4	136.1	12.00	12.00	0.00	
10,875.0	64.61	137.00	10,766.6	-199.5	133.6	152.9	12.00	12.00	0.00	
10,875.8	64.71	137.00	10,767.0	-200.0	134.1	153.4	12.00	12.00	0.00	
<b>Lower Bakken</b>										
10,900.0	67.61	137.00	10,776.8	-216.2	149.2	170.0	12.00	12.00	0.00	
10,911.5	68.98	137.00	10,781.0	-224.0	156.4	178.0	12.00	12.00	0.00	
<b>Pronghorn</b>										
10,925.0	70.61	137.00	10,785.7	-233.2	165.1	187.6	12.00	12.00	0.00	
10,948.7	73.46	137.00	10,793.0	-249.8	180.5	204.6	12.00	12.00	0.00	
<b>Three Forks</b>										
10,950.0	73.61	137.00	10,793.4	-250.6	181.3	205.5	12.00	12.00	0.00	
10,975.0	76.61	137.00	10,799.8	-268.3	197.8	223.6	12.00	12.00	0.00	
11,000.0	79.61	137.00	10,804.9	-286.2	214.5	242.0	12.00	12.00	0.00	
11,000.4	79.65	137.00	10,805.0	-286.5	214.7	242.3	12.00	12.00	0.00	
<b>Three Forks Target Top</b>										
11,025.0	82.61	137.00	10,808.8	-304.3	231.3	260.6	12.00	12.00	0.00	
11,050.0	85.61	137.00	10,811.4	-322.5	248.3	279.3	12.00	12.00	0.00	
11,075.0	88.61	137.00	10,812.6	-340.7	265.3	298.1	12.00	12.00	0.00	
11,084.1	89.70	137.00	10,812.8	-347.4	271.5	304.9	12.00	12.00	0.00	
<b>Start 15.0 hold at 11084.1 MD</b>										

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,085.0	89.70	137.00	10,812.8	-348.0	272.1	305.6	0.00	0.00	0.00	
<b>7" Casing</b>										
11,099.1	89.70	137.00	10,812.8	-358.3	281.8	316.2	0.00	0.00	0.00	
<b>Start DLS 3.00 TFO -90.13</b>										
11,200.0	89.69	133.97	10,813.4	-430.3	352.5	393.7	3.00	-0.01	-3.00	
11,300.0	89.69	130.97	10,813.9	-497.8	426.2	473.9	3.00	-0.01	-3.00	
11,400.0	89.68	127.97	10,814.5	-561.4	503.4	557.0	3.00	0.00	-3.00	
11,497.5	89.68	125.05	10,815.0	-619.3	581.7	640.8	3.00	0.00	-3.00	
<b>Three Forks Target Base</b>										
11,500.0	89.68	124.97	10,815.0	-620.8	583.8	643.0	3.00	0.00	-3.00	
11,600.0	89.68	121.97	10,815.6	-675.9	667.2	731.5	3.00	0.00	-3.00	
11,675.0	89.68	119.72	10,816.0	-714.4	731.6	799.4	3.00	0.00	-3.00	
<b>Base Target/Claystone</b>										
11,700.0	89.67	118.97	10,816.1	-726.6	753.4	822.3	3.00	0.00	-3.00	
11,800.0	89.67	115.97	10,816.7	-772.8	842.1	915.2	3.00	0.00	-3.00	
11,900.0	89.67	112.97	10,817.3	-814.2	933.1	1,009.8	3.00	0.00	-3.00	
12,000.0	89.67	109.97	10,817.9	-850.8	1,026.2	1,106.1	3.00	0.00	-3.00	
12,100.0	89.68	106.97	10,818.4	-882.5	1,121.0	1,203.6	3.00	0.00	-3.00	
12,200.0	89.68	103.97	10,819.0	-909.1	1,217.4	1,302.2	3.00	0.00	-3.00	
12,300.0	89.68	100.97	10,819.5	-930.7	1,315.0	1,401.5	3.00	0.00	-3.00	
12,400.0	89.69	97.97	10,820.1	-947.2	1,413.6	1,501.2	3.00	0.00	-3.00	
12,500.0	89.69	94.97	10,820.6	-958.5	1,513.0	1,601.2	3.00	0.01	-3.00	
12,600.0	89.70	91.97	10,821.2	-964.5	1,612.8	1,701.1	3.00	0.01	-3.00	
12,655.6	89.70	90.30	10,821.5	-965.6	1,668.4	1,756.6	3.00	0.01	-3.00	
<b>Start 8382.8 hold at 12655.6 MD</b>										
12,700.0	89.70	90.30	10,821.7	-965.9	1,712.7	1,800.7	0.00	0.00	0.00	
12,800.0	89.70	90.30	10,822.2	-966.4	1,812.7	1,900.3	0.00	0.00	0.00	
12,900.0	89.70	90.30	10,822.7	-966.9	1,912.7	1,999.8	0.00	0.00	0.00	
13,000.0	89.70	90.30	10,823.3	-967.5	2,012.7	2,099.4	0.00	0.00	0.00	
13,100.0	89.70	90.30	10,823.8	-968.0	2,112.7	2,198.9	0.00	0.00	0.00	
13,200.0	89.70	90.30	10,824.3	-968.5	2,212.7	2,298.5	0.00	0.00	0.00	
13,300.0	89.70	90.30	10,824.8	-969.0	2,312.7	2,398.0	0.00	0.00	0.00	
13,400.0	89.70	90.30	10,825.4	-969.6	2,412.7	2,497.6	0.00	0.00	0.00	
13,500.0	89.70	90.30	10,825.9	-970.1	2,512.7	2,597.1	0.00	0.00	0.00	
13,600.0	89.70	90.30	10,826.4	-970.6	2,612.7	2,696.7	0.00	0.00	0.00	
13,700.0	89.70	90.30	10,826.9	-971.2	2,712.7	2,796.2	0.00	0.00	0.00	
13,800.0	89.70	90.30	10,827.5	-971.7	2,812.7	2,895.8	0.00	0.00	0.00	
13,900.0	89.70	90.30	10,828.0	-972.2	2,912.7	2,995.3	0.00	0.00	0.00	
14,000.0	89.70	90.30	10,828.5	-972.7	3,012.7	3,094.9	0.00	0.00	0.00	
14,100.0	89.70	90.30	10,829.0	-973.3	3,112.7	3,194.4	0.00	0.00	0.00	
14,200.0	89.70	90.30	10,829.6	-973.8	3,212.7	3,294.0	0.00	0.00	0.00	
14,300.0	89.70	90.30	10,830.1	-974.3	3,312.7	3,393.5	0.00	0.00	0.00	
14,400.0	89.70	90.30	10,830.6	-974.9	3,412.7	3,493.1	0.00	0.00	0.00	
14,500.0	89.70	90.30	10,831.1	-975.4	3,512.7	3,592.6	0.00	0.00	0.00	
14,600.0	89.70	90.30	10,831.6	-975.9	3,612.7	3,692.2	0.00	0.00	0.00	
14,700.0	89.70	90.30	10,832.2	-976.5	3,712.7	3,791.7	0.00	0.00	0.00	
14,800.0	89.70	90.30	10,832.7	-977.0	3,812.7	3,891.3	0.00	0.00	0.00	
14,900.0	89.70	90.30	10,833.2	-977.5	3,912.7	3,990.8	0.00	0.00	0.00	
15,000.0	89.70	90.30	10,833.7	-978.0	4,012.7	4,090.4	0.00	0.00	0.00	
15,100.0	89.70	90.30	10,834.3	-978.6	4,112.7	4,189.9	0.00	0.00	0.00	
15,200.0	89.70	90.30	10,834.8	-979.1	4,212.7	4,289.5	0.00	0.00	0.00	
15,300.0	89.70	90.30	10,835.3	-979.6	4,312.7	4,389.0	0.00	0.00	0.00	
15,400.0	89.70	90.30	10,835.8	-980.2	4,412.7	4,488.6	0.00	0.00	0.00	
15,500.0	89.70	90.30	10,836.4	-980.7	4,512.7	4,588.1	0.00	0.00	0.00	

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,600.0	89.70	90.30	10,836.9	-981.2	4,612.7	4,687.7	0.00	0.00	0.00	
15,700.0	89.70	90.30	10,837.4	-981.7	4,712.7	4,787.2	0.00	0.00	0.00	
15,800.0	89.70	90.30	10,837.9	-982.3	4,812.7	4,886.8	0.00	0.00	0.00	
15,900.0	89.70	90.30	10,838.5	-982.8	4,912.7	4,986.3	0.00	0.00	0.00	
16,000.0	89.70	90.30	10,839.0	-983.3	5,012.7	5,085.9	0.00	0.00	0.00	
16,100.0	89.70	90.30	10,839.5	-983.9	5,112.7	5,185.4	0.00	0.00	0.00	
16,200.0	89.70	90.30	10,840.0	-984.4	5,212.6	5,285.0	0.00	0.00	0.00	
16,300.0	89.70	90.30	10,840.5	-984.9	5,312.6	5,384.5	0.00	0.00	0.00	
16,400.0	89.70	90.30	10,841.1	-985.4	5,412.6	5,484.0	0.00	0.00	0.00	
16,500.0	89.70	90.30	10,841.6	-986.0	5,512.6	5,583.6	0.00	0.00	0.00	
16,600.0	89.70	90.30	10,842.1	-986.5	5,612.6	5,683.1	0.00	0.00	0.00	
16,700.0	89.70	90.30	10,842.6	-987.0	5,712.6	5,782.7	0.00	0.00	0.00	
16,800.0	89.70	90.30	10,843.2	-987.6	5,812.6	5,882.2	0.00	0.00	0.00	
16,900.0	89.70	90.30	10,843.7	-988.1	5,912.6	5,981.8	0.00	0.00	0.00	
17,000.0	89.70	90.30	10,844.2	-988.6	6,012.6	6,081.3	0.00	0.00	0.00	
17,100.0	89.70	90.30	10,844.7	-989.2	6,112.6	6,180.9	0.00	0.00	0.00	
17,200.0	89.70	90.30	10,845.3	-989.7	6,212.6	6,280.4	0.00	0.00	0.00	
17,300.0	89.70	90.30	10,845.8	-990.2	6,312.6	6,380.0	0.00	0.00	0.00	
17,400.0	89.70	90.30	10,846.3	-990.7	6,412.6	6,479.5	0.00	0.00	0.00	
17,500.0	89.70	90.30	10,846.8	-991.3	6,512.6	6,579.1	0.00	0.00	0.00	
17,600.0	89.70	90.30	10,847.4	-991.8	6,612.6	6,678.6	0.00	0.00	0.00	
17,700.0	89.70	90.30	10,847.9	-992.3	6,712.6	6,778.2	0.00	0.00	0.00	
17,800.0	89.70	90.30	10,848.4	-992.9	6,812.6	6,877.7	0.00	0.00	0.00	
17,900.0	89.70	90.30	10,848.9	-993.4	6,912.6	6,977.3	0.00	0.00	0.00	
18,000.0	89.70	90.30	10,849.5	-993.9	7,012.6	7,076.8	0.00	0.00	0.00	
18,100.0	89.70	90.30	10,850.0	-994.4	7,112.6	7,176.4	0.00	0.00	0.00	
18,200.0	89.70	90.30	10,850.5	-995.0	7,212.6	7,275.9	0.00	0.00	0.00	
18,300.0	89.70	90.30	10,851.0	-995.5	7,312.6	7,375.5	0.00	0.00	0.00	
18,400.0	89.70	90.30	10,851.5	-996.0	7,412.6	7,475.0	0.00	0.00	0.00	
18,500.0	89.70	90.30	10,852.1	-996.6	7,512.6	7,574.6	0.00	0.00	0.00	
18,600.0	89.70	90.30	10,852.6	-997.1	7,612.6	7,674.1	0.00	0.00	0.00	
18,700.0	89.70	90.30	10,853.1	-997.6	7,712.6	7,773.7	0.00	0.00	0.00	
18,800.0	89.70	90.30	10,853.6	-998.2	7,812.6	7,873.2	0.00	0.00	0.00	
18,900.0	89.70	90.30	10,854.2	-998.7	7,912.6	7,972.8	0.00	0.00	0.00	
19,000.0	89.70	90.30	10,854.7	-999.2	8,012.6	8,072.3	0.00	0.00	0.00	
19,100.0	89.70	90.30	10,855.2	-999.7	8,112.6	8,171.9	0.00	0.00	0.00	
19,200.0	89.70	90.30	10,855.7	-1,000.3	8,212.6	8,271.4	0.00	0.00	0.00	
19,300.0	89.70	90.30	10,856.3	-1,000.8	8,312.6	8,371.0	0.00	0.00	0.00	
19,400.0	89.70	90.30	10,856.8	-1,001.3	8,412.6	8,470.5	0.00	0.00	0.00	
19,500.0	89.70	90.30	10,857.3	-1,001.9	8,512.6	8,570.1	0.00	0.00	0.00	
19,600.0	89.70	90.30	10,857.8	-1,002.4	8,612.6	8,669.6	0.00	0.00	0.00	
19,700.0	89.70	90.30	10,858.4	-1,002.9	8,712.6	8,769.2	0.00	0.00	0.00	
19,800.0	89.70	90.30	10,858.9	-1,003.4	8,812.5	8,868.7	0.00	0.00	0.00	
19,900.0	89.70	90.30	10,859.4	-1,004.0	8,912.5	8,968.3	0.00	0.00	0.00	
20,000.0	89.70	90.30	10,859.9	-1,004.5	9,012.5	9,067.8	0.00	0.00	0.00	
20,100.0	89.70	90.30	10,860.4	-1,005.0	9,112.5	9,167.4	0.00	0.00	0.00	
20,200.0	89.70	90.30	10,861.0	-1,005.6	9,212.5	9,266.9	0.00	0.00	0.00	
20,300.0	89.70	90.30	10,861.5	-1,006.1	9,312.5	9,366.5	0.00	0.00	0.00	
20,400.0	89.70	90.30	10,862.0	-1,006.6	9,412.5	9,466.0	0.00	0.00	0.00	
20,500.0	89.70	90.30	10,862.5	-1,007.1	9,512.5	9,565.6	0.00	0.00	0.00	
20,600.0	89.70	90.30	10,863.1	-1,007.7	9,612.5	9,665.1	0.00	0.00	0.00	
20,700.0	89.70	90.30	10,863.6	-1,008.2	9,712.5	9,764.7	0.00	0.00	0.00	
20,800.0	89.70	90.30	10,864.1	-1,008.7	9,812.5	9,864.2	0.00	0.00	0.00	
20,900.0	89.70	90.30	10,864.6	-1,009.3	9,912.5	9,963.8	0.00	0.00	0.00	

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
21,000.0	89.70	90.30	10,865.2	-1,009.8	10,012.5	10,063.3	0.00	0.00	0.00
21,038.5	89.70	90.30	10,865.4	-1,010.0	10,051.0	10,101.6	0.00	0.00	0.00
<b>TD at 21038.5</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Kline Federal 530 - plan misses target center by 0.4usft at 21038.5usft MD (10865.4 TVD, -1010.0 N, 10051.0 E) - Point	0.00	0.00	10,865.0	-1,010.0	10,051.0	407,519.52	1,220,215.90	48° 4' 35.096 N	103° 33' 42.573 W

Casing Points						Casing Diameter ("")	Hole Diameter ("")
Measured Depth (usft)	Vertical Depth (usft)	Name					
2,068.0	2,068.0	13 3/8" Casing				13-3/8	17-1/2
6,101.3	6,100.0	9 5/8" Casing				9-5/8	12-1/4
11,085.0	10,812.8	7" Casing				7	8-3/4

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Company:</b>	Oasis Petroleum	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-17/18	<b>North Reference:</b>	True
<b>Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #6		

**Formations**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,968.0	1,968.0	Pierre			
4,616.3	4,615.0	Greenhorn			
5,022.3	5,021.0	Mowry			
5,449.3	5,448.0	Dakota			
6,448.3	6,447.0	Rierdon			
6,786.3	6,785.0	Dunham Salt			
6,897.3	6,896.0	Dunham Salt Base			
6,994.3	6,993.0	Spearfish			
7,249.3	7,248.0	Pine Salt			
7,297.3	7,296.0	Pine Salt Base			
7,342.3	7,341.0	Opeche Salt			
7,372.3	7,371.0	Opeche Salt Base			
7,574.3	7,573.0	Broom Creek (Top of Minnelusa Gp.)			
7,654.3	7,653.0	Amsden			
7,822.3	7,821.0	Tyler			
8,013.3	8,012.0	Otter (Base of Minnelusa Gp.)			
8,368.3	8,367.0	Kibbey			
8,518.3	8,517.0	Charles Salt			
9,142.3	9,141.0	UB			
9,217.3	9,216.0	Base Last Salt			
9,265.3	9,264.0	Ratcliffe			
9,441.3	9,440.0	Mission Canyon			
10,003.3	10,002.0	Lodgepole			
10,209.3	10,208.0	Lodgepole Fracture Zone (LP_B)			
10,748.5	10,698.0	False Bakken			
10,764.2	10,708.0	Upper Bakken			
10,787.3	10,722.0	Middle Bakken			
10,875.8	10,767.0	Lower Bakken			
10,911.5	10,781.0	Pronghorn			
10,948.7	10,793.0	Three Forks			
11,000.4	10,805.0	Three Forks Target Top			
11,497.5	10,815.0	Three Forks Target Base			
11,675.0	10,816.0	Base Target/Claystone			

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
2,500.0	2,500.0	0.0	0.0	Start Build 2.00
2,650.0	2,649.9	0.0	-3.9	Start 851.2 hold at 2650.0 MD
3,501.2	3,500.0	0.0	-48.5	Start DLS 2.00 TFO 180.00
3,651.2	3,649.9	0.0	-52.4	Start 6685.4 hold at 3651.2 MD
10,336.6	10,335.3	0.0	-52.4	Start Build 12.00
11,084.1	10,812.8	-347.4	271.5	Start 15.0 hold at 11084.1 MD
11,099.1	10,812.8	-358.3	281.8	Start DLS 3.00 TFO -90.13
12,655.6	10,821.5	-965.6	1,668.4	Start 8382.8 hold at 12655.6 MD
21,038.5	10,865.4	-1,010.0	10,051.0	TD at 21038.5

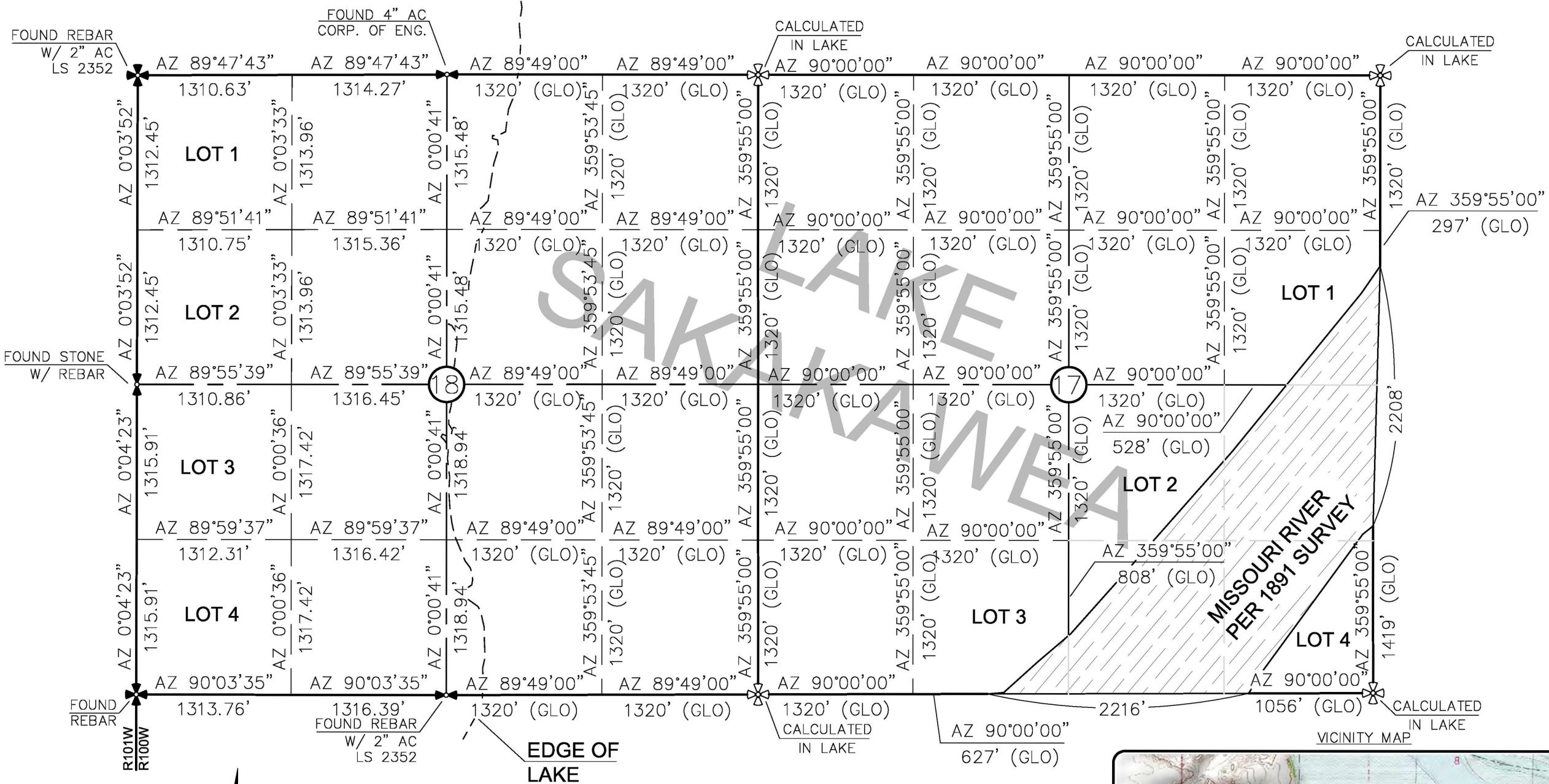
## SECTION BREAKDOWN

OASIS PETROLEUM NORTH AMERICA, LLC

I FANNIN, SUITE 1500, HOUSTON, TX 77002

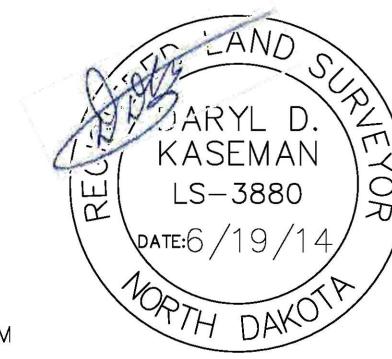
KLINE FEDERAL 5300 11-18 3T"

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTIONS 17 & 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



THIS DOCUMENT WAS ORIGINALLY  
ISSUED AND SEALED BY DARYL D.  
KASEMAN, PLS, REGISTRATION NUMBER  
3880 ON 6/19/14 AND THE  
ORIGINAL DOCUMENTS ARE STORED AT  
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ALL AZIMUTHS ARE BASED ON G.P.S. OBSERVATIONS. THE ORIGINAL SURVEY OF THIS AREA FOR THE GENERAL LAND OFFICE (G.L.O.) WAS 1891. THE CORNERS FOUND ARE AS INDICATED AND ALL OTHERS ARE COMPUTED FROM THOSE CORNERS FOUND AND BASED ON G.L.O. DATA. THE MAPPING ANGLE FOR THIS AREA IS APPROXIMATELY 0'03'.

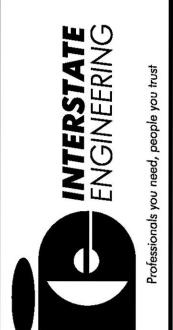


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C-2014-1ST-0-120 - Onsite Performance - 2nd Well of 4 on Quad Pad for Kline Middle Caw Valley Federal 3500-1-18-37500 - 6/19/2014. B:44. All pads will be completed by end of day.

OASIS PETROLEUM NORTH AMERICA, LLC	
SECTION BREAKDOWN	
SECTIONS 17 & 18, T153N, R100W	
MKENZIE COUNTY, NORTH DAKOTA	
Drawn By:	B.H.H.
Checked By:	D.D.K.
Project No.:	S14-09-127-01
Date:	APRIL 2014

**Interstate Engineering, Inc.**  
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member offices in Minnesota, North Dakota and South Dakota

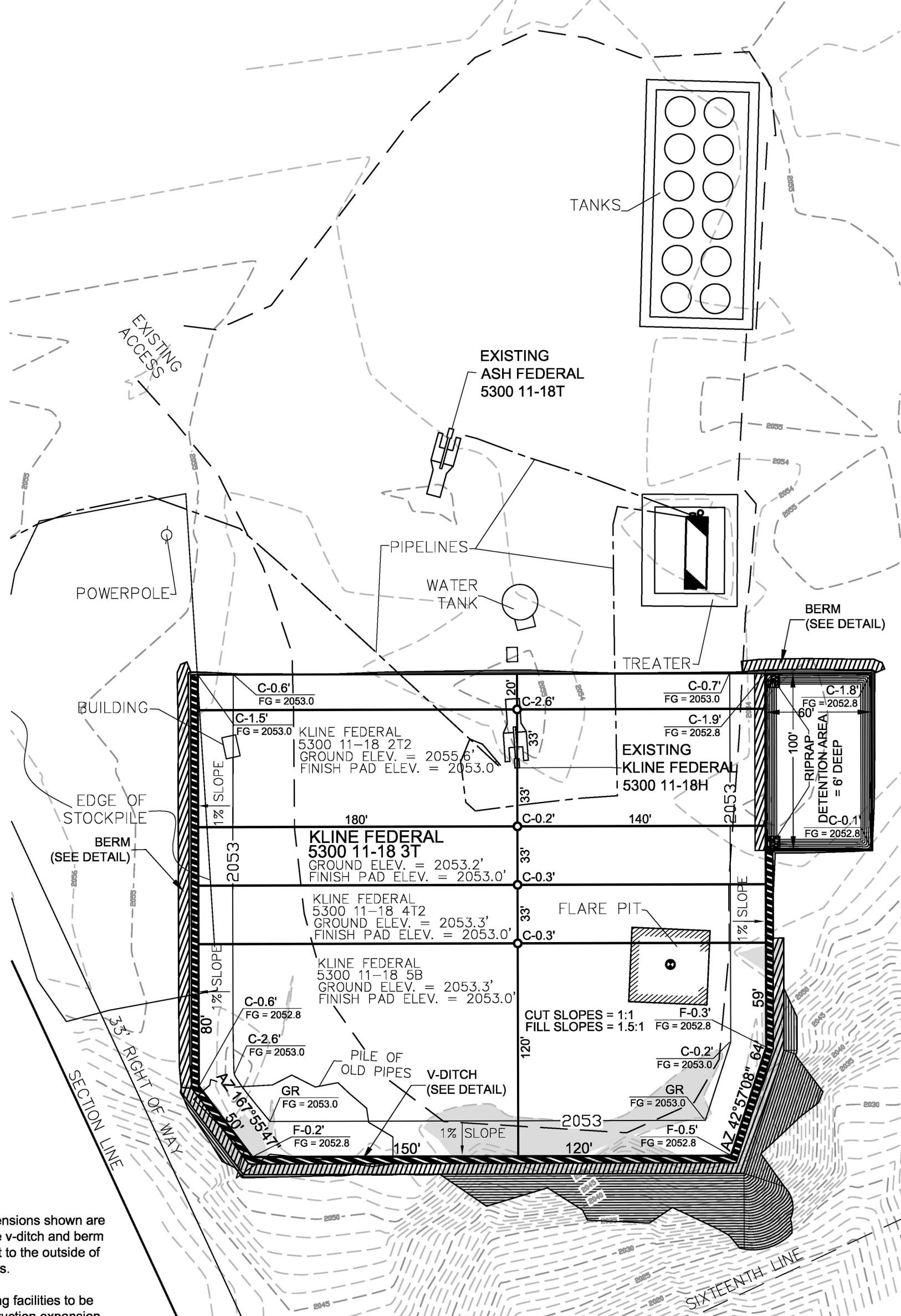


2/8  
SHEET NO.

## PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"KLINE FEDERAL 5300 11-18 3T"

KLINE FEDERAL 3530 11-18-31  
1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



**NOTE 1:** Pad dimensions shown are to usable area, the v-ditch and berm areas shall be built to the outside of the pad dimensions.

**NOTE 2: All existing facilities to be removed on construction expansion.**

**NOTE 3: Cuttings will be hauled to approved disposal site.**

## V-DITCH DETAIL



— Proposed Contours  
- - - - - Original Contours

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BY DARYL D. KASEMAN, PLS,  
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$$1'' = 60'$$

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OASIS PETROLEUM NORTH AMERICA, LLC  
PAD LAYOUT  
SECTION 18, T153N, R100W

**MCKENZIE COUNTY, NORTH DAKOTA**

Revision No.	Date	By	Description

C:\2014\SI14-09\127.01 Ochs Petroleum - 2nd Well of 4 on Qued Pad for Kilne

**WELL LOCATION SITE QUANTITIES**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "KLINE FEDERAL 5300 11-18 3T"  
 1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
 SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL SITE ELEVATION	2053.2
WELL PAD ELEVATION	2053.0
EXCAVATION	1,906
PLUS PIT	<u>0</u>
	1,906
EMBANKMENT	869
PLUS SHRINKAGE (30%)	<u>261</u>
	1,130
STOCKPILE PIT	0
STOCKPILE TOP SOIL (6")	1,934
BERMS	883 LF = 286 CY
DITCHES	727 LF = 111 CY
DETENTION AREA	1,112 CY
ADDITIONAL MATERIAL NEEDED	221
DISTURBED AREA FROM PAD	2.40 ACRES

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

CUT END SLOPES AT 1:1

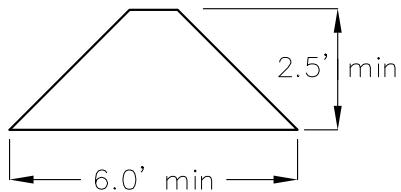
FILL END SLOPES AT 1.5:1

WELL SITE LOCATION

1020' FNL

290' FWL

BERM DETAIL



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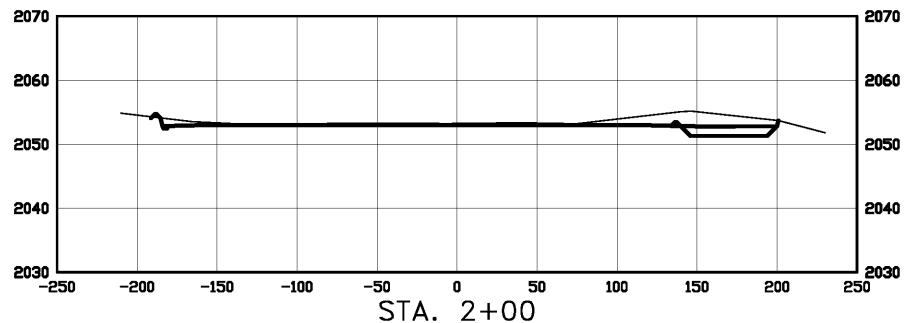
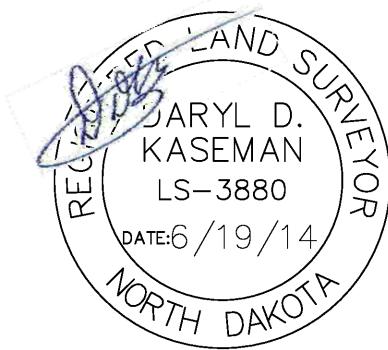
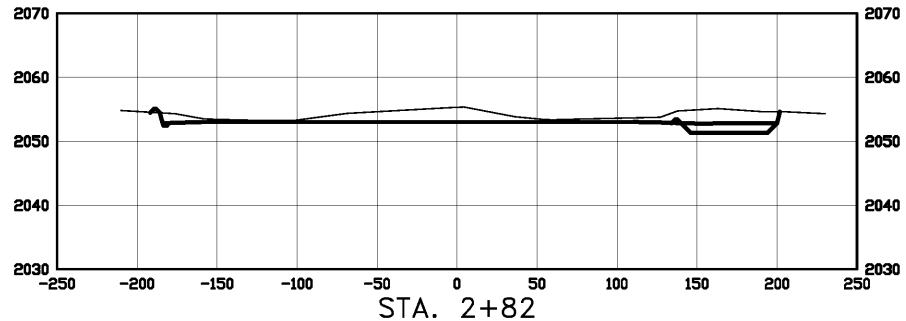
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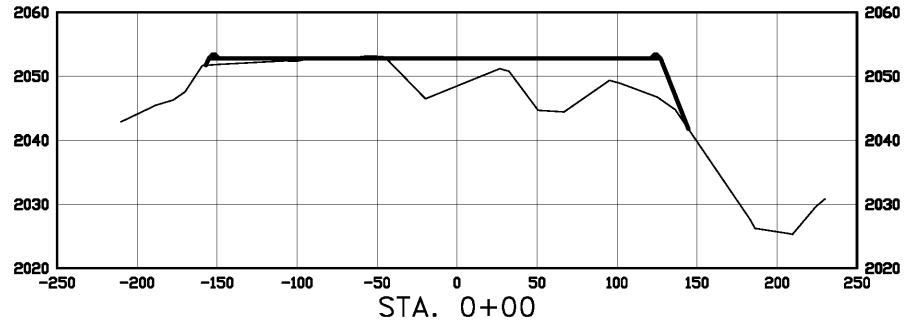
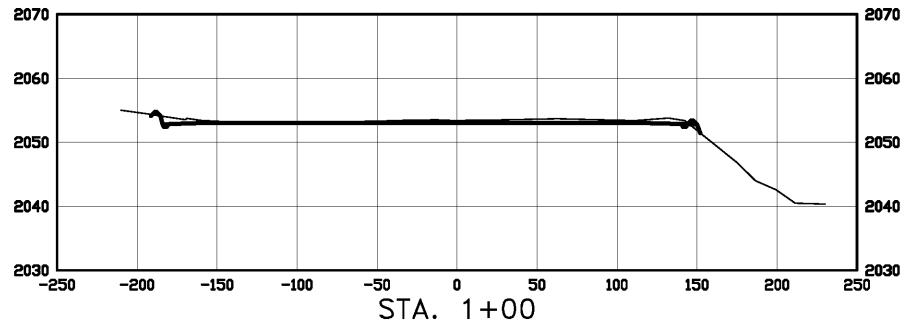
OASIS PETROLEUM NORTH AMERICA, LLC QUANTITIES SECTION 18, T153N, R100W MCKENZIE COUNTY, NORTH DAKOTA			
Drawn By:	B.H.H.	Project No.:	S14-09-127.01
Checked By:	D.D.K.	Date:	APRIL 2014

Revision No.	Date	By	Description
REV 1	6/16/14	BHH	MOVED WELLS

**CROSS SECTIONS**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "KLINE FEDERAL 5300 11-18 3T"  
 1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
 SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE  
 HORIZ 1"=120'  
 VERT 1"=30'

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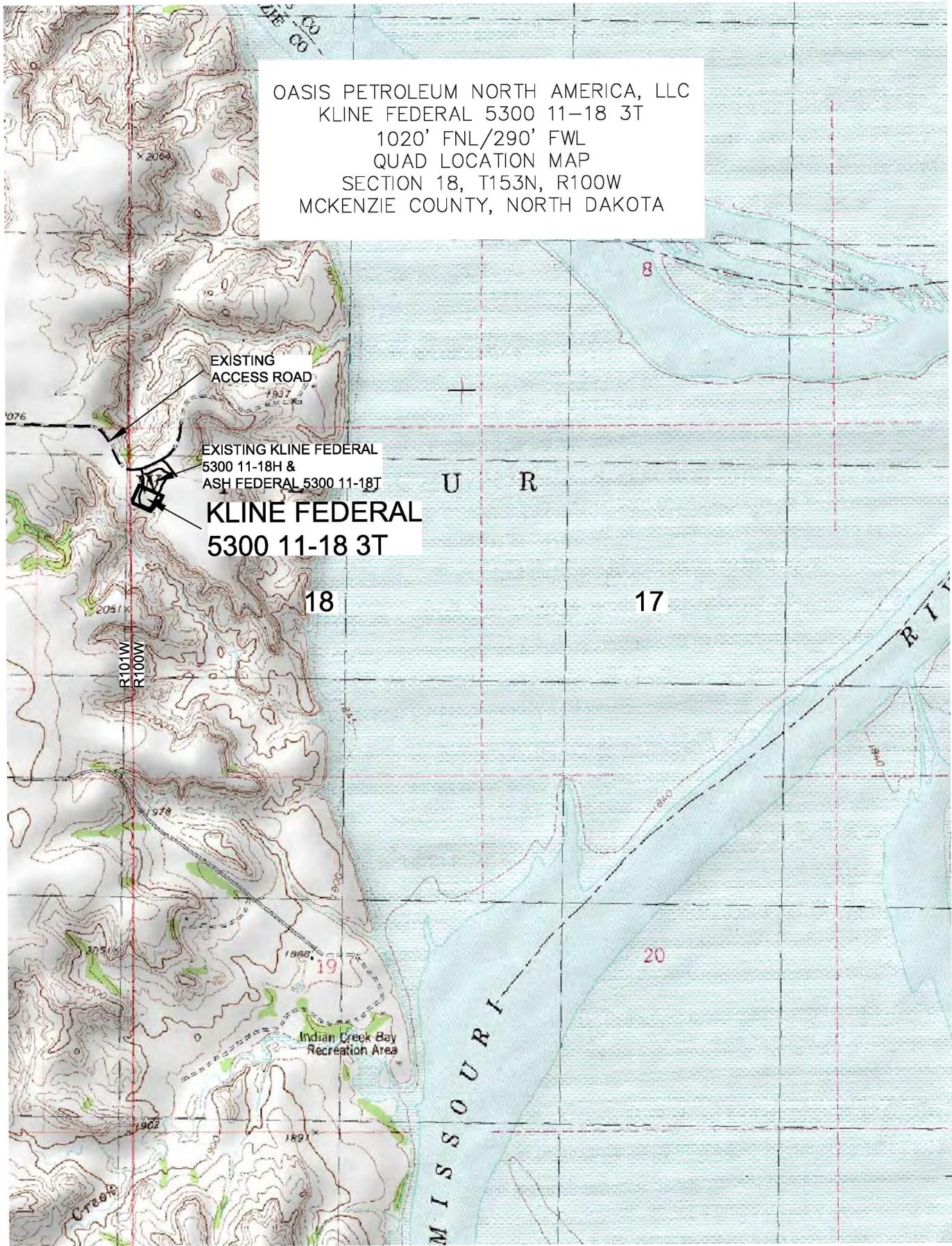
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
 PAD CROSS SECTIONS  
 SECTION 18, T153N, R100W  
 MCKENZIE COUNTY, NORTH DAKOTA

Revision No.	Date	By	Description
REV 1	6/16/14	BHH	MOVED WELLS

Drawn By: B.H.H. Project No.: S14-09-127.01

Checked By: D.D.K. Date: APRIL 2014



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OASIS PETROLEUM NORTH AMERICA, LLC  
QUAD LOCATION MAP  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	B.H.H.	Project No.:	S14-09-127.01
Checked By:	D.D.K.	Date:	APRIL 2014

Revision No.	Date	By	Description
REV 1	6/16/14	B.H.H.	MOVED WELLS

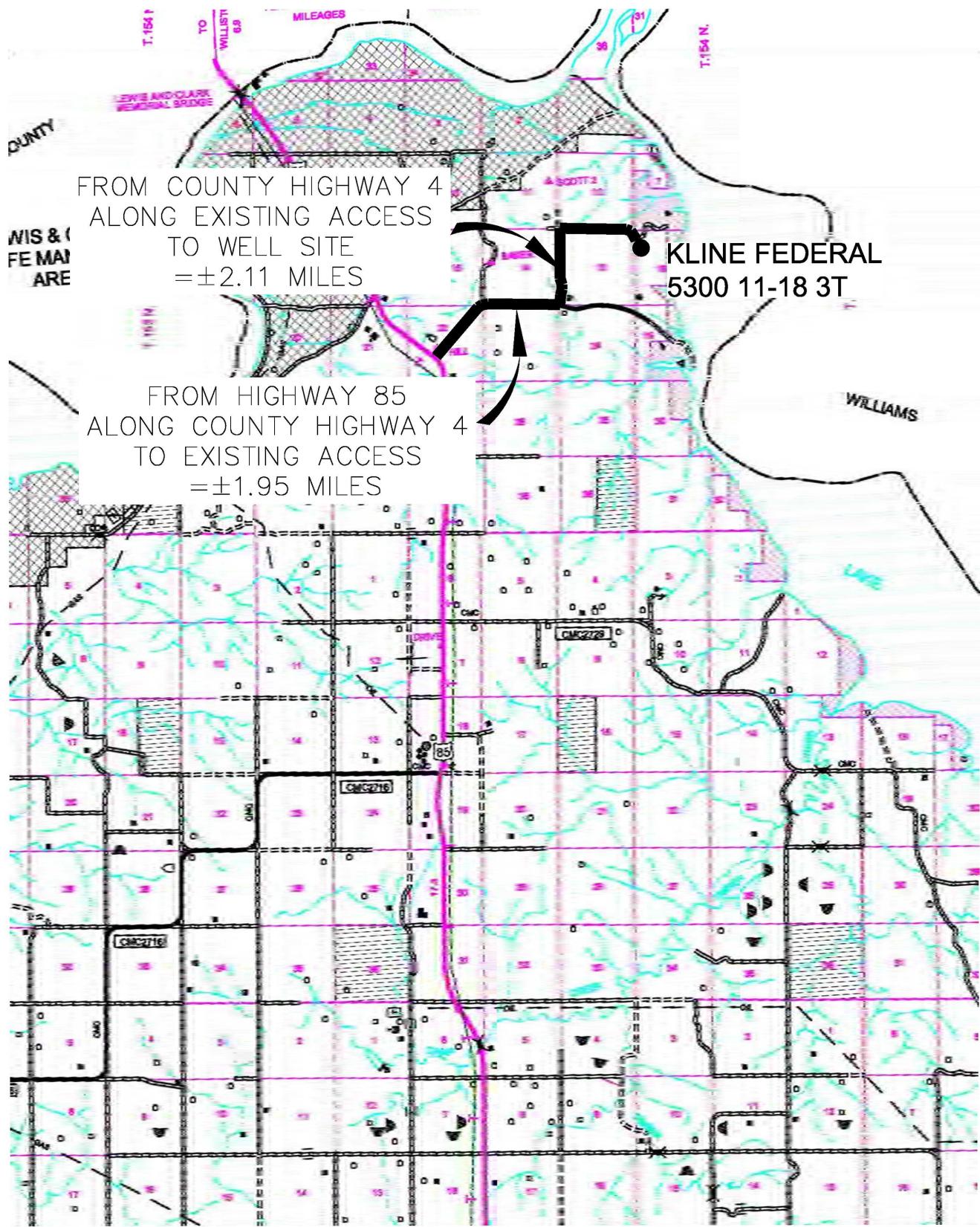
SHEET NO.

# COUNTY ROAD MAP

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"KLINE FEDERAL 5300 11-18 3T"

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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OASIS PETROLEUM NORTH AMERICA, LLC  
COUNTY ROAD MAP  
SECTION 18, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H.	Project No.: S14-09-127.01
Checked By: D.D.K.	Date: APRIL 2014

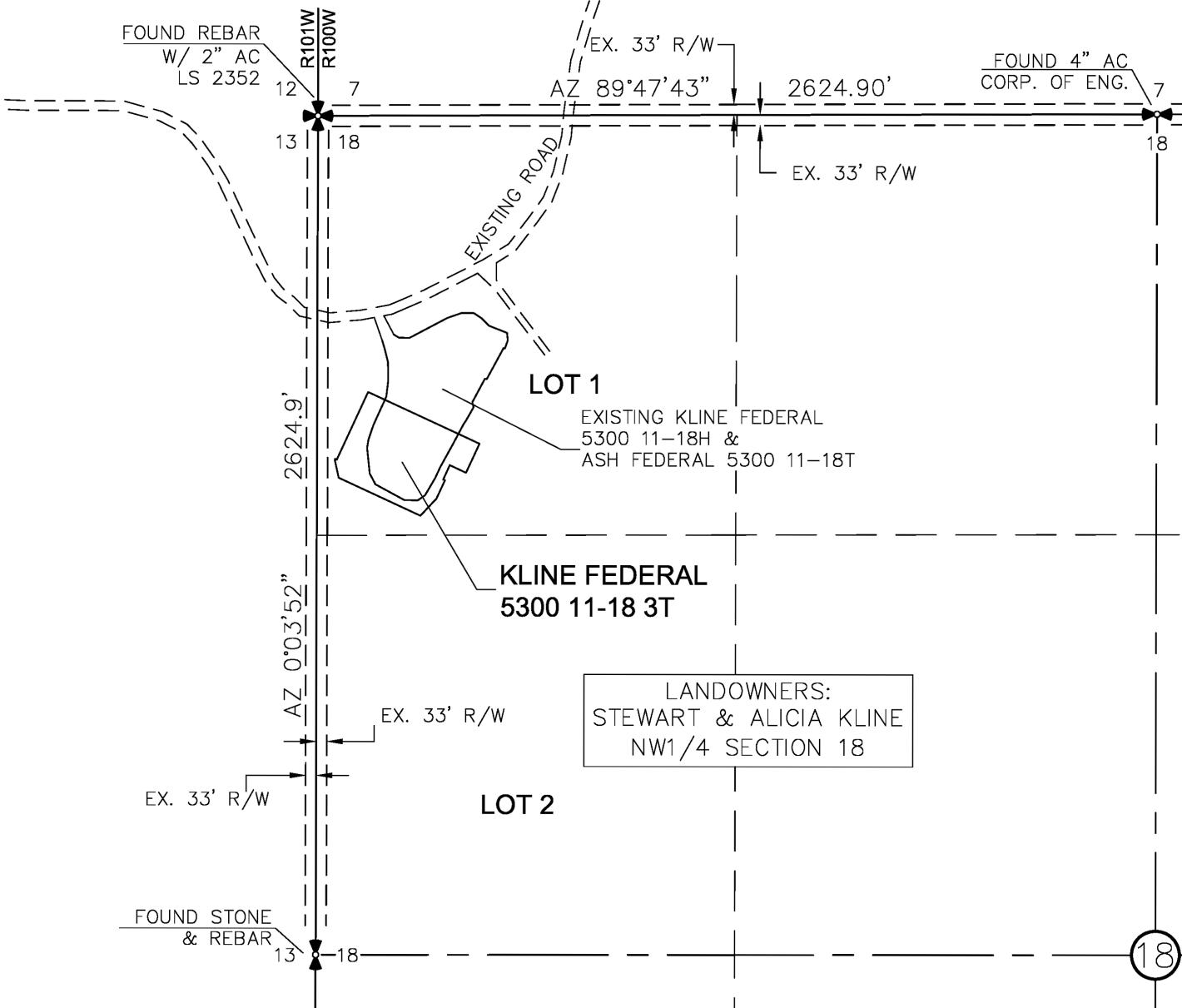
Revision No.	Date	By	Description
REV 1	6/16/14	BHH	MOVED WELLS



# ACCESS APPROACH

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"KLINE FEDERAL 5300 11-18 3T"

1020 FEET FROM NORTH LINE AND 290 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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



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OASIS PETROLEUM NORTH AMERICA, LLC		Revision No.	Date	By	Description
ACCESS APPROACH		REV 1	6/19/14	B.H.H.	MOVED WELLS
SECTION 18, T153N, R100W					
MCKENZIE COUNTY, NORTH DAKOTA					
Drawn By:	B.H.H.	Project No.:	S14-09-127-01	Checked By:	APRIL 2014
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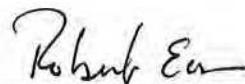
1

## GAS CAPTURE PLAN AFFIDAVIT

STATE OF TEXAS                    §  
    §  
    §  
COUNTY OF HARRIS                §

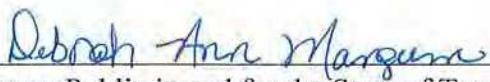
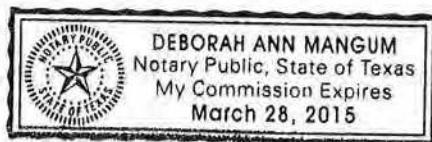
Robert Eason, being duly sworn, states as follows:

1. He is employed by Oasis Petroleum North America LLC ("Oasis") as Marketing Manager, is over the age of 21 and has personal knowledge of the matters set forth in this affidavit.
2. This affidavit is submitted in conjunction with the Application for Permit to Drill for the Kline Federal 5300 11-18 3T well, with a surface location in the NW NW of Section 18, Township 153 North, Range 100 West, McKenzie County, North Dakota (the "Well").
3. Oasis currently anticipates that gas to be produced from the Well will be gathered by Hiland Partners (the "Gathering Company"). Oasis has advised the Gathering Company of its intent to drill the Well and has advised the Gathering Company that it currently anticipates that the Well will be completed in May 2015, with an initial gas production rate of approximately 640 mcf/day.



\_\_\_\_\_  
Robert Eason  
Marketing Manager

Subscribed and sworn to before me this 24 day of June, 2014.



\_\_\_\_\_  
Deborah Ann Mangum  
Notary Public in and for the State of Texas  
My Commission expires: 3.28.2015

## GAS CAPTURE PLAN – OASIS PETROLEUM

### Kline Federal 5300 11-18 3T

Section 18-T153N-R100W

Baker Field

McKenzie County, North Dakota

Anticipated first flow date	May-15
Gas Gatherer:	Hiland Partners
Gas to be processed at*:	Hiland Operated Watford City Plant
Maximum Daily Capacity of Existing Gas Line*:	55,000 MCFD
Current Throughput of Existing Gas Line*:	33,000 MCFD
Anticipated Daily Capacity of Existing Gas Line at Date of First Gas Sales*:	66,000 MCFD
Anticipated Throughput of Existing Gas Line at Date of First Gas Sales*:	65,000 MCFD
Gas Gatherer's Issues or Expansion Plans for the Area*:	Line looping and compression
Map:	Attached
Affidavit:	Attached

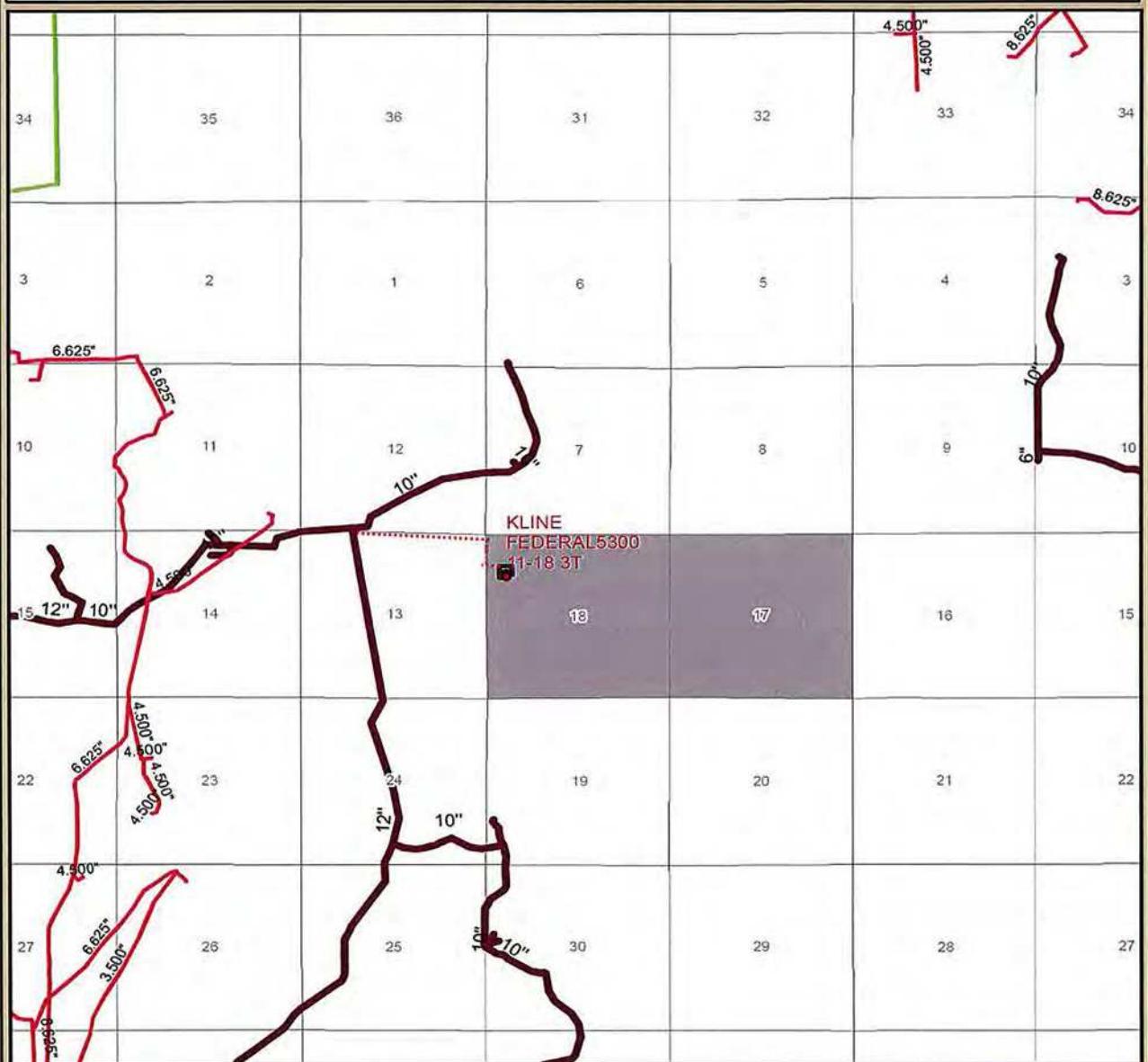
\*Provided by Gatherer

### Flowback Strategy

Total Number of Wells at Location:	10																
Multi-Well Start-up Plan:	Initial production from the 1st new well at the CTB is anticipated in May 2015 with each following well making 1 <sup>st</sup> production approximately every 5th day thereafter																
Estimated Flow Rate:	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Kline Federal 5300 11-18 3T (well only)</th> <th style="text-align: right; width: 20%;">MCFD</th> <th style="text-align: right; width: 20%;">BOPD</th> <th style="text-align: right; width: 20%;">Kline DSU (10 wells)</th> </tr> </thead> <tbody> <tr> <td>30 Days:</td> <td style="text-align: right;">640</td> <td style="text-align: right;">711</td> <td style="text-align: right;">5,100</td> </tr> <tr> <td>60 Days:</td> <td style="text-align: right;">549</td> <td style="text-align: right;">610</td> <td style="text-align: right;">6,302</td> </tr> <tr> <td>180 Days:</td> <td style="text-align: right;">329</td> <td style="text-align: right;">365</td> <td style="text-align: right;">3,543</td> </tr> </tbody> </table>	Kline Federal 5300 11-18 3T (well only)	MCFD	BOPD	Kline DSU (10 wells)	30 Days:	640	711	5,100	60 Days:	549	610	6,302	180 Days:	329	365	3,543
Kline Federal 5300 11-18 3T (well only)	MCFD	BOPD	Kline DSU (10 wells)														
30 Days:	640	711	5,100														
60 Days:	549	610	6,302														
180 Days:	329	365	3,543														
Oasis % of Gas Flared:	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; width: 40%;">Oasis Flaring Percentage</th> <th style="text-align: center; width: 30%;">Statewide</th> <th style="text-align: center; width: 30%;">Baker Field</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Average over the last 6 months</td> <td style="text-align: center;">12%</td> <td style="text-align: center;">6%</td> </tr> </tbody> </table>	Oasis Flaring Percentage	Statewide	Baker Field	Average over the last 6 months	12%	6%										
Oasis Flaring Percentage	Statewide	Baker Field															
Average over the last 6 months	12%	6%															
	Alternatives to Flaring																

SOURCE: Oasis Marketing (281) 404-9435

Gas Capture Plan - Detail View  
KLINE FEDERAL5300 11-18 3T  
Section 18 T153N R100W  
McKenzie County, North Dakota

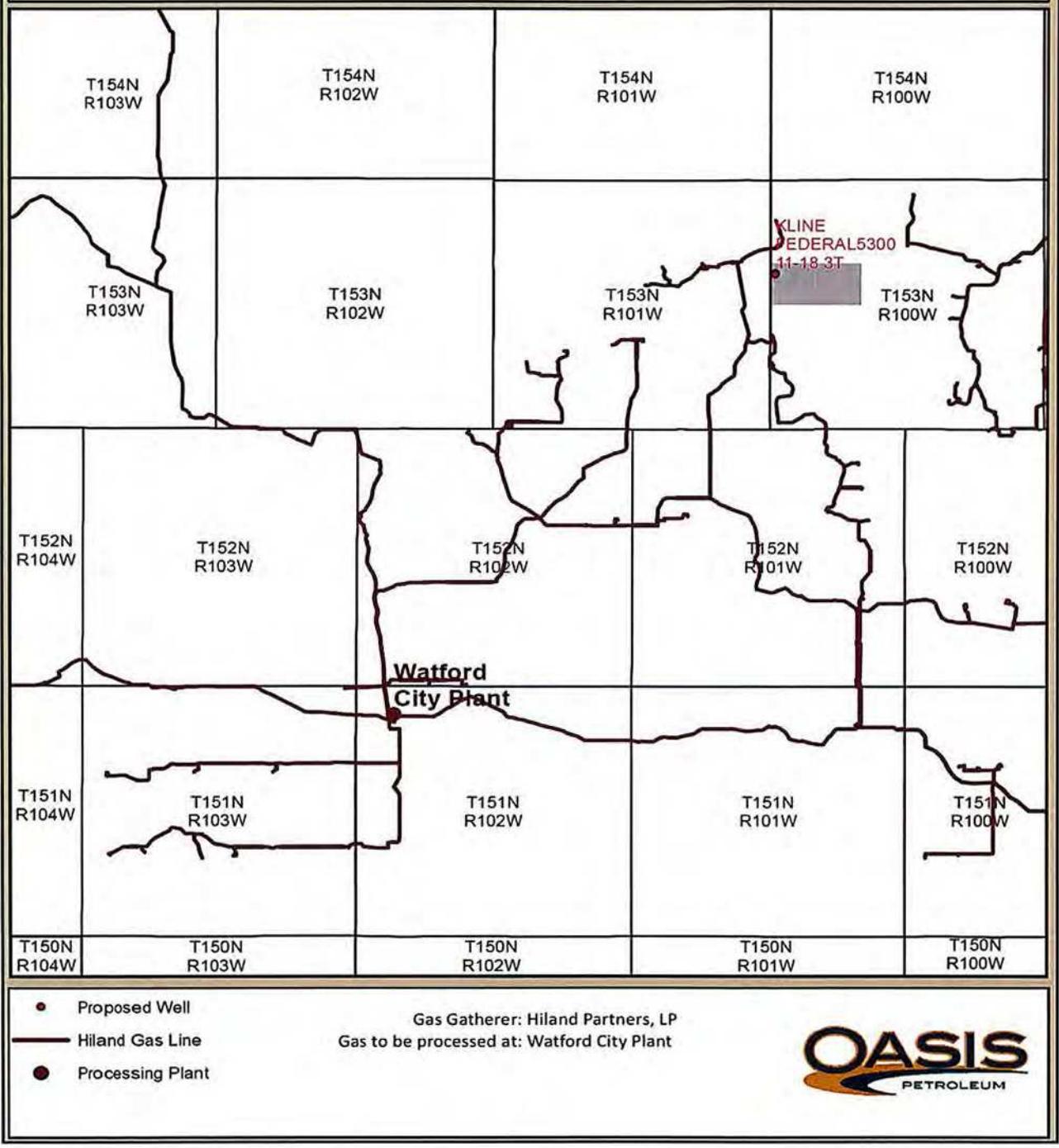


Gas Gatherer: Hiland Partners, LP  
Gas to be processed at: Watford City Plant



- Proposed Well
- Proposed CTB
- Hiland Gas Line
- Oneok Gas Line
- Williston Basin Interstate

Gas Capture Plan - Overview  
KLINE FEDERAL5300 11-18 3T  
Section 18 T153N R100W  
McKenzie County, North Dakota





---

8/20/2014

Mineral Resources Permit Manager  
North Dakota Industrial Commission  
600 East Boulevard Avenue Dept. 405  
Bismarck, ND 58505-0840

RE: Kline Federal 5300 11-18 2T2  
Kline Federal 5300 11-18 3T  
Kline Federal 5300 11-18 4T2  
Kline Federal 5300 11-18 5B  
Request for a legal street address

Dear NDIC:

Oasis Petroleum has requested a physical street address for the Kline Federal 5300 11-18 2T2, Kline Federal 5300 11-18 3T, Kline Federal 5300 11-18 4T2 and Kline Federal 5300 11-18 5B. The request was made to Aaron Chisolm ([address@co.mckenzie.nd.us](mailto:address@co.mckenzie.nd.us)) in McKenzie County. Upon receiving a legal street address, Oasis will submit the address to the NDIC on a Sundry Notice (form 4) pursuant to 43-02-03-28.

Thank you for your consideration.

Respectfully,

A handwritten signature in blue ink, appearing to read "Heather McCowan".

Heather McCowan  
Regulatory Assistant  
Oasis Petroleum North America, LLC

Hello Taylor,

They will be hauled to the JMAC Resources Disposal  
5009 139th Ave NW, Williston, ND 58801  
(701) 774-8511

*Thanks,*

**Heather McCowan**

**Regulatory Assistant | 1001 Fannin, Suite 1500, Houston, Texas 77002 | 281-404-9563 Direct |  
[hmccowan@oasispetroleum.com](mailto:hmccowan@oasispetroleum.com)**



**From:** Roth, Taylor J. [<mailto:tjroth@nd.gov>]  
**Sent:** Wednesday, August 20, 2014 9:59 AM  
**To:** Heather McCowan  
**Subject:** RE: Kline Federal pad

Heather,

What will Oasis be doing with the cuttings on this pad?

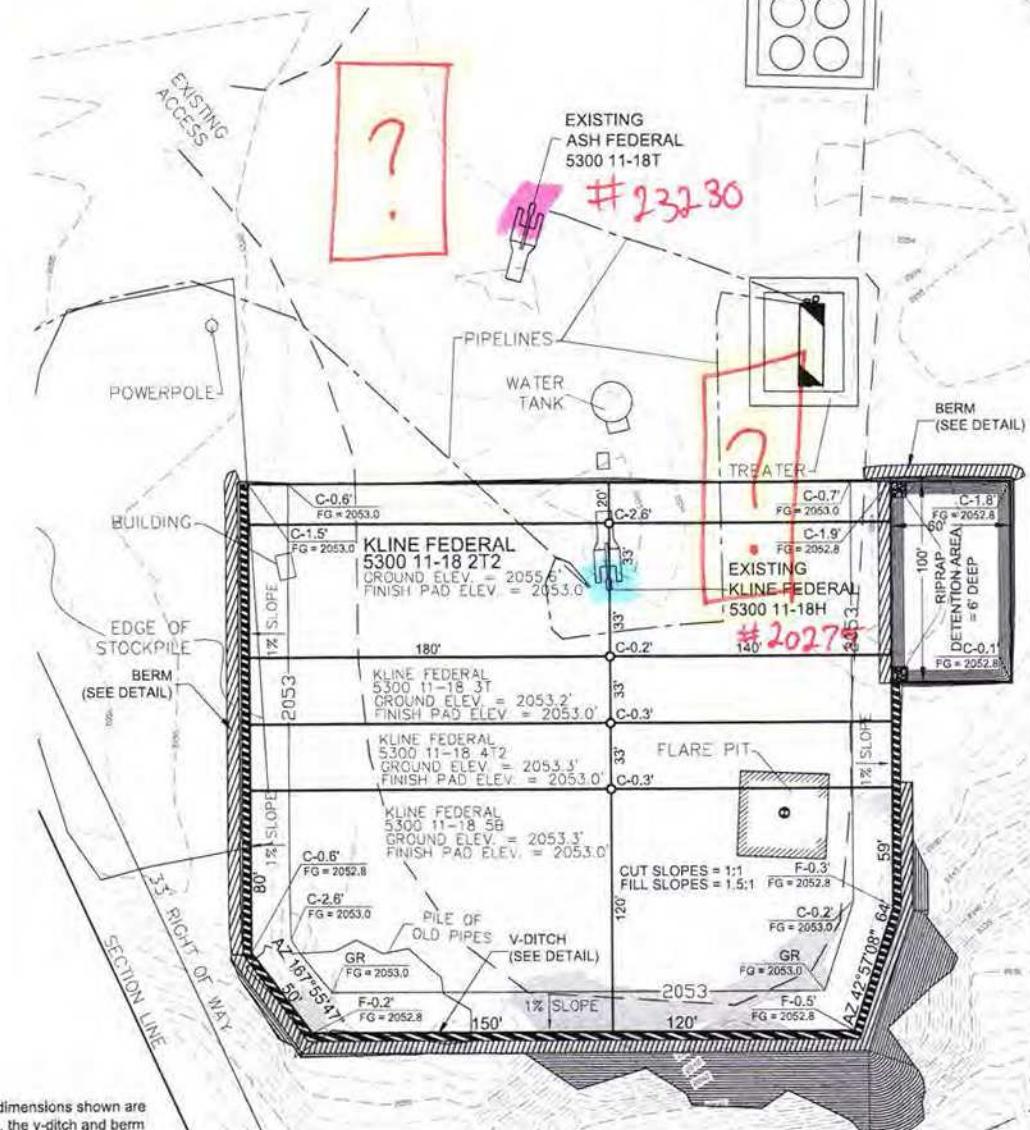
Thank you very much,

**Taylor J. Roth**  
Survey & Permitting Technician  
NDIC, Dept. Mineral Resources  
Oil and Gas Division  
701-328-1720 (direct)  
[tjroth@nd.gov](mailto:tjroth@nd.gov)



PAD LAYOUT  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "KLINE FEDERAL 5300 11-18 2T"  
 960 FEET FROM NORTH LINE AND 318 FEET FROM WEST LINE  
 SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

Pits missing  
from the pad layout

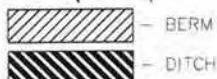
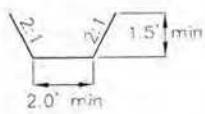


NOTE 1: Pad dimensions shown are to usable area, the v-ditch and berm areas shall be built to the outside of the pad dimensions.

NOTE 2: All existing facilities to be removed on construction expansion.

NOTE 3: Cuttings will be hauled to approved disposal site.

V-DITCH DETAIL



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

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Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
PAD LAYOUT  
SECTION 18, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.K.H. Project No.: 514-09-127  
Checked By: D.D.K. Date: APRIL 2014

Job No.	Date	By	Description

# PAD LAYOUT

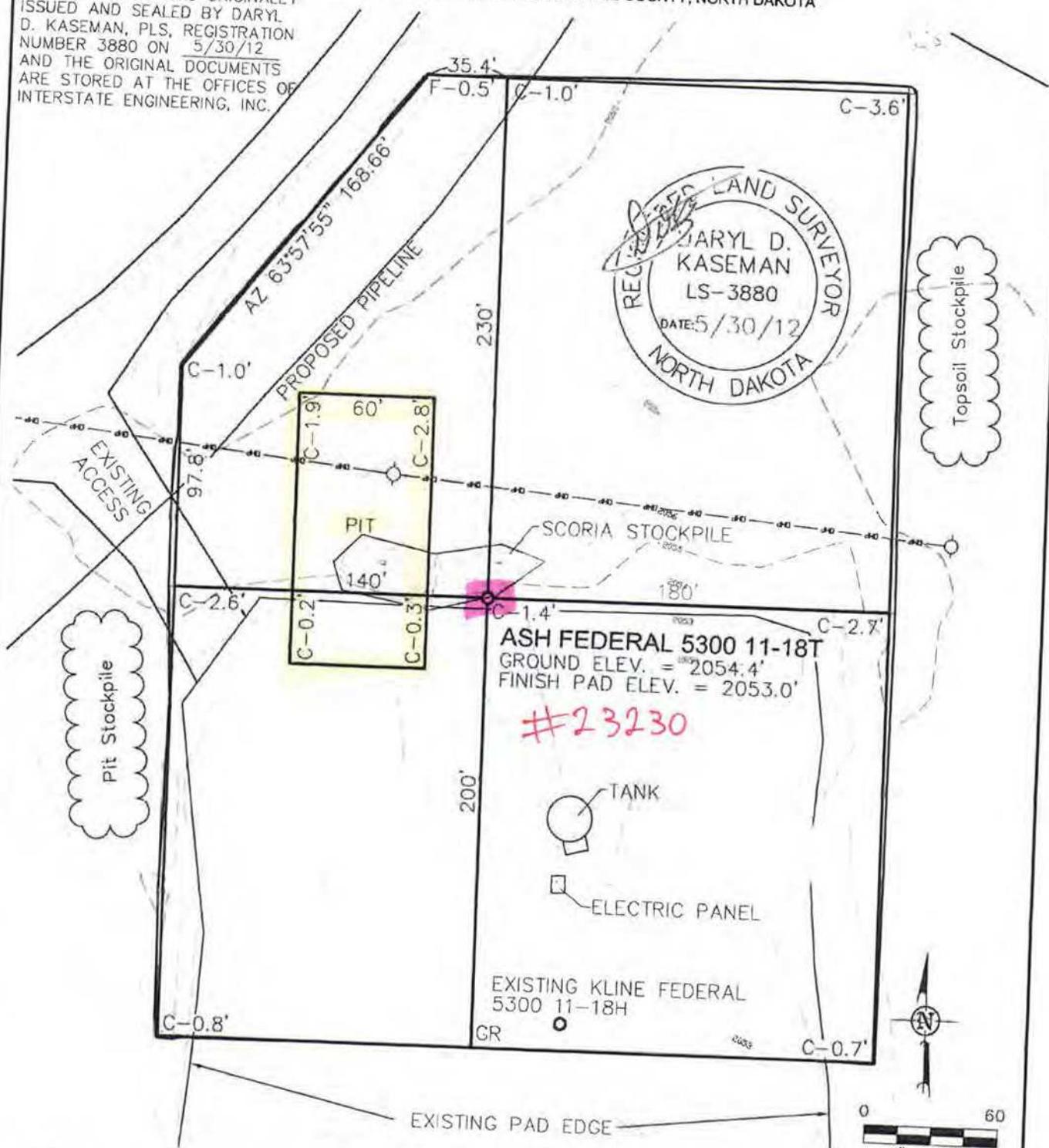
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"ASH FEDERAL 5300 11-18T"

800 FEET FROM NORTH LINE AND 350 FEET FROM WEST LINE

SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

THIS DOCUMENT WAS ORIGINALLY  
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Other offices in Montana, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
PAD LAYOUT  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	B.J.H.	Project No.:	S12-06-146
Checked By:	D.D.K.	Date:	MAY 2012

Revision No.	Date	By	Description

PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 202 HOUSTON, TX 77002  
"KLINE 5300 11-18H"

990 FEET FROM NORTH LINE AND 305 FEET FROM WEST LINE  
SECTION 18, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

UHP = DHP = DHP = DHP

PROPOSED  
ACCESS



Topsoil Stockpile

Pit Stockpile

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

3



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OASIS PETROLEUM NORTH AMERICA, LLC  
PAD LAYOUT  
SECTION 18, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA  
Drawn By: J.S. Project No: S10-9-190  
Checked By: A.J.H/R.L.P. Date: OCT, 2010

Revision No.	Date	By	Description



## Oasis Petroleum

Indian Hills  
153N-100W-17/18  
Kline Federal 5300 11-18 3T

Wellbore #1  
Design #6

## Anticollision Report

30 June, 2014

**gyro***data*  
Precision Wellbore Placement



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Design #6		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 2,000.0 usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

Survey Tool Program		Date	06/30/14	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	21,038.5	Design #6 (Wellbore #1)	MWD	MWD - Standard

Summary		Distance					
Site Name	Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
153N-100W-17/18	Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1	2,555.1	2,529.2	222.4	216.2	35.569	CC
	Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1	2,600.0	2,573.9	222.6	216.1	34.527	ES
	Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1	21,038.5	20,482.0	1,261.2	719.9	2.330	SF
	Kline Federal 5300 11-18 2T2 - Wellbore #1 - Design #6	2,500.0	2,500.0	65.7	54.7	5.993	CC
	Kline Federal 5300 11-18 2T2 - Wellbore #1 - Design #6	21,038.5	20,717.6	500.4	-84.1	0.856	Level 1, ES, SF
	Kline Federal 5300 11-18H - Wellbore #1 - Wellbore #1	2,564.1	2,540.4	27.4	20.9	4.220	CC
	Kline Federal 5300 11-18H - Wellbore #1 - Wellbore #1	20,900.0	20,650.0	496.5	-76.8	0.866	Level 1, ES, SF
	Kline Federal 5300 21-18 4T2 - Wellbore #1 - Design #6	2,500.0	2,500.0	33.6	22.6	3.064	CC
	Kline Federal 5300 21-18 4T2 - Wellbore #1 - Design #6	21,038.5	21,373.9	501.2	-83.6	0.857	Level 1, ES, SF
	Kline Federal 5300 21-18 5B - Wellbore #1 - Design #6	2,500.0	2,500.0	65.9	55.0	6.018	CC
	Kline Federal 5300 21-18 5B - Wellbore #1 - Design #6	21,038.5	21,197.2	503.5	-77.1	0.867	Level 1, ES, SF

Offset Design 153N-100W-17/18 - Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 usft	
Survey Program: 2261-MWD, 13302-MWD											Offset Well Error:	0.0 usft	
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Hightside Toolface (°)	Offset Wellbore Centre +N/S (usft)	+E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
300.0	300.0	2,180.0	2,183.0	0.5	0.0	15.10	218.9	59.1	1,920.4	1,919.9	0.53	3,596.174	
400.0	400.0	2,180.0	2,183.0	0.8	0.0	15.10	218.9	59.1	1,821.2	1,820.4	0.76	2,400.104	
500.0	500.0	2,180.0	2,183.0	1.0	0.0	15.10	218.9	59.1	1,722.0	1,721.0	0.98	1,750.784	
600.0	600.0	2,180.0	2,183.0	1.2	0.0	15.10	218.9	59.1	1,622.9	1,621.7	1.21	1,343.116	
700.0	700.0	2,180.0	2,183.0	1.4	0.0	15.10	218.9	59.1	1,524.0	1,522.5	1.43	1,063.410	
800.0	800.0	2,180.0	2,183.0	1.7	0.0	15.10	218.9	59.1	1,425.1	1,423.5	1.66	859.635	
900.0	900.0	2,180.0	2,183.0	1.9	0.0	15.10	218.9	59.1	1,326.5	1,324.6	1.88	704.612	
1,000.0	1,000.0	2,180.0	2,183.0	2.1	0.0	15.10	218.9	59.1	1,228.1	1,226.0	2.11	582.763	
1,100.0	1,100.0	2,180.0	2,183.0	2.3	0.0	15.10	218.9	59.1	1,130.0	1,127.6	2.33	484.520	
1,200.0	1,200.0	2,180.0	2,183.0	2.6	0.0	15.10	218.9	59.1	1,032.2	1,029.6	2.56	403.690	
1,300.0	1,300.0	2,180.0	2,183.0	2.8	0.0	15.10	218.9	59.1	934.9	932.1	2.78	336.092	
1,400.0	1,400.0	2,180.0	2,183.0	3.0	0.0	15.10	218.9	59.1	838.2	835.2	3.01	278.813	
1,500.0	1,500.0	2,180.0	2,183.0	3.2	0.0	15.10	218.9	59.1	742.5	739.2	3.23	229.776	
1,600.0	1,600.0	2,180.0	2,183.0	3.5	0.0	15.10	218.9	59.1	647.9	644.5	3.46	187.487	
1,700.0	1,700.0	2,180.0	2,183.0	3.7	0.0	15.10	218.9	59.1	555.4	551.7	3.68	150.886	
1,800.0	1,800.0	2,180.0	2,183.0	3.9	0.0	15.10	218.9	59.1	465.9	462.0	3.91	119.286	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 2261-MWD, 13302-MWD				Distance								Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/S (usft)	+E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
1,900.0	1,900.0	2,180.0	2,183.0	4.1	0.0	15.10		218.9	59.1	381.6	377.5	4.13	92.397
2,000.0	2,000.0	2,180.0	2,183.0	4.4	0.0	15.10		218.9	59.1	307.0	302.6	4.36	70.489
2,100.0	2,100.0	2,180.0	2,183.0	4.6	0.0	15.10		218.9	59.1	250.7	246.1	4.58	54.735
2,200.0	2,200.0	2,180.0	2,183.0	4.8	0.0	15.10		218.9	59.1	226.8	222.0	4.80	47.205
2,300.0	2,300.0	2,277.2	2,280.2	5.0	0.1	15.22		217.7	59.2	225.6	220.5	5.16	43.757
2,400.0	2,400.0	2,376.3	2,379.3	5.3	0.3	15.33		216.0	59.2	224.0	218.4	5.59	40.080
2,500.0	2,500.0	2,475.2	2,478.2	5.5	0.5	15.32		214.8	58.8	222.7	216.7	6.02	36.970
2,555.1	2,555.1	2,529.2	2,532.2	5.6	0.7	105.40		214.5	58.5	222.4	216.2	6.25	35.569 CC
2,600.0	2,600.0	2,573.9	2,576.8	5.7	0.8	105.62		214.4	58.2	222.6	216.1	6.45	34.527 ES
2,650.0	2,649.9	2,623.8	2,626.7	5.8	0.9	106.01		214.3	57.6	223.0	216.3	6.66	33.500
2,700.0	2,699.9	2,673.7	2,676.7	5.9	1.0	106.48		214.3	56.9	223.5	216.7	6.87	32.546
2,800.0	2,799.7	2,773.2	2,776.1	6.1	1.2	107.33		214.5	55.2	224.7	217.4	7.29	30.809
2,900.0	2,899.6	2,872.4	2,875.3	6.3	1.4	108.10		215.1	53.4	226.3	218.6	7.72	29.308
3,000.0	2,999.5	2,971.7	2,974.6	6.5	1.6	108.80		216.0	51.5	228.2	220.1	8.16	27.984
3,100.0	3,099.3	3,071.1	3,073.9	6.7	1.9	109.41		217.3	49.3	230.4	221.9	8.58	26.843
3,200.0	3,199.2	3,170.9	3,173.8	7.0	2.1	110.06		218.7	47.3	232.8	223.8	9.00	25.870
3,300.0	3,299.0	3,271.0	3,273.9	7.2	2.3	110.74		219.9	45.5	235.2	225.8	9.41	24.992
3,400.0	3,398.9	3,370.3	3,373.1	7.4	2.5	111.43		221.2	43.9	237.7	227.9	9.83	24.173
3,501.2	3,500.0	3,471.8	3,474.6	7.6	2.7	112.13		222.6	42.3	240.4	230.1	10.27	23.408
3,600.0	3,598.7	3,570.5	3,573.3	7.8	2.9	112.48		223.8	40.7	242.3	231.6	10.68	22.691
3,651.2	3,649.9	3,622.1	3,624.9	7.9	3.0	22.37		224.4	40.0	242.7	231.9	10.80	22.471
3,700.0	3,698.7	3,671.1	3,673.8	8.0	3.1	22.17		224.9	39.2	242.9	231.9	11.00	22.075
3,800.0	3,798.7	3,770.6	3,773.4	8.2	3.3	21.77		226.0	37.9	243.4	231.9	11.44	21.281
3,900.0	3,898.7	3,870.6	3,873.3	8.5	3.5	21.39		227.1	36.6	243.9	232.1	11.87	20.546
4,000.0	3,998.7	3,970.8	3,973.5	8.7	3.7	21.06		228.1	35.4	244.4	232.1	12.31	19.862
4,100.0	4,098.7	4,070.6	4,073.3	8.9	3.9	20.76		229.1	34.4	245.0	232.2	12.74	19.225
4,200.0	4,198.7	4,170.4	4,173.1	9.1	4.1	20.47		230.1	33.5	245.6	232.4	13.18	18.630
4,300.0	4,298.7	4,270.6	4,273.3	9.4	4.4	20.20		231.1	32.6	246.2	232.6	13.62	18.079
4,400.0	4,398.7	4,371.0	4,373.7	9.6	4.6	20.02		231.8	32.1	246.7	232.7	14.05	17.556
4,500.0	4,498.7	4,471.1	4,473.7	9.8	4.8	19.88		232.4	31.6	247.1	232.6	14.49	17.058
4,600.0	4,598.7	4,570.7	4,573.4	10.0	5.0	19.74		233.0	31.2	247.5	232.6	14.92	16.588
4,700.0	4,698.7	4,670.3	4,672.9	10.2	5.2	19.56		233.8	30.7	248.2	232.8	15.36	16.159
4,800.0	4,798.7	4,769.4	4,772.1	10.5	5.4	19.31		235.0	30.0	249.0	233.2	15.79	15.768
4,900.0	4,898.7	4,869.6	4,872.2	10.7	5.6	19.17		236.2	29.7	250.1	233.8	16.23	15.408
5,000.0	4,998.7	4,969.5	4,972.1	10.9	5.8	19.12		237.2	29.8	251.1	234.4	16.67	15.066
5,100.0	5,098.7	5,069.7	5,072.3	11.1	6.0	19.15		238.1	30.3	252.1	235.0	17.10	14.741
5,200.0	5,198.7	5,171.2	5,173.9	11.4	6.3	19.24		238.7	30.9	252.8	235.2	17.53	14.417
5,300.0	5,298.7	5,273.5	5,276.1	11.6	6.5	19.31		238.4	31.1	252.6	234.6	17.96	14.060
5,400.0	5,398.7	5,373.3	5,375.9	11.8	6.7	19.48		237.6	31.6	252.0	233.6	18.39	13.701
5,500.0	5,498.7	5,472.3	5,474.9	12.0	6.9	19.57		237.2	31.9	251.7	232.9	18.82	13.373
5,519.2	5,517.9	5,491.3	5,493.9	12.1	6.9	19.58		237.1	31.9	251.7	232.8	18.90	13.315
5,600.0	5,598.7	5,571.4	5,574.0	12.2	7.1	19.59		237.2	32.0	251.8	232.6	19.25	13.080
5,700.0	5,698.7	5,672.0	5,674.6	12.5	7.3	19.52		237.6	31.8	252.1	232.4	19.68	12.807
5,798.1	5,798.6	5,770.2	5,772.8	12.7	7.5	19.39		237.7	31.3	252.0	231.9	20.11	12.533
5,800.0	5,798.7	5,772.1	5,774.7	12.7	7.5	19.39		237.7	31.3	252.0	231.9	20.11	12.528
5,900.0	5,898.7	5,871.4	5,874.0	12.9	7.7	19.17		238.2	30.4	252.2	231.6	20.55	12.272
6,000.0	5,998.7	5,970.6	5,973.2	13.1	7.9	19.01		238.8	29.9	252.6	231.6	20.98	12.036
6,100.0	6,098.7	6,069.4	6,072.0	13.4	8.1	18.87		239.8	29.5	253.4	232.0	21.42	11.830
6,200.0	6,198.7	6,167.3	6,169.9	13.6	8.3	18.71		241.3	29.3	254.9	233.0	21.86	11.660
6,300.0	6,298.7	6,265.3	6,267.9	13.8	8.5	18.56		243.7	29.4	257.1	234.8	22.29	11.534
6,400.0	6,398.7	6,365.4	6,368.0	14.0	8.8	18.44		246.4	29.7	259.8	237.0	22.73	11.427
6,500.0	6,498.7	6,463.4	6,465.9	14.3	9.0	18.41		249.2	30.5	262.7	239.6	23.17	11.341

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 2261-MWD, 13302-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
6,600.0	6,598.7	6,561.8	6,564.2	14.5	9.2	18.45		252.5	31.8	266.4	242.8	23.61	11.283
6,700.0	6,698.7	6,660.8	6,663.2	14.7	9.4	18.51		256.5	33.4	270.7	246.7	24.05	11.257
6,800.0	6,798.7	6,766.9	6,769.2	14.9	9.6	18.41		259.5	34.0	273.6	249.1	24.49	11.170
6,900.0	6,898.7	6,866.7	6,869.0	15.2	9.8	18.20		261.7	33.6	275.5	250.6	24.92	11.054
7,000.0	6,998.7	6,965.3	6,967.5	15.4	10.0	18.00		264.3	33.5	277.9	252.6	25.36	10.961
7,100.0	7,098.7	7,065.4	7,067.6	15.6	10.3	17.86		266.9	33.6	280.5	254.7	25.79	10.874
7,200.0	7,198.7	7,165.6	7,167.8	15.8	10.5	17.72		269.5	33.7	283.0	256.8	26.23	10.790
7,300.0	7,298.7	7,265.4	7,267.5	16.0	10.7	17.63		271.9	34.0	285.4	258.8	26.66	10.705
7,400.0	7,398.7	7,364.8	7,366.8	16.3	10.9	17.57		274.5	34.5	288.1	261.0	27.10	10.628
7,500.0	7,498.7	7,464.8	7,466.8	16.5	11.1	17.64		277.0	35.7	290.8	263.3	27.54	10.558
7,600.0	7,598.7	7,564.8	7,566.8	16.7	11.3	17.78		279.4	37.2	293.5	265.5	27.98	10.491
7,700.0	7,698.7	7,665.5	7,667.4	16.9	11.5	17.93		281.6	38.7	296.1	267.7	28.41	10.422
7,800.0	7,798.7	7,764.5	7,766.4	17.2	11.7	18.12		283.8	40.5	298.7	269.9	28.85	10.356
7,900.0	7,898.7	7,868.0	7,869.9	17.4	12.0	18.28		285.6	41.9	300.9	271.6	29.28	10.273
8,000.0	7,998.7	7,969.2	7,971.1	17.6	12.2	18.40		286.7	43.0	302.2	272.5	29.71	10.171
8,100.0	8,098.7	8,069.5	8,071.4	17.8	12.4	18.56		287.5	44.1	303.3	273.2	30.15	10.063
8,200.0	8,198.7	8,169.6	8,171.4	18.1	12.6	18.71		288.3	45.3	304.5	273.9	30.58	9.957
8,300.0	8,298.7	8,270.2	8,272.1	18.3	12.8	18.82		289.1	46.1	305.4	274.4	31.01	9.850
8,400.0	8,398.7	8,370.5	8,372.4	18.5	13.0	18.90		289.7	46.8	306.2	274.7	31.43	9.740
8,500.0	8,498.7	8,470.3	8,472.1	18.7	13.2	18.98		290.3	47.4	307.0	275.1	31.87	9.633
8,600.0	8,598.7	8,570.1	8,571.9	19.0	13.4	19.10		290.9	48.3	307.8	275.5	32.30	9.530
8,700.0	8,698.7	8,669.4	8,671.2	19.2	13.6	19.29		291.5	49.6	308.8	276.1	32.74	9.433
8,800.0	8,798.7	8,769.3	8,771.1	19.4	13.8	19.49		292.2	51.0	310.0	276.8	33.17	9.345
8,900.0	8,898.7	8,869.8	8,871.6	19.6	14.0	19.72		292.8	52.6	311.1	277.5	33.61	9.257
9,000.0	8,998.7	8,970.1	8,971.9	19.9	14.2	19.91		293.3	53.9	312.0	278.0	34.03	9.167
9,100.0	9,098.7	9,070.4	9,072.2	20.1	14.5	20.13		293.7	55.3	312.8	278.4	34.47	9.076
9,200.0	9,198.7	9,170.6	9,172.4	20.3	14.7	20.37		294.0	56.7	313.6	278.7	34.90	8.986
9,300.0	9,298.7	9,270.4	9,272.2	20.5	14.9	20.58		294.3	58.1	314.4	279.0	35.33	8.899
9,400.0	9,398.7	9,370.9	9,372.7	20.8	15.1	20.79		294.6	59.5	315.1	279.4	35.76	8.812
9,500.0	9,498.7	9,471.5	9,473.2	21.0	15.3	21.01		294.6	60.7	315.6	279.4	36.19	8.721
9,600.0	9,598.7	9,571.3	9,573.0	21.2	15.5	21.20		294.8	61.9	316.2	279.6	36.62	8.634
9,700.0	9,698.7	9,671.6	9,673.3	21.4	15.7	21.38		294.8	63.0	316.6	279.5	37.05	8.544
9,800.0	9,798.7	9,771.0	9,772.7	21.6	15.9	21.57		294.9	64.2	317.1	279.7	37.49	8.460
9,900.0	9,898.7	9,871.2	9,872.9	21.9	16.1	21.75		295.2	65.3	317.8	279.9	37.92	8.380
10,000.0	9,998.7	9,970.9	9,972.6	22.1	16.3	21.87		295.4	66.2	318.3	280.0	38.35	8.301
10,100.0	10,098.7	10,070.1	10,071.8	22.3	16.5	21.95		296.0	66.9	319.1	280.3	38.78	8.228
10,200.0	10,198.7	10,169.6	10,171.3	22.5	16.7	22.03		296.7	67.7	320.1	280.9	39.22	8.162
10,300.0	10,298.7	10,269.2	10,270.9	22.8	17.0	22.11		297.6	68.5	321.2	281.6	39.66	8.100
10,336.6	10,335.3	10,305.5	10,307.2	22.9	17.0	22.13		298.0	68.8	321.7	281.9	39.81	8.079
10,350.0	10,348.7	10,318.4	10,320.1	22.9	17.1	-114.86		298.1	68.9	321.9	282.1	39.88	8.073
10,375.0	10,373.7	10,341.1	10,342.7	22.9	17.1	-114.84		298.2	69.6	322.9	283.0	39.96	8.082
10,400.0	10,398.5	10,360.4	10,362.0	23.0	17.1	-114.75		298.3	71.0	324.8	284.8	40.02	8.116
10,425.0	10,423.2	10,377.0	10,378.5	23.0	17.2	-114.53		298.3	72.9	327.7	287.6	40.06	8.179
10,450.0	10,447.6	10,394.7	10,396.0	23.1	17.2	-114.19		298.5	75.9	331.7	291.6	40.10	8.271
10,475.0	10,471.8	10,408.0	10,408.9	23.1	17.3	-113.70		298.7	78.8	336.8	296.7	40.12	8.396
10,500.0	10,495.5	10,429.5	10,429.7	23.1	17.3	-113.17		299.1	84.5	343.0	302.8	40.16	8.541
10,525.0	10,518.8	10,449.2	10,448.5	23.2	17.4	-112.58		299.5	90.4	350.0	309.8	40.19	8.709
10,550.0	10,541.7	10,471.0	10,469.1	23.2	17.4	-112.05		300.0	97.2	357.7	317.5	40.23	8.893
10,575.0	10,563.9	10,487.3	10,484.5	23.3	17.4	-111.42		300.6	102.6	366.2	326.0	40.26	9.098
10,600.0	10,585.5	10,502.0	10,498.3	23.3	17.5	-110.68		301.2	107.8	375.6	335.4	40.29	9.323
10,625.0	10,606.5	10,523.3	10,517.9	23.4	17.5	-110.06		302.1	116.0	385.8	345.4	40.35	9.562
10,650.0	10,626.7	10,542.3	10,535.1	23.4	17.6	-109.29		302.7	124.1	396.6	356.1	40.41	9.813

CC - Min centre to center distance or convergent point, SF - min ellipse separation, ES - min separation factor



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft	
Survey Program: 2261-MWD, 13302-MWD				Distance								Offset Well Error:	0.0 usft	
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis			Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
		Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	(°)								
10,675.0	10,646.1	10,560.5	10,551.3	23.5	17.6	-108.43	303.3	132.4	407.9	367.5	40.49	10.074		
10,700.0	10,664.6	10,577.3	10,565.9	23.6	17.7	-107.44	303.8	140.6	420.0	379.4	40.60	10.345		
10,725.0	10,682.3	10,595.0	10,580.8	23.6	17.7	-106.37	304.3	150.1	432.6	391.9	40.72	10.623		
10,750.0	10,698.9	10,609.2	10,592.5	23.7	17.8	-105.07	304.7	158.2	445.9	405.0	40.88	10.908		
10,775.0	10,714.6	10,626.0	10,605.9	23.8	17.8	-103.79	305.1	168.3	459.7	418.7	41.06	11.197		
10,800.0	10,729.3	10,641.1	10,617.7	23.9	17.9	-102.38	305.5	177.7	474.0	432.8	41.26	11.490		
10,825.0	10,742.9	10,657.0	10,630.0	24.0	18.0	-100.97	305.9	187.8	488.8	447.3	41.48	11.785		
10,850.0	10,755.3	10,672.5	10,641.6	24.2	18.0	-99.48	306.3	198.0	504.0	462.3	41.72	12.081		
10,875.0	10,766.6	10,688.0	10,652.7	24.3	18.1	-97.89	306.7	208.8	519.5	477.6	41.97	12.378		
10,900.0	10,776.8	10,704.5	10,664.0	24.5	18.2	-96.29	306.9	220.8	535.4	493.1	42.24	12.675		
10,925.0	10,785.7	10,721.6	10,675.2	24.7	18.3	-94.66	307.1	233.7	551.5	509.0	42.52	12.971		
10,950.0	10,793.4	10,737.7	10,685.5	24.9	18.4	-92.97	307.2	246.1	567.8	525.0	42.80	13.267		
10,975.0	10,799.8	10,751.0	10,693.9	25.1	18.5	-91.13	307.2	256.5	584.3	541.2	43.06	13.568		
11,000.0	10,804.9	10,763.4	10,701.5	25.3	18.6	-89.20	307.3	266.3	601.1	557.7	43.32	13.874		
11,025.0	10,808.8	10,774.0	10,707.7	25.5	18.6	-87.10	307.5	274.9	618.1	574.5	43.56	14.190		
11,050.0	10,811.4	10,786.6	10,714.6	25.8	18.7	-85.10	307.6	285.3	635.4	591.6	43.78	14.512		
11,075.0	10,812.6	10,807.1	10,725.3	26.0	18.9	-83.63	307.7	302.9	652.6	608.6	44.05	14.815		
11,084.1	10,812.8	10,814.6	10,728.9	26.1	19.0	-83.09	307.7	309.4	658.9	614.8	44.15	14.924		
11,099.1	10,812.8	10,825.8	10,734.2	26.3	19.1	-83.81	307.6	319.3	669.2	624.8	44.40	15.073		
11,200.0	10,813.4	10,881.1	10,757.2	27.5	19.6	-86.88	306.8	369.6	738.0	691.9	46.10	16.010		
11,300.0	10,813.9	10,927.7	10,772.2	28.9	20.2	-88.59	307.2	413.7	805.3	757.4	47.95	16.796		
11,400.0	10,814.5	10,994.7	10,787.3	30.6	21.1	-89.99	309.1	478.9	870.9	820.7	50.20	17.347		
11,500.0	10,815.0	11,066.8	10,796.1	32.4	22.3	-90.63	311.3	550.3	932.7	879.9	52.81	17.663		
11,600.0	10,815.6	11,150.4	10,795.7	34.3	23.7	-90.50	314.5	633.9	991.0	935.2	55.85	17.743		
11,700.0	10,816.1	11,246.7	10,792.8	36.3	25.6	-90.23	317.0	730.1	1,043.9	984.5	59.43	17.566		
11,800.0	10,816.7	11,352.5	10,792.8	38.5	27.8	-90.16	318.7	835.9	1,091.5	1,028.0	63.50	17.188		
11,900.0	10,817.3	11,439.2	10,795.5	40.7	29.8	-90.26	319.1	922.5	1,133.3	1,065.8	67.49	16.792		
12,000.0	10,817.9	11,521.8	10,798.3	43.0	31.7	-90.36	320.3	1,005.1	1,171.2	1,099.7	71.55	16.370		
12,100.0	10,818.4	11,657.4	10,798.3	45.3	35.0	-90.28	321.3	1,140.6	1,203.9	1,127.0	76.92	15.652		
12,200.0	10,819.0	11,818.0	10,795.1	47.6	39.1	-90.06	314.2	1,301.0	1,226.2	1,143.1	83.14	14.749		
12,300.0	10,819.5	11,927.2	10,796.2	50.0	41.9	-90.07	306.1	1,409.9	1,240.5	1,152.3	88.15	14.073		
12,400.0	10,820.1	12,019.3	10,798.7	52.3	44.4	-90.14	299.3	1,501.8	1,249.6	1,156.9	92.63	13.490		
12,500.0	10,820.6	12,122.4	10,802.3	54.7	47.1	-90.26	291.9	1,604.5	1,253.7	1,156.5	97.28	12.888		
12,600.0	10,821.2	12,210.4	10,805.4	57.0	49.5	-90.37	285.9	1,692.2	1,253.0	1,151.6	101.35	12.363		
12,655.6	10,821.5	12,261.7	10,807.2	58.3	50.9	-90.43	282.7	1,743.4	1,250.6	1,147.0	103.59	12.073		
12,700.0	10,821.7	12,303.0	10,808.9	59.4	52.0	-90.50	280.3	1,784.6	1,248.3	1,142.4	105.86	11.791		
12,800.0	10,822.2	12,378.6	10,811.1	61.8	54.1	-90.58	276.6	1,860.1	1,243.9	1,133.4	110.56	11.251		
12,900.0	10,822.7	12,467.2	10,811.8	64.2	56.6	-90.59	273.8	1,948.6	1,241.3	1,125.7	115.65	10.733		
13,000.0	10,823.3	12,552.1	10,812.4	66.6	58.9	-90.61	271.7	2,033.5	1,239.4	1,118.7	120.68	10.270		
13,085.8	10,823.7	12,623.6	10,812.9	68.8	60.9	-90.61	271.0	2,105.0	1,239.0	1,114.0	124.99	9.913		
13,100.0	10,823.8	12,635.8	10,812.9	69.2	61.3	-90.61	270.9	2,117.2	1,239.0	1,113.3	125.71	9.856		
13,200.0	10,824.3	12,723.3	10,812.6	71.7	63.7	-90.57	271.1	2,204.7	1,239.7	1,108.8	130.87	9.473		
13,300.0	10,824.8	12,822.0	10,812.3	74.3	66.5	-90.53	272.0	2,303.4	1,241.1	1,104.7	136.37	9.101		
13,400.0	10,825.4	12,927.9	10,812.0	76.8	69.5	-90.49	272.5	2,409.3	1,242.1	1,100.0	142.11	8.740		
13,500.0	10,825.9	13,019.0	10,811.5	79.5	72.0	-90.45	272.9	2,500.4	1,243.1	1,095.7	147.45	8.431		
13,600.0	10,826.4	13,130.7	10,810.8	82.1	75.2	-90.39	273.9	2,612.1	1,244.5	1,091.1	153.39	8.114		
13,700.0	10,826.9	13,241.4	10,811.7	84.7	77.4	-90.40	273.4	2,722.8	1,244.6	1,086.2	158.40	7.857		
13,781.3	10,827.4	13,319.2	10,813.4	86.9	78.7	-90.46	272.6	2,800.5	1,244.2	1,082.3	161.99	7.681		
13,800.0	10,827.5	13,333.0	10,813.7	87.4	78.9	-90.47	272.6	2,814.4	1,244.3	1,081.6	162.65	7.650		
13,900.0	10,828.0	13,384.2	10,815.9	90.1	79.4	-90.56	273.5	2,865.5	1,246.7	1,080.7	165.99	7.511		
14,000.0	10,828.5	13,489.1	10,818.9	92.8	80.6	-90.67	278.2	2,970.3	1,251.8	1,081.8	169.97	7.365		
14,100.0	10,829.0	13,606.1	10,818.5	95.5	82.0	-90.62	280.8	3,087.2	1,254.4	1,080.2	174.22	7.200		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 2261-MWD, 13302-MWD												Offset Well Error:	0.0 usft
Reference Offset				Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
14,200.0	10,829.6	13,707.4	10,817.9	98.3	83.3	-90.57		282.9	3,188.4	1,257.0	1,078.6	178.37	7.047
14,300.0	10,830.1	13,841.2	10,815.8	101.0	85.2	-90.44		284.4	3,322.2	1,258.8	1,075.8	183.09	6.876
14,400.0	10,830.6	13,962.2	10,813.8	103.8	87.0	-90.32		282.6	3,443.2	1,257.9	1,070.1	187.75	6.700
14,500.0	10,831.1	14,060.1	10,814.2	106.5	88.6	-90.32		280.6	3,541.0	1,256.4	1,064.2	192.14	6.539
14,600.0	10,831.6	14,169.7	10,813.0	109.3	90.4	-90.24		277.4	3,650.6	1,253.9	1,057.1	196.80	6.371
14,700.0	10,832.2	14,253.4	10,811.8	112.1	91.8	-90.16		275.7	3,734.2	1,252.4	1,051.3	201.09	6.228
14,800.0	10,832.7	14,365.0	10,811.4	114.9	93.8	-90.12		273.1	3,845.8	1,250.5	1,044.6	205.93	6.073
14,900.0	10,833.2	14,461.9	10,812.0	117.6	95.6	-90.12		270.6	3,942.7	1,248.4	1,037.9	210.56	5.929
15,000.0	10,833.7	14,549.0	10,813.5	120.4	97.2	-90.17		269.1	4,029.8	1,247.2	1,032.1	215.06	5.799
15,100.0	10,834.3	14,650.3	10,814.7	123.2	99.2	-90.20		267.5	4,131.1	1,246.2	1,026.3	219.88	5.668
15,200.0	10,834.8	14,742.7	10,814.1	126.1	101.0	-90.15		266.7	4,223.4	1,245.8	1,021.2	224.58	5.547
15,248.3	10,835.0	14,786.8	10,813.3	127.4	101.9	-90.10		266.3	4,267.6	1,245.7	1,018.9	226.86	5.491
15,300.0	10,835.3	14,830.5	10,812.5	128.9	102.8	-90.06		266.2	4,311.2	1,245.9	1,016.6	229.23	5.435
15,400.0	10,835.8	14,919.7	10,813.2	131.7	104.6	-90.07		266.3	4,400.5	1,246.5	1,012.6	233.93	5.328
15,500.0	10,836.4	15,003.6	10,815.7	134.5	106.4	-90.16		267.8	4,484.2	1,248.8	1,010.2	238.56	5.235
15,600.0	10,836.9	15,128.6	10,818.3	137.4	109.0	-90.25		269.3	4,609.2	1,250.5	1,006.4	244.10	5.123
15,700.0	10,837.4	15,230.9	10,817.6	140.2	111.2	-90.19		269.1	4,711.5	1,250.8	1,001.6	249.20	5.019
15,800.0	10,837.9	15,310.8	10,817.0	143.0	113.0	-90.15		269.7	4,791.4	1,252.2	998.3	253.85	4.933
15,900.0	10,838.5	15,383.9	10,816.7	145.9	114.6	-90.12		271.9	4,864.5	1,255.7	997.3	258.36	4.860
16,000.0	10,839.0	15,551.7	10,816.6	148.7	118.4	-90.07		274.0	5,032.3	1,257.4	992.4	265.04	4.744
16,100.0	10,839.5	15,659.4	10,817.8	151.6	120.9	-90.10		271.9	5,139.9	1,256.0	985.6	270.41	4.645
16,200.0	10,840.0	15,755.7	10,817.8	154.4	123.1	-90.08		270.0	5,236.2	1,254.6	979.1	275.55	4.553
16,300.0	10,840.5	15,851.9	10,818.9	157.3	125.4	-90.11		268.1	5,332.4	1,253.2	972.5	280.71	4.464
16,400.0	10,841.1	15,948.1	10,820.9	160.1	127.7	-90.18		266.7	5,428.5	1,252.3	966.4	285.89	4.380
16,500.0	10,841.6	16,097.3	10,825.4	163.0	131.3	-90.34		263.6	5,577.6	1,251.3	958.9	292.37	4.280
16,600.0	10,842.1	16,218.3	10,823.0	165.9	134.2	-90.21		256.2	5,698.3	1,245.6	947.4	298.22	4.177
16,700.0	10,842.6	16,309.2	10,819.5	168.7	136.5	-90.02		250.0	5,788.9	1,239.4	936.1	303.35	4.086
16,800.0	10,843.2	16,400.1	10,819.8	171.6	138.7	-90.01		244.7	5,879.6	1,234.1	925.6	308.50	4.000
16,900.0	10,843.7	16,498.6	10,823.7	174.5	141.2	-90.17		239.6	5,978.0	1,229.5	915.6	313.85	3.917
17,000.0	10,844.2	16,582.4	10,826.2	177.3	143.3	-90.27		235.8	6,061.6	1,225.4	906.6	318.84	3.843
17,100.0	10,844.7	16,714.5	10,828.6	180.2	146.6	-90.35		229.0	6,193.5	1,220.9	895.8	325.08	3.756
17,200.0	10,845.3	16,814.5	10,826.5	183.1	149.1	-90.23		222.5	6,293.3	1,214.9	884.4	330.52	3.676
17,300.0	10,845.8	16,923.5	10,825.7	186.0	151.9	-90.17		214.5	6,402.0	1,208.1	871.9	336.21	3.593
17,400.0	10,846.3	17,012.3	10,826.8	188.8	154.2	-90.19		208.1	6,490.6	1,201.4	860.0	341.40	3.519
17,500.0	10,846.8	17,101.3	10,827.0	191.7	156.5	-90.19		202.9	6,579.4	1,196.0	849.4	346.60	3.451
17,600.0	10,847.4	17,187.7	10,827.1	194.6	158.7	-90.17		198.4	6,665.7	1,191.4	839.7	351.75	3.387
17,700.0	10,847.9	17,279.4	10,829.0	197.5	161.1	-90.24		194.8	6,757.3	1,188.0	831.0	357.04	3.327
17,800.0	10,848.4	17,367.8	10,829.7	200.4	163.4	-90.25		191.7	6,845.6	1,185.1	822.8	362.25	3.271
17,900.0	10,848.9	17,475.1	10,831.0	203.3	166.2	-90.28		188.5	6,952.9	1,182.6	814.6	367.98	3.214
18,000.0	10,849.5	17,560.0	10,831.4	206.2	168.5	-90.28		186.0	7,037.7	1,180.2	807.1	373.12	3.163
18,100.0	10,850.0	17,656.2	10,832.1	209.0	171.0	-90.30		184.3	7,133.9	1,178.9	800.4	378.57	3.114
18,200.0	10,850.5	17,754.0	10,831.1	211.9	173.6	-90.22		182.4	7,231.7	1,177.5	793.5	384.07	3.066
18,300.0	10,851.0	17,850.2	10,831.3	214.8	176.2	-90.21		181.3	7,327.9	1,176.9	787.3	389.54	3.021
18,400.0	10,851.5	17,945.9	10,830.3	217.7	178.7	-90.13		180.1	7,423.5	1,176.2	781.2	395.00	2.978
18,431.7	10,851.7	17,972.8	10,829.9	218.6	179.4	-90.11		179.9	7,450.5	1,176.2	779.5	396.65	2.965
18,500.0	10,852.1	18,032.9	10,829.2	220.6	181.0	-90.06		179.9	7,510.5	1,176.4	776.2	400.24	2.939
18,600.0	10,852.6	18,132.7	10,828.7	223.5	183.7	-90.01		179.9	7,610.4	1,177.0	771.2	405.83	2.900
18,700.0	10,853.1	18,213.4	10,827.4	226.4	185.9	-89.92		180.7	7,691.1	1,178.5	767.6	410.91	2.868
18,800.0	10,853.6	18,305.6	10,827.8	229.3	188.3	-89.92		182.9	7,783.2	1,181.4	765.1	416.29	2.838
18,900.0	10,854.2	18,387.4	10,827.7	232.2	190.5	-89.90		185.4	7,865.0	1,185.1	763.7	421.41	2.812
19,000.0	10,854.7	18,471.3	10,827.4	235.1	192.8	-89.86		189.6	7,948.8	1,190.5	764.0	426.58	2.791
19,100.0	10,855.2	18,616.5	10,829.6	238.0	196.7	-89.93		195.4	8,093.8	1,195.3	761.8	433.41	2.758

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Ash Federal 5300 11-18T - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 2261-MWD, 13302-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,200.0	10,855.7	18,724.8	10,831.7	240.9	199.7	-90.00	196.8	8,202.1	1,197.2	757.9	439.26	2.725	
19,300.0	10,856.3	18,822.6	10,834.2	243.8	202.3	-90.10	197.7	8,299.9	1,198.6	753.7	444.84	2.694	
19,400.0	10,856.8	18,915.0	10,836.8	246.7	204.8	-90.20	199.0	8,392.2	1,200.5	750.2	450.27	2.666	
19,500.0	10,857.3	19,022.6	10,840.5	249.6	207.8	-90.35	200.8	8,499.7	1,202.8	746.6	456.11	2.637	
19,600.0	10,857.8	19,138.6	10,844.2	252.5	210.9	-90.49	201.4	8,615.6	1,203.8	741.6	462.19	2.605	
19,700.0	10,858.4	19,239.6	10,846.0	255.4	213.7	-90.56	201.0	8,716.6	1,203.9	736.1	467.88	2.573	
19,800.0	10,858.9	19,338.8	10,846.2	258.3	216.4	-90.54	200.6	8,815.9	1,204.1	730.6	473.52	2.543	
19,900.0	10,859.4	19,434.9	10,845.6	261.2	219.1	-90.49	200.6	8,912.0	1,204.6	725.5	479.09	2.514	
20,000.0	10,859.9	19,537.4	10,844.1	264.1	221.9	-90.39	200.5	9,014.4	1,205.0	720.2	484.85	2.485	
20,100.0	10,860.4	19,626.7	10,842.1	267.0	224.4	-90.27	200.7	9,103.8	1,205.8	715.5	490.24	2.460	
20,200.0	10,861.0	19,706.0	10,841.1	269.9	226.6	-90.21	202.0	9,183.0	1,207.9	712.6	495.35	2.439	
20,300.0	10,861.5	19,780.4	10,840.4	272.8	228.6	-90.15	204.8	9,257.3	1,212.1	711.8	500.33	2.423	
20,400.0	10,862.0	19,855.7	10,840.4	275.7	230.7	-90.13	209.0	9,332.5	1,218.3	713.0	505.32	2.411	
20,500.0	10,862.5	19,951.5	10,840.7	278.6	233.3	-90.12	215.6	9,428.1	1,225.7	714.8	510.88	2.399	
20,600.0	10,863.1	20,057.4	10,840.9	281.6	236.3	-90.11	222.7	9,533.7	1,232.9	716.2	516.71	2.386	
20,700.0	10,863.6	20,159.3	10,841.1	284.5	239.1	-90.09	228.9	9,635.5	1,239.5	717.1	522.45	2.373	
20,800.0	10,864.1	20,255.4	10,840.9	287.4	241.7	-90.06	234.8	9,731.4	1,246.2	718.2	528.03	2.360	
20,900.0	10,864.6	20,363.6	10,839.9	290.3	244.7	-89.98	241.6	9,839.4	1,253.0	719.1	533.94	2.347	
21,000.0	10,865.2	20,475.4	10,837.7	293.2	247.8	-89.86	247.4	9,951.0	1,258.7	718.7	539.97	2.331	
21,038.5	10,865.4	20,482.0	10,837.6	294.3	248.0	-89.85	247.7	9,957.6	1,261.2	719.9	541.27	2.330 SF	



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18 2T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	24.43	59.8	27.2	65.7	65.7	0.17	389.542	
100.0	100.0	100.0	100.0	0.1	0.1	24.43	59.8	27.2	65.7	65.5	0.62	106.239	
200.0	200.0	200.0	200.0	0.3	0.3	24.43	59.8	27.2	65.7	65.0	1.07	61.507	
300.0	300.0	300.0	300.0	0.5	0.5	24.43	59.8	27.2	65.7	64.6	1.52	43.283	
400.0	400.0	400.0	400.0	0.8	0.8	24.43	59.8	27.2	65.7	64.1	1.97	33.389	
500.0	500.0	500.0	500.0	1.0	1.0	24.43	59.8	27.2	65.7	63.7	2.42	27.177	
600.0	600.0	600.0	600.0	1.2	1.2	24.43	59.8	27.2	65.7	63.3	2.87	22.914	
700.0	700.0	700.0	700.0	1.4	1.4	24.43	59.8	27.2	65.7	62.8	3.32	19.807	
800.0	800.0	800.0	800.0	1.7	1.7	24.43	59.8	27.2	65.7	62.4	3.76	17.442	
900.0	900.0	900.0	900.0	1.9	1.9	24.43	59.8	27.2	65.7	61.9	4.21	15.582	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	24.43	59.8	27.2	65.7	61.5	4.66	14.080	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	24.43	59.8	27.2	65.7	61.0	5.11	12.842	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	24.43	59.8	27.2	65.7	60.6	5.56	11.804	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	24.43	59.8	27.2	65.7	60.1	6.01	10.922	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	24.43	59.8	27.2	65.7	59.7	6.46	10.162	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	24.43	59.8	27.2	65.7	59.2	6.91	9.501	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	24.43	59.8	27.2	65.7	58.8	7.36	8.921	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	24.43	59.8	27.2	65.7	58.3	7.81	8.407	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	24.43	59.8	27.2	65.7	57.9	8.26	7.950	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.1	24.43	59.8	27.2	65.7	57.4	8.64	7.752	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	24.43	59.8	27.2	65.7	57.0	9.16	7.170	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	24.43	59.8	27.2	65.7	56.5	9.61	6.834	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	24.43	59.8	27.2	65.7	56.1	10.06	6.529	
2,300.0	2,300.0	2,300.0	2,300.0	5.0	5.0	24.43	59.8	27.2	65.7	55.6	10.51	6.249	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	24.43	59.8	27.2	65.7	55.2	10.96	5.993 CC	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	24.43	59.8	27.2	65.7	54.7	11.38	5.905	
2,600.0	2,600.0	2,598.9	2,598.9	5.7	5.7	117.07	59.8	28.9	67.2	55.8	11.57	5.984	
2,650.0	2,649.9	2,648.2	2,648.1	5.8	5.8	120.18	59.8	31.0	69.3	57.7	11.78	6.118	
2,700.0	2,699.9	2,697.9	2,697.8	5.9	5.9	123.76	59.8	33.6	72.0	60.3	12.18	6.434	
2,800.0	2,799.7	2,797.3	2,797.1	6.1	6.1	130.11	59.8	38.8	78.4	66.2	12.8	6.793	
2,900.0	2,899.6	2,896.8	2,896.4	6.3	6.3	135.46	59.8	44.0	85.5	72.9	13.5	14.64	8.752
3,000.0	2,999.5	2,996.3	2,995.7	6.5	6.5	139.96	59.8	49.2	93.2	80.2	14.23	7.177	
3,100.0	3,099.3	3,095.7	3,095.0	6.7	6.7	143.75	59.8	54.4	101.5	88.1	13.40	7.572	
3,200.0	3,199.2	3,195.2	3,194.3	7.0	6.9	146.97	59.8	59.6	110.1	96.3	13.81	7.970	
3,300.0	3,299.0	3,294.6	3,293.7	7.2	7.2	149.71	59.8	64.8	119.0	104.8	14.23	8.365	
3,400.0	3,398.9	3,394.1	3,393.0	7.4	7.4	152.06	59.8	70.0	128.2	113.5	14.64	8.752	
3,501.2	3,500.0	3,494.7	3,493.5	7.6	7.6	154.13	59.8	75.3	137.6	122.5	15.07	9.134	
3,600.0	3,598.7	3,597.5	3,596.2	7.8	7.8	155.46	59.8	79.1	144.0	128.5	15.48	9.302	
3,651.2	3,649.9	3,651.2	3,649.9	7.9	7.9	65.63	59.8	79.6	144.9	129.2	15.67	9.247	
3,700.0	3,698.7	3,700.0	3,698.7	8.0	8.0	65.63	59.8	79.6	144.9	129.0	15.87	9.129	
3,800.0	3,798.7	3,800.0	3,798.7	8.2	8.2	65.63	59.8	79.6	144.9	128.6	16.31	8.880	
3,900.0	3,898.7	3,900.0	3,898.7	8.5	8.5	65.63	59.8	79.6	144.9	128.1	16.76	8.645	
4,000.0	3,998.7	4,000.0	3,998.7	8.7	8.7	65.63	59.8	79.6	144.9	127.7	17.20	8.421	
4,100.0	4,098.7	4,100.0	4,098.7	8.9	8.9	65.63	59.8	79.6	144.9	127.2	17.65	8.209	
4,200.0	4,198.7	4,200.0	4,198.7	9.1	9.1	65.63	59.8	79.6	144.9	126.8	18.09	8.007	
4,300.0	4,298.7	4,300.0	4,298.7	9.4	9.4	65.63	59.8	79.6	144.9	126.3	18.54	7.814	
4,400.0	4,398.7	4,400.0	4,398.7	9.6	9.6	65.63	59.8	79.6	144.9	125.9	18.99	7.631	
4,500.0	4,498.7	4,500.0	4,498.7	9.8	9.8	65.63	59.8	79.6	144.9	125.4	19.43	7.456	
4,600.0	4,598.7	4,600.0	4,598.7	10.0	10.0	65.63	59.8	79.6	144.9	125.0	19.88	7.289	
4,700.0	4,698.7	4,700.0	4,698.7	10.2	10.2	65.63	59.8	79.6	144.9	124.6	20.32	7.129	
4,800.0	4,798.7	4,800.0	4,798.7	10.5	10.5	65.63	59.8	79.6	144.9	124.1	20.77	6.975	
4,900.0	4,898.7	4,900.0	4,898.7	10.7	10.7	65.63	59.8	79.6	144.9	123.7	21.22	6.829	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18 2T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.0	4,998.7	5,000.0	4,998.7	10.9	10.9	65.63	59.8	79.6	144.9	123.2	21.66	6.688	
5,100.0	5,098.7	5,100.0	5,098.7	11.1	11.1	65.63	59.8	79.6	144.9	122.8	22.11	6.553	
5,200.0	5,198.7	5,200.0	5,198.7	11.4	11.4	65.63	59.8	79.6	144.9	122.3	22.56	6.423	
5,300.0	5,298.7	5,300.0	5,298.7	11.6	11.6	65.63	59.8	79.6	144.9	121.9	23.00	6.298	
5,400.0	5,398.7	5,400.0	5,398.7	11.8	11.8	65.63	59.8	79.6	144.9	121.4	23.45	6.178	
5,500.0	5,498.7	5,500.0	5,498.7	12.0	12.0	65.63	59.8	79.6	144.9	121.0	23.90	6.062	
5,600.0	5,598.7	5,600.0	5,598.7	12.2	12.2	65.63	59.8	79.6	144.9	120.5	24.34	5.951	
5,700.0	5,698.7	5,700.0	5,698.7	12.5	12.5	65.63	59.8	79.6	144.9	120.1	24.79	5.844	
5,800.0	5,798.7	5,800.0	5,798.7	12.7	12.7	65.63	59.8	79.6	144.9	119.6	25.24	5.740	
5,900.0	5,898.7	5,900.0	5,898.7	12.9	12.9	65.63	59.8	79.6	144.9	119.2	25.69	5.640	
6,000.0	5,998.7	6,000.0	5,998.7	13.1	13.1	65.63	59.8	79.6	144.9	118.7	26.13	5.543	
6,100.0	6,098.7	6,100.0	6,098.7	13.4	13.4	65.63	59.8	79.6	144.9	118.3	26.58	5.450	
6,200.0	6,198.7	6,200.0	6,198.7	13.6	13.6	65.63	59.8	79.6	144.9	117.8	27.03	5.360	
6,300.0	6,298.7	6,300.0	6,298.7	13.8	13.8	65.63	59.8	79.6	144.9	117.4	27.48	5.273	
6,400.0	6,398.7	6,400.0	6,398.7	14.0	14.0	65.63	59.8	79.6	144.9	117.0	27.93	5.188	
6,500.0	6,498.7	6,500.0	6,498.7	14.3	14.3	65.63	59.8	79.6	144.9	116.5	28.37	5.106	
6,600.0	6,598.7	6,600.0	6,598.7	14.5	14.5	65.63	59.8	79.6	144.9	116.1	28.82	5.027	
6,700.0	6,698.7	6,700.0	6,698.7	14.7	14.7	65.63	59.8	79.6	144.9	115.6	29.27	4.950	
6,800.0	6,798.7	6,800.0	6,798.7	14.9	14.9	65.63	59.8	79.6	144.9	115.2	29.72	4.875	
6,900.0	6,898.7	6,900.0	6,898.7	15.2	15.2	65.63	59.8	79.6	144.9	114.7	30.16	4.803	
7,000.0	6,998.7	7,000.0	6,998.7	15.4	15.4	65.63	59.8	79.6	144.9	114.3	30.61	4.733	
7,100.0	7,098.7	7,100.0	7,098.7	15.6	15.6	65.63	59.8	79.6	144.9	113.8	31.06	4.664	
7,200.0	7,198.7	7,200.0	7,198.7	15.8	15.8	65.63	59.8	79.6	144.9	113.4	31.51	4.598	
7,300.0	7,298.7	7,300.0	7,298.7	16.0	16.0	65.63	59.8	79.6	144.9	112.9	31.96	4.533	
7,400.0	7,398.7	7,400.0	7,398.7	16.3	16.3	65.63	59.8	79.6	144.9	112.5	32.41	4.471	
7,500.0	7,498.7	7,500.0	7,498.7	16.5	16.5	65.63	59.8	79.6	144.9	112.0	32.85	4.410	
7,600.0	7,598.7	7,600.0	7,598.7	16.7	16.7	65.63	59.8	79.6	144.9	111.6	33.30	4.350	
7,700.0	7,698.7	7,700.0	7,698.7	16.9	16.9	65.63	59.8	79.6	144.9	111.1	33.75	4.293	
7,800.0	7,798.7	7,800.0	7,798.7	17.2	17.2	65.63	59.8	79.6	144.9	110.7	34.20	4.236	
7,900.0	7,898.7	7,900.0	7,898.7	17.4	17.4	65.63	59.8	79.6	144.9	110.2	34.65	4.181	
8,000.0	7,998.7	8,000.0	7,998.7	17.6	17.6	65.63	59.8	79.6	144.9	109.8	35.10	4.128	
8,100.0	8,098.7	8,100.0	8,098.7	17.8	17.8	65.63	59.8	79.6	144.9	109.3	35.54	4.076	
8,200.0	8,198.7	8,200.0	8,198.7	18.1	18.1	65.63	59.8	79.6	144.9	108.9	35.99	4.025	
8,300.0	8,298.7	8,300.0	8,298.7	18.3	18.3	65.63	59.8	79.6	144.9	108.4	36.44	3.976	
8,400.0	8,398.7	8,400.0	8,398.7	18.5	18.5	65.63	59.8	79.6	144.9	108.0	36.89	3.927	
8,500.0	8,498.7	8,500.0	8,498.7	18.7	18.7	65.63	59.8	79.6	144.9	107.5	37.34	3.880	
8,600.0	8,598.7	8,600.0	8,598.7	19.0	19.0	65.63	59.8	79.6	144.9	107.1	37.79	3.834	
8,700.0	8,698.7	8,700.0	8,698.7	19.2	19.2	65.63	59.8	79.6	144.9	106.6	38.24	3.789	
8,800.0	8,798.7	8,800.0	8,798.7	19.4	19.4	65.63	59.8	79.6	144.9	106.2	38.68	3.745	
8,900.0	8,898.7	8,900.0	8,898.7	19.6	19.6	65.63	59.8	79.6	144.9	105.7	39.13	3.702	
9,000.0	8,998.7	9,000.0	8,998.7	19.9	19.9	65.63	59.8	79.6	144.9	105.3	39.58	3.660	
9,100.0	9,098.7	9,100.0	9,098.7	20.1	20.1	65.63	59.8	79.6	144.9	104.8	40.03	3.619	
9,200.0	9,198.7	9,200.0	9,198.7	20.3	20.3	65.63	59.8	79.6	144.9	104.4	40.48	3.579	
9,300.0	9,298.7	9,300.0	9,298.7	20.5	20.5	65.63	59.8	79.6	144.9	103.9	40.93	3.540	
9,400.0	9,398.7	9,400.0	9,398.7	20.8	20.8	65.63	59.8	79.6	144.9	103.5	41.38	3.501	
9,500.0	9,498.7	9,500.0	9,498.7	21.0	21.0	65.63	59.8	79.6	144.9	103.1	41.83	3.464	
9,600.0	9,598.7	9,600.0	9,598.7	21.2	21.2	65.63	59.8	79.6	144.9	102.6	42.27	3.427	
9,700.0	9,698.7	9,700.0	9,698.7	21.4	21.4	65.63	59.8	79.6	144.9	102.2	42.72	3.391	
9,800.0	9,798.7	9,800.0	9,798.7	21.6	21.6	65.63	59.8	79.6	144.9	101.7	43.17	3.356	
9,900.0	9,898.7	9,900.0	9,898.7	21.9	21.9	65.63	59.8	79.6	144.9	101.3	43.62	3.321	
10,000.0	9,998.7	10,000.0	9,998.7	22.1	22.1	65.63	59.8	79.6	144.9	100.8	44.07	3.287	
10,100.0	10,098.7	10,100.0	10,098.7	22.3	22.3	65.63	59.8	79.6	144.9	100.4	44.52	3.254	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18 2T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference			Offset		Semi Major Axis				Distance				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,200.0	10,198.7	10,200.0	10,198.7	22.5	22.5	65.63	59.8	79.6	144.9	99.9	44.97	3.222	
10,300.0	10,298.7	10,300.0	10,298.7	22.8	22.8	65.63	59.8	79.6	144.9	99.5	45.42	3.190	
10,336.6	10,335.3	10,336.6	10,335.3	22.9	22.9	65.63	59.8	79.6	144.9	99.3	45.58	3.179	
10,350.0	10,348.7	10,350.0	10,348.7	22.9	22.9	-71.45	59.8	79.6	144.8	99.2	45.65	3.172	
10,375.0	10,373.7	10,373.2	10,371.9	22.9	22.9	-71.92	59.7	79.7	144.5	98.7	45.74	3.158	
10,400.0	10,398.5	10,394.5	10,393.2	23.0	23.0	-72.50	59.3	80.4	144.3	98.5	45.81	3.149	
10,406.4	10,404.8	10,400.0	10,398.7	23.0	23.0	-72.67	59.1	80.8	144.3	98.4	45.82	3.148	
10,425.0	10,423.2	10,415.8	10,414.4	23.0	23.0	-73.17	58.3	82.1	144.3	98.4	45.87	3.146	
10,450.0	10,447.6	10,437.2	10,435.6	23.1	23.1	-73.91	56.9	84.5	144.6	98.7	45.93	3.149	
10,475.0	10,471.8	10,458.6	10,456.6	23.1	23.1	-74.72	55.1	87.8	145.3	99.3	46.00	3.158	
10,500.0	10,495.5	10,480.0	10,477.5	23.1	23.2	-75.59	52.7	91.9	146.2	100.1	46.06	3.173	
10,525.0	10,518.8	10,500.0	10,496.8	23.2	23.2	-76.45	50.1	96.4	147.4	101.2	46.13	3.195	
10,550.0	10,541.7	10,523.0	10,518.7	23.2	23.3	-77.49	46.6	102.5	148.9	102.7	46.21	3.222	
10,575.0	10,563.9	10,544.5	10,538.9	23.3	23.3	-78.50	42.8	109.0	150.7	104.4	46.31	3.255	
10,600.0	10,585.5	10,566.2	10,558.8	23.3	23.4	-79.53	38.6	116.3	152.9	106.5	46.41	3.295	
10,625.0	10,606.5	10,587.8	10,578.3	23.4	23.4	-80.57	33.9	124.4	155.4	108.9	46.53	3.341	
10,650.0	10,626.7	10,609.5	10,597.4	23.4	23.5	-81.61	28.7	133.3	158.3	111.6	46.66	3.393	
10,675.0	10,646.1	10,631.3	10,616.1	23.5	23.6	-82.64	23.2	143.0	161.5	114.7	46.80	3.451	
10,700.0	10,664.6	10,653.1	10,634.3	23.6	23.6	-83.65	17.2	153.4	165.1	118.1	46.96	3.515	
10,725.0	10,682.3	10,675.0	10,652.0	23.6	23.7	-84.64	10.7	164.6	169.0	121.8	47.13	3.585	
10,750.0	10,698.9	10,696.9	10,669.1	23.7	23.8	-85.58	3.9	176.4	173.2	125.9	47.32	3.661	
10,775.0	10,714.6	10,718.9	10,685.6	23.8	23.9	-86.49	-3.4	189.0	177.8	130.3	47.52	3.742	
10,800.0	10,729.3	10,741.0	10,701.5	23.9	24.0	-87.35	-11.1	202.3	182.7	135.0	47.74	3.827	
10,825.0	10,742.9	10,763.2	10,716.8	24.0	24.1	-88.16	-19.2	216.3	188.0	140.0	47.98	3.918	
10,850.0	10,755.3	10,785.5	10,731.3	24.2	24.2	-88.91	-27.6	230.9	193.5	145.3	48.23	4.012	
10,875.0	10,766.6	10,807.9	10,745.1	24.3	24.3	-89.61	-36.4	246.2	199.3	150.8	48.50	4.109	
10,900.0	10,776.8	10,830.4	10,758.1	24.5	24.5	-90.26	-45.6	262.2	205.4	156.6	48.80	4.209	
10,925.0	10,785.7	10,853.1	10,770.3	24.7	24.6	-90.84	-55.2	278.7	211.8	162.7	49.11	4.312	
10,950.0	10,793.4	10,875.9	10,781.6	24.9	24.8	-91.37	-65.1	295.8	218.4	168.9	49.45	4.416	
10,975.0	10,799.8	10,898.9	10,792.1	25.1	25.0	-91.84	-75.3	313.5	225.2	175.4	49.81	4.521	
11,000.0	10,804.9	10,922.0	10,801.6	25.3	25.2	-92.26	-85.8	331.8	232.2	182.0	50.20	4.626	
11,025.0	10,808.8	10,945.3	10,810.2	25.5	25.4	-92.62	-96.7	350.6	239.4	188.8	50.61	4.730	
11,050.0	10,811.4	10,968.9	10,817.8	25.8	25.6	-92.94	-107.8	369.9	246.8	195.7	51.05	4.834	
11,075.0	10,812.6	10,992.7	10,824.3	26.0	25.8	-93.21	-119.3	389.7	254.3	202.7	51.51	4.936	
11,084.1	10,812.8	11,001.4	10,826.4	26.1	25.9	-93.29	-123.5	397.0	257.0	205.3	51.69	4.973	
11,099.1	10,812.8	11,015.9	10,829.6	26.3	26.1	-93.94	-130.6	409.3	261.6	209.6	51.96	5.034	
11,200.0	10,813.4	11,117.1	10,839.5	27.5	27.3	-95.42	-180.8	496.3	289.1	234.8	54.32	5.323	
11,300.0	10,813.9	11,200.0	10,839.9	28.9	28.5	-94.99	-221.0	568.8	312.4	255.4	56.98	5.483	
11,400.0	10,814.5	11,285.6	10,840.4	30.6	29.9	-94.62	-259.2	645.5	334.9	274.9	60.01	5.580	
11,500.0	10,815.0	11,368.3	10,840.8	32.4	31.3	-94.32	-292.8	721.0	356.5	293.2	63.25	5.636	
11,600.0	10,815.6	11,450.4	10,841.3	34.3	32.9	-94.06	-322.9	797.4	377.2	310.5	66.67	5.658	
11,700.0	10,816.1	11,531.9	10,841.7	36.3	34.5	-93.83	-349.5	874.5	397.0	326.7	70.21	5.654	
11,800.0	10,816.7	11,612.9	10,842.1	38.5	36.2	-93.63	-372.6	952.1	415.8	341.9	73.84	5.631	
11,900.0	10,817.3	11,700.0	10,842.6	40.7	38.1	-93.44	-393.8	1,036.5	433.7	356.0	77.64	5.585	
12,000.0	10,817.9	11,773.5	10,843.0	43.0	39.8	-93.30	-408.7	1,108.5	450.4	369.3	81.16	5.550	
12,100.0	10,818.4	11,853.2	10,843.4	45.3	41.6	-93.16	-421.6	1,187.1	466.2	381.4	84.78	5.499	
12,200.0	10,819.0	11,932.4	10,843.9	47.6	43.4	-93.04	-431.3	1,265.8	481.0	392.6	88.33	5.445	
12,300.0	10,819.5	12,011.4	10,844.3	50.0	45.3	-92.93	-437.6	1,344.4	494.6	402.8	91.77	5.390	
12,400.0	10,820.1	12,100.0	10,844.8	52.3	47.4	-92.83	-440.9	1,433.0	507.3	412.0	95.32	5.322	
12,500.0	10,820.6	12,184.0	10,845.2	54.7	49.4	-92.75	-441.6	1,517.0	517.5	418.9	98.62	5.247	
12,600.0	10,821.2	12,283.8	10,845.7	57.0	51.8	-92.70	-442.4	1,616.8	522.7	420.6	102.17	5.116	
12,655.6	10,821.5	12,339.5	10,846.0	58.3	53.2	-92.69	-442.8	1,672.5	523.4	419.3	104.07	5.029	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18 2T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft	
Survey Program: 0-MWD												Offset Well Error:	0.0 usft	
Reference		Offset		Semi Major Axis				Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	(°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,700.0	10,821.7	12,383.8	10,846.2	59.4	54.3	-92.69		-443.2	1,716.8	523.3	416.9	106.36	4.920	
12,800.0	10,822.2	12,483.8	10,846.8	61.8	56.9	-92.69		-444.0	1,816.8	523.0	411.4	111.58	4.687	
12,900.0	10,822.7	12,583.8	10,847.3	64.2	59.4	-92.69		-444.8	1,916.8	522.7	405.9	116.86	4.473	
13,000.0	10,823.3	12,683.8	10,847.8	66.6	62.0	-92.69		-445.6	2,016.8	522.4	400.2	122.20	4.275	
13,100.0	10,823.8	12,783.8	10,848.3	69.2	64.7	-92.69		-446.4	2,116.8	522.2	394.6	127.58	4.093	
13,200.0	10,824.3	12,883.8	10,848.9	71.7	67.3	-92.69		-447.2	2,216.8	521.9	388.9	133.00	3.924	
13,300.0	10,824.8	12,983.8	10,849.4	74.3	70.0	-92.70		-448.0	2,316.8	521.6	383.2	138.45	3.768	
13,400.0	10,825.4	13,083.8	10,849.9	76.8	72.7	-92.70		-448.8	2,416.8	521.3	377.4	143.94	3.622	
13,500.0	10,825.9	13,183.8	10,850.4	79.5	75.4	-92.70		-449.6	2,516.8	521.1	371.6	149.45	3.486	
13,600.0	10,826.4	13,283.8	10,851.0	82.1	78.1	-92.70		-450.4	2,616.8	520.8	365.8	154.99	3.360	
13,700.0	10,826.9	13,383.8	10,851.5	84.7	80.9	-92.70		-451.2	2,716.8	520.5	360.0	160.56	3.242	
13,800.0	10,827.5	13,483.8	10,852.0	87.4	83.6	-92.70		-452.0	2,816.8	520.2	354.1	166.14	3.131	
13,900.0	10,828.0	13,583.8	10,852.5	90.1	86.4	-92.70		-452.8	2,916.8	520.0	348.2	171.74	3.028	
14,000.0	10,828.5	13,683.8	10,853.0	92.8	89.2	-92.71		-453.6	3,016.8	519.7	342.3	177.36	2.930	
14,100.0	10,829.0	13,783.8	10,853.6	95.5	92.0	-92.71		-454.5	3,116.7	519.4	336.4	182.99	2.839	
14,200.0	10,829.6	13,883.8	10,854.1	98.3	94.8	-92.71		-455.3	3,216.7	519.1	330.5	188.64	2.752	
14,300.0	10,830.1	13,983.8	10,854.6	101.0	97.6	-92.71		-456.1	3,316.7	518.9	324.6	194.30	2.671	
14,400.0	10,830.6	14,083.8	10,855.1	103.8	100.4	-92.71		-456.9	3,416.7	518.6	318.6	199.97	2.593	
14,500.0	10,831.1	14,183.8	10,855.7	106.5	103.2	-92.71		-457.7	3,516.7	518.3	312.7	205.65	2.520	
14,600.0	10,831.6	14,283.8	10,856.2	109.3	106.0	-92.71		-458.5	3,616.7	518.0	306.7	211.34	2.451	
14,700.0	10,832.2	14,383.8	10,856.7	112.1	108.9	-92.72		-459.3	3,716.7	517.8	300.7	217.03	2.386	
14,800.0	10,832.7	14,483.8	10,857.2	114.9	111.7	-92.72		-460.1	3,816.7	517.5	294.8	222.74	2.323	
14,900.0	10,833.2	14,583.8	10,857.8	117.6	114.5	-92.72		-460.9	3,916.7	517.2	288.8	228.46	2.264	
15,000.0	10,833.7	14,683.8	10,858.3	120.4	117.4	-92.72		-461.7	4,016.7	517.0	282.8	234.18	2.208	
15,100.0	10,834.3	14,783.8	10,858.8	123.2	120.2	-92.72		-462.5	4,116.7	516.7	276.8	239.91	2.154	
15,200.0	10,834.8	14,883.8	10,859.3	126.1	123.1	-92.72		-463.3	4,216.7	516.4	270.8	245.64	2.102	
15,300.0	10,835.3	14,983.8	10,859.9	128.9	126.0	-92.72		-464.1	4,316.7	516.1	264.7	251.38	2.053	
15,400.0	10,835.8	15,083.8	10,860.4	131.7	128.8	-92.73		-464.9	4,416.7	515.9	258.7	257.12	2.006	
15,500.0	10,836.4	15,183.8	10,860.9	134.5	131.7	-92.73		-465.7	4,516.7	515.6	252.7	262.87	1.961	
15,600.0	10,836.9	15,283.8	10,861.4	137.4	134.5	-92.73		-466.5	4,616.7	515.3	246.7	268.63	1.918	
15,700.0	10,837.4	15,383.8	10,861.9	140.2	137.4	-92.73		-467.3	4,716.7	515.0	240.6	274.39	1.877	
15,800.0	10,837.9	15,483.8	10,862.5	143.0	140.3	-92.73		-468.1	4,816.7	514.8	234.6	280.15	1.837	
15,900.0	10,838.5	15,583.8	10,863.0	145.9	143.2	-92.73		-468.9	4,916.7	514.5	228.6	285.92	1.799	
16,000.0	10,839.0	15,683.8	10,863.5	148.7	146.0	-92.73		-469.7	5,016.7	514.2	222.5	291.69	1.763	
16,100.0	10,839.5	15,783.8	10,864.0	151.6	148.9	-92.74		-470.5	5,116.6	513.9	216.5	297.46	1.728	
16,200.0	10,840.0	15,883.8	10,864.6	154.4	151.8	-92.74		-471.3	5,216.6	513.7	210.4	303.24	1.694	
16,300.0	10,840.5	15,983.8	10,865.1	157.3	154.7	-92.74		-472.1	5,316.6	513.4	204.4	309.02	1.661	
16,400.0	10,841.1	16,083.8	10,865.6	160.1	157.6	-92.74		-472.9	5,416.6	513.1	198.3	314.80	1.630	
16,500.0	10,841.6	16,183.8	10,866.1	163.0	160.4	-92.74		-473.7	5,516.6	512.8	192.3	320.58	1.600	
16,600.0	10,842.1	16,283.8	10,866.7	165.9	163.3	-92.74		-474.6	5,616.6	512.6	186.2	326.37	1.570	
16,700.0	10,842.6	16,383.8	10,867.2	168.7	166.2	-92.74		-475.4	5,716.6	512.3	180.1	332.16	1.542	
16,800.0	10,843.2	16,483.8	10,867.7	171.6	169.1	-92.75		-476.2	5,816.6	512.0	174.1	337.95	1.515	
16,900.0	10,843.7	16,583.8	10,868.2	174.5	172.0	-92.75		-477.0	5,916.6	511.7	168.0	343.75	1.489 Level 3	
17,000.0	10,844.2	16,683.8	10,868.8	177.3	174.9	-92.75		-477.8	6,016.6	511.5	161.9	349.54	1.463 Level 3	
17,100.0	10,844.7	16,783.8	10,869.3	180.2	177.8	-92.75		-478.6	6,116.6	511.2	155.8	355.34	1.439 Level 3	
17,200.0	10,845.3	16,883.8	10,869.8	183.1	180.7	-92.75		-479.4	6,216.6	510.9	149.8	361.14	1.415 Level 3	
17,300.0	10,845.8	16,983.8	10,870.3	186.0	183.6	-92.75		-480.2	6,316.6	510.6	143.7	366.94	1.392 Level 3	
17,400.0	10,846.3	17,083.8	10,870.8	188.8	186.5	-92.76		-481.0	6,416.6	510.4	137.6	372.75	1.369 Level 3	
17,500.0	10,846.8	17,183.8	10,871.4	191.7	189.4	-92.76		-481.8	6,516.6	510.1	131.5	378.55	1.347 Level 3	
17,600.0	10,847.4	17,283.8	10,871.9	194.6	192.3	-92.76		-482.6	6,616.6	509.8	125.5	384.36	1.326 Level 3	
17,700.0	10,847.9	17,383.8	10,872.4	197.5	195.2	-92.76		-483.4	6,716.6	509.5	119.4	390.17	1.306 Level 3	
17,800.0	10,848.4	17,483.8	10,872.9	200.4	198.1	-92.76		-484.2	6,816.6	509.3	113.3	395.98	1.286 Level 3	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18 2T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
17,900.0	10,848.9	17,583.8	10,873.5	203.3	201.0	-92.76		-485.0	6,916.6	509.0	107.2	401.79	1.267 Level 3
18,000.0	10,849.5	17,683.8	10,874.0	206.2	203.9	-92.76		-485.8	7,016.6	508.7	101.1	407.60	1.248 Level 2
18,100.0	10,850.0	17,783.8	10,874.5	209.0	206.8	-92.77		-486.6	7,116.5	508.4	95.0	413.41	1.230 Level 2
18,200.0	10,850.5	17,883.8	10,875.0	211.9	209.7	-92.77		-487.4	7,216.5	508.2	88.9	419.23	1.212 Level 2
18,300.0	10,851.0	17,983.8	10,875.6	214.8	212.6	-92.77		-488.2	7,316.5	507.9	82.9	425.04	1.195 Level 2
18,400.0	10,851.5	18,083.8	10,876.1	217.7	215.5	-92.77		-489.0	7,416.5	507.6	76.8	430.86	1.178 Level 2
18,500.0	10,852.1	18,183.8	10,876.6	220.6	218.4	-92.77		-489.8	7,516.5	507.3	70.7	436.68	1.162 Level 2
18,600.0	10,852.6	18,283.8	10,877.1	223.5	221.3	-92.77		-490.6	7,616.5	507.1	64.6	442.50	1.146 Level 2
18,700.0	10,853.1	18,383.8	10,877.7	226.4	224.2	-92.77		-491.4	7,716.5	506.8	58.5	448.31	1.130 Level 2
18,800.0	10,853.6	18,483.8	10,878.2	229.3	227.2	-92.78		-492.2	7,816.5	506.5	52.4	454.14	1.115 Level 2
18,900.0	10,854.2	18,583.8	10,878.7	232.2	230.1	-92.78		-493.0	7,916.5	506.2	46.3	459.96	1.101 Level 2
19,000.0	10,854.7	18,683.8	10,879.2	235.1	233.0	-92.78		-493.8	8,016.5	506.0	40.2	465.78	1.086 Level 2
19,100.0	10,855.2	18,783.8	10,879.7	238.0	235.9	-92.78		-494.7	8,116.5	505.7	34.1	471.60	1.072 Level 2
19,200.0	10,855.7	18,883.8	10,880.3	240.9	238.8	-92.78		-495.5	8,216.5	505.4	28.0	477.43	1.059 Level 2
19,300.0	10,856.3	18,983.8	10,880.8	243.8	241.7	-92.78		-496.3	8,316.5	505.2	21.9	483.25	1.045 Level 2
19,400.0	10,856.8	19,083.8	10,881.3	246.7	244.6	-92.79		-497.1	8,416.5	504.9	15.8	489.08	1.032 Level 2
19,500.0	10,857.3	19,183.8	10,881.8	249.6	247.5	-92.79		-497.9	8,516.5	504.6	9.7	494.90	1.020 Level 2
19,600.0	10,857.8	19,283.8	10,882.4	252.5	250.4	-92.79		-498.7	8,616.5	504.3	3.6	500.73	1.007 Level 2
19,700.0	10,858.4	19,383.8	10,882.9	255.4	253.4	-92.79		-499.5	8,716.5	504.1	-2.5	506.56	0.995 Level 1
19,800.0	10,858.9	19,483.8	10,883.4	258.3	256.3	-92.79		-500.3	8,816.5	503.8	-8.6	512.38	0.983 Level 1
19,900.0	10,859.4	19,583.8	10,883.9	261.2	259.2	-92.79		-501.1	8,916.5	503.5	-14.7	518.21	0.972 Level 1
20,000.0	10,859.9	19,683.8	10,884.5	264.1	262.1	-92.79		-501.9	9,016.5	503.2	-20.8	524.04	0.960 Level 1
20,100.0	10,860.4	19,783.8	10,885.0	267.0	265.0	-92.80		-502.7	9,116.4	503.0	-26.9	529.87	0.949 Level 1
20,200.0	10,861.0	19,883.8	10,885.5	269.9	267.9	-92.80		-503.5	9,216.4	502.7	-33.0	535.70	0.938 Level 1
20,300.0	10,861.5	19,983.8	10,886.0	272.8	270.9	-92.80		-504.3	9,316.4	502.4	-39.1	541.53	0.928 Level 1
20,400.0	10,862.0	20,083.8	10,886.6	275.7	273.8	-92.80		-505.1	9,416.4	502.1	-45.2	547.36	0.917 Level 1
20,500.0	10,862.5	20,183.8	10,887.1	278.6	276.7	-92.80		-505.9	9,516.4	501.9	-51.3	553.20	0.907 Level 1
20,600.0	10,863.1	20,283.8	10,887.6	281.6	279.6	-92.80		-506.7	9,616.4	501.6	-57.4	559.03	0.897 Level 1
20,700.0	10,863.6	20,383.8	10,888.1	284.5	282.5	-92.81		-507.5	9,716.4	501.3	-63.6	564.86	0.887 Level 1
20,800.0	10,864.1	20,483.8	10,888.7	287.4	285.4	-92.81		-508.3	9,816.4	501.0	-69.7	570.69	0.878 Level 1
20,900.0	10,864.6	20,583.8	10,889.2	290.3	288.4	-92.81		-509.1	9,916.4	500.8	-75.8	576.53	0.869 Level 1
21,000.0	10,865.2	20,683.8	10,889.7	293.2	291.3	-92.81		-509.9	10,016.4	500.5	-81.9	582.36	0.859 Level 1
21,034.5	10,865.3	20,717.6	10,889.9	294.2	292.3	-92.81		-510.2	10,050.2	500.4	-84.0	584.35	0.856 Level 1
21,038.5	10,865.4	20,717.6	10,889.9	294.3	292.3	-92.81		-510.2	10,050.2	500.4	-84.1	584.47	0.856 Level 1, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18H - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 2175-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
200.0	200.0	2,090.0	2,090.0	0.3	0.0	25.89	29.4	14.3	1,914.3	1,914.0	0.31	6,190.000	
300.0	300.0	2,090.0	2,090.0	0.5	0.0	25.89	29.4	14.3	1,814.3	1,813.8	0.53	3,397.431	
400.0	400.0	2,090.0	2,090.0	0.8	0.0	25.89	29.4	14.3	1,714.3	1,713.6	0.76	2,259.283	
500.0	500.0	2,090.0	2,090.0	1.0	0.0	25.89	29.4	14.3	1,614.3	1,613.3	0.98	1,641.328	
600.0	600.0	2,090.0	2,090.0	1.2	0.0	25.89	29.4	14.3	1,514.4	1,513.1	1.21	1,253.273	
700.0	700.0	2,090.0	2,090.0	1.4	0.0	25.89	29.4	14.3	1,414.4	1,412.9	1.43	986.947	
800.0	800.0	2,090.0	2,090.0	1.7	0.0	25.89	29.4	14.3	1,314.4	1,312.7	1.66	792.838	
900.0	900.0	2,090.0	2,090.0	1.9	0.0	25.89	29.4	14.3	1,214.4	1,212.6	1.88	645.081	
1,000.0	1,000.0	2,090.0	2,090.0	2.1	0.0	25.89	29.4	14.3	1,114.5	1,112.4	2.11	528.845	
1,100.0	1,100.0	2,090.0	2,090.0	2.3	0.0	25.89	29.4	14.3	1,014.5	1,012.2	2.33	435.018	
1,200.0	1,200.0	2,090.0	2,090.0	2.6	0.0	25.89	29.4	14.3	914.6	912.0	2.56	357.690	
1,300.0	1,300.0	2,090.0	2,090.0	2.8	0.0	25.89	29.4	14.3	814.7	811.9	2.78	292.864	
1,400.0	1,400.0	2,090.0	2,090.0	3.0	0.0	25.89	29.4	14.3	714.7	711.7	3.01	237.738	
1,500.0	1,500.0	2,090.0	2,090.0	3.2	0.0	25.89	29.4	14.3	614.9	611.6	3.23	190.290	
1,600.0	1,600.0	2,090.0	2,090.0	3.5	0.0	25.89	29.4	14.3	515.0	511.6	3.46	149.028	
1,700.0	1,700.0	2,090.0	2,090.0	3.7	0.0	25.89	29.4	14.3	415.3	411.6	3.68	112.827	
1,800.0	1,800.0	2,090.0	2,090.0	3.9	0.0	25.89	29.4	14.3	315.7	311.8	3.91	80.833	
1,900.0	1,900.0	2,090.0	2,090.0	4.1	0.0	25.89	29.4	14.3	216.5	212.3	4.13	52.412	
2,000.0	2,000.0	2,090.0	2,090.0	4.4	0.0	25.89	29.4	14.3	118.6	114.2	4.36	27.230	
2,100.0	2,100.0	2,090.0	2,090.0	4.6	0.0	25.89	29.4	14.3	35.5	31.0	4.58	7.759	
2,139.6	2,139.6	2,115.7	2,115.7	4.7	0.0	25.95	29.3	14.3	32.6	27.9	4.70	6.939	
2,200.0	2,200.0	2,176.5	2,176.5	4.8	0.1	26.58	28.6	14.3	32.0	27.1	4.91	6.524	
2,300.0	2,300.0	2,276.5	2,276.4	5.0	0.3	27.89	27.0	14.3	30.5	25.2	5.34	5.715	
2,400.0	2,400.0	2,376.4	2,376.4	5.3	0.5	28.23	25.6	13.8	29.1	23.3	5.78	5.034	
2,500.0	2,500.0	2,476.4	2,476.3	5.5	0.7	26.63	24.8	12.5	27.8	21.6	6.23	4.463	
2,564.1	2,564.1	2,540.4	2,540.3	5.6	0.9	116.05	24.6	11.3	27.4	20.9	6.50	4.220 CC	
2,600.0	2,600.0	2,576.3	2,576.2	5.7	1.0	116.67	24.6	10.6	27.5	20.9	6.65	4.139	
2,650.0	2,649.9	2,626.3	2,626.2	5.8	1.1	118.37	24.7	9.4	28.1	21.2	6.86	4.092	
2,700.0	2,699.9	2,676.3	2,676.2	5.9	1.2	120.16	25.0	8.0	28.9	21.8	7.07	4.080	
2,800.0	2,799.7	2,776.2	2,776.1	6.1	1.4	122.37	25.5	4.4	30.2	22.7	7.50	4.022	
2,900.0	2,899.6	2,875.8	2,875.6	6.3	1.6	126.27	26.4	2.4	32.7	24.8	7.91	4.138	
3,000.0	2,999.5	2,975.9	2,975.7	6.5	1.8	130.02	27.3	0.7	35.7	27.3	8.32	4.286	
3,100.0	3,099.3	3,076.1	3,075.8	6.7	2.1	132.96	27.9	-1.5	38.1	29.4	8.75	4.359	
3,200.0	3,199.2	3,176.2	3,175.9	7.0	2.3	135.03	28.4	-4.3	40.2	31.0	9.17	4.380	
3,300.0	3,299.0	3,276.1	3,275.7	7.2	2.5	137.14	28.7	-7.0	42.2	32.6	9.59	4.400	
3,400.0	3,398.9	3,375.9	3,375.6	7.4	2.7	139.20	29.1	-9.5	44.5	34.5	10.00	4.454	
3,501.2	3,500.0	3,477.0	3,476.6	7.6	2.9	141.09	29.6	-11.8	47.1	36.7	10.42	4.523	
3,600.0	3,598.7	3,575.8	3,575.4	7.8	3.1	141.59	30.2	-13.9	48.6	37.7	10.83	4.484	
3,651.2	3,649.9	3,627.0	3,626.6	7.9	3.2	50.74	30.5	-15.1	48.2	37.2	10.99	4.388	
3,700.0	3,698.7	3,675.7	3,675.3	8.0	3.3	49.64	30.8	-16.1	47.6	36.4	11.19	4.254	
3,800.0	3,798.7	3,775.4	3,775.0	8.2	3.5	47.52	31.5	-18.0	46.7	35.0	11.61	4.017	
3,900.0	3,898.7	3,875.5	3,875.0	8.5	3.7	45.41	32.3	-19.6	46.0	34.0	12.04	3.823	
4,000.0	3,998.7	3,975.3	3,974.8	8.7	3.9	43.23	33.1	-21.3	45.5	33.0	12.48	3.645	
4,100.0	4,098.7	4,075.2	4,074.7	8.9	4.1	41.23	34.1	-22.6	45.3	32.4	12.91	3.509	
4,144.5	4,143.2	4,119.7	4,119.2	9.0	4.2	40.46	34.4	-23.0	45.3	32.2	13.10	3.456	
4,200.0	4,198.7	4,175.1	4,174.6	9.1	4.3	39.57	34.9	-23.5	45.3	32.0	13.34	3.397	
4,300.0	4,298.7	4,275.2	4,274.7	9.4	4.6	37.92	35.8	-24.5	45.3	31.6	13.77	3.293	
4,349.2	4,347.9	4,324.4	4,323.9	9.5	4.7	37.05	36.2	-25.1	45.3	31.3	13.98	3.241	
4,400.0	4,398.7	4,375.2	4,374.7	9.6	4.8	36.16	36.6	-25.6	45.3	31.1	14.21	3.192	
4,500.0	4,498.7	4,475.2	4,474.7	9.8	5.0	34.66	37.3	-26.6	45.4	30.8	14.64	3.101	
4,600.0	4,598.7	4,575.2	4,574.6	10.0	5.2	33.49	38.0	-27.3	45.5	30.4	15.07	3.020	
4,700.0	4,698.7	4,675.2	4,674.7	10.2	5.4	32.40	38.5	-28.0	45.5	30.0	15.50	2.937	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 usft
Survey Program:		2175-MWD											Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset	Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,783.6	4,782.3	4,758.8	4,758.3	10.4	5.6	31.49	38.8	-28.6	45.5	29.6	15.87	2.868		
4,800.0	4,798.7	4,775.2	4,774.7	10.5	5.6	31.30	38.9	-28.8	45.5	29.6	15.94	2.856		
4,900.0	4,898.7	4,875.2	4,874.6	10.7	5.8	30.10	39.5	-29.5	45.7	29.3	16.37	2.791		
5,000.0	4,998.7	4,975.2	4,974.7	10.9	6.0	29.27	39.9	-30.0	45.7	28.9	16.81	2.721		
5,100.0	5,098.7	5,075.2	5,074.7	11.1	6.2	28.11	40.4	-30.8	45.8	28.6	17.24	2.659		
5,200.0	5,198.7	5,175.5	5,174.9	11.4	6.4	26.93	40.7	-31.7	45.7	28.0	17.68	2.583		
5,300.0	5,298.7	5,275.6	5,275.1	11.6	6.6	26.60	40.2	-32.3	44.9	26.8	18.11	2.479		
5,400.0	5,398.7	5,375.6	5,375.1	11.8	6.9	26.36	39.5	-32.8	44.1	25.5	18.54	2.376		
5,500.0	5,498.7	5,475.9	5,475.3	12.0	7.1	26.21	38.6	-33.4	43.0	24.0	18.98	2.266		
5,600.0	5,598.7	5,576.0	5,575.4	12.2	7.3	25.95	37.1	-34.4	41.2	21.8	19.41	2.124		
5,700.0	5,698.7	5,675.9	5,675.3	12.5	7.5	26.31	35.5	-34.9	39.6	19.7	19.84	1.995		
5,800.0	5,798.7	5,775.7	5,775.1	12.7	7.7	26.36	34.3	-35.4	38.3	18.1	20.27	1.891		
5,900.0	5,898.7	5,875.6	5,875.0	12.9	7.9	25.78	33.8	-36.1	37.5	16.8	20.70	1.812		
6,000.0	5,998.7	5,975.3	5,974.7	13.1	8.1	24.32	33.8	-37.1	37.1	15.9	21.14	1.753		
6,001.5	6,000.2	5,976.8	5,976.2	13.1	8.1	24.29	33.8	-37.2	37.1	15.9	21.15	1.752		
6,100.0	6,098.7	6,075.2	6,074.6	13.4	8.3	22.12	34.5	-38.4	37.3	15.7	21.58	1.728		
6,200.0	6,198.7	6,175.0	6,174.4	13.6	8.5	20.07	35.6	-39.4	37.9	15.9	22.02	1.720		
6,300.0	6,298.7	6,274.8	6,274.1	13.8	8.7	18.56	37.0	-40.0	39.0	16.6	22.46	1.738		
6,400.0	6,398.7	6,374.6	6,374.0	14.0	9.0	17.37	38.8	-40.3	40.7	17.8	22.90	1.777		
6,500.0	6,498.7	6,474.5	6,473.8	14.3	9.2	16.41	40.8	-40.4	42.6	19.2	23.33	1.824		
6,600.0	6,598.7	6,574.2	6,573.5	14.5	9.4	15.40	43.3	-40.5	45.0	21.2	23.77	1.891		
6,700.0	6,698.7	6,674.1	6,673.4	14.7	9.6	14.52	46.1	-40.5	47.7	23.5	24.21	1.969		
6,800.0	6,798.7	6,773.9	6,773.1	14.9	9.8	13.90	49.2	-40.2	50.7	26.1	24.65	2.058		
6,900.0	6,898.7	6,874.3	6,873.5	15.2	10.0	14.37	51.6	-39.2	53.3	28.2	25.09	2.125		
7,000.0	6,998.7	6,974.7	6,973.9	15.4	10.2	15.06	53.5	-38.0	55.4	29.9	25.52	2.172		
7,100.0	7,098.7	7,075.4	7,074.5	15.6	10.4	15.87	53.9	-37.1	56.0	30.1	25.95	2.160		
7,200.0	7,198.7	7,175.8	7,174.9	15.8	10.6	16.54	54.0	-36.4	56.3	30.0	26.38	2.136		
7,300.0	7,298.7	7,276.4	7,275.6	16.0	10.8	16.85	52.7	-36.4	55.1	28.3	26.81	2.055		
7,400.0	7,398.7	7,376.5	7,375.6	16.3	11.0	16.98	51.2	-36.8	53.5	26.3	27.24	1.965		
7,500.0	7,498.7	7,476.4	7,475.5	16.5	11.2	16.83	49.6	-37.4	51.8	24.2	27.67	1.873		
7,600.0	7,598.7	7,576.3	7,575.4	16.7	11.5	16.50	48.2	-38.1	50.3	22.2	28.11	1.790		
7,700.0	7,698.7	7,676.1	7,675.1	16.9	11.7	16.10	47.2	-38.8	49.1	20.6	28.54	1.720		
7,800.0	7,798.7	7,775.9	7,775.0	17.2	11.9	16.08	46.5	-39.0	48.4	19.5	28.98	1.671		
7,882.5	7,881.2	7,858.1	7,857.2	17.4	12.1	16.22	46.2	-39.0	48.2	18.8	29.34	1.642		
7,900.0	7,898.7	7,875.6	7,874.6	17.4	12.1	16.24	46.2	-38.9	48.2	18.8	29.41	1.638		
8,000.0	7,998.7	7,975.4	7,974.4	17.6	12.3	16.42	46.6	-38.7	48.6	18.7	29.85	1.627		
8,100.0	8,098.7	8,075.3	8,074.4	17.8	12.5	16.74	47.1	-38.2	49.2	18.9	30.28	1.624		
8,200.0	8,198.7	8,175.2	8,174.3	18.1	12.7	16.91	47.8	-37.9	49.9	19.2	30.72	1.626		
8,300.0	8,298.7	8,275.0	8,274.0	18.3	12.9	17.34	48.6	-37.2	51.0	19.8	31.15	1.636		
8,400.0	8,398.7	8,375.0	8,374.0	18.5	13.1	17.93	49.7	-36.3	52.3	20.7	31.58	1.654		
8,500.0	8,498.7	8,475.0	8,474.0	18.7	13.4	18.46	50.8	-35.4	53.6	21.5	32.02	1.673		
8,600.0	8,598.7	8,575.0	8,574.0	19.0	13.6	18.99	51.9	-34.5	54.9	22.4	32.45	1.691		
8,700.0	8,698.7	8,675.0	8,674.0	19.2	13.8	19.32	52.9	-33.8	56.1	23.2	32.88	1.706		
8,800.0	8,798.7	8,775.0	8,774.0	19.4	14.0	19.55	54.0	-33.2	57.3	24.0	33.31	1.720		
8,900.0	8,898.7	8,874.8	8,873.8	19.6	14.2	19.85	55.1	-32.5	58.6	24.9	33.75	1.737		
9,000.0	8,998.7	8,974.7	8,973.7	19.9	14.4	20.02	56.6	-31.8	60.2	26.1	34.18	1.762		
9,100.0	9,098.7	9,074.7	9,073.7	20.1	14.6	20.41	58.0	-30.8	61.9	27.3	34.62	1.789		
9,200.0	9,198.7	9,174.7	9,173.7	20.3	14.8	20.66	59.5	-30.0	63.6	28.6	35.05	1.815		
9,300.0	9,298.7	9,274.8	9,273.8	20.5	15.0	21.08	60.8	-29.0	65.1	29.7	35.48	1.836		
9,400.0	9,398.7	9,374.7	9,373.7	20.8	15.2	21.32	62.0	-28.2	66.6	30.6	35.92	1.853		
9,500.0	9,498.7	9,474.7	9,473.6	21.0	15.4	21.70	63.3	-27.2	68.2	31.8	36.35	1.875		
9,600.0	9,598.7	9,574.8	9,573.7	21.2	15.6	21.91	64.7	-26.4	69.7	32.9	36.78	1.895		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 usft
Survey Program:		2175-MWD											Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset	Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,700.0	9,698.7	9,674.9	9,673.8	21.4	15.8	22.08	65.9	-25.7	71.1	33.9	37.21	1.910		
9,800.0	9,798.7	9,774.9	9,773.8	21.6	16.1	22.28	66.9	-25.0	72.3	34.6	37.64	1.920		
9,900.0	9,898.7	9,874.9	9,873.8	21.9	16.3	22.50	67.9	-24.3	73.5	35.4	38.08	1.929		
10,000.0	9,998.7	9,974.8	9,973.7	22.1	16.5	22.60	69.0	-23.7	74.7	36.2	38.51	1.940		
10,100.0	10,098.7	10,074.7	10,073.5	22.3	16.7	22.74	70.2	-23.0	76.2	37.2	38.95	1.955		
10,200.0	10,198.7	10,174.6	10,173.5	22.5	16.9	22.87	71.6	-22.2	77.7	38.3	39.38	1.973		
10,300.0	10,298.7	10,275.1	10,274.0	22.8	17.1	23.49	72.7	-20.8	79.3	39.5	39.82	1.992		
10,336.6	10,335.3	10,314.5	10,313.2	22.9	17.2	25.68	71.3	-18.1	79.1	39.2	39.98	1.980		
10,350.0	10,348.7	10,329.1	10,327.6	22.9	17.2	-109.93	69.9	-16.4	78.8	38.7	40.08	1.966		
10,375.0	10,373.7	10,356.1	10,354.1	22.9	17.3	-107.03	66.2	-12.2	78.0	37.9	40.16	1.943		
10,400.0	10,398.5	10,382.7	10,379.7	23.0	17.3	-103.90	61.1	-7.1	77.2	36.9	40.25	1.917		
10,425.0	10,423.2	10,408.6	10,404.1	23.0	17.4	-100.74	55.0	-1.3	76.3	36.0	40.33	1.892		
10,450.0	10,447.6	10,434.5	10,428.2	23.1	17.4	-97.68	48.1	5.2	75.6	35.2	40.42	1.870		
10,475.0	10,471.8	10,460.7	10,452.1	23.1	17.5	-94.77	40.0	12.1	74.8	34.3	40.52	1.845		
10,500.0	10,495.5	10,486.7	10,475.5	23.1	17.5	-92.07	31.0	19.4	73.8	33.2	40.61	1.816		
10,525.0	10,518.8	10,512.2	10,497.9	23.2	17.6	-89.75	21.5	26.8	72.6	31.9	40.71	1.784		
10,550.0	10,541.7	10,536.9	10,519.3	23.2	17.6	-87.92	11.7	34.3	71.5	30.7	40.80	1.752		
10,575.0	10,563.9	10,561.0	10,539.9	23.3	17.7	-86.54	1.8	42.1	70.5	29.6	40.90	1.724		
10,600.0	10,585.5	10,584.6	10,559.4	23.3	17.8	-85.27	-8.3	50.6	69.9	28.9	41.00	1.706		
10,625.0	10,606.5	10,608.5	10,578.4	23.4	17.8	-83.83	-19.1	60.2	69.7	28.6	41.10	1.696		
10,632.3	10,612.5	10,615.5	10,583.8	23.4	17.9	-83.37	-22.5	63.2	69.7	28.5	41.13	1.694		
10,650.0	10,626.7	10,632.3	10,596.4	23.4	17.9	-82.14	-30.7	70.7	69.7	28.6	41.20	1.693		
10,675.0	10,646.1	10,656.1	10,613.3	23.5	18.0	-80.20	-43.0	82.1	70.1	28.8	41.28	1.698		
10,700.0	10,664.6	10,679.8	10,629.1	23.6	18.1	-78.10	-55.9	94.3	70.7	29.4	41.34	1.710		
10,725.0	10,682.3	10,703.0	10,643.5	23.6	18.2	-76.04	-68.9	106.8	71.6	30.2	41.39	1.730		
10,750.0	10,698.9	10,726.1	10,657.0	23.7	18.4	-74.13	-82.2	120.0	72.9	31.5	41.43	1.760		
10,775.0	10,714.6	10,748.9	10,669.6	23.8	18.5	-72.52	-95.5	133.6	74.6	33.1	41.47	1.798		
10,800.0	10,729.3	10,771.4	10,680.9	23.9	18.7	-70.98	-108.9	147.7	76.6	35.1	41.51	1.846		
10,825.0	10,742.9	10,793.9	10,691.0	24.0	18.8	-69.39	-122.5	162.5	79.0	37.5	41.54	1.903		
10,850.0	10,755.3	10,815.8	10,699.5	24.2	19.0	-67.74	-136.2	177.4	81.8	40.3	41.54	1.970		
10,875.0	10,766.6	10,837.0	10,706.6	24.3	19.2	-66.15	-149.4	192.3	85.1	43.6	41.53	2.050		
10,900.0	10,776.8	10,860.9	10,713.6	24.5	19.4	-64.77	-164.4	209.5	88.6	47.1	41.57	2.132		
10,925.0	10,785.7	10,883.8	10,719.9	24.7	19.7	-63.95	-178.8	226.2	91.9	50.2	41.70	2.204		
10,950.0	10,793.4	10,905.8	10,725.1	24.9	19.9	-63.37	-192.6	242.5	95.3	53.4	41.90	2.273		
10,975.0	10,799.8	10,926.2	10,728.7	25.1	20.2	-62.85	-205.4	258.0	99.0	56.9	42.11	2.350		
11,000.0	10,804.9	10,946.8	10,731.3	25.3	20.4	-62.34	-218.1	274.0	103.2	60.8	42.36	2.435		
11,025.0	10,808.8	10,967.9	10,732.9	25.5	20.7	-61.93	-230.9	290.7	107.7	65.0	42.67	2.524		
11,050.0	10,811.4	10,991.1	10,734.0	25.8	21.0	-61.90	-244.9	309.2	112.1	69.0	43.12	2.600		
11,075.0	10,812.6	11,014.2	10,734.9	26.0	21.3	-62.32	-258.6	327.7	116.3	72.5	43.73	2.659		
11,084.1	10,812.8	11,022.6	10,735.1	26.1	21.5	-62.58	-263.6	334.5	117.7	73.7	43.98	2.677		
11,099.1	10,812.8	11,036.5	10,735.4	26.3	21.7	-63.27	-271.7	345.7	120.2	75.7	44.47	2.702		
11,200.0	10,813.4	11,129.0	10,736.8	27.5	23.1	-67.15	-324.2	421.9	137.2	89.4	47.82	2.869		
11,300.0	10,813.9	11,216.0	10,736.9	28.9	24.7	-69.78	-368.9	496.5	156.1	104.9	51.17	3.051		
11,400.0	10,814.5	11,298.0	10,736.9	30.6	26.2	-72.04	-404.8	570.2	178.4	123.8	54.65	3.265		
11,500.0	10,815.0	11,378.8	10,737.7	32.4	27.9	-74.36	-433.3	645.7	204.5	146.2	58.35	3.505		
11,600.0	10,815.6	11,455.0	10,738.7	34.3	29.5	-76.35	-453.7	719.1	234.2	172.2	62.03	3.776		
11,700.0	10,816.1	11,528.6	10,739.1	36.3	31.0	-77.91	-467.3	791.5	267.4	201.7	65.66	4.072		
11,800.0	10,816.7	11,608.8	10,740.1	38.5	32.8	-79.46	-476.0	871.2	302.8	233.3	69.49	4.357		
11,900.0	10,817.3	11,700.0	10,739.8	40.7	34.8	-80.45	-484.8	961.9	335.0	261.5	73.53	4.556		
12,000.0	10,817.9	11,789.4	10,739.2	43.0	36.9	-81.12	-491.6	1,051.0	364.2	286.7	77.51	4.699		
12,100.0	10,818.4	11,884.9	10,739.3	45.3	39.2	-81.72	-498.0	1,146.4	389.2	307.6	81.63	4.768		
12,200.0	10,819.0	11,977.4	10,739.4	47.6	41.4	-82.12	-503.8	1,238.7	409.7	324.1	85.62	4.785		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18H - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft	
Survey Program: 2175-MWD												Offset Well Error:	0.0 usft	
Reference		Offset		Semi Major Axis				Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	(°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,300.0	10,819.5	12,070.5	10,739.6	50.0	43.7	-82.44		-507.6	1,331.7	427.2	337.6	89.54	4.771	
12,400.0	10,820.1	12,165.3	10,739.7	52.3	46.1	-82.63		-511.4	1,426.5	439.6	346.3	93.37	4.709	
12,500.0	10,820.6	12,256.4	10,741.4	54.7	48.5	-82.94		-512.6	1,517.5	449.3	352.3	96.99	4.632	
12,600.0	10,821.2	12,356.0	10,743.9	57.0	51.0	-83.28		-513.2	1,617.1	454.4	353.8	100.66	4.515	
12,655.6	10,821.5	12,411.6	10,744.8	58.3	52.5	-83.36		-513.7	1,672.7	455.0	352.4	102.61	4.435	
12,700.0	10,821.7	12,454.8	10,745.7	59.4	53.6	-83.43		-513.9	1,715.8	454.9	350.0	104.93	4.335	
12,800.0	10,822.2	12,565.5	10,748.3	61.8	56.6	-83.68		-515.2	1,826.5	454.2	343.6	110.61	4.106	
12,900.0	10,822.7	12,672.0	10,750.2	64.2	59.5	-83.80		-519.3	1,932.9	450.7	334.5	116.20	3.878	
13,000.0	10,823.3	12,763.0	10,751.9	66.6	61.9	-83.92		-521.9	2,023.9	448.2	326.8	121.40	3.691	
13,100.0	10,823.8	12,859.1	10,753.4	69.2	64.6	-84.04		-523.2	2,120.0	447.2	320.5	126.78	3.528	
13,200.0	10,824.3	12,955.8	10,754.3	71.7	67.2	-84.09		-524.3	2,216.6	446.6	314.4	132.19	3.378	
13,227.2	10,824.5	12,981.7	10,754.7	72.4	67.9	-84.12		-524.5	2,242.5	446.5	312.9	133.66	3.341	
13,300.0	10,824.8	13,051.4	10,756.4	74.3	69.8	-84.30		-524.4	2,312.2	446.8	309.2	137.64	3.246	
13,400.0	10,825.4	13,149.6	10,759.0	76.8	72.5	-84.57		-523.9	2,410.4	447.7	304.5	143.18	3.127	
13,500.0	10,825.9	13,247.5	10,760.4	79.5	75.2	-84.70		-523.1	2,508.2	449.0	300.3	148.71	3.019	
13,600.0	10,826.4	13,342.9	10,762.2	82.1	77.9	-84.89		-521.4	2,603.6	451.1	296.9	154.21	2.925	
13,700.0	10,826.9	13,440.3	10,762.6	84.7	80.6	-84.91		-519.1	2,701.0	454.1	294.3	159.74	2.842	
13,800.0	10,827.5	13,542.0	10,761.8	87.4	83.4	-84.78		-516.7	2,802.6	457.0	291.7	165.37	2.764	
13,900.0	10,828.0	13,643.5	10,760.5	90.1	86.3	-84.58		-514.8	2,904.1	459.6	288.6	171.00	2.688	
14,000.0	10,828.5	13,740.9	10,759.4	92.8	89.0	-84.41		-512.9	3,001.5	462.1	285.6	176.53	2.618	
14,100.0	10,829.0	13,835.4	10,761.1	95.5	91.6	-84.60		-509.8	3,096.0	465.8	283.8	182.07	2.558	
14,200.0	10,829.6	13,933.4	10,760.3	98.3	94.4	-84.48		-506.1	3,193.8	470.3	282.6	187.64	2.506	
14,300.0	10,830.1	14,035.6	10,759.7	101.0	97.2	-84.40		-502.1	3,296.0	474.8	281.4	193.35	2.456	
14,400.0	10,830.6	14,139.6	10,760.2	103.8	100.2	-84.43		-498.9	3,399.9	478.4	279.2	199.15	2.402	
14,500.0	10,831.1	14,243.0	10,760.8	106.5	103.1	-84.49		-496.4	3,503.3	481.3	276.3	204.96	2.348	
14,600.0	10,831.6	14,345.4	10,758.2	109.3	106.0	-84.13		-495.0	3,605.7	483.5	272.9	210.61	2.296	
14,700.0	10,832.2	14,451.8	10,755.7	112.1	109.1	-83.79		-494.3	3,712.0	485.0	268.7	216.38	2.242	
14,800.0	10,832.7	14,545.9	10,755.5	114.9	111.8	-83.72		-493.8	3,806.1	486.1	264.2	221.89	2.191	
14,900.0	10,833.2	14,637.9	10,756.2	117.6	114.4	-83.78		-491.7	3,898.1	488.9	261.5	227.39	2.150	
15,000.0	10,833.7	14,741.5	10,758.6	120.4	117.3	-84.04		-488.5	4,001.6	492.4	259.1	233.32	2.110	
15,100.0	10,834.3	14,846.6	10,759.9	123.2	120.3	-84.17		-486.5	4,106.6	494.7	255.4	239.24	2.068	
15,200.0	10,834.8	14,955.7	10,759.1	126.1	123.5	-84.02		-486.4	4,215.7	495.4	250.3	245.18	2.021	
15,205.1	10,834.8	14,960.6	10,759.1	126.2	123.6	-84.00		-486.4	4,220.7	495.4	250.0	245.46	2.018	
15,300.0	10,835.3	15,053.1	10,758.5	128.9	126.3	-83.88		-486.7	4,313.1	495.7	245.0	250.79	1.977	
15,400.0	10,835.8	15,156.6	10,757.9	131.7	129.3	-83.75		-487.3	4,416.6	495.8	239.2	256.58	1.932	
15,500.0	10,836.4	15,256.5	10,756.8	134.5	132.2	-83.56		-488.3	4,516.5	495.6	233.3	262.24	1.890	
15,536.8	10,836.6	15,292.4	10,756.3	135.6	133.2	-83.49		-488.6	4,552.4	495.5	231.2	264.29	1.875	
15,600.0	10,836.9	15,354.9	10,755.7	137.4	135.0	-83.38		-488.9	4,614.9	495.6	227.7	267.85	1.850	
15,700.0	10,837.4	15,455.2	10,755.9	140.2	137.9	-83.33		-489.4	4,715.2	495.7	222.1	273.59	1.812	
15,800.0	10,837.9	15,553.2	10,756.1	143.0	140.7	-83.31		-489.8	4,813.3	495.9	216.6	279.27	1.776	
15,900.0	10,838.5	15,651.3	10,756.5	145.9	143.6	-83.30		-489.6	4,911.4	496.6	211.7	284.96	1.743	
16,000.0	10,839.0	15,753.2	10,757.8	148.7	146.5	-83.40		-489.3	5,013.2	497.4	206.5	290.83	1.710	
16,100.0	10,839.5	15,858.8	10,759.8	151.6	149.6	-83.57		-489.6	5,118.8	497.4	200.5	296.84	1.676	
16,200.0	10,840.0	15,965.2	10,759.9	154.4	152.7	-83.50		-491.7	5,225.1	496.0	193.3	302.76	1.638	
16,300.0	10,840.5	16,069.1	10,760.3	157.3	155.7	-83.44		-494.8	5,329.0	493.7	185.0	308.61	1.600	
16,400.0	10,841.1	16,169.3	10,760.4	160.1	158.6	-83.36		-498.2	5,429.1	490.8	176.5	314.34	1.561	
16,500.0	10,841.6	16,273.2	10,761.6	163.0	161.6	-83.39		-501.9	5,533.0	487.7	167.5	320.25	1.523	
16,600.0	10,842.1	16,379.8	10,764.4	165.9	164.7	-83.60		-506.8	5,639.4	483.5	157.1	326.35	1.481 Level 3	
16,700.0	10,842.6	16,482.8	10,768.0	168.7	167.7	-83.89		-512.6	5,742.2	478.1	145.7	332.38	1.438 Level 3	
16,800.0	10,843.2	16,557.6	10,770.5	171.6	170.5	-84.08		-517.7	5,836.9	473.0	134.9	338.12	1.399 Level 3	
16,900.0	10,843.7	16,673.1	10,772.1	174.5	173.3	-84.16		-521.9	5,932.3	469.0	125.2	343.83	1.364 Level 3	
17,000.0	10,844.2	16,774.4	10,774.0	177.3	176.2	-84.28		-526.3	6,033.4	465.1	115.4	349.72	1.330 Level 3	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 11-18H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 usft
Survey Program: 2175-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Hightside Toolface	Offset	Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,100.0	10,844.7	16,866.4	10,774.8	180.2	178.9	-84.28	-529.6	6,125.4	462.1	106.8	355.29	1.301	Level 3	
17,200.0	10,845.3	16,959.5	10,774.8	183.1	181.6	-84.21	-531.4	6,218.5	460.6	99.8	360.83	1.277	Level 3	
17,261.5	10,845.6	17,017.9	10,775.0	184.9	183.3	-84.19	-532.0	6,276.8	460.4	96.1	364.29	1.264	Level 3	
17,300.0	10,845.8	17,055.4	10,775.2	186.0	184.4	-84.19	-532.1	6,314.4	460.5	94.0	366.50	1.256	Level 3	
17,400.0	10,846.3	17,160.8	10,775.7	188.8	187.5	-84.18	-533.2	6,419.7	460.0	87.5	372.44	1.235	Level 2	
17,500.0	10,846.8	17,259.6	10,776.6	191.7	190.4	-84.22	-534.5	6,518.6	459.1	80.9	378.23	1.214	Level 2	
17,600.0	10,847.4	17,360.7	10,777.9	194.6	193.3	-84.30	-535.7	6,619.6	458.5	74.3	384.11	1.194	Level 2	
17,700.0	10,847.9	17,464.1	10,779.0	197.5	196.3	-84.35	-537.7	6,723.0	457.0	66.9	390.04	1.172	Level 2	
17,800.0	10,848.4	17,564.8	10,779.4	200.4	199.3	-84.32	-539.9	6,823.6	455.3	59.5	395.84	1.150	Level 2	
17,900.0	10,848.9	17,666.0	10,779.6	203.3	202.2	-84.25	-542.6	6,924.8	453.2	51.6	401.64	1.128	Level 2	
18,000.0	10,849.5	17,764.3	10,779.5	206.2	205.1	-84.15	-545.1	7,023.1	451.3	43.9	407.32	1.108	Level 2	
18,100.0	10,850.0	17,862.5	10,779.3	209.0	207.9	-84.04	-547.2	7,121.3	449.7	36.7	413.00	1.089	Level 2	
18,200.0	10,850.5	17,957.9	10,778.7	211.9	210.7	-83.89	-548.8	7,216.7	448.7	30.2	418.56	1.072	Level 2	
18,300.0	10,851.0	18,060.9	10,779.0	214.8	213.7	-83.85	-549.6	7,319.6	448.6	24.2	424.42	1.057	Level 2	
18,400.0	10,851.5	18,157.9	10,779.6	217.7	216.5	-83.85	-551.2	7,416.6	447.4	17.3	430.14	1.040	Level 2	
18,414.9	10,851.6	18,171.4	10,779.6	218.1	216.9	-83.84	-551.3	7,430.1	447.4	16.4	430.95	1.038	Level 2	
18,500.0	10,852.1	18,254.3	10,779.5	220.6	219.4	-83.77	-551.5	7,513.0	447.7	12.0	435.78	1.027	Level 2	
18,600.0	10,852.6	18,356.8	10,779.7	223.5	222.3	-83.73	-551.7	7,615.6	448.0	6.4	441.62	1.015	Level 2	
18,646.6	10,852.8	18,403.0	10,779.0	224.8	223.7	-83.62	-552.2	7,661.8	448.0	3.7	444.22	1.008	Level 2	
18,700.0	10,853.1	18,453.4	10,778.1	226.4	225.2	-83.47	-552.4	7,712.1	448.1	1.0	447.11	1.002	Level 2	
18,800.0	10,853.6	18,551.9	10,776.4	229.3	228.0	-83.20	-552.2	7,810.6	449.1	-3.5	452.63	0.992	Level 1	
18,900.0	10,854.2	18,649.9	10,776.0	232.2	230.9	-83.09	-551.6	7,908.6	450.3	-8.0	458.28	0.983	Level 1	
19,000.0	10,854.7	18,749.5	10,776.5	235.1	233.8	-83.11	-550.6	8,008.2	451.9	-12.2	464.08	0.974	Level 1	
19,100.0	10,855.2	18,852.3	10,776.9	238.0	236.8	-83.12	-549.8	8,111.0	453.2	-16.8	469.96	0.964	Level 1	
19,200.0	10,855.7	18,945.1	10,777.0	240.9	239.5	-83.10	-548.8	8,203.8	454.8	-20.7	475.53	0.956	Level 1	
19,300.0	10,856.3	19,043.8	10,777.1	243.8	242.3	-83.08	-546.7	8,302.5	457.6	-23.7	481.26	0.951	Level 1	
19,400.0	10,856.8	19,146.8	10,777.4	246.7	245.3	-83.09	-544.7	8,405.5	460.0	-27.1	487.15	0.944	Level 1	
19,500.0	10,857.3	19,245.5	10,777.7	249.6	248.2	-83.10	-543.0	8,504.1	462.3	-30.6	492.92	0.938	Level 1	
19,600.0	10,857.8	19,346.8	10,777.7	252.5	251.1	-83.06	-541.3	8,605.4	464.5	-34.2	498.71	0.931	Level 1	
19,700.0	10,858.4	19,443.3	10,777.5	255.4	253.9	-83.01	-539.5	8,701.9	467.1	-37.3	504.35	0.926	Level 1	
19,800.0	10,858.9	19,542.6	10,777.6	258.3	256.8	-83.00	-537.0	8,801.2	470.1	-40.0	510.12	0.922	Level 1	
19,900.0	10,859.4	19,646.3	10,777.4	261.2	259.8	-82.95	-535.0	8,904.9	472.6	-43.4	515.97	0.916	Level 1	
20,000.0	10,859.9	19,744.8	10,777.5	264.1	262.7	-82.94	-533.3	9,003.4	474.9	-46.8	521.72	0.910	Level 1	
20,100.0	10,860.4	19,843.0	10,777.9	267.0	265.6	-82.96	-531.0	9,101.5	477.8	-49.7	527.48	0.906	Level 1	
20,200.0	10,861.0	19,944.3	10,777.9	269.9	268.5	-82.94	-529.0	9,202.7	480.3	-52.9	533.28	0.901	Level 1	
20,300.0	10,861.5	20,043.1	10,778.2	272.8	271.4	-82.96	-526.6	9,301.6	483.3	-55.8	539.07	0.896	Level 1	
20,400.0	10,862.0	20,144.8	10,778.4	275.7	274.3	-82.96	-524.5	9,403.2	485.9	-59.1	544.91	0.892	Level 1	
20,500.0	10,862.5	20,245.4	10,778.1	278.6	277.3	-82.89	-522.6	9,503.8	488.3	-62.3	550.65	0.887	Level 1	
20,600.0	10,863.1	20,345.8	10,777.5	281.6	280.2	-82.79	-521.0	9,604.1	490.6	-65.7	556.35	0.882	Level 1	
20,700.0	10,863.6	20,446.4	10,777.2	284.5	283.1	-82.73	-519.3	9,704.8	492.9	-69.2	562.09	0.877	Level 1	
20,800.0	10,864.1	20,547.5	10,776.2	287.4	286.1	-82.59	-518.0	9,805.9	494.9	-72.8	567.75	0.872	Level 1	
20,900.0	10,864.6	20,650.0	10,774.2	290.3	289.0	-82.31	-517.2	9,908.3	496.5	-76.8	573.29	0.866	Level 1, ES, SF	
21,000.0	10,865.2	20,650.0	10,774.2	293.2	289.0	-82.31	-517.2	9,908.3	507.9	-68.3	576.18	0.881	Level 1	
21,038.5	10,865.4	20,650.0	10,774.2	294.3	289.0	-82.31	-517.2	9,908.3	517.4	-59.9	577.30	0.896	Level 1	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 4T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Hightside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-154.87	-30.4	-14.3	33.6				
100.0	100.0	100.0	100.0	0.1	0.1	-154.87	-30.4	-14.3	33.6	33.4	0.17	199.178	
200.0	200.0	200.0	200.0	0.3	0.3	-154.87	-30.4	-14.3	33.6	33.0	0.62	54.321	
300.0	300.0	300.0	300.0	0.5	0.5	-154.87	-30.4	-14.3	33.6	32.5	1.07	31.449	
400.0	400.0	400.0	400.0	0.8	0.8	-154.87	-30.4	-14.3	33.6	32.1	1.52	22.131	
500.0	500.0	500.0	500.0	1.0	1.0	-154.87	-30.4	-14.3	33.6	31.6	1.97	17.072	
600.0	600.0	600.0	600.0	1.2	1.2	-154.87	-30.4	-14.3	33.6	31.2	2.42	13.896	
700.0	700.0	700.0	700.0	1.4	1.4	-154.87	-30.4	-14.3	33.6	30.7	2.87	11.716	
800.0	800.0	800.0	800.0	1.7	1.7	-154.87	-30.4	-14.3	33.6	30.3	3.32	10.128	
900.0	900.0	900.0	900.0	1.9	1.9	-154.87	-30.4	-14.3	33.6	29.8	3.76	8.918	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-154.87	-30.4	-14.3	33.6	29.4	4.21	7.967	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-154.87	-30.4	-14.3	33.6	28.9	4.66	7.199	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-154.87	-30.4	-14.3	33.6	28.5	5.11	6.566	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-154.87	-30.4	-14.3	33.6	28.0	5.56	6.036	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-154.87	-30.4	-14.3	33.6	27.6	6.01	5.584	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-154.87	-30.4	-14.3	33.6	27.1	6.46	5.196	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-154.87	-30.4	-14.3	33.6	26.7	6.91	4.858	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-154.87	-30.4	-14.3	33.6	26.2	7.36	4.561	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-154.87	-30.4	-14.3	33.6	25.8	7.81	4.299	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.1	-154.87	-30.4	-14.3	33.6	25.3	8.26	4.065	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	-154.87	-30.4	-14.3	33.6	24.9	8.71	3.855	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	-154.87	-30.4	-14.3	33.6	24.4	9.16	3.666	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	-154.87	-30.4	-14.3	33.6	24.0	9.61	3.494	
2,300.0	2,300.0	2,300.0	2,300.0	5.0	5.0	-154.87	-30.4	-14.3	33.6	23.5	10.06	3.338	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	-154.87	-30.4	-14.3	33.6	23.1	10.51	3.195	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	-154.87	-30.4	-14.3	33.6	22.6	10.96	3.064 CC	
2,600.0	2,600.0	2,599.0	2,599.0	5.7	5.7	-65.84	-31.3	-15.7	34.3	22.9	11.37	3.013	
2,650.0	2,649.9	2,648.5	2,648.5	5.8	5.8	-66.99	-32.3	-17.6	35.1	23.6	11.56	3.038	
2,700.0	2,699.9	2,698.5	2,698.4	5.9	5.9	-68.31	-33.6	-19.9	36.2	24.4	11.76	3.079	
2,800.0	2,799.7	2,798.5	2,798.2	6.1	6.1	-70.73	-36.2	-24.4	38.4	26.3	12.15	3.160	
2,900.0	2,899.6	2,898.4	2,898.0	6.3	6.3	-72.87	-38.9	-28.9	40.7	28.1	12.56	3.239	
3,000.0	2,999.5	2,998.4	2,997.9	6.5	6.5	-74.79	-41.5	-33.5	43.0	30.0	12.97	3.316	
3,100.0	3,099.3	3,098.4	3,097.7	6.7	6.7	-76.51	-44.1	-38.0	45.4	32.0	13.38	3.389	
3,200.0	3,199.2	3,198.3	3,197.5	7.0	6.9	-78.06	-46.7	-42.5	47.8	34.0	13.80	3.460	
3,300.0	3,299.0	3,298.3	3,297.3	7.2	7.1	-79.46	-49.3	-47.0	50.2	36.0	14.23	3.527	
3,400.0	3,398.9	3,398.3	3,397.2	7.4	7.3	-80.73	-51.9	-51.6	52.6	38.0	14.66	3.591	
3,501.2	3,500.0	3,499.5	3,498.2	7.6	7.5	-81.90	-54.6	-56.2	55.2	40.1	15.10	3.653	
3,600.0	3,598.7	3,598.2	3,596.8	7.8	7.7	-81.33	-57.2	-60.6	57.9	42.3	15.51	3.730	
3,651.2	3,649.9	3,649.4	3,647.9	7.9	7.8	-169.78	-58.5	-63.0	59.5	43.9	15.59	3.817	
3,700.0	3,698.7	3,698.1	3,696.6	8.0	7.9	-167.95	-59.8	-65.2	61.2	45.4	15.78	3.876	
3,800.0	3,798.7	3,797.9	3,796.3	8.2	8.2	-164.52	-62.4	-69.7	64.8	48.6	16.20	3.999	
3,900.0	3,898.7	3,899.5	3,897.8	8.5	8.4	-162.34	-64.2	-72.8	67.4	50.8	16.63	4.054	
4,000.0	3,998.7	4,000.4	3,998.7	8.7	8.6	-162.07	-64.5	-73.3	67.8	50.7	17.06	3.971	
4,100.0	4,098.7	4,100.4	4,098.7	8.9	8.8	-162.07	-64.5	-73.3	67.8	50.2	17.50	3.871	
4,200.0	4,198.7	4,200.4	4,198.7	9.1	9.0	-162.07	-64.5	-73.3	67.8	49.8	17.94	3.776	
4,300.0	4,298.7	4,300.4	4,298.7	9.4	9.2	-162.07	-64.5	-73.3	67.8	49.4	18.39	3.685	
4,400.0	4,398.7	4,400.4	4,398.7	9.6	9.4	-162.07	-64.5	-73.3	67.8	48.9	18.83	3.598	
4,500.0	4,498.7	4,500.4	4,498.7	9.8	9.7	-162.07	-64.5	-73.3	67.8	48.5	19.27	3.515	
4,600.0	4,598.7	4,600.4	4,598.7	10.0	9.9	-162.07	-64.5	-73.3	67.8	48.0	19.72	3.436	
4,700.0	4,698.7	4,700.4	4,698.7	10.2	10.1	-162.07	-64.5	-73.3	67.8	47.6	20.16	3.360	
4,800.0	4,798.7	4,800.4	4,798.7	10.5	10.3	-162.07	-64.5	-73.3	67.8	47.1	20.61	3.288	
4,900.0	4,898.7	4,900.4	4,898.7	10.7	10.5	-162.07	-64.5	-73.3	67.8	46.7	21.05	3.218	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 4T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.0	4,998.7	5,000.4	4,998.7	10.9	10.8	-162.07	-64.5	-73.3	67.8	46.3	21.49	3.152	
5,100.0	5,098.7	5,100.4	5,098.7	11.1	11.0	-162.07	-64.5	-73.3	67.8	45.8	21.94	3.088	
5,200.0	5,198.7	5,200.4	5,198.7	11.4	11.2	-162.07	-64.5	-73.3	67.8	45.4	22.38	3.027	
5,300.0	5,298.7	5,300.4	5,298.7	11.6	11.4	-162.07	-64.5	-73.3	67.8	44.9	22.83	2.968	
5,400.0	5,398.7	5,400.4	5,398.7	11.8	11.6	-162.07	-64.5	-73.3	67.8	44.5	23.28	2.911	
5,500.0	5,498.7	5,500.4	5,498.7	12.0	11.9	-162.07	-64.5	-73.3	67.8	44.0	23.72	2.856	
5,600.0	5,598.7	5,600.4	5,598.7	12.2	12.1	-162.07	-64.5	-73.3	67.8	43.6	24.17	2.803	
5,700.0	5,698.7	5,700.4	5,698.7	12.5	12.3	-162.07	-64.5	-73.3	67.8	43.1	24.61	2.753	
5,800.0	5,798.7	5,800.4	5,798.7	12.7	12.5	-162.07	-64.5	-73.3	67.8	42.7	25.06	2.704	
5,900.0	5,898.7	5,900.4	5,898.7	12.9	12.8	-162.07	-64.5	-73.3	67.8	42.2	25.50	2.656	
6,000.0	5,998.7	6,000.4	5,998.7	13.1	13.0	-162.07	-64.5	-73.3	67.8	41.8	25.95	2.611	
6,100.0	6,098.7	6,100.4	6,098.7	13.4	13.2	-162.07	-64.5	-73.3	67.8	41.4	26.40	2.567	
6,200.0	6,198.7	6,200.4	6,198.7	13.6	13.4	-162.07	-64.5	-73.3	67.8	40.9	26.84	2.524	
6,300.0	6,298.7	6,300.4	6,298.7	13.8	13.6	-162.07	-64.5	-73.3	67.8	40.5	27.29	2.483	
6,400.0	6,398.7	6,400.4	6,398.7	14.0	13.9	-162.07	-64.5	-73.3	67.8	40.0	27.74	2.443	
6,500.0	6,498.7	6,500.4	6,498.7	14.3	14.1	-162.07	-64.5	-73.3	67.8	39.6	28.18	2.404	
6,600.0	6,598.7	6,600.4	6,598.7	14.5	14.3	-162.07	-64.5	-73.3	67.8	39.1	28.63	2.366	
6,700.0	6,698.7	6,700.4	6,698.7	14.7	14.5	-162.07	-64.5	-73.3	67.8	38.7	29.08	2.330	
6,800.0	6,798.7	6,800.4	6,798.7	14.9	14.7	-162.07	-64.5	-73.3	67.8	38.2	29.52	2.295	
6,900.0	6,898.7	6,900.4	6,898.7	15.2	15.0	-162.07	-64.5	-73.3	67.8	37.8	29.97	2.260	
7,000.0	6,998.7	7,000.4	6,998.7	15.4	15.2	-162.07	-64.5	-73.3	67.8	37.3	30.42	2.227	
7,100.0	7,098.7	7,100.4	7,098.7	15.6	15.4	-162.07	-64.5	-73.3	67.8	36.9	30.87	2.195	
7,200.0	7,198.7	7,200.4	7,198.7	15.8	15.6	-162.07	-64.5	-73.3	67.8	36.4	31.31	2.164	
7,300.0	7,298.7	7,300.4	7,298.7	16.0	15.9	-162.07	-64.5	-73.3	67.8	36.0	31.76	2.133	
7,400.0	7,398.7	7,400.4	7,398.7	16.3	16.1	-162.07	-64.5	-73.3	67.8	35.5	32.21	2.104	
7,500.0	7,498.7	7,500.4	7,498.7	16.5	16.3	-162.07	-64.5	-73.3	67.8	35.1	32.66	2.075	
7,600.0	7,598.7	7,600.4	7,598.7	16.7	16.5	-162.07	-64.5	-73.3	67.8	34.6	33.10	2.047	
7,700.0	7,698.7	7,700.4	7,698.7	16.9	16.7	-162.07	-64.5	-73.3	67.8	34.2	33.55	2.019	
7,800.0	7,798.7	7,800.4	7,798.7	17.2	17.0	-162.07	-64.5	-73.3	67.8	33.8	34.00	1.993	
7,900.0	7,898.7	7,900.4	7,898.7	17.4	17.2	-162.07	-64.5	-73.3	67.8	33.3	34.45	1.967	
8,000.0	7,998.7	8,000.4	7,998.7	17.6	17.4	-162.07	-64.5	-73.3	67.8	32.9	34.89	1.942	
8,100.0	8,098.7	8,100.4	8,098.7	17.8	17.6	-162.07	-64.5	-73.3	67.8	32.4	35.34	1.917	
8,200.0	8,198.7	8,200.4	8,198.7	18.1	17.9	-162.07	-64.5	-73.3	67.8	32.0	35.79	1.893	
8,300.0	8,298.7	8,300.4	8,298.7	18.3	18.1	-162.07	-64.5	-73.3	67.8	31.5	36.24	1.870	
8,400.0	8,398.7	8,400.4	8,398.7	18.5	18.3	-162.07	-64.5	-73.3	67.8	31.1	36.69	1.847	
8,500.0	8,498.7	8,500.4	8,498.7	18.7	18.5	-162.07	-64.5	-73.3	67.8	30.6	37.13	1.825	
8,600.0	8,598.7	8,600.4	8,598.7	19.0	18.8	-162.07	-64.5	-73.3	67.8	30.2	37.58	1.803	
8,700.0	8,698.7	8,700.4	8,698.7	19.2	19.0	-162.07	-64.5	-73.3	67.8	29.7	38.03	1.782	
8,800.0	8,798.7	8,800.4	8,798.7	19.4	19.2	-162.07	-64.5	-73.3	67.8	29.3	38.48	1.761	
8,900.0	8,898.7	8,900.4	8,898.7	19.6	19.4	-162.07	-64.5	-73.3	67.8	28.8	38.93	1.741	
9,000.0	8,998.7	9,000.4	8,998.7	19.9	19.6	-162.07	-64.5	-73.3	67.8	28.4	39.37	1.721	
9,100.0	9,098.7	9,100.4	9,098.7	20.1	19.9	-162.07	-64.5	-73.3	67.8	27.9	39.82	1.701	
9,200.0	9,198.7	9,200.4	9,198.7	20.3	20.1	-162.07	-64.5	-73.3	67.8	27.5	40.27	1.682	
9,300.0	9,298.7	9,300.4	9,298.7	20.5	20.3	-162.07	-64.5	-73.3	67.8	27.0	40.72	1.664	
9,400.0	9,398.7	9,400.4	9,398.7	20.8	20.5	-162.07	-64.5	-73.3	67.8	26.6	41.17	1.646	
9,500.0	9,498.7	9,500.4	9,498.7	21.0	20.8	-162.07	-64.5	-73.3	67.8	26.1	41.61	1.628	
9,600.0	9,598.7	9,600.4	9,598.7	21.2	21.0	-162.07	-64.5	-73.3	67.8	25.7	42.06	1.611	
9,700.0	9,698.7	9,700.4	9,698.7	21.4	21.2	-162.07	-64.5	-73.3	67.8	25.2	42.51	1.594	
9,800.0	9,798.7	9,800.4	9,798.7	21.6	21.4	-162.07	-64.5	-73.3	67.8	24.8	42.96	1.577	
9,900.0	9,898.7	9,900.4	9,898.7	21.9	21.7	-162.07	-64.5	-73.3	67.8	24.3	43.41	1.561	
10,000.0	9,998.7	10,000.4	9,998.7	22.1	21.9	-162.07	-64.5	-73.3	67.8	23.9	43.86	1.545	
10,100.0	10,098.7	10,100.4	10,098.7	22.3	22.1	-162.07	-64.5	-73.3	67.8	23.4	44.30	1.529	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 4T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD				Distance								Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
10,200.0	10,198.7	10,200.4	10,198.7	22.5	22.3	-162.07	-64.5	-73.3	67.8	23.0	44.75	1.514	
10,300.0	10,298.7	10,300.4	10,298.7	22.8	22.6	-162.07	-64.5	-73.3	67.8	22.5	45.20	1.499	Level 3
10,336.6	10,335.3	10,337.0	10,335.3	22.9	22.6	-162.07	-64.5	-73.3	67.8	22.4	45.37	1.493	Level 3
10,350.0	10,348.7	10,350.4	10,348.7	22.9	22.7	61.08	-64.5	-73.3	67.7	22.1	45.52	1.486	Level 3
10,375.0	10,373.7	10,374.4	10,372.7	22.9	22.7	62.02	-64.6	-73.2	67.1	21.5	45.59	1.472	Level 3
10,400.0	10,398.5	10,397.2	10,395.5	23.0	22.8	63.24	-65.5	-72.7	66.6	21.0	45.64	1.460	Level 3
10,425.0	10,423.2	10,420.1	10,418.2	23.0	22.8	64.66	-67.4	-71.6	66.4	20.7	45.68	1.454	Level 3
10,435.8	10,433.8	10,430.0	10,428.1	23.0	22.8	65.33	-68.5	-71.0	66.4	20.7	45.69	1.453	Level 3
10,450.0	10,447.6	10,443.0	10,441.0	23.1	22.8	66.26	-70.2	-70.1	66.4	20.7	45.71	1.453	Level 3
10,475.0	10,471.8	10,466.0	10,463.5	23.1	22.9	68.02	-74.0	-68.0	66.7	21.0	45.75	1.458	Level 3
10,500.0	10,495.5	10,489.1	10,485.9	23.1	22.9	69.91	-78.8	-65.3	67.3	21.5	45.80	1.469	Level 3
10,525.0	10,518.8	10,512.2	10,508.1	23.2	23.0	71.90	-84.5	-62.2	68.2	22.3	45.86	1.487	Level 3
10,550.0	10,541.7	10,535.3	10,529.9	23.2	23.0	73.95	-91.1	-58.5	69.4	23.5	45.94	1.511	
10,575.0	10,563.9	10,558.5	10,551.4	23.3	23.0	76.03	-98.7	-54.3	71.0	24.9	46.04	1.541	
10,600.0	10,585.5	10,581.7	10,572.5	23.3	23.1	78.11	-107.3	-49.5	72.9	26.7	46.15	1.579	
10,625.0	10,606.5	10,605.1	10,593.2	23.4	23.1	80.15	-116.7	-44.3	75.1	28.8	46.28	1.623	
10,650.0	10,626.7	10,628.4	10,613.4	23.4	23.2	82.12	-127.0	-38.6	77.7	31.3	46.41	1.675	
10,675.0	10,646.1	10,651.8	10,633.0	23.5	23.2	84.01	-138.2	-32.4	80.7	34.1	46.56	1.733	
10,700.0	10,664.6	10,675.0	10,651.7	23.6	23.2	85.75	-150.1	-25.8	84.0	37.3	46.71	1.798	
10,725.0	10,682.3	10,698.9	10,670.3	23.6	23.3	87.44	-163.2	-18.5	87.6	40.8	46.87	1.870	
10,750.0	10,698.9	10,722.5	10,688.0	23.7	23.3	88.96	-176.9	-10.9	91.6	44.5	47.03	1.947	
10,775.0	10,714.6	10,746.2	10,704.9	23.8	23.4	90.34	-191.4	-2.9	95.8	48.6	47.20	2.030	
10,800.0	10,729.3	10,769.9	10,721.0	23.9	23.5	91.60	-206.7	5.6	100.4	53.0	47.37	2.119	
10,825.0	10,742.9	10,793.8	10,736.2	24.0	23.6	92.72	-222.7	14.5	105.2	57.6	47.56	2.212	
10,850.0	10,755.3	10,817.7	10,750.6	24.2	23.7	93.71	-239.5	23.7	110.2	62.5	47.76	2.308	
10,875.0	10,766.6	10,841.8	10,764.1	24.3	23.8	94.58	-256.9	33.4	115.5	67.5	47.97	2.408	
10,900.0	10,776.8	10,865.9	10,776.6	24.5	23.9	95.33	-274.9	43.4	121.0	72.8	48.21	2.510	
10,925.0	10,785.7	10,890.1	10,788.1	24.7	24.0	95.97	-293.6	53.8	126.7	78.2	48.47	2.614	
10,950.0	10,793.4	10,914.5	10,798.5	24.9	24.2	96.51	-312.8	64.4	132.5	83.8	48.75	2.718	
10,975.0	10,799.8	10,939.0	10,807.9	25.1	24.3	96.96	-332.6	75.4	138.5	89.5	49.06	2.823	
11,000.0	10,804.9	10,963.6	10,816.1	25.3	24.5	97.33	-352.9	86.6	144.6	95.2	49.40	2.928	
11,025.0	10,808.8	10,988.4	10,823.1	25.5	24.7	97.61	-373.7	98.2	150.9	101.1	49.77	3.031	
11,050.0	10,811.4	11,013.3	10,828.9	25.8	24.9	97.83	-394.9	109.9	157.2	107.0	50.17	3.133	
11,075.0	10,812.6	11,038.4	10,833.5	26.0	25.1	97.97	-416.4	121.8	163.6	113.0	50.59	3.233	
11,084.1	10,812.8	11,047.5	10,834.9	26.1	25.1	98.01	-424.4	126.2	165.9	115.2	50.75	3.269	
11,099.1	10,812.8	11,062.7	10,836.7	26.3	25.3	98.45	-437.6	133.6	169.7	118.7	50.99	3.329	
11,200.0	10,813.4	11,166.6	10,839.7	27.5	26.3	98.11	-528.1	184.2	196.4	143.3	53.10	3.698	
11,300.0	10,813.9	11,274.6	10,840.3	28.9	27.6	97.14	-619.9	241.2	223.2	167.6	55.65	4.011	
11,400.0	10,814.5	11,384.5	10,840.9	30.6	29.1	96.40	-709.8	304.4	249.7	191.2	58.50	4.268	
11,500.0	10,815.0	11,496.4	10,841.6	32.4	30.8	95.81	-797.4	373.9	275.6	214.0	61.60	4.474	
11,600.0	10,815.6	11,610.2	10,842.2	34.3	32.8	95.33	-882.2	449.8	300.9	236.0	64.92	4.635	
11,700.0	10,816.1	11,726.1	10,842.9	36.3	34.9	94.94	-963.7	532.0	325.5	257.0	68.42	4.757	
11,800.0	10,816.7	11,843.9	10,843.6	38.5	37.2	94.62	-1,041.4	620.7	349.2	277.1	72.05	4.846	
11,900.0	10,817.3	11,963.9	10,844.3	40.7	39.7	94.35	-1,114.7	715.6	372.0	296.2	75.77	4.909	
12,000.0	10,817.9	12,085.9	10,845.1	43.0	42.3	94.13	-1,183.0	816.7	393.7	314.1	79.53	4.950	
12,100.0	10,818.4	12,209.9	10,845.8	45.3	45.1	93.94	-1,245.7	923.7	414.2	330.9	83.32	4.971	
12,200.0	10,819.0	12,336.0	10,846.6	47.6	47.9	93.78	-1,302.1	1,036.4	433.5	346.4	87.10	4.977	
12,300.0	10,819.5	12,464.0	10,847.4	50.0	50.8	93.64	-1,351.6	1,154.4	451.4	360.5	90.83	4.969	
12,400.0	10,820.1	12,593.8	10,848.1	52.3	53.8	93.53	-1,393.7	1,277.2	467.8	373.3	94.47	4.952	
12,500.0	10,820.6	12,725.4	10,848.9	54.7	56.9	93.43	-1,427.8	1,404.2	482.6	384.6	98.00	4.924	
12,600.0	10,821.2	12,858.6	10,849.7	57.0	59.9	93.36	-1,453.2	1,534.9	495.7	394.3	101.40	4.889	
12,655.6	10,821.5	12,933.3	10,850.1	58.3	61.6	93.32	-1,463.5	1,609.0	502.2	399.0	103.21	4.866	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 4T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,700.0	10,821.7	12,993.3	10,850.4	59.4	63.0	93.28	-1,469.7	1,668.6	506.6	400.7	105.88	4.784	
12,800.0	10,822.2	13,129.4	10,851.1	61.8	66.0	93.25	-1,476.7	1,804.6	511.2	399.1	112.02	4.563	
12,900.0	10,822.7	13,235.4	10,851.7	64.2	68.4	93.25	-1,477.2	1,910.5	511.1	393.7	117.44	4.352	
13,000.0	10,823.3	13,335.3	10,852.2	66.6	70.7	93.25	-1,477.6	2,010.5	511.0	388.2	122.76	4.163	
13,100.0	10,823.8	13,435.4	10,852.7	69.2	73.0	93.25	-1,478.0	2,110.5	510.9	382.8	128.13	3.987	
13,200.0	10,824.3	13,535.4	10,853.3	71.7	75.4	93.25	-1,478.5	2,210.5	510.8	377.2	133.54	3.825	
13,300.0	10,824.8	13,635.4	10,853.8	74.3	77.8	93.25	-1,478.9	2,310.5	510.6	371.7	138.99	3.674	
13,400.0	10,825.4	13,735.4	10,854.3	76.8	80.2	93.25	-1,479.3	2,410.5	510.5	366.1	144.47	3.534	
13,500.0	10,825.9	13,835.4	10,854.8	79.5	82.7	93.25	-1,479.7	2,510.5	510.4	360.4	149.98	3.403	
13,600.0	10,826.4	13,935.4	10,855.4	82.1	85.2	93.25	-1,480.1	2,610.5	510.3	354.8	155.51	3.281	
13,700.0	10,826.9	14,035.4	10,855.9	84.7	87.7	93.25	-1,480.5	2,710.5	510.2	349.1	161.06	3.167	
13,800.0	10,827.5	14,135.4	10,856.4	87.4	90.2	93.25	-1,480.9	2,810.5	510.0	343.4	166.64	3.061	
13,900.0	10,828.0	14,235.4	10,856.9	90.1	92.8	93.25	-1,481.3	2,910.5	509.9	337.7	172.23	2.961	
14,000.0	10,828.5	14,335.4	10,857.5	92.8	95.4	93.26	-1,481.7	3,010.5	509.8	331.9	177.85	2.867	
14,100.0	10,829.0	14,435.4	10,858.0	95.5	98.0	93.26	-1,482.1	3,110.5	509.7	326.2	183.47	2.778	
14,200.0	10,829.6	14,535.4	10,858.5	98.3	100.7	93.26	-1,482.5	3,210.5	509.6	320.4	189.11	2.694	
14,300.0	10,830.1	14,635.4	10,859.0	101.0	103.3	93.26	-1,482.9	3,310.5	509.4	314.7	194.76	2.616	
14,400.0	10,830.6	14,735.4	10,859.6	103.8	106.0	93.26	-1,483.3	3,410.5	509.3	308.9	200.43	2.541	
14,500.0	10,831.1	14,835.4	10,860.1	106.5	108.7	93.26	-1,483.8	3,510.5	509.2	303.1	206.10	2.471	
14,600.0	10,831.6	14,935.4	10,860.6	109.3	111.3	93.26	-1,484.2	3,610.5	509.1	297.3	211.79	2.404	
14,700.0	10,832.2	15,035.4	10,861.1	112.1	114.0	93.26	-1,484.6	3,710.5	508.9	291.5	217.48	2.340	
14,800.0	10,832.7	15,135.4	10,861.6	114.9	116.8	93.26	-1,485.0	3,810.5	508.8	285.6	223.18	2.280	
14,900.0	10,833.2	15,235.4	10,862.2	117.6	119.5	93.26	-1,485.4	3,910.5	508.7	279.8	228.89	2.222	
15,000.0	10,833.7	15,335.4	10,862.7	120.4	122.2	93.26	-1,485.8	4,010.5	508.6	274.0	234.61	2.168	
15,100.0	10,834.3	15,435.4	10,863.2	123.2	125.0	93.26	-1,486.2	4,110.5	508.5	268.1	240.33	2.116	
15,200.0	10,834.8	15,535.4	10,863.7	126.1	127.7	93.26	-1,486.6	4,210.5	508.3	262.3	246.06	2.066	
15,300.0	10,835.3	15,635.4	10,864.3	128.9	130.5	93.27	-1,487.0	4,310.5	508.2	256.4	251.80	2.018	
15,400.0	10,835.8	15,735.4	10,864.8	131.7	133.2	93.27	-1,487.4	4,410.5	508.1	250.6	257.54	1.973	
15,500.0	10,836.4	15,835.4	10,865.3	134.5	136.0	93.27	-1,487.8	4,510.4	508.0	244.7	263.29	1.929	
15,600.0	10,836.9	15,935.4	10,865.8	137.4	138.8	93.27	-1,488.2	4,610.4	507.9	238.8	269.04	1.888	
15,700.0	10,837.4	16,035.4	10,866.4	140.2	141.6	93.27	-1,488.6	4,710.4	507.7	232.9	274.79	1.848	
15,800.0	10,837.9	16,135.4	10,866.9	143.0	144.4	93.27	-1,489.1	4,810.4	507.6	227.1	280.55	1.809	
15,900.0	10,838.5	16,235.4	10,867.4	145.9	147.2	93.27	-1,489.5	4,910.4	507.5	221.2	286.31	1.772	
16,000.0	10,839.0	16,335.4	10,867.9	148.7	150.0	93.27	-1,489.9	5,010.4	507.4	215.3	292.08	1.737	
16,100.0	10,839.5	16,435.4	10,868.5	151.6	152.8	93.27	-1,490.3	5,110.4	507.2	209.4	297.85	1.703	
16,200.0	10,840.0	16,535.4	10,869.0	154.4	155.6	93.27	-1,490.7	5,210.4	507.1	203.5	303.62	1.670	
16,300.0	10,840.5	16,635.4	10,869.5	157.3	158.4	93.27	-1,491.1	5,310.4	507.0	197.6	309.40	1.639	
16,400.0	10,841.1	16,735.4	10,870.0	160.1	161.2	93.27	-1,491.5	5,410.4	506.9	191.7	315.18	1.608	
16,500.0	10,841.6	16,835.4	10,870.5	163.0	164.1	93.27	-1,491.9	5,510.4	506.8	185.8	320.96	1.579	
16,600.0	10,842.1	16,935.4	10,871.1	165.9	166.9	93.28	-1,492.3	5,610.4	506.6	179.9	326.74	1.551	
16,700.0	10,842.6	17,035.4	10,871.6	168.7	169.7	93.28	-1,492.7	5,710.4	506.5	174.0	332.53	1.523	
16,800.0	10,843.2	17,135.4	10,872.1	171.6	172.6	93.28	-1,493.1	5,810.4	506.4	168.1	338.32	1.497 Level 3	
16,900.0	10,843.7	17,235.4	10,872.6	174.5	175.4	93.28	-1,493.5	5,910.4	506.3	162.2	344.11	1.471 Level 3	
17,000.0	10,844.2	17,335.4	10,873.2	177.3	178.2	93.28	-1,493.9	6,010.4	506.1	156.2	349.90	1.447 Level 3	
17,100.0	10,844.7	17,435.4	10,873.7	180.2	181.1	93.28	-1,494.3	6,110.4	506.0	150.3	355.70	1.423 Level 3	
17,200.0	10,845.3	17,535.4	10,874.2	183.1	183.9	93.28	-1,494.8	6,210.4	505.9	144.4	361.49	1.399 Level 3	
17,300.0	10,845.8	17,635.4	10,874.7	186.0	186.8	93.28	-1,495.2	6,310.4	505.8	138.5	367.29	1.377 Level 3	
17,400.0	10,846.3	17,735.4	10,875.3	188.8	189.6	93.28	-1,495.6	6,410.4	505.7	132.6	373.09	1.355 Level 3	
17,500.0	10,846.8	17,835.4	10,875.8	191.7	192.5	93.28	-1,496.0	6,510.4	505.5	126.6	378.90	1.334 Level 3	
17,600.0	10,847.4	17,935.4	10,876.3	194.6	195.3	93.28	-1,496.4	6,610.4	505.4	120.7	384.70	1.314 Level 3	
17,700.0	10,847.9	18,035.4	10,876.8	197.5	198.2	93.28	-1,496.8	6,710.4	505.3	114.8	390.50	1.294 Level 3	
17,800.0	10,848.4	18,135.4	10,877.4	200.4	201.1	93.28	-1,497.2	6,810.4	505.2	108.9	396.31	1.275 Level 3	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 4T2 - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
17,900.0	10,848.9	18,235.4	10,877.9	203.3	203.9	93.29		-1,497.6	6,910.4	505.1	102.9	402.12	1.256 Level 3
18,000.0	10,849.5	18,335.4	10,878.4	206.2	206.8	93.29		-1,498.0	7,010.4	504.9	97.0	407.93	1.238 Level 2
18,100.0	10,850.0	18,435.4	10,878.9	209.0	209.7	93.29		-1,498.4	7,110.4	504.8	91.1	413.74	1.220 Level 2
18,200.0	10,850.5	18,535.4	10,879.4	211.9	212.5	93.29		-1,498.8	7,210.4	504.7	85.1	419.55	1.203 Level 2
18,300.0	10,851.0	18,635.4	10,880.0	214.8	215.4	93.29		-1,499.2	7,310.4	504.6	79.2	425.36	1.186 Level 2
18,400.0	10,851.5	18,735.4	10,880.5	217.7	218.3	93.29		-1,499.6	7,410.4	504.4	73.3	431.18	1.170 Level 2
18,500.0	10,852.1	18,835.4	10,881.0	220.6	221.1	93.29		-1,500.1	7,510.4	504.3	67.3	436.99	1.154 Level 2
18,600.0	10,852.6	18,935.4	10,881.5	223.5	224.0	93.29		-1,500.5	7,610.4	504.2	61.4	442.81	1.139 Level 2
18,700.0	10,853.1	19,035.4	10,882.1	226.4	226.9	93.29		-1,500.9	7,710.4	504.1	55.5	448.63	1.124 Level 2
18,800.0	10,853.6	19,135.4	10,882.6	229.3	229.8	93.29		-1,501.3	7,810.4	504.0	49.5	454.45	1.109 Level 2
18,900.0	10,854.2	19,235.4	10,883.1	232.2	232.7	93.29		-1,501.7	7,910.4	503.8	43.6	460.26	1.095 Level 2
19,000.0	10,854.7	19,335.4	10,883.6	235.1	235.5	93.29		-1,502.1	8,010.4	503.7	37.6	466.08	1.081 Level 2
19,100.0	10,855.2	19,435.4	10,884.2	238.0	238.4	93.30		-1,502.5	8,110.4	503.6	31.7	471.91	1.067 Level 2
19,200.0	10,855.7	19,535.4	10,884.7	240.9	241.3	93.30		-1,502.9	8,210.4	503.5	25.8	477.73	1.054 Level 2
19,300.0	10,856.3	19,635.4	10,885.2	243.8	244.2	93.30		-1,503.3	8,310.4	503.4	19.8	483.55	1.041 Level 2
19,400.0	10,856.8	19,735.4	10,885.7	246.7	247.1	93.30		-1,503.7	8,410.4	503.2	13.9	489.37	1.028 Level 2
19,500.0	10,857.3	19,835.4	10,886.3	249.6	250.0	93.30		-1,504.1	8,510.4	503.1	7.9	495.20	1.016 Level 2
19,600.0	10,857.8	19,935.4	10,886.8	252.5	252.8	93.30		-1,504.5	8,610.4	503.0	2.0	501.02	1.004 Level 2
19,700.0	10,858.4	20,035.4	10,887.3	255.4	255.7	93.30		-1,504.9	8,710.4	502.9	-4.0	506.85	0.992 Level 1
19,800.0	10,858.9	20,135.4	10,887.8	258.3	258.6	93.30		-1,505.4	8,810.4	502.7	-9.9	512.67	0.981 Level 1
19,900.0	10,859.4	20,235.4	10,888.3	261.2	261.5	93.30		-1,505.8	8,910.3	502.6	-15.9	518.50	0.969 Level 1
20,000.0	10,859.9	20,335.4	10,888.9	264.1	264.4	93.30		-1,506.2	9,010.3	502.5	-21.8	524.33	0.958 Level 1
20,100.0	10,860.4	20,435.4	10,889.4	267.0	267.3	93.30		-1,506.6	9,110.3	502.4	-27.8	530.15	0.948 Level 1
20,200.0	10,861.0	20,535.4	10,889.9	269.9	270.2	93.30		-1,507.0	9,210.3	502.3	-33.7	535.98	0.937 Level 1
20,300.0	10,861.5	20,635.4	10,890.4	272.8	273.1	93.30		-1,507.4	9,310.3	502.1	-39.7	541.81	0.927 Level 1
20,400.0	10,862.0	20,735.4	10,891.0	275.7	276.0	93.31		-1,507.8	9,410.3	502.0	-45.6	547.64	0.917 Level 1
20,500.0	10,862.5	20,835.4	10,891.5	278.6	278.9	93.31		-1,508.2	9,510.3	501.9	-51.6	553.47	0.907 Level 1
20,600.0	10,863.1	20,935.4	10,892.0	281.6	281.8	93.31		-1,508.6	9,610.3	501.8	-57.5	559.30	0.897 Level 1
20,700.0	10,863.6	21,035.4	10,892.5	284.5	284.7	93.31		-1,509.0	9,710.3	501.7	-63.5	565.13	0.888 Level 1
20,800.0	10,864.1	21,135.4	10,893.1	287.4	287.6	93.31		-1,509.4	9,810.3	501.5	-69.4	570.96	0.878 Level 1
20,900.0	10,864.6	21,235.4	10,893.6	290.3	290.5	93.31		-1,509.8	9,910.3	501.4	-75.4	576.79	0.869 Level 1
21,000.0	10,865.2	21,335.4	10,894.1	293.2	293.4	93.31		-1,510.2	10,010.3	501.3	-81.3	582.62	0.860 Level 1
21,038.5	10,865.4	21,373.9	10,894.3	294.3	294.5	93.31		-1,510.4	10,048.8	501.2	-83.6	584.87	0.857 Level 1, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodta, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 5B - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD				Distance								Offset Well Error:	0.0 usft
Reference	Offset		Semi Major Axis		Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset (usft)								
0.0	0.0	0.0	0.0	0.0	0.0	-155.03	-59.8	-27.8	65.9	0.17	391.195		
100.0	100.0	100.0	100.0	0.1	0.1	-155.03	-59.8	-27.8	65.9	65.8	0.62	106.690	
200.0	200.0	200.0	200.0	0.3	0.3	-155.03	-59.8	-27.8	65.9	65.3	1.07	61.768	
300.0	300.0	300.0	300.0	0.5	0.5	-155.03	-59.8	-27.8	65.9	64.9	1.52	43.466	
400.0	400.0	400.0	400.0	0.8	0.8	-155.03	-59.8	-27.8	65.9	64.4	1.97	33.531	
500.0	500.0	500.0	500.0	1.0	1.0	-155.03	-59.8	-27.8	65.9	64.0	2.42	27.293	
600.0	600.0	600.0	600.0	1.2	1.2	-155.03	-59.8	-27.8	65.9	63.5	2.87	23.012	
700.0	700.0	700.0	700.0	1.4	1.4	-155.03	-59.8	-27.8	65.9	63.1	3.32	19.891	
800.0	800.0	800.0	800.0	1.7	1.7	-155.03	-59.8	-27.8	65.9	62.6	3.76	17.516	
900.0	900.0	900.0	900.0	1.9	1.9	-155.03	-59.8	-27.8	65.9	62.2	4.21	15.648	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-155.03	-59.8	-27.8	65.9	61.7	4.66	14.140	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-155.03	-59.8	-27.8	65.9	61.3	5.11	12.897	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-155.03	-59.8	-27.8	65.9	60.8	5.56	11.854	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-155.03	-59.8	-27.8	65.9	60.4	6.01	10.968	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-155.03	-59.8	-27.8	65.9	59.9	6.46	10.205	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-155.03	-59.8	-27.8	65.9	59.5	6.91	9.541	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-155.03	-59.8	-27.8	65.9	58.6	7.36	8.959	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-155.03	-59.8	-27.8	65.9	58.1	7.81	8.443	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-155.03	-59.8	-27.8	65.9	57.7	8.26	7.984	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.1	-155.03	-59.8	-27.8	65.9	57.2	8.71	7.572	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	-155.03	-59.8	-27.8	65.9	55.0	9.16	6.018 CC	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	-155.03	-59.8	-27.8	65.9	56.8	9.61	7.200	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	-155.03	-59.8	-27.8	65.9	56.3	9.63	6.863	
2,300.0	2,300.0	2,300.0	2,300.0	5.0	5.0	-155.03	-59.8	-27.8	65.9	55.9	10.06	6.556	
2,400.0	2,400.0	2,400.0	2,400.0	5.3	5.3	-155.03	-59.8	-27.8	65.9	55.4	10.51	6.276	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	-155.03	-59.8	-27.8	65.9	55.0	10.96		
2,600.0	2,600.0	2,598.3	2,598.3	5.7	5.7	-67.39	-61.4	-27.3	66.5	55.1	11.36	5.851	
2,650.0	2,649.9	2,647.3	2,647.3	5.8	5.8	-70.26	-63.3	-26.5	67.3	55.8	11.55	5.830	
2,700.0	2,699.9	2,697.1	2,697.0	5.9	5.8	-73.70	-65.8	-25.7	68.6	56.8	11.73	5.843	
2,800.0	2,799.7	2,796.7	2,796.5	6.1	6.0	-80.17	-70.7	-23.9	71.8	59.7	12.12	5.924	
2,900.0	2,899.6	2,896.4	2,896.0	6.3	6.2	-86.02	-75.6	-22.1	75.8	63.3	12.51	6.064	
3,000.0	2,999.5	2,996.0	2,995.5	6.5	6.4	-91.23	-80.5	-20.3	80.6	67.7	12.90	6.248	
3,100.0	3,099.3	3,095.6	3,094.9	6.7	6.6	-95.83	-85.4	-18.5	86.0	72.7	13.30	6.464	
3,200.0	3,199.2	3,195.3	3,194.4	7.0	6.8	-99.87	-90.3	-16.7	91.8	78.1	13.70	6.701	
3,300.0	3,299.0	3,294.9	3,293.9	7.2	7.0	-103.41	-95.2	-15.0	98.1	84.0	14.11	6.951	
3,400.0	3,398.9	3,394.5	3,393.4	7.4	7.2	-106.52	-100.1	-13.2	104.6	90.1	14.51	7.209	
3,501.2	3,500.0	3,495.4	3,494.2	7.6	7.4	-109.28	-105.0	-11.4	111.6	96.6	14.93	7.472	
3,600.0	3,598.7	3,597.8	3,596.5	7.8	7.6	-111.06	-108.6	-10.1	116.4	101.0	15.35	7.583	
3,651.2	3,649.9	3,651.2	3,649.9	7.9	7.7	-158.71	-109.0	-9.9	117.0	101.4	15.59	7.506	
3,700.0	3,698.7	3,700.0	3,698.7	8.0	7.8	-158.71	-109.0	-9.9	117.0	101.2	15.80	7.407	
3,800.0	3,798.7	3,800.0	3,798.7	8.2	8.0	-158.71	-109.0	-9.9	117.0	100.8	16.24	7.206	
3,900.0	3,898.7	3,900.0	3,898.7	8.5	8.2	-158.71	-109.0	-9.9	117.0	100.3	16.68	7.016	
4,000.0	3,998.7	4,000.0	3,998.7	8.7	8.5	-158.71	-109.0	-9.9	117.0	99.9	17.12	6.835	
4,100.0	4,098.7	4,100.0	4,098.7	8.9	8.7	-158.71	-109.0	-9.9	117.0	99.4	17.56	6.663	
4,200.0	4,198.7	4,200.0	4,198.7	9.1	8.9	-158.71	-109.0	-9.9	117.0	99.0	18.00	6.499	
4,300.0	4,298.7	4,300.0	4,298.7	9.4	9.1	-158.71	-109.0	-9.9	117.0	98.6	18.45	6.343	
4,400.0	4,398.7	4,400.0	4,398.7	9.6	9.3	-158.71	-109.0	-9.9	117.0	98.1	18.89	6.194	
4,500.0	4,498.7	4,500.0	4,498.7	9.8	9.6	-158.71	-109.0	-9.9	117.0	97.7	19.33	6.052	
4,600.0	4,598.7	4,600.0	4,598.7	10.0	9.8	-158.71	-109.0	-9.9	117.0	97.2	19.78	5.916	
4,700.0	4,698.7	4,700.0	4,698.7	10.2	10.0	-158.71	-109.0	-9.9	117.0	96.8	20.22	5.786	
4,800.0	4,798.7	4,800.0	4,798.7	10.5	10.2	-158.71	-109.0	-9.9	117.0	96.3	20.67	5.662	
4,900.0	4,898.7	4,900.0	4,898.7	10.7	10.4	-158.71	-109.0	-9.9	117.0	95.9	21.11	5.543	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 5B - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.0	4,998.7	5,000.0	4,998.7	10.9	10.7	158.71	-109.0	-9.9	117.0	95.5	21.56	5.428	
5,100.0	5,098.7	5,100.0	5,098.7	11.1	10.9	158.71	-109.0	-9.9	117.0	95.0	22.00	5.319	
5,200.0	5,198.7	5,200.0	5,198.7	11.4	11.1	158.71	-109.0	-9.9	117.0	94.6	22.45	5.213	
5,300.0	5,298.7	5,300.0	5,298.7	11.6	11.3	158.71	-109.0	-9.9	117.0	94.1	22.89	5.112	
5,400.0	5,398.7	5,400.0	5,398.7	11.8	11.6	158.71	-109.0	-9.9	117.0	93.7	23.34	5.014	
5,500.0	5,498.7	5,500.0	5,498.7	12.0	11.8	158.71	-109.0	-9.9	117.0	93.2	23.78	4.920	
5,600.0	5,598.7	5,600.0	5,598.7	12.2	12.0	158.71	-109.0	-9.9	117.0	92.8	24.23	4.830	
5,700.0	5,698.7	5,700.0	5,698.7	12.5	12.2	158.71	-109.0	-9.9	117.0	92.3	24.67	4.742	
5,800.0	5,798.7	5,800.0	5,798.7	12.7	12.4	158.71	-109.0	-9.9	117.0	91.9	25.12	4.658	
5,900.0	5,898.7	5,900.0	5,898.7	12.9	12.7	158.71	-109.0	-9.9	117.0	91.4	25.56	4.577	
6,000.0	5,998.7	6,000.0	5,998.7	13.1	12.9	158.71	-109.0	-9.9	117.0	91.0	26.01	4.498	
6,100.0	6,098.7	6,100.0	6,098.7	13.4	13.1	158.71	-109.0	-9.9	117.0	90.6	26.46	4.423	
6,200.0	6,198.7	6,200.0	6,198.7	13.6	13.3	158.71	-109.0	-9.9	117.0	90.1	26.90	4.349	
6,300.0	6,298.7	6,300.0	6,298.7	13.8	13.6	158.71	-109.0	-9.9	117.0	89.7	27.35	4.278	
6,400.0	6,398.7	6,400.0	6,398.7	14.0	13.8	158.71	-109.0	-9.9	117.0	89.2	27.80	4.209	
6,500.0	6,498.7	6,500.0	6,498.7	14.3	14.0	158.71	-109.0	-9.9	117.0	88.8	28.24	4.143	
6,600.0	6,598.7	6,600.0	6,598.7	14.5	14.2	158.71	-109.0	-9.9	117.0	88.3	28.69	4.078	
6,700.0	6,698.7	6,700.0	6,698.7	14.7	14.4	158.71	-109.0	-9.9	117.0	87.9	29.14	4.016	
6,800.0	6,798.7	6,800.0	6,798.7	14.9	14.7	158.71	-109.0	-9.9	117.0	87.4	29.58	3.955	
6,900.0	6,898.7	6,900.0	6,898.7	15.2	14.9	158.71	-109.0	-9.9	117.0	87.0	30.03	3.896	
7,000.0	6,998.7	7,000.0	6,998.7	15.4	15.1	158.71	-109.0	-9.9	117.0	86.5	30.48	3.839	
7,100.0	7,098.7	7,100.0	7,098.7	15.6	15.3	158.71	-109.0	-9.9	117.0	86.1	30.93	3.784	
7,200.0	7,198.7	7,200.0	7,198.7	15.8	15.6	158.71	-109.0	-9.9	117.0	85.6	31.37	3.730	
7,300.0	7,298.7	7,300.0	7,298.7	16.0	15.8	158.71	-109.0	-9.9	117.0	85.2	31.82	3.677	
7,400.0	7,398.7	7,400.0	7,398.7	16.3	16.0	158.71	-109.0	-9.9	117.0	84.7	32.27	3.626	
7,500.0	7,498.7	7,500.0	7,498.7	16.5	16.2	158.71	-109.0	-9.9	117.0	84.3	32.71	3.577	
7,600.0	7,598.7	7,600.0	7,598.7	16.7	16.5	158.71	-109.0	-9.9	117.0	83.8	33.16	3.528	
7,700.0	7,698.7	7,700.0	7,698.7	16.9	16.7	158.71	-109.0	-9.9	117.0	83.4	33.61	3.481	
7,800.0	7,798.7	7,800.0	7,798.7	17.2	16.9	158.71	-109.0	-9.9	117.0	83.0	34.06	3.436	
7,900.0	7,898.7	7,900.0	7,898.7	17.4	17.1	158.71	-109.0	-9.9	117.0	82.5	34.51	3.391	
8,000.0	7,998.7	8,000.0	7,998.7	17.6	17.3	158.71	-109.0	-9.9	117.0	82.1	34.95	3.348	
8,100.0	8,098.7	8,100.0	8,098.7	17.8	17.6	158.71	-109.0	-9.9	117.0	81.6	35.40	3.305	
8,200.0	8,198.7	8,200.0	8,198.7	18.1	17.8	158.71	-109.0	-9.9	117.0	81.2	35.85	3.264	
8,300.0	8,298.7	8,300.0	8,298.7	18.3	18.0	158.71	-109.0	-9.9	117.0	80.7	36.30	3.224	
8,400.0	8,398.7	8,400.0	8,398.7	18.5	18.2	158.71	-109.0	-9.9	117.0	80.3	36.74	3.184	
8,500.0	8,498.7	8,500.0	8,498.7	18.7	18.5	158.71	-109.0	-9.9	117.0	79.8	37.19	3.146	
8,600.0	8,598.7	8,600.0	8,598.7	19.0	18.7	158.71	-109.0	-9.9	117.0	79.4	37.64	3.109	
8,700.0	8,698.7	8,700.0	8,698.7	19.2	18.9	158.71	-109.0	-9.9	117.0	78.9	38.09	3.072	
8,800.0	8,798.7	8,800.0	8,798.7	19.4	19.1	158.71	-109.0	-9.9	117.0	78.5	38.54	3.036	
8,900.0	8,898.7	8,900.0	8,898.7	19.6	19.4	158.71	-109.0	-9.9	117.0	78.0	38.98	3.001	
9,000.0	8,998.7	9,000.0	8,998.7	19.9	19.6	158.71	-109.0	-9.9	117.0	77.6	39.43	2.967	
9,100.0	9,098.7	9,100.0	9,098.7	20.1	19.8	158.71	-109.0	-9.9	117.0	77.1	39.88	2.934	
9,200.0	9,198.7	9,200.0	9,198.7	20.3	20.0	158.71	-109.0	-9.9	117.0	76.7	40.33	2.901	
9,300.0	9,298.7	9,300.0	9,298.7	20.5	20.3	158.71	-109.0	-9.9	117.0	76.2	40.78	2.870	
9,400.0	9,398.7	9,400.0	9,398.7	20.8	20.5	158.71	-109.0	-9.9	117.0	75.8	41.22	2.838	
9,500.0	9,498.7	9,500.0	9,498.7	21.0	20.7	158.71	-109.0	-9.9	117.0	75.3	41.67	2.808	
9,600.0	9,598.7	9,600.0	9,598.7	21.2	20.9	158.71	-109.0	-9.9	117.0	74.9	42.12	2.778	
9,700.0	9,698.7	9,700.0	9,698.7	21.4	21.2	158.71	-109.0	-9.9	117.0	74.4	42.57	2.749	
9,800.0	9,798.7	9,800.0	9,798.7	21.6	21.4	158.71	-109.0	-9.9	117.0	74.0	43.02	2.720	
9,900.0	9,898.7	9,900.0	9,898.7	21.9	21.6	158.71	-109.0	-9.9	117.0	73.5	43.47	2.692	
10,000.0	9,998.7	10,000.0	9,998.7	22.1	21.8	158.71	-109.0	-9.9	117.0	73.1	43.91	2.664	
10,100.0	10,098.7	10,100.0	10,098.7	22.3	22.0	158.71	-109.0	-9.9	117.0	72.6	44.36	2.638	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 5B - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD				Distance								Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
10,200.0	10,198.7	10,200.0	10,198.7	22.5	22.3	158.71		-109.0	-9.9	117.0	72.2	44.81	2.611
10,249.4	10,248.1	10,249.4	10,248.1	22.7	22.4	158.71		-109.0	-9.9	117.0	72.0	45.03	2.598
10,300.0	10,298.7	10,294.8	10,293.5	22.8	22.5	158.67		-109.4	-9.7	117.6	72.3	45.24	2.599
10,336.6	10,335.3	10,325.0	10,323.6	22.9	22.5	158.51		-111.4	-8.5	120.3	74.9	45.38	2.651
10,350.0	10,348.7	10,334.8	10,333.3	22.9	22.6	21.39		-112.4	-8.0	121.7	76.3	45.39	2.681
10,375.0	10,373.7	10,354.6	10,352.9	22.9	22.6	21.27		-115.0	-6.5	124.1	78.7	45.39	2.734
10,400.0	10,398.5	10,375.0	10,372.9	23.0	22.6	21.28		-118.3	-4.6	126.3	81.0	45.32	2.787
10,425.0	10,423.2	10,394.1	10,391.5	23.0	22.7	21.40		-122.1	-2.4	128.3	83.2	45.17	2.842
10,450.0	10,447.6	10,413.8	10,410.4	23.1	22.7	21.63		-126.7	0.3	130.2	85.2	44.95	2.896
10,475.0	10,471.8	10,433.4	10,429.1	23.1	22.7	21.98		-132.0	3.3	131.8	87.2	44.66	2.952
10,500.0	10,495.5	10,452.9	10,447.4	23.1	22.8	22.43		-137.8	6.7	133.3	89.0	44.30	3.008
10,525.0	10,518.8	10,475.0	10,467.8	23.2	22.8	23.06		-145.3	11.0	134.6	90.7	43.90	3.065
10,550.0	10,541.7	10,491.9	10,483.1	23.2	22.9	23.63		-151.5	14.6	135.6	92.2	43.44	3.122
10,575.0	10,563.9	10,511.4	10,500.4	23.3	22.9	24.38		-159.2	19.1	136.5	93.6	42.94	3.180
10,600.0	10,585.5	10,530.8	10,517.2	23.3	23.0	25.22		-167.6	23.9	137.3	94.9	42.42	3.237
10,625.0	10,606.5	10,550.0	10,533.5	23.4	23.0	26.16		-176.4	29.0	137.9	96.0	41.88	3.293
10,650.0	10,626.7	10,569.6	10,549.7	23.4	23.1	27.21		-186.0	34.5	138.4	97.1	41.35	3.348
10,675.0	10,646.1	10,589.0	10,565.2	23.5	23.1	28.34		-196.0	40.3	138.8	98.0	40.82	3.400
10,700.0	10,664.6	10,608.3	10,580.3	23.6	23.2	29.57		-206.5	46.4	139.1	98.7	40.33	3.448
10,725.0	10,682.3	10,627.7	10,594.8	23.6	23.3	30.89		-217.6	52.8	139.2	99.4	39.89	3.491
10,750.0	10,698.9	10,647.1	10,608.8	23.7	23.3	32.31		-229.2	59.5	139.4	99.9	39.51	3.527
10,775.0	10,714.6	10,666.5	10,622.3	23.8	23.4	33.82		-241.3	66.4	139.5	100.2	39.22	3.556
10,800.0	10,729.3	10,685.9	10,635.2	23.9	23.5	35.43		-253.8	73.7	139.5	100.5	39.04	3.574
10,825.0	10,742.9	10,705.3	10,647.5	24.0	23.6	37.12		-266.8	81.2	139.6	100.7	38.97	3.583
10,850.0	10,755.3	10,725.0	10,659.4	24.2	23.7	38.93		-280.5	89.1	139.8	100.7	39.05	3.579
10,875.0	10,766.6	10,744.3	10,670.4	24.3	23.8	40.77		-294.2	97.0	139.9	100.7	39.25	3.566
10,900.0	10,776.8	10,763.9	10,680.8	24.5	23.9	42.72		-308.5	105.3	140.2	100.6	39.59	3.541
10,925.0	10,785.7	10,783.5	10,690.7	24.7	24.0	44.73		-323.2	113.8	140.6	100.5	40.09	3.507
10,950.0	10,793.4	10,803.2	10,699.8	24.9	24.1	46.81		-338.4	122.5	141.1	100.4	40.71	3.466
10,975.0	10,799.8	10,825.0	10,709.1	25.1	24.3	49.18		-355.4	132.4	141.8	100.2	41.55	3.413
11,000.0	10,804.9	10,842.9	10,716.0	25.3	24.4	51.14		-369.7	140.6	142.7	100.3	42.33	3.370
11,025.0	10,808.8	10,862.9	10,723.0	25.5	24.6	53.37		-385.9	150.0	143.7	100.5	43.28	3.321
11,050.0	10,811.4	10,883.0	10,729.2	25.8	24.7	55.62		-402.5	159.5	145.0	100.7	44.30	3.274
11,075.0	10,812.6	10,903.2	10,734.7	26.0	24.9	57.89		-419.4	169.3	146.6	101.2	45.37	3.231
11,084.1	10,812.8	10,910.6	10,736.5	26.1	25.0	58.72		-425.6	172.8	147.2	101.5	45.77	3.217
11,099.1	10,812.8	10,922.9	10,739.2	26.3	25.1	60.15		-436.0	178.8	148.5	102.0	46.44	3.197
11,200.0	10,813.4	11,007.7	10,749.5	27.5	25.9	66.71		-508.7	220.9	166.0	115.9	50.07	3.315
11,300.0	10,813.9	11,108.1	10,750.2	28.9	27.0	70.02		-595.0	272.2	192.9	139.8	53.12	3.632
11,400.0	10,814.5	11,214.9	10,750.8	30.6	28.4	72.61		-683.7	331.6	220.4	164.1	56.32	3.913
11,500.0	10,815.0	11,323.6	10,751.4	32.4	30.0	74.62		-770.6	396.9	247.8	188.1	59.64	4.155
11,600.0	10,815.6	11,434.3	10,752.0	34.3	31.9	76.20		-855.0	468.5	274.9	211.8	63.09	4.358
11,700.0	10,816.1	11,547.1	10,752.7	36.3	33.9	77.49		-936.6	546.3	301.6	235.0	66.65	4.525
11,800.0	10,816.7	11,662.0	10,753.4	38.5	36.1	78.55		-1,014.9	630.5	327.8	257.5	70.31	4.662
11,900.0	10,817.3	11,779.1	10,754.1	40.7	38.5	79.43		-1,089.3	720.9	353.2	279.2	74.03	4.771
12,000.0	10,817.9	11,898.5	10,754.8	43.0	41.1	80.18		-1,159.3	817.5	377.8	300.0	77.78	4.857
12,100.0	10,818.4	12,020.0	10,755.5	45.3	43.7	80.81		-1,224.3	920.2	401.4	319.8	81.55	4.922
12,200.0	10,819.0	12,143.9	10,756.3	47.6	46.5	81.35		-1,283.6	1,028.9	423.9	338.6	85.31	4.969
12,300.0	10,819.5	12,269.9	10,757.0	50.0	49.4	81.81		-1,336.6	1,143.2	445.1	356.1	89.00	5.001
12,400.0	10,820.1	12,398.1	10,757.8	52.3	52.4	82.21		-1,382.7	1,262.9	465.0	372.4	92.62	5.021
12,500.0	10,820.6	12,528.5	10,758.5	54.7	55.4	82.56		-1,421.2	1,387.4	483.5	387.3	96.14	5.029
12,600.0	10,821.2	12,660.9	10,759.3	57.0	58.5	82.85		-1,451.5	1,516.2	500.3	400.8	99.53	5.027
12,655.6	10,821.5	12,735.3	10,759.7	58.3	60.2	83.00		-1,464.6	1,589.5	508.9	407.6	101.34	5.022

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



**Gyrodata, Inc.**  
Anticollision Report



<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 5B - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
12,700.0	10,821.7	12,795.2	10,760.1	59.4	61.6	83.11		-1,473.1	1,648.8	514.9	410.9	104.00	4.951
12,800.0	10,822.2	12,931.7	10,760.8	61.8	64.7	83.27		-1,485.4	1,784.7	523.4	413.2	110.13	4.752
12,900.0	10,822.7	13,058.8	10,761.5	64.2	67.5	83.30		-1,488.3	1,911.7	525.0	408.9	116.06	4.523
13,000.0	10,823.3	13,158.8	10,762.0	66.6	69.8	83.29		-1,488.6	2,011.7	524.7	403.4	121.35	4.324
13,100.0	10,823.8	13,258.8	10,762.5	69.2	72.1	83.29		-1,488.8	2,111.7	524.4	397.8	126.68	4.140
13,200.0	10,824.3	13,358.8	10,763.1	71.7	74.5	83.29		-1,489.1	2,211.7	524.2	392.1	132.06	3.969
13,300.0	10,824.8	13,458.8	10,763.6	74.3	76.9	83.28		-1,489.4	2,311.7	523.9	386.4	137.47	3.811
13,400.0	10,825.4	13,558.8	10,764.1	76.8	79.3	83.28		-1,489.6	2,411.7	523.7	380.7	142.92	3.664
13,500.0	10,825.9	13,658.8	10,764.6	79.5	81.8	83.28		-1,489.9	2,511.7	523.4	375.0	148.39	3.527
13,600.0	10,826.4	13,758.8	10,765.2	82.1	84.3	83.27		-1,490.2	2,611.7	523.1	369.2	153.89	3.399
13,700.0	10,826.9	13,858.8	10,765.7	84.7	86.8	83.27		-1,490.4	2,711.7	522.9	363.5	159.42	3.280
13,800.0	10,827.5	13,958.8	10,766.2	87.4	89.3	83.27		-1,490.7	2,811.7	522.6	357.6	164.96	3.168
13,900.0	10,828.0	14,058.8	10,766.7	90.1	91.9	83.26		-1,491.0	2,911.7	522.3	351.8	170.52	3.063
14,000.0	10,828.5	14,158.8	10,767.3	92.8	94.5	83.26		-1,491.2	3,011.7	522.1	346.0	176.10	2.965
14,100.0	10,829.0	14,258.8	10,767.8	95.5	97.1	83.26		-1,491.5	3,111.7	521.8	340.1	181.69	2.872
14,200.0	10,829.6	14,358.8	10,768.3	98.3	99.7	83.25		-1,491.7	3,211.7	521.6	334.3	187.30	2.785
14,300.0	10,830.1	14,458.8	10,768.8	101.0	102.4	83.25		-1,492.0	3,311.7	521.3	328.4	192.92	2.702
14,400.0	10,830.6	14,558.8	10,769.3	103.8	105.0	83.25		-1,492.3	3,411.7	521.0	322.5	198.55	2.624
14,500.0	10,831.1	14,658.8	10,769.9	106.5	107.7	83.24		-1,492.5	3,511.7	520.8	316.6	204.19	2.550
14,600.0	10,831.6	14,758.8	10,770.4	109.3	110.4	83.24		-1,492.8	3,611.6	520.5	310.7	209.84	2.480
14,700.0	10,832.2	14,858.8	10,770.9	112.1	113.1	83.24		-1,493.1	3,711.6	520.2	304.7	215.50	2.414
14,800.0	10,832.7	14,958.8	10,771.4	114.9	115.8	83.23		-1,493.3	3,811.6	520.0	298.8	221.17	2.351
14,900.0	10,833.2	15,058.8	10,772.0	117.6	118.5	83.23		-1,493.6	3,911.6	519.7	292.9	226.85	2.291
15,000.0	10,833.7	15,158.8	10,772.5	120.4	121.3	83.23		-1,493.9	4,011.6	519.4	286.9	232.53	2.234
15,100.0	10,834.3	15,258.8	10,773.0	123.2	124.0	83.22		-1,494.1	4,111.6	519.2	281.0	238.22	2.179
15,200.0	10,834.8	15,358.8	10,773.5	126.1	126.7	83.22		-1,494.4	4,211.6	518.9	275.0	243.92	2.127
15,300.0	10,835.3	15,458.8	10,774.1	128.9	129.5	83.22		-1,494.6	4,311.6	518.7	269.0	249.62	2.078
15,400.0	10,835.8	15,558.8	10,774.6	131.7	132.3	83.21		-1,494.9	4,411.6	518.4	263.1	255.33	2.030
15,500.0	10,836.4	15,658.8	10,775.1	134.5	135.0	83.21		-1,495.2	4,511.6	518.1	257.1	261.04	1.985
15,600.0	10,836.9	15,758.8	10,775.6	137.4	137.8	83.21		-1,495.4	4,611.6	517.9	251.1	266.76	1.941
15,700.0	10,837.4	15,858.8	10,776.2	140.2	140.6	83.20		-1,495.7	4,711.6	517.6	245.1	272.48	1.900
15,800.0	10,837.9	15,958.8	10,776.7	143.0	143.4	83.20		-1,496.0	4,811.6	517.3	239.1	278.20	1.860
15,900.0	10,838.5	16,058.7	10,777.2	145.9	146.2	83.20		-1,496.2	4,911.6	517.1	233.1	283.93	1.821
16,000.0	10,839.0	16,158.7	10,777.7	148.7	149.0	83.19		-1,496.5	5,011.6	516.8	227.1	289.66	1.784
16,100.0	10,839.5	16,258.7	10,778.2	151.6	151.8	83.19		-1,496.8	5,111.6	516.5	221.1	295.40	1.749
16,200.0	10,840.0	16,358.7	10,778.8	154.4	154.6	83.18		-1,497.0	5,211.6	516.3	215.1	301.14	1.714
16,300.0	10,840.5	16,458.7	10,779.3	157.3	157.4	83.18		-1,497.3	5,311.6	516.0	209.1	306.88	1.682
16,400.0	10,841.1	16,558.7	10,779.8	160.1	160.3	83.18		-1,497.6	5,411.6	515.8	203.1	312.62	1.650
16,500.0	10,841.6	16,658.7	10,780.3	163.0	163.1	83.17		-1,497.8	5,511.6	515.5	197.1	318.37	1.619
16,600.0	10,842.1	16,758.7	10,780.9	165.9	165.9	83.17		-1,498.1	5,611.6	515.2	191.1	324.12	1.590
16,700.0	10,842.6	16,858.7	10,781.4	168.7	168.7	83.17		-1,498.3	5,711.6	515.0	185.1	329.87	1.561
16,800.0	10,843.2	16,958.7	10,781.9	171.6	171.6	83.16		-1,498.6	5,811.6	514.7	179.1	335.63	1.534
16,900.0	10,843.7	17,058.7	10,782.4	174.5	174.4	83.16		-1,498.9	5,911.6	514.4	173.1	341.38	1.507
17,000.0	10,844.2	17,158.7	10,783.0	177.3	177.3	83.16		-1,499.1	6,011.6	514.2	167.0	347.14	1.481 Level 3
17,100.0	10,844.7	17,258.7	10,783.5	180.2	180.1	83.15		-1,499.4	6,111.6	513.9	161.0	352.90	1.456 Level 3
17,200.0	10,845.3	17,358.7	10,784.0	183.1	182.9	83.15		-1,499.7	6,211.6	513.6	155.0	358.66	1.432 Level 3
17,300.0	10,845.8	17,458.7	10,784.5	186.0	185.8	83.15		-1,499.9	6,311.6	513.4	149.0	364.43	1.409 Level 3
17,400.0	10,846.3	17,558.7	10,785.1	188.8	188.6	83.14		-1,500.2	6,411.6	513.1	142.9	370.19	1.386 Level 3
17,500.0	10,846.8	17,658.7	10,785.6	191.7	191.5	83.14		-1,500.5	6,511.6	512.9	136.9	375.96	1.364 Level 3
17,600.0	10,847.4	17,758.7	10,786.1	194.6	194.4	83.14		-1,500.7	6,611.6	512.6	130.9	381.73	1.343 Level 3
17,700.0	10,847.9	17,858.7	10,786.6	197.5	197.2	83.13		-1,501.0	6,711.6	512.3	124.8	387.50	1.322 Level 3
17,800.0	10,848.4	17,958.7	10,787.1	200.4	200.1	83.13		-1,501.2	6,811.6	512.1	118.8	393.27	1.302 Level 3

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

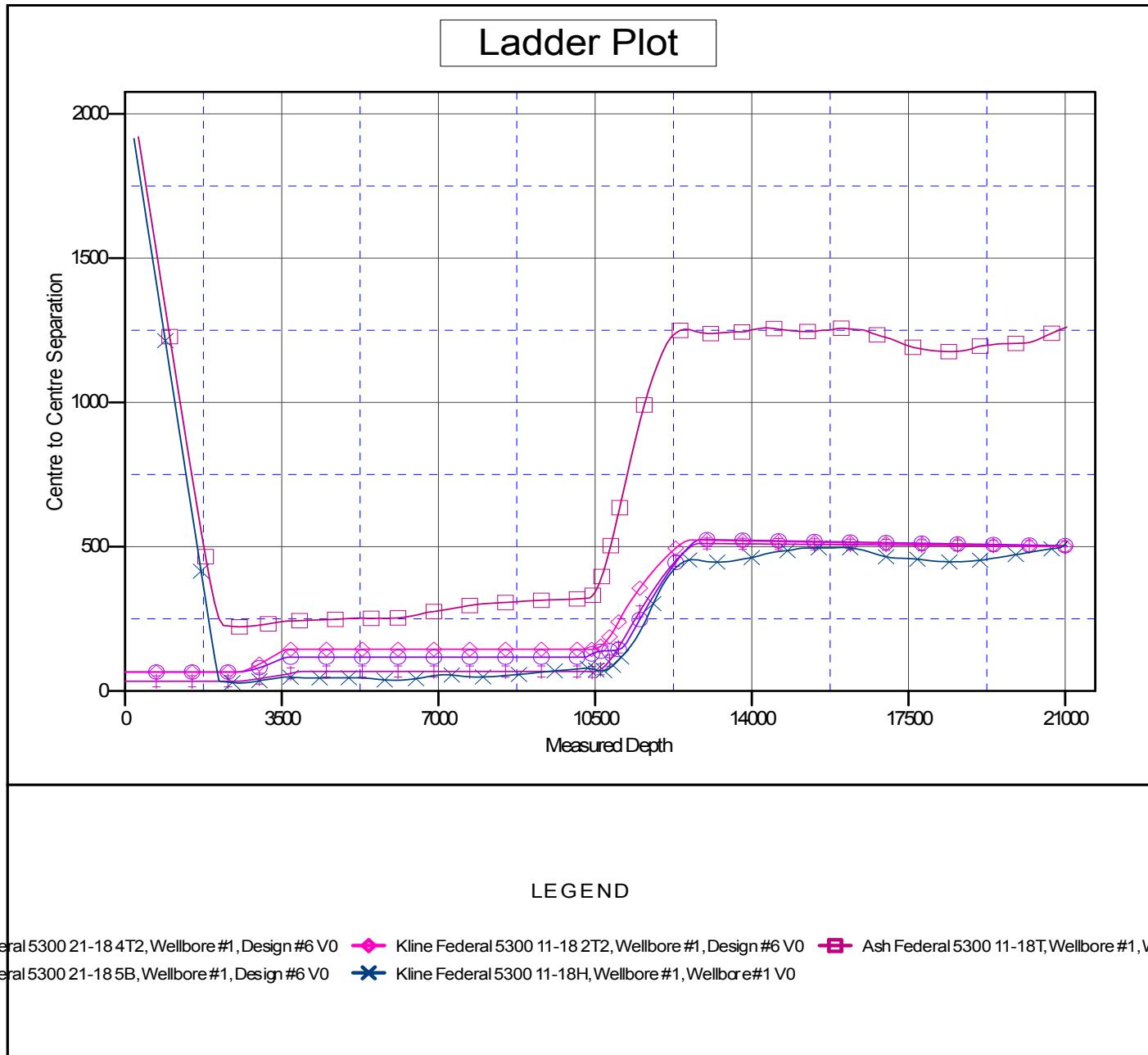
Offset Design 153N-100W-17/18 - Kline Federal 5300 21-18 5B - Wellbore #1 - Design #6												Offset Site Error:	0.0 usft	
Survey Program: 0-MWD												Offset Well Error:	0.0 usft	
Reference		Offset		Semi Major Axis				Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,900.0	10,848.9	18,058.7	10,787.7	203.3	202.9	83.13		-1,501.5	6,911.6	511.8	112.8	399.04	1.283	Level 3
18,000.0	10,849.5	18,158.7	10,788.2	206.2	205.8	83.12		-1,501.8	7,011.6	511.5	106.7	404.82	1.264	Level 3
18,100.0	10,850.0	18,258.7	10,788.7	209.0	208.7	83.12		-1,502.0	7,111.6	511.3	100.7	410.59	1.245	Level 2
18,200.0	10,850.5	18,358.7	10,789.2	211.9	211.5	83.11		-1,502.3	7,211.6	511.0	94.6	416.37	1.227	Level 2
18,300.0	10,851.0	18,458.7	10,789.8	214.8	214.4	83.11		-1,502.6	7,311.6	510.7	88.6	422.14	1.210	Level 2
18,400.0	10,851.5	18,558.7	10,790.3	217.7	217.3	83.11		-1,502.8	7,411.6	510.5	82.6	427.92	1.193	Level 2
18,500.0	10,852.1	18,658.7	10,790.8	220.6	220.2	83.10		-1,503.1	7,511.6	510.2	76.5	433.70	1.176	Level 2
18,600.0	10,852.6	18,758.7	10,791.3	223.5	223.0	83.10		-1,503.4	7,611.6	510.0	70.5	439.48	1.160	Level 2
18,700.0	10,853.1	18,858.7	10,791.9	226.4	225.9	83.10		-1,503.6	7,711.6	509.7	64.4	445.26	1.145	Level 2
18,800.0	10,853.6	18,958.7	10,792.4	229.3	228.8	83.09		-1,503.9	7,811.6	509.4	58.4	451.04	1.129	Level 2
18,900.0	10,854.2	19,058.7	10,792.9	232.2	231.7	83.09		-1,504.2	7,911.6	509.2	52.3	456.83	1.115	Level 2
19,000.0	10,854.7	19,158.7	10,793.4	235.1	234.5	83.09		-1,504.4	8,011.6	508.9	46.3	462.61	1.100	Level 2
19,100.0	10,855.2	19,258.7	10,794.0	238.0	237.4	83.08		-1,504.7	8,111.6	508.6	40.2	468.39	1.086	Level 2
19,200.0	10,855.7	19,358.7	10,794.5	240.9	240.3	83.08		-1,504.9	8,211.6	508.4	34.2	474.18	1.072	Level 2
19,300.0	10,856.3	19,458.7	10,795.0	243.8	243.2	83.07		-1,505.2	8,311.6	508.1	28.2	479.96	1.059	Level 2
19,400.0	10,856.8	19,558.7	10,795.5	246.7	246.1	83.07		-1,505.5	8,411.5	507.9	22.1	485.75	1.045	Level 2
19,500.0	10,857.3	19,658.7	10,796.0	249.6	249.0	83.07		-1,505.7	8,511.5	507.6	16.1	491.54	1.033	Level 2
19,600.0	10,857.8	19,758.7	10,796.6	252.5	251.9	83.06		-1,506.0	8,611.5	507.3	10.0	497.32	1.020	Level 2
19,700.0	10,858.4	19,858.7	10,797.1	255.4	254.7	83.06		-1,506.3	8,711.5	507.1	3.9	503.11	1.008	Level 2
19,800.0	10,858.9	19,958.7	10,797.6	258.3	257.6	83.06		-1,506.5	8,811.5	506.8	-2.1	508.90	0.996	Level 1
19,900.0	10,859.4	20,058.7	10,798.1	261.2	260.5	83.05		-1,506.8	8,911.5	506.5	-8.2	514.69	0.984	Level 1
20,000.0	10,859.9	20,158.7	10,798.7	264.1	263.4	83.05		-1,507.1	9,011.5	506.3	-14.2	520.48	0.973	Level 1
20,100.0	10,860.4	20,258.7	10,799.2	267.0	266.3	83.05		-1,507.3	9,111.5	506.0	-20.3	526.27	0.961	Level 1
20,200.0	10,861.0	20,358.7	10,799.7	269.9	269.2	83.04		-1,507.6	9,211.5	505.7	-26.3	532.06	0.951	Level 1
20,300.0	10,861.5	20,458.7	10,800.2	272.8	272.1	83.04		-1,507.8	9,311.5	505.5	-32.4	537.85	0.940	Level 1
20,400.0	10,862.0	20,558.7	10,800.8	275.7	275.0	83.03		-1,508.1	9,411.5	505.2	-38.4	543.64	0.929	Level 1
20,500.0	10,862.5	20,658.7	10,801.3	278.6	277.9	83.03		-1,508.4	9,511.5	505.0	-44.5	549.44	0.919	Level 1
20,600.0	10,863.1	20,758.7	10,801.8	281.6	280.8	83.03		-1,508.6	9,611.5	504.7	-50.5	555.23	0.909	Level 1
20,700.0	10,863.6	20,858.7	10,802.3	284.5	283.7	83.02		-1,508.9	9,711.5	504.4	-56.6	561.02	0.899	Level 1
20,800.0	10,864.1	20,958.7	10,802.9	287.4	286.6	83.02		-1,509.2	9,811.5	504.2	-62.6	566.81	0.889	Level 1
20,900.0	10,864.6	21,058.7	10,803.4	290.3	289.5	83.02		-1,509.4	9,911.5	503.9	-68.7	572.61	0.880	Level 1
21,000.0	10,865.2	21,158.7	10,803.9	293.2	292.4	83.01		-1,509.7	10,011.5	503.6	-74.8	578.40	0.871	Level 1
21,038.5	10,865.4	21,197.2	10,804.1	294.3	293.5	83.01		-1,509.8	10,050.0	503.5	-77.1	580.63	0.867	Level 1, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Oasis Petroleum	<b>Local Co-ordinate Reference:</b>	Well Kline Federal 5300 11-18 3T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-17/18	<b>MD Reference:</b>	WELL @ 2078.0usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #6	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 2078.0usft (Original Well Ele  
Offset Depths are relative to Offset Datum  
Central Meridian is 100° 30' 0.000 W

Coordinates are relative to: Kline Federal 5300 11-18 3T  
Coordinate System is US State Plane 1983, North Dakota Northern Zone  
Grid Convergence at Surface is: -2.31°



<b>Company:</b>	Oasis Petroleum
<b>Project:</b>	Indian Hills
<b>Reference Site:</b>	153N-100W-17/18
<b>Site Error:</b>	0.0 usft
<b>Reference Well:</b>	Kline Federal 5300 11-18 3T
<b>Well Error:</b>	0.0 usft
<b>Reference Wellbore</b>	Wellbore #1
<b>Reference Design:</b>	Design #6

<b>Local Co-ordinate Reference:</b>
<b>TVD Reference:</b>
<b>MD Reference:</b>
<b>North Reference:</b>
<b>Survey Calculation Method:</b>
<b>Output errors are at</b>
<b>Database:</b>
<b>Offset TVD Reference:</b>

Well Kline Federal 5300 11-18 3T
WELL @ 2078.0usft (Original Well Elev)
WELL @ 2078.0usft (Original Well Elev)
True
Minimum Curvature
2.00 sigma
EDM 5000.1 Single User Db
Offset Datum

Reference Depths are relative to WELL @ 2078.0usft (Original Well Ele  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 100° 30' 0.000 W

Coordinates are relative to: Kline Federal 5300 11-18 3T  
 Coordinate System is US State Plane 1983, North Dakota Northern Zone  
 Grid Convergence at Surface is: -2.31°

