

# **Oil and Gas Division**

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

## **Department of Mineral Resources**

Lynn D. Helms - Director

## **North Dakota Industrial Commission**

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

October 3, 2019

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

**RE: Wade Federal #5300 41-30 4T  
Lot 4 Sec. 30, T.153N., R.100W.  
McKenzie County, North Dakota  
Baker Field  
Well File No. 28394  
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 September 4, 2019 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, March 1, 2018 through February 28, 2019, 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 34.5 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)

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

<input type="checkbox"/> Notice of Intent	Approximate Start Date
<input checked="" type="checkbox"/> Report of Work Done	Date Work Completed <b>August 23, 2017</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 type="checkbox"/> Change Production Method
<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
<input type="checkbox"/> Other	<b>Well is now on rod pump</b>

Well Name and Number <b>Wade Federal 5300 41-30 4T</b>					
Footages <b>1263 F S L</b>	<b>240 F W L</b>	<b>Qtr-Qtr LOT 4</b>	<b>Section 30</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	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)			
Address	City	State	Zip Code

## DETAILS OF WORK

Effective 8/23/2017, the above referenced well was equipped with a rod pump. Previously well was on ESP (effective 12/21/2015).

End of Tubing: 2-7/8" L-80 tubing @ 10297'

Pump: 2-1/2" x 2.0" x 24' insert pump @ 10179.64'

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281 404-9494</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature 	Printed Name <b>Sadie Goodrum</b>	
Title <b>Regulatory Specialist</b>	Date <b>September 11, 2017</b>	
Email Address <b>sgoodrum@oasispetroleum.com</b>		

FOR STATE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>10-9-2017</b>	
By 	
Title <b>JARED THUNE</b> Engineering Technician	



# SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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

Well File No.

**28394**

Received

MAR 1 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

**December 21, 2015**

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

Approximate Start Date

## ND Oil & Gas Division

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

**Wade Federal 5300 41-30 4T**

Footages

**1263**

F

S

L

**240**

F

W

L

**LOT 4**

Qtr-Qtr

Section

**30**

Township

**153 N**

Range

**100 W**

Field

**Baker**

Pool

**Bakken**

County

**McKenzie**

### 24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address

City

State

Zip Code

### DETAILS OF WORK

Effective 12/21/2015 the above referenced well was converted to ESP pump.

End of Tubing: 2-7/8" L-80 tubing @ 10247'

Pump: ESP @ 9860.38'

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>February 29, 2016</b>	
Email Address <b>jswenson@oasispetroleum.com</b>		

### FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>3-9-16</b>	
By 	
Title <b>JARED THUNE</b>	
Engineering Technician	



## GEOLOGICAL MARKERS

## **PLUG BACK INFORMATION**

## **CORES CUT**

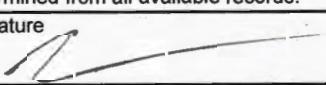
Top (Ft)	Bottom (Ft)	Formation	Top (Ft)	Bottom (Ft)	Formation

## Drill Stem Test

**Well Specific Stimulation**

Date Stimulated 04/08/2015	Stimulated Formation Three Forks		Top (Ft) 11079	Bottom (Ft) 20187	Stimulation Stages 50	Volume 238848	Volume Units Barrels					
Type Treatment Sand Frac	Acid %	Lbs Proppant 9362098	Maximum Treatment Pressure (PSI) 8608		Maximum Treatment Rate (BBLS/Min) 35.0							
Details 40/70 White: 1364550 20/40 White: 6379708 20/40 Ceramic Resin Coated: 1426830 100 Mesh White: 191010												
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												

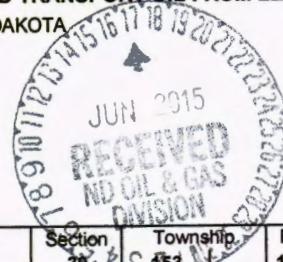
**ADDITIONAL INFORMATION AND/OR LIST OF ATTACHMENTS**

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>07/10/2015</b>
Signature 	Printed Name <b>Jennifer Swenson</b>	Title <b>Regulatory Specialist</b>



## 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.

28394

NDIC CTB No.

To be assigned

228394

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number <b>WADE FEDERAL 5300 41-30 4T</b>	Qtr-Qtr <b>LOT4</b>	Section <b>30</b>	Township <b>E 153</b>	Range <b>100</b>	County <b>Williams</b>
---	------------------------	----------------------	--------------------------	---------------------	---------------------------

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>May 1, 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>May 1, 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>Hofmann Trucking</b>	<b>25%</b>	<b>May 1, 2015</b>
Other Transporters Transporting From This Lease	% Transported	Date Effective
		<b>May 1, 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>June 15, 2015</b>
Signature 	Printed Name <b>Dina Barron</b>

Above Signature Witnessed By:	Printed Name	Title
Signature 	Printed Name <b>Alexa Cardona</b>	Title <b>Marketing Analyst</b>

FOR STATE USE ONLY		
Date Approved <b>JUN 19 2015</b>		
By 		
Title <b>Erie Poterson</b>		
Oil & Gas Production Analyst		

Industrial Commission of North Dakota  
Oil and Gas Division

Well or Facility No

**28394**

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>WADE FEDERAL 5300 41-30 4T</b>	Inspector <b>Richard Dunn</b>
Well Location      QQ      Sec      Twp      Rng	County <b>MCKENZIE</b>
LOT4      30      153      N      100      W	Field <b>BAKER</b>
Footages      1263      Feet From the S Line	Pool <b>BAKKEN</b>
240      Feet From the W Line	
Date of First Production Through Permanent Wellhead	<b>5/29/2015</b>
	<b>This Is The First Sales</b>

**PURCHASER / TRANSPORTER**

Purchaser <b>OASIS PETROLEUM MARKETING LLC</b>	Transporter <b>HOFMANN TRUCKING, LLC</b>
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**TANK BATTERY**

<b>Central Tank Battery Number : 228394-01</b>
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**SALES INFORMATION**    **This Is The First Sales**

ESTIMATED BARRELS TO BE SOLD	ACTUAL BARRELS SOLD	DATE
15000	BBLS	5/29/2015
	BBLS	

**DETAILS**

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

Start Date      **5/29/2015**  
Date Approved    **6/17/2015**  
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.  
**28394**



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 6, 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 type="checkbox"/> Other	<b>Waiver from tubing/packer requirement</b>

## Well Name and Number

**Wade Federal 5300 41-30 4T**

Footages <b>1263 F S L</b>	Qtr-Qtr <b>240 F W L</b>	Section <b>LOT 4</b>	Township <b>30</b>	Range <b>153 N</b>	<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)

Address	City	State	Zip Code
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## 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>April 6, 2015</b>	
Email Address <b>jswenson@oasispetroleum.com</b>		

## FOR STATE USE ONLY

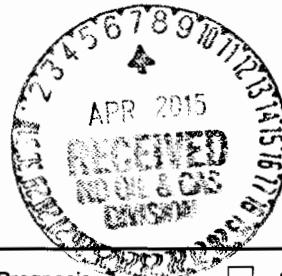
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>April 9, 2015</b>	
By 	
Title <b>PETROLEUM ENGINEER</b>	



# 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.  
**28394**



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 6, 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	<b>Change well status to CONFIDENTIAL</b>

Well Name and Number  
**Wade Federal 5300 41-30 4T**

Footages <b>1263 F S L</b>	Qtr-Qtr <b>240 F W L</b>	Section <b>LOT4</b>	Township <b>30</b>	Range <b>153 N</b>	<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)

Address	City	State	Zip Code
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## DETAILS OF WORK

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

**This well has not been completed.**

*OFF CONFIDENTIAL 10/07/15.*

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>April 6, 2015</b>		
Email Address <b>jswenson@oasispetroleum.com</b>			

## FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>4/08/15</b>	
By 	
Title <b>Engineering Technician</b>	

# **Wade Federal 5300 41-30 4T**

## **End of Well Report**

### **Wade Federal 5300 41-30 4T**

**1263' FSL - 240' FWL**

**SEC 30, T153N, R100W**

McKenzie County, ND

Prepared by:

Heather A. Coutts, *well-site geologist*

Columbine Logging, Inc.

602 S. Lipan St.

Denver, CO 80223



Prepared for:



Brendan Hargrove, *operations geologist*

1001 Fannin, Suite 1500

Houston, Texas 77002

## 1.0 INTRODUCTION

Wade Federal 5200 41-30 4T is a East lateral Three Forks 1<sup>st</sup> Bench well located in SEC 30, T153N, R100W in McKenzie County, North Dakota. The primary pay zone was approximately 20' under the base of the Pronghorn member of the Bakken formation. This pay zone was picked for its production potential and quality of reservoir rock. The objective was to steer the well within the defined pay zone and within the legal requirements of the state. MWD services were performed by Schlumberger/Pathfinder and Directional services were provided by RPM. Heather A. Coutts, Miles R. Wentland and Dylan E. Fowler were the primary well site geologists; providing geo-steering and mud logging from Columbine Logging, Inc.

### Well Information

<b>API #:</b>	33-053-05943	<b>Field:</b>	Baker
<b>Spud Date:</b>	09/01/2014	<b>TD Date:</b>	12/24/2014
<b>Surface Location:</b> 1263' FSL & 240' FWL SEC 30, T153N, R100W, McKenzie County, North Dakota.			
<b>Intermediate Casing Point:</b> 1394' FSL & 713' FWL; SEC 30; 11,150' MD, 10,791.58' TVD			
<b>Bottom Hole Location:</b> 1497' FSL & 202' FEL; SEC 29; 20,193' MD, 10,901.52' TVD			
<b>Surface Elevation:</b>	2045'	<b>KB:</b>	2070'
<b>Casing Shoe:</b>	11,150' MD, 10,791.58' TVD	<b>Total Depth Drilled:</b>	20,193'
<b>Operator:</b>	Oasis	<b>Rig:</b>	Patterson 488
<b>Company man:</b>	Tyler LaClaire	<b>Well-site Geologist:</b>	Heather Coutts, Miles R. Wentland, Dylan E. Fowler
<b>Mud logging:</b>	Columbine Logging	<b>DD:</b>	RPM
<b>Mud Service:</b>	Reliable	<b>Drilling Mud:</b>	Invert, Brine
<b>MWD:</b>	Schlumberger/Pathfinder/Ryan		

## **2.0 SERVICES**

### **2.1 Well site Geology (*Columbine Logging, Inc.*)**

Geological consulting and mud logging started on 12/26/2014. Services provided included; morning reports, evening reports, noon and midnight reports, sample examination, sample recording via pictures, production of vertical and horizontal mudlog, geo steering, sample collection and bagging, sample mailing and a final end of well report.

#### **2.1.1 Geosteering**

Our offset GR TVD logs were from the Wade Federal 5300 41-30 7T well, located on the same well pad as Wade Federal 5300 41-30 4T. Within the Three Forks 1<sup>st</sup> Bench, the primary objective was to stay near the middle gamma markers which marks the inter layering between limy sandstones and siltstone. Gamma patterns were compared with the offset log and a TVD log was created while landing the curve to in order to land in the targeted zone. Steering in the lateral was accomplished by calculating dip from relevant gamma markers, as well as by using lithology, total gas and ROP to determine our position within the formation.

#### **2.1.2 Gamma and Surveys**

Gamma and survey MWD services were provided by Schlumberger/Pathfinder/Ryan. The majority of the well was drilled within the target area of the Three Forks 1<sup>st</sup> Bench.

### **2.2 Mud Logging (*Columbine Logging, Inc.*)**

#### **2.2.1 Sample Examination**

Samples were collected every 30 ft in the straight hole and build section, and every 30 ft while drilling the lateral. Descriptions included; mineralogy, color, firmness, argillaceous content, structure, texture, allochems, porosity, oil stain, and hydrocarbon fluorescence. Carbonate identification was determined with 10% dilute HCl<sup>-</sup>, alizarin red and calcimeter. Hydrocarbon fluorescence was determined using a fluoroscope with a UV lamp.

#### **2.2.2 Gas Detection**

Gas was logged using a Bloodhound total gas/chromatograph system. The gas detection system uses an infra-red detector to measure total gas and the chromatograph separates and measures gases C1, C2, C3, iC4 and nC4. Gas was recorded in units where 1 unit equals 100 ppm. The gas detection system measured gases: C1, C2, C3, iC4, nC4, H2S, O2 and CO<sub>2</sub>.

The Bloodhound Gas Detection and Chromatograph system use digital signal processing techniques and non-dispersive infrared and chemical sensors for gas detection. The system uses a proprietary chromatograph, which has the capability to detect from 0 to 10,000 gas units. This translates as 0 to 100% typical naturally-occurring hydrocarbon gas mixtures. Calibration is performed using National Institute of Standards and Technology (NIST) traceable calibration gases. Lab calibration points include 0%, 2.5%, and 100% pure methane. Complete immunity

to saturation or damage in the presence of high concentrations of both light and heavy hydrocarbon gases precludes the necessity of constant re-calibration or zero referencing. This allows the Bloodhound to react to hydrocarbon based gases from zero to 100% in concentration without dilution.

Lag time was approximated from a calculation of annular velocity based on: pump output, open-hole diameter, cased hole diameter, collar diameter, drill pipe diameter and bottom hole assembly. Connection gases were monitored to confirm lag time calculations and adjustments were made when necessary.

## 3.0 GEOLOGY

### 3.1 Formation Tops

Formation tops were picked using ROP, lithology, and gamma ray to identify markers in the curve and lateral (Table 3.1).

Formation/Marker Beds	ACTUAL				Prognosis	
	Top MD (ft)	Top TVD (ft)	THICKNESS (ft)	Difference (ft)	TVD KB/DF(ft)	TVDSS (ft)
<b>Vertical Section</b>						
Kibbey Lime	8349	8348	148	1	8349	-6272
Charles Salt	8497	8496	673	-4	8492	-6415
Base Last Salt	9170	9169	215	4	9173	-7096
Mission Canyon	9385	9384	548	4	9388	-7311
Lodgepole	9933	9932	736	0	9932	-7855
False Bakken	10717	10668	7	0	10668	-8591
Upper Bakken Shale	10729	10675	19	4	10679	-8602
Middle Bakken	10759	10694	36	0	10694	-8617
Lower Bakken Shale	10827	10730	11	4	10734	-8657
Pronghorn	10851	10741	19	4	10745	-8668
Threeforks	10898	10760	16	1	10761	-8684

Table 3.1 Wade Federal 5300 41-30 4T Formation Tops

### 3.2 Lithology

Sample analysis began at 8,000' MD in the Otter Formation.

### 3.3 Formation Dip

The formation had an average dip of 89.25°.

### 3.4 Shows

The vertical-build section was drilled with invert mud and the lateral was drilled with brine/production water. The oil-based mud contributed a background gas of 100-200 units, and saturated cuttings with oil, making all cuttings in the vertical show the same cut and fluorescence. Gas shows were around 2000+ units during the drilling of the lateral.

### 3.5 Oil Shows

Invert mud was used in the vertical, masking any oil shows. In the lateral part of the well the oil shows were consistently a moderately yellow to yellow green fluorescence with a fast milky blue cut and a medium brown residue ring.

## 4.0 WELLBORE

The surface location is 1263' FSL & 240' FWL SEC 30, T153N, R100W, McKenzie County, North Dakota. Ground elevation is 2,045' and KB elevation was 2,070', referenced to the Kelly bushing of Patterson 488. The curve was landed in the Middle Bakken at 11,150' MD; 10,791.58' TVD. The lateral was drilled to TD at 20,193' MD, 10,901.52' TVD, 1497' FSL & 202' FEL; SEC 29. Figure 4.1 shows a cross-section of the lateral.

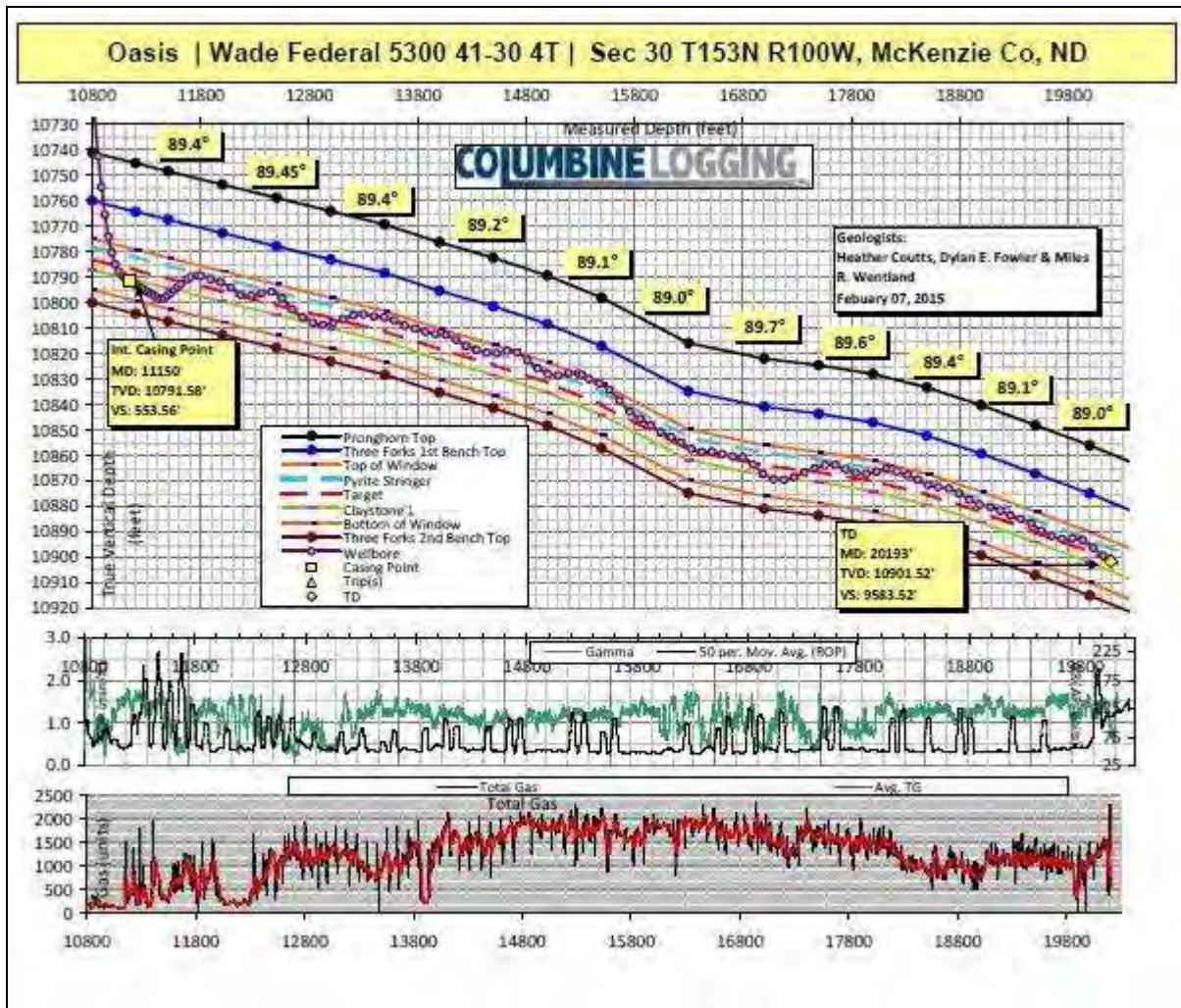


Figure 4.1 Wellbore Cross Section

## **5.0 SUMMARY AND CONCLUSION**

Wade Federal 5300 41-30 4T is a East lateral Three Forks 1<sup>st</sup> Bench well located in SEC 30, T153N, R100W in McKenzie County, North Dakota. The primary pay zone was 20' under the bottom of the Pronghorn member of the Bakken formation. This pay zone was picked for its production potential and quality of reservoir rock. The objective was to steer the well within the defined pay zone and within the legal requirements of the state.

The primary objective was to stay near the middle gamma markers which marks the inter layering between limy sandstones and siltstones. Gamma patterns were compared with the offset log and a TVD log was created while landing the curve to in order to land in the targeted zone. Steering in the lateral was accomplished by calculating dip from relevant gamma markers, as well as by using lithology, total gas and ROP to determine our position within the formation.

The formation had an average dip of 89.25°. Refer to Figure 4.1 on page 6 for a detailed formation dip profile.

As Per Brendan Hargrove, Oasis Operations Geologist:

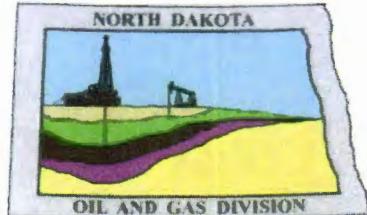
The well landed at 10791' TVD, ~6' into the Claystone. In the first few hundred feet of the lateral, we continued down-section deeper into the Claystone as we attempted to get our INC up. We re-entered the Three Forks at ~11600' MD and slowly traversed up to the top of our target window, near the "C" marker. The "C" marker had abundant pyrite, and the bit seemed to not want to react to downslides from this position. We were getting good ROPs, though, so we drilled ahead in the top of target for ~2000'. Around 15500' MD, bed dips began shallowing out as expected based on offset data, and we traversed down section, encountering the Claystone again at ~17000' MD. We drilled ~200' of Claystone, then quickly rose back up into the top of the target window again ("C" marker) and drilled ahead to TD. As mentioned above, we suffered a motor failure late last night at 20193' MD, ~400' from our planned TD. The question of whether it was worthwhile to trip and drill the remained of the lateral was discussed, and it was determined that we would call TD slightly early.

Currently the well is awaiting completion.

---

Heather A. Coutts, *well-site geologist*  
Columbine Logging, Inc.  
602 S. Lipan St.  
Denver, CO 80223





# Oil and Gas Division

28394

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)

January 8, 2016

Michael Kukuk  
OASIS PETRO NO AMER  
1001 FANNIN ST. SUITE 1500  
HOUSTON, TX 77002

RE: See Attached List of Wells  
*List Reference WF# 28394*

Dear Michael Kukuk:

We have not received the geological reports on the referenced well list. Please submit one paper copy and one digital pdf file of this report for each well.

If you have any questions, please contact Richard Suggs at (701) 328-8020.

Sincerely,

Taylor Roth  
Engineering Technician



## Directional Survey Certification

**Operator:** Oasis Petroleum LLC    **Well Name:** Wade Federal 5300 41-30 4T    **API:** 33-053-05943

**Enseco Job#:** ND1411-0007NOB2    **Job Type:** MWD D&I    **County, State:** McKenzie County, N. Dakota

**Well Surface Hole Location (SHL):** Lot 4, Sec. 30, T153N, R100W (1,263' FSL – 240' FWL)

**Latitude:** 48° 02' 32.13 N    **Longitude:** 103° 36' 11.41 W    **Datum:** Nad 83

**Final MWD Report Date:** Nov. 20, 2014    **MWD Survey Run Date:** Nov. 18, 2014 to Nov. 20, 2014

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

**MWD Surveyed from** 00 ft **to** 2,130.0 ft **MD**    **Survey Type:** Positive Pulse D&I MWD    **Sensor to Bit:** 35 ft

**Rig Contractor:** Patterson    **Rig Number:** 488    **RKB Height:** 2,079.0 ft    **GL Elevation:** 2,046.0 ft

**MWD Surveyor Name:** Brett McClain

"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

**November 26th 2014**

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

26 November, 2014

## Oasis Petroleum LLC

McKenzie County, North Dakota  
Lot 4 Sec.30 Twp.153N Rge.100W  
Wade Federal 5300 41-30 4T  
API#: 33-053-05943  
Job # ND1411-0007NOB2

Survey: Final Surveys Vetical Section



<b>Company:</b>	Oasis Petroleum LLC	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	McKenzie County, North Dakota	<b>TVD Reference:</b>	KB 33 @ 2079.00usft (Patterson 488)
<b>Site:</b>	Lot 4 Sec.30 Twp.153N Rge.100W	<b>MD Reference:</b>	KB 33 @ 2079.00usft (Patterson 488)
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Job # ND1411-0007NOB2	<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 4 Sec.30 Twp.153N Rge.100W				
<b>Site Position:</b>		<b>Northing:</b>	395,507.80 usft	<b>Latitude:</b>	48° 2' 32.460 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,209,616.64 usft	<b>Longitude:</b>	103° 36' 11.410 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	-2.309 °

<b>Well</b>	Wade Federal 5300 41-30 4T, API#: 33-053-05943				
<b>Well Position</b>	+N/S +E/W	0.00 usft 0.00 usft	<b>Northing:</b> <b>Easting:</b>	395,474.39 usft 1,209,615.29 usft	<b>Latitude:</b> <b>Longitude:</b>
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	2,079.00 usft	<b>Ground Level:</b>
					2,046.00 usft

<b>Wellbore</b>	Job # ND1411-0007NOB2				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b> (°)	<b>Dip Angle</b> (°)	<b>Field Strength</b> (nT)
	IGRF2010	11/26/2014	8.186	72.945	56,373

<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)</b> (usft)	<b>+N/S</b> (usft)
		0.00	+E/W (usft)
		0.00	Direction (°)
		0.00	280.24

<b>Survey Program</b>	Date	11/26/2014		
<b>From</b> (usft)	<b>To</b> (usft)	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
160.00	2,130.00	Final Surveys Vertical Section (Job # ND1411-0007NOB2)	MWD	MWD - Standard

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (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	-2,079.00	0.00	0.00	0.00	0.00	0.00	0.00
160.00	0.20	128.80	160.00	-1,919.00	-0.17	0.22	-0.25	0.12	0.12	0.00
250.00	0.50	309.10	250.00	-1,829.00	-0.03	0.04	-0.04	0.78	0.33	-199.67
342.00	0.20	251.10	342.00	-1,737.00	0.18	-0.43	0.45	0.47	-0.33	-63.04
434.00	0.50	302.50	434.00	-1,645.00	0.34	-0.92	0.96	0.44	0.33	55.87
524.00	0.70	273.30	523.99	-1,555.01	0.58	-1.80	1.87	0.40	0.22	-32.44
614.00	0.90	298.20	613.98	-1,465.02	0.95	-2.97	3.09	0.44	0.22	27.67
700.00	0.90	308.80	699.97	-1,379.03	1.69	-4.09	4.33	0.19	0.00	12.33
791.00	0.70	276.40	790.96	-1,288.04	2.20	-5.20	5.51	0.53	-0.22	-35.60
877.00	0.90	282.10	876.95	-1,202.05	2.40	-6.38	6.71	0.25	0.23	6.63
964.00	1.10	306.00	963.94	-1,115.06	3.03	-7.73	8.14	0.53	0.23	27.47
1,054.00	0.50	265.20	1,053.93	-1,025.07	3.51	-8.82	9.30	0.88	-0.67	-45.33

<b>Company:</b>	Oasis Petroleum LLC	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	McKenzie County, North Dakota	<b>TVD Reference:</b>	KB 33 @ 2079.00usft (Patterson 488)
<b>Site:</b>	Lot 4 Sec.30 Twp.153N Rge.100W	<b>MD Reference:</b>	KB 33 @ 2079.00usft (Patterson 488)
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>North Reference:</b>	True
<b>Wellbore:</b>	Job # ND1411-0007NOB2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Final Surveys Vertical Section	<b>Database:</b>	EDM5000

Survey											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,139.00	0.50	225.50	1,138.93	-940.07	3.22	-9.45	9.87	0.40	0.00	-46.71	
1,226.00	0.50	181.20	1,225.93	-853.07	2.57	-9.73	10.03	0.43	0.00	-50.92	
1,313.00	0.50	190.30	1,312.92	-766.08	1.82	-9.81	9.97	0.09	0.00	10.46	
1,400.00	0.40	210.00	1,399.92	-679.08	1.18	-10.03	10.08	0.21	-0.11	22.64	
1,488.00	0.20	181.50	1,487.92	-591.08	0.76	-10.18	10.16	0.28	-0.23	-32.39	
1,576.00	0.40	173.40	1,575.92	-503.08	0.30	-10.15	10.04	0.23	0.23	-9.20	
1,661.00	0.50	95.00	1,660.92	-418.08	-0.02	-9.75	9.59	0.68	0.12	-92.24	
1,743.00	0.50	82.40	1,742.91	-336.09	-0.01	-9.04	8.89	0.13	0.00	-15.37	
1,832.00	0.20	356.20	1,831.91	-247.09	0.20	-8.66	8.56	0.59	-0.34	-96.85	
1,922.00	0.20	29.30	1,921.91	-157.09	0.49	-8.60	8.55	0.13	0.00	36.78	
2,007.00	0.40	340.40	2,006.91	-72.09	0.90	-8.62	8.65	0.36	0.24	-57.53	
2,095.00	0.90	297.50	2,094.91	15.91	1.51	-9.34	9.46	0.76	0.57	-48.75	
<b>Last MWD Survey</b>											
<b>2,130.00</b>	<b>0.70</b>	<b>305.60</b>	<b>2,129.90</b>	<b>50.90</b>	<b>1.76</b>	<b>-9.76</b>	<b>9.92</b>	<b>0.66</b>	<b>-0.57</b>	<b>23.14</b>	

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/S (usft)	+E/W (usft)	Comment	
0.00	0.00	0.00	0.00	Tie-in from Surface	
2,130.00	2,129.90	1.76	-9.76	Last MWD Survey	

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



A Schlumberger Company  
9251 E 104th Ave.  
Commerce City, CO 80640  
(303) 439-5500

### Directional Survey Certification Form

Wade Federal 5300 41-30 4T Original

Oasis Petroleum	Hole	2-Mar-2015
Company	Well Name	Final report Date
15CCO0091	ND, McKenzie County	33-053-05943
PathFinder Job Number	County / State	API Number
N 48° 2' 32.13000"	W 103° 36' 11.41000"	Sec 30 Twn 153 N Rng 101 W
N 48.04225833	W 103.60316944	Surface Section - Township - Range
Surface Latitude	Surface Longitude	
NAD83 North Dakota State Plane, NZ	Patterson 488	KB 25ft @ 2070.00 ft / GL: 2045.00 ft MSL
Datum & Coordinate System	Rig Contractor	Height Reference

Survey Depth	2184.00	to	11075.00
	Depth From		Depth To

#### Measurement While Drilling

Type of Survey

Survey Depth	11075.00	to	11150.00
	Depth From		Depth To

#### Straight line projection to Bit/TD

Type of Survey

Site Supervisors	-	B. Feddersen - FE1
Directional Driller 1	-	MWD Surveyor 1
Directional Driller 2	-	R. Wirth - FE
		MWD Surveyor 2

The data submitted in this report conforms to the standards and procedures as set forth by Schlumberger. This report represents a true and correct directional wellbore survey based on original survey data obtained at the well site.

*Matt VanderSchaaf*

Matt VanderSchaaf  
PathFinder Well Planner III

3/2/2015

Date



**Wade Federal 5300 41-30 4T MWD 0' to 11150' Definitive Survey Geodetic Report**  
(Def Survey)

**PATHFINDER**  
A Schlumberger Company

<b>Report Date:</b>	March 02, 2015 - 02:24 PM										<b>Survey / DLS Computation:</b>	Minimum Curvature / Lubinski				
<b>Client:</b>	Oasis Petroleum										<b>Vertical Section Azimuth:</b>	88.670 ° (True North)				
<b>Field:</b>	ND, McKenzie County (NAD 83 NZ) Oasis 2014										<b>Vertical Section Origin:</b>	0.000 ft, 0.000 ft				
<b>Structure / Slot:</b>	Oasis 30-153N-100W (Wade Federal 5300 31-41-30 2-5 Pad) - Patterson 488 / Wade Federal 5300 41-30 4T										<b>TVD Reference Datum:</b>	KB 25ft				
<b>Well:</b>	Wade Federal 5300 41-30 4T										<b>TVD Reference Elevation:</b>	2070.000 ft above MSL				
<b>Borehole:</b>	Original Hole										<b>Seabed / Ground Elevation:</b>	2045.000 ft above MSL				
<b>UWI / API#:</b>	Unknown / Unknown										<b>Magnetic Declination:</b>	8.372 °				
<b>Survey Name:</b>	Wade Federal 5300 41-30 4T MWD 0' to 11150' Definitive										<b>Total Gravity Field Strength:</b>	1000.0456mgn (9.80665 Based)				
<b>Survey Date:</b>	March 02, 2015										<b>Gravity Model:</b>	GARM				
<b>Tort / AHD / DDI / ERD Ratio:</b>	124.353 ° / 686.556 ft / 4.945 / 0.064										<b>Total Magnetic Field Strength:</b>	56205.519 nT				
<b>Coordinate Reference System:</b>	NAD83 North Dakota State Plane, Northern Zone, Feet										<b>Magnetic Dip Angle:</b>	72.891 °				
<b>Location Lat / Long:</b>	N 48° 2' 32.13000", W 103° 36' 11.41000"										<b>Declination Date:</b>	March 02, 2015				
<b>Location Grid N/E Y/X:</b>	N 395475.184 ft, E 1209617.712 ft										<b>Magnetic Declination Model:</b>	BGGM 2014				
<b>CRS Grid Convergence Angle:</b>	-2.3092 °										<b>North Reference:</b>	True North				
<b>Grid Scale Factor:</b>	0.99993612										<b>Grid Convergence Used:</b>	0.0000 °				
<b>Version / Patch:</b>	2.8.572.0										<b>Total Corr Mag North-&gt;True North:</b>	8.3715 °				
											<b>Local Coord Referenced To:</b>	Well Head				
Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S °')	Longitude (E/W °')				
Last MWD Survey	2130.00	0.70	305.60	2129.90	-9.71	1.76	-9.76	0.66	395477.34	1209608.03	N 48 2 32.15	W 103 36 11.55				
Begin Pathfinder Survey	2184.00	0.97	301.89	2183.90	-10.36	2.20	-10.41	0.51	395477.80	1209607.40	N 48 2 32.15	W 103 36 11.56				
	2279.00	0.53	321.32	2278.89	-11.30	2.96	-11.37	0.53	395478.60	1209606.47	N 48 2 32.16	W 103 36 11.58				
	2374.00	0.70	114.54	2373.89	-11.04	3.07	-11.12	1.26	395478.69	1209606.73	N 48 2 32.17	W 103 36 11.57				
	2469.00	0.79	120.76	2468.88	-9.97	2.49	-10.03	0.13	395478.08	1209607.79	N 48 2 32.15	W 103 36 11.56				
	2564.00	0.97	130.28	2563.87	-8.81	1.63	-8.85	0.24	395477.17	1209608.94	N 48 2 32.15	W 103 36 11.54				
	2659.00	1.06	135.40	2658.85	-7.61	0.49	-7.62	0.13	395475.98	1209610.12	N 48 2 32.13	W 103 36 11.52				
	2754.00	0.97	136.82	2753.84	-6.47	-0.72	-6.45	0.10	395474.72	1209611.24	N 48 2 32.12	W 103 36 11.50				
	2848.00	1.06	148.62	2847.82	-5.50	-2.05	-5.46	0.24	395473.36	1209612.18	N 48 2 32.11	W 103 36 11.49				
	2944.00	1.06	156.04	2943.81	-4.72	-3.61	-4.63	0.14	395471.76	1209612.94	N 48 2 32.09	W 103 36 11.48				
	3039.00	1.32	165.63	3038.79	-4.13	-5.48	-4.00	0.34	395469.87	1209613.49	N 48 2 32.08	W 103 36 11.47				
	3134.00	1.06	139.51	3133.77	-3.33	-7.21	-3.16	0.63	395468.11	1209614.26	N 48 2 32.06	W 103 36 11.46				
	3229.00	1.06	133.90	3228.75	-2.16	-8.48	-1.96	0.11	395466.79	1209615.41	N 48 2 32.05	W 103 36 11.44				
	3324.00	0.97	134.91	3323.73	-0.98	-9.66	-0.76	0.10	395465.56	1209616.57	N 48 2 32.03	W 103 36 11.42				
	3419.00	1.06	139.57	3418.72	0.13	-10.90	0.38	0.13	395464.28	1209617.66	N 48 2 32.02	W 103 36 11.40				
	3514.00	1.23	136.37	3513.70	1.37	-12.30	1.66	0.19	395463.82	1209618.87	N 48 2 32.01	W 103 36 11.39				
	3609.00	1.41	143.38	3608.68	2.73	-13.98	3.06	0.25	395461.09	1209620.20	N 48 2 31.99	W 103 36 11.37				
	3704.00	0.70	87.33	3703.66	3.99	-14.89	4.33	1.23	395460.13	1209621.44	N 48 2 31.98	W 103 36 11.35				
	3799.00	0.88	55.36	3798.65	5.18	-14.45	5.51	0.49	395460.52	1209622.64	N 48 2 31.99	W 103 36 11.33				
	3893.00	0.97	79.56	3892.64	6.57	-13.90	6.89	0.42	395461.02	1209624.04	N 48 2 31.99	W 103 36 11.31				
	3988.00	0.62	12.74	3987.63	7.49	-13.25	7.79	0.97	395461.63	1209624.97	N 48 2 32.00	W 103 36 11.30				
	4083.00	0.62	15.79	4082.63	7.76	-12.25	8.05	0.03	395462.62	1209625.26	N 48 2 32.01	W 103 36 11.29				
	4179.00	0.70	2.45	4178.62	7.95	-11.17	8.21	0.18	395463.70	1209625.47	N 48 2 32.02	W 103 36 11.29				
	4274.00	0.70	3.12	4273.61	8.04	-10.01	8.27	0.01	395464.85	1209625.57	N 48 2 32.03	W 103 36 11.29				
	4369.00	0.70	26.16	4368.61	8.35	-8.91	8.56	0.29	395465.94	1209625.90	N 48 2 32.04	W 103 36 11.28				
	4464.00	0.79	16.54	4463.60	8.82	-7.76	9.00	0.16	395467.07	1209626.39	N 48 2 32.05	W 103 36 11.28				
	4559.00	0.70	17.78	4558.59	9.21	-6.58	9.36	0.10	395468.23	1209626.80	N 48 2 32.07	W 103 36 11.27				
	4654.00	0.62	26.44	4653.58	9.64	-5.57	9.77	0.13	395469.23	1209627.25	N 48 2 32.08	W 103 36 11.27				
	4749.00	0.53	45.59	4748.58	10.20	-4.80	10.31	0.22	395469.98	1209627.82	N 48 2 32.09	W 103 36 11.26				
	4844.00	0.70	296.08	4843.58	10.00	-4.23	10.11	1.06	395470.55	1209627.64	N 48 2 32.08	W 103 36 11.26				
	4939.00	1.06	285.77	4938.57	8.65	-3.74	8.74	0.41	395471.09	1209626.29	N 48 2 32.09	W 103 36 11.28				
	5034.00	0.88	281.20	5033.55	7.10	-3.36	7.18	0.21	395471.54	1209624.75	N 48 2 32.10	W 103 36 11.30				
	5129.00	0.79	288.52	5128.54	5.77	-3.01	5.84	0.15	395471.94	1209623.43	N 48 2 32.10	W 103 36 11.32				
	5223.00	0.70	270.34	5222.53	4.59	-2.80	4.65	0.27	395472.20	1209622.25	N 48 2 32.10	W 103 36 11.34				
	5318.00	0.62	265.80	5317.53	3.49	-2.84	3.56	0.10	395472.21	1209621.15	N 48 2 32.11	W 103 36 11.36				
	5413.00	0.79	262.31	5412.52	2.33	-2.96	2.40	0.18	395472.13	1209619.99	N 48 2 32.10	W 103 36 11.37				
	5509.00	0.79	274.82	5508.51	1.01	-2.99	1.08	0.18	395472.15	1209618.67	N 48 2 32.10	W 103 36 11.39				
	5604.00	0.88	258.01	5603.50	-0.36	-3.09	-0.28	0.27	395472.11	1209617.30	N 48 2 32.10	W 103 36 11.41				
	5698.00	0.79	265.64	5697.49	-1.71	-3.29	-1.64	0.15	395471.96	1209615.95	N 48 2 32.10	W 103 36 11.43				
	5794.00	0.70	280.69	5793.48	-2.95	-3.23	-2.87	0.22	395472.07	1209614.71	N 48 2 32.10	W 103 36 11.45				
	5889.00	0.97	284.08	5888.47	-4.29	-2.93	-4.22	0.29	395472.43	1209613.38	N 48 2 32.10	W 103 36 11.47				
	5984.00	1.06	279.66	5983.46	-5.93	-2.58	-5.87	0.13	395472.84	1209611.74	N 48 2 32.10	W 103 36 11.50				
	6040.00	1.21	288.35	6039.45	-6.99	-2.31	-6.94	0.41	395473.15	1209610.69	N 48 2 32.11	W 103 36 11.51				
	6047.00	1.23	289.28	6046.45	-7.13	-2.26	-7.08	0.41	395473.21	1209610.55	N 48 2 32.11	W 103 36 11.51				
	6138.00	1.14	283.56	6137.43	-8.92	-1.73	-8.88	0.16	395473.81	1209608.77	N 48 2 32.11	W 103 36 11.54				
	61															

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S °")	Longitude (E/W °")
	8921.00	0.44	162.24	8920.30	-6.11	-3.41	-6.03	0.20	395472.02	1209611.55	N 48 2 32.10	W 103 36 11.50
	9016.00	0.26	195.84	9015.30	-6.07	-3.96	-5.98	0.28	395471.47	1209611.58	N 48 2 32.09	W 103 36 11.50
	9111.00	0.53	36.08	9110.30	-5.86	-3.82	-5.78	0.82	395471.60	1209611.79	N 48 2 32.09	W 103 36 11.50
	9206.00	0.44	28.20	9205.29	-5.42	-3.14	-5.35	0.12	395472.26	1209612.24	N 48 2 32.1	W 103 36 11.49
	9301.00	0.62	9.38	9300.29	-5.14	-2.31	-5.09	0.26	395473.08	1209612.53	N 48 2 32.11	W 103 36 11.48
	9396.00	0.70	24.92	9395.28	-4.79	-1.28	-4.76	0.21	395474.10	1209612.90	N 48 2 32.12	W 103 36 11.48
	9491.00	0.70	22.80	9490.27	-4.30	-0.22	-4.29	0.03	395475.14	1209613.42	N 48 2 32.13	W 103 36 11.47
	9586.00	0.79	9.20	9585.27	-3.94	0.97	-3.96	0.21	395476.31	1209613.79	N 48 2 32.14	W 103 36 11.47
	9681.00	0.35	116.97	9680.26	-3.56	1.48	-3.60	1.01	395476.81	1209614.18	N 48 2 32.14	W 103 36 11.46
	9776.00	0.53	153.76	9775.26	-3.12	0.96	-3.15	0.34	395476.27	1209614.61	N 48 2 32.14	W 103 36 11.46
	9871.00	0.26	122.72	9870.26	-2.76	0.44	-2.77	0.35	395475.74	1209614.96	N 48 2 32.13	W 103 36 11.45
	9966.00	0.35	149.08	9965.26	-2.44	0.08	-2.44	0.17	395475.36	1209615.28	N 48 2 32.13	W 103 36 11.45
	10061.00	0.35	225.87	10060.26	-2.51	-0.37	-2.50	0.46	395474.91	1209615.20	N 48 2 32.13	W 103 36 11.45
	10156.00	0.44	219.13	10155.25	-2.96	-0.86	-2.94	0.11	395474.45	1209614.74	N 48 2 32.12	W 103 36 11.45
	10243.00	0.18	263.87	10242.25	-3.31	-1.13	-3.28	0.39	395474.19	1209614.39	N 48 2 32.12	W 103 36 11.46
	10252.00	0.18	247.41	10251.25	-3.34	-1.14	-3.31	0.57	395474.18	1209614.36	N 48 2 32.12	W 103 36 11.46
	10284.00	0.18	243.55	10283.25	-3.43	-1.18	-3.40	0.04	395474.14	1209614.26	N 48 2 32.12	W 103 36 11.46
	10315.00	1.49	74.03	10314.25	-3.08	-1.09	-3.06	5.38	395474.22	1209614.61	N 48 2 32.12	W 103 36 11.46
	10347.00	5.28	71.94	10346.19	-1.27	-0.52	-1.26	11.85	395474.72	1209616.43	N 48 2 32.12	W 103 36 11.43
	10379.00	10.82	73.07	10377.86	3.04	0.81	3.02	17.32	395475.87	1209620.76	N 48 2 32.14	W 103 36 11.37
	10410.00	15.21	74.02	10408.06	9.78	2.78	9.71	14.18	395477.57	1209627.53	N 48 2 32.1	W 103 36 11.27
	10442.00	18.73	75.92	10438.66	18.85	5.19	18.74	11.13	395479.61	1209636.64	N 48 2 32.18	W 103 36 11.13
	10474.00	22.77	77.27	10468.58	29.94	7.80	29.76	12.71	395481.78	1209647.76	N 48 2 32.21	W 103 36 10.97
	10505.00	26.64	77.60	10496.73	42.64	10.62	42.41	12.49	395484.08	1209660.51	N 48 2 32.23	W 103 36 10.79
	10537.00	29.99	76.26	10524.90	57.50	14.06	57.19	10.65	395486.93	1209675.42	N 48 2 32.27	W 103 36 10.57
	10569.00	31.66	75.55	10552.38	73.49	18.06	73.09	5.34	395490.28	1209691.47	N 48 2 32.31	W 103 36 10.33
	10601.00	33.85	73.69	10579.29	90.28	22.65	89.78	7.53	395494.20	1209708.33	N 48 2 32.35	W 103 36 10.09
	10632.00	36.67	72.90	10604.60	107.53	27.80	106.92	9.21	395498.65	1209725.66	N 48 2 32.40	W 103 36 9.84
	10664.00	41.15	73.03	10629.50	126.88	33.69	126.13	14.00	395503.76	1209745.09	N 48 2 32.46	W 103 36 9.55
	10695.00	45.11	72.99	10652.11	147.28	39.88	146.39	12.77	395509.13	1209765.58	N 48 2 32.52	W 103 36 9.26
	10727.00	48.72	72.64	10673.97	169.76	46.79	168.72	11.31	395515.13	1209788.17	N 48 2 32.59	W 103 36 8.93
	10759.00	53.20	72.61	10694.12	193.64	54.21	192.43	14.00	395521.59	1209812.16	N 48 2 32.66	W 103 36 8.58
	10790.00	57.07	73.01	10711.84	218.10	61.72	216.73	12.53	395528.12	1209836.74	N 48 2 32.74	W 103 36 8.22
	10822.00	61.38	73.97	10728.21	244.63	69.53	243.08	13.71	395534.86	1209863.38	N 48 2 32.82	W 103 36 7.83
	10854.00	65.42	74.89	10742.53	272.36	77.20	270.64	12.88	395541.41	1209891.22	N 48 2 32.89	W 103 36 7.43
	10885.00	68.76	75.25	10754.60	300.11	84.56	298.23	10.83	395547.65	1209919.08	N 48 2 32.96	W 103 36 7.02
	10917.00	72.02	76.06	10765.34	329.47	92.02	327.43	10.46	395553.93	1209948.56	N 48 2 33.04	W 103 36 6.59
	10949.00	76.15	74.80	10774.11	359.42	99.76	357.20	13.45	395560.47	1209978.62	N 48 2 33.11	W 103 36 6.15
	10980.00	80.72	75.10	10780.32	388.92	107.65	386.52	14.77	395567.16	1210008.23	N 48 2 33.19	W 103 36 5.72
	11012.00	83.98	75.37	10784.58	419.76	115.73	417.19	10.22	395574.00	1210039.20	N 48 2 33.27	W 103 36 5.27
	11044.00	85.56	74.86	10787.50	450.74	123.91	447.98	5.19	395580.94	1210070.30	N 48 2 33.35	W 103 36 4.82
Last Pathfinder Survey	11075.00	87.85	74.86	10789.28	480.79	132.00	477.86	7.39	395587.81	1210100.47	N 48 2 33.43	W 103 36 4.38
Projection to Bit	11150.00	87.85	74.86	10792.10	553.57	151.57	550.20	0.00	395604.45	1210173.54	N 48 2 33.63	W 103 36 3.31

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size Casing (in)	Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	25.000	1/98.425	30.000	30.000	SLB_MWD-STD-Depth Only	Original Hole / Wade Federal 5300 41-30 4T MWD 0' to 11150'
	1	25.000	25.000	Act Stns	30.000	30.000	SLB_MWD-STD-Depth Only	Original Hole / Wade Federal 5300 41-30 4T MWD 0' to 11150'
	1	25.000	11075.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Hole / Wade Federal 5300 41-30 4T MWD 0' to 11150'
	1	11075.000	11150.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Hole / Wade Federal 5300 41-30 4T MWD 0' to 11150'



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

Wednesday, February 11, 2015

State of North Dakota

Subject: **Surveys**

Re: **Oasis**  
**Wade Federal 5300 41-30 4T**  
**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 Grant	MWD Operator	O.H.	11075'	20128'	02/02/15	02/06/15	MWD	20195'

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'. It is written in a cursive, flowing script style.

**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

Friday, February 06, 2015

State of North Dakota  
County of McKenzie County

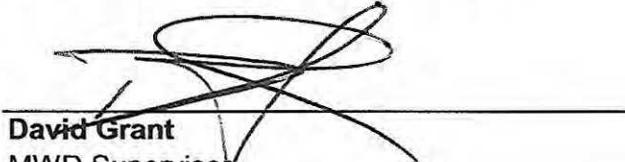
Subject: **Survey Certification Letter**

Survey Company: **Ryan Directional Services, Inc.**  
Job Number: **8415**  
Survey Job Type: **Ryan MWD**  
Customer: **Oasis Petroleum**  
Well Name: **Wade Federal 5300 41-30 4T**  
Rig Name: **Patterson 488**

Surface: **48\_2\_32.130N\_103\_36\_11.410W**  
A.P.I. No: **33-053-05943**  
Location: **McKenzie County, North Dakota**  
RKB Height: **2083'**  
Distance to Bit: **67'**

<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 Grant	MWD Supervisor	OH	11095'	20128'	02/02/15	02/06/15	MWD	20195'

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 Grant**  
MWD Supervisor  
Ryan Directional Services, Inc.



## SURVEY REPORT

Customer:	Oasis Petroleum
Well Name:	Wade Federal 5300 41-30 T
Rig #:	Patterson 488
API #:	33-053-05943
Calculation Method:	Minimum Curvature Calculation

MWD Operator:	David Grant
Directional Drillers:	RPM
Survey Corrected To:	True North
Vertical Section Direction:	88.67
Total Correction:	8.18
Temperature Forecasting Model (Chart Only):	Logarithmic

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
<b>Tie in to MWD Surveys</b>									
<b>Tie In</b>	<b>11075</b>	<b>87.85</b>	<b>74.86</b>	<b>222.00</b>	<b>10789.28</b>	<b>480.79</b>	<b>131.99</b>	<b>477.85</b>	<b>7.39</b>
1	11095	87.60	72.20	222.00	10790.07	500.07	137.66	497.01	13.35
2	11125	88.30	73.70	222.00	10791.15	528.93	146.45	525.67	5.51
3	11156	88.80	73.70	222.00	10791.93	558.87	155.14	555.42	1.61
4	11186	88.70	73.50	217.00	10792.59	587.83	163.61	584.19	0.75
5	<b>11217</b>	<b>88.70</b>	<b>73.60</b>	<b>219.00</b>	<b>10793.29</b>	<b>617.75</b>	<b>172.39</b>	<b>613.91</b>	<b>0.32</b>
6	11248	88.40	75.90	215.00	10794.07	647.83	180.54	643.81	7.48
7	11278	88.40	76.70	213.00	10794.91	677.12	187.64	672.95	2.67
8	11309	88.60	77.90	215.00	10795.72	707.50	194.45	703.18	3.92
9	11340	88.50	79.00	217.00	10796.51	738.00	200.66	733.54	3.56
10	<b>11370</b>	<b>88.60</b>	<b>79.00</b>	<b>215.00</b>	<b>10797.27</b>	<b>767.56</b>	<b>206.38</b>	<b>762.98</b>	<b>0.33</b>
11	11401	88.60	79.30	215.00	10798.02	798.13	212.21	793.42	0.97
12	11432	89.50	80.30	217.00	10798.54	828.75	217.70	823.92	4.34
13	11462	91.50	82.50	219.00	10798.28	858.51	222.19	853.58	9.91
14	11493	92.00	82.40	215.00	10797.33	889.31	226.26	884.30	1.64
15	<b>11524</b>	<b>92.20</b>	<b>81.60</b>	<b>217.00</b>	<b>10796.19</b>	<b>920.08</b>	<b>230.57</b>	<b>914.97</b>	<b>2.66</b>
16	11554	92.40	84.50	217.00	10794.99	949.91	234.20	944.73	9.68
17	11585	91.90	85.80	217.00	10793.83	980.83	236.82	975.59	4.49
18	11615	92.10	85.30	217.00	10792.78	1010.76	239.14	1005.48	1.79
19	11677	91.70	90.30	222.00	10790.72	1072.70	241.52	1067.38	8.09
20	<b>11707</b>	<b>91.60</b>	<b>91.00</b>	<b>219.00</b>	<b>10789.86</b>	<b>1102.67</b>	<b>241.18</b>	<b>1097.37</b>	<b>2.36</b>
21	11769	89.50	90.80	222.00	10789.26	1164.62	240.21	1159.36	3.40
22	11799	89.60	91.40	224.00	10789.50	1194.59	239.63	1189.35	2.03
23	11891	88.80	89.80	226.00	10790.78	1286.53	238.67	1281.33	1.94
24	11985	89.70	90.10	230.00	10792.01	1380.49	238.75	1375.32	1.01
25	<b>12079</b>	<b>87.80</b>	<b>89.90</b>	<b>230.00</b>	<b>10794.06</b>	<b>1474.44</b>	<b>238.75</b>	<b>1469.29</b>	<b>2.03</b>
26	12173	88.80	89.40	233.00	10796.85	1568.38	239.32	1563.25	1.19
27	12267	90.60	90.30	235.00	10797.35	1662.36	239.57	1657.24	2.14
28	12361	90.70	91.30	233.00	10796.28	1756.29	238.26	1751.23	1.07
29	12455	90.00	91.70	233.00	10795.70	1850.17	235.80	1845.19	0.86
30	<b>12550</b>	<b>87.00</b>	<b>91.30</b>	<b>233.00</b>	<b>10798.19</b>	<b>1945.01</b>	<b>233.31</b>	<b>1940.12</b>	<b>3.19</b>
31	12645	87.60	91.10	235.00	10802.67	2039.81	231.32	2034.99	0.67
32	12739	88.70	90.40	239.00	10805.70	2133.70	230.09	2128.93	1.39
33	12833	88.80	90.30	237.00	10807.75	2227.63	229.52	2222.91	0.15
34	12927	90.00	90.20	240.00	10808.74	2321.59	229.11	2316.90	1.28
35	<b>13022</b>	<b>91.10</b>	<b>89.90</b>	<b>242.00</b>	<b>10807.82</b>	<b>2416.56</b>	<b>229.03</b>	<b>2411.89</b>	<b>1.20</b>
36	13116	90.60	89.80	242.00	10806.43	2510.53	229.27	2505.88	0.54
37	13211	91.30	90.20	244.00	10804.85	2605.49	229.27	2600.87	0.85
38	13306	89.10	89.80	242.00	10804.52	2700.46	229.27	2695.86	2.35
39	13399	89.80	89.80	246.00	10805.42	2793.43	229.60	2788.86	0.75
40	<b>13493</b>	<b>89.80</b>	<b>90.40</b>	<b>246.00</b>	<b>10805.74</b>	<b>2887.40</b>	<b>229.43</b>	<b>2882.85</b>	<b>0.64</b>
41	13587	88.80	89.70	246.00	10806.89	2981.37	229.35	2976.85	1.30
42	13682	88.70	89.50	248.00	10808.96	3076.33	230.01	3071.82	0.24
43	13776	89.70	88.70	249.00	10810.28	3170.32	231.49	3165.80	1.36
44	13871	88.90	89.80	248.00	10811.44	3265.30	232.73	3260.78	1.43
45	<b>13966</b>	<b>90.10</b>	<b>89.80</b>	<b>249.00</b>	<b>10812.27</b>	<b>3360.28</b>	<b>233.07</b>	<b>3355.77</b>	<b>1.26</b>
46	14060	89.40	89.70	248.00	10812.68	3454.26	233.48	3449.77	0.75
47	14155	88.40	89.40	248.00	10814.50	3549.23	234.22	3544.75	1.10
48	14249	88.60	88.60	251.00	10816.96	3643.20	235.86	3638.70	0.88
49	14343	89.50	87.90	251.00	10818.52	3737.18	238.73	3732.65	1.21
50	<b>14438</b>	<b>89.20</b>	<b>89.50</b>	<b>249.00</b>	<b>10819.60</b>	<b>3832.17</b>	<b>240.89</b>	<b>3827.61</b>	<b>1.71</b>
51	14532	90.50	89.10	253.00	10819.84	3926.16	242.04	3921.60	1.45
52	14626	90.70	90.50	251.00	10818.86	4020.14	242.36	4015.59	1.50
53	14720	88.50	90.40	251.00	10819.52	4114.08	241.63	4109.58	2.34
54	14814	87.80	89.80	253.00	10822.55	4208.00	241.46	4203.53	0.98
55	<b>14909</b>	<b>88.30</b>	<b>89.40</b>	<b>255.00</b>	<b>10825.78</b>	<b>4302.94</b>	<b>242.12</b>	<b>4298.47</b>	<b>0.67</b>
56	15003	88.90	89.30	255.00	10828.08	4396.90	243.19	4392.44	0.65
57	15097	90.60	88.80	257.00	10828.49	4490.89	244.75	4486.42	1.89
58	15193	90.30	88.50	253.00	10827.74	4586.89	247.01	4582.39	0.44
59	15287	89.60	89.30	253.00	10827.82	4680.89	248.82	4676.37	1.13
60	<b>15319</b>	<b>88.20</b>	<b>91.30</b>	<b>253.00</b>	<b>10828.43</b>	<b>4712.87</b>	<b>248.65</b>	<b>4708.37</b>	<b>7.63</b>
61	15382	89.10	91.20	255.00	10829.92	4775.79	247.27	4771.33	1.44
62	15476	88.90	91.50	255.00	10831.56	4869.67	245.06	4865.29	0.38
63	15571	87.90	90.70	253.00	10834.21	4964.54	243.24	4960.24	1.35
64	15666	86.90	90.70	257.00	10838.52	5059.39	242.08	5055.13	1.05
65	<b>15760</b>	<b>88.00</b>	<b>90.70</b>	<b>258.00</b>	<b>10842.70</b>	<b>5153.23</b>	<b>240.93</b>	<b>5149.03</b>	<b>1.17</b>

**SURVEY REPORT**

Customer: **Oasis Petroleum**  
 Well Name: **Wade Federal 5300 41-30 4T**  
 Rig #: **Patterson 488**  
 API #: **33-053-05943**  
 Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **David Grant**  
 Directional Drillers: **RPM**  
 Survey Corrected To: **True North**  
 Vertical Section Direction: **88.67**  
 Total Correction: **8.18**  
 Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
66	15856	88.50	90.40	258.00	10845.63	5249.14	240.01	5244.98	0.61
67	15950	88.40	90.20	258.00	10848.18	5343.06	239.52	5338.94	0.24
68	16045	88.40	89.70	260.00	10850.83	5438.00	239.60	5433.90	0.53
69	16140	89.40	89.80	260.00	10852.65	5532.97	240.01	5528.89	1.06
<b>70</b>	<b>16234</b>	<b>88.00</b>	<b>91.20</b>	<b>258.00</b>	<b>10854.78</b>	<b>5626.89</b>	<b>239.19</b>	<b>5622.85</b>	<b>2.11</b>
71	16328	88.70	91.10	260.00	10857.49	5720.76	237.31	5716.79	0.75
72	16422	89.80	91.60	260.00	10858.72	5814.65	235.09	5810.76	1.29
73	16517	90.50	89.90	260.00	10858.47	5909.58	233.85	5905.75	1.94
74	16612	88.40	89.80	258.00	10859.38	6004.55	234.10	6000.74	2.21
<b>75</b>	<b>16706</b>	<b>90.40</b>	<b>89.70</b>	<b>262.00</b>	<b>10860.37</b>	<b>6098.53</b>	<b>234.51</b>	<b>6094.72</b>	<b>2.13</b>
76	16801	89.10	90.50	260.00	10860.78	6193.49	234.34	6189.72	1.61
77	16896	87.60	90.20	260.00	10863.52	6288.41	233.76	6284.68	1.61
78	16990	87.90	90.40	262.00	10867.21	6382.30	233.27	6378.60	0.38
79	17085	89.50	90.50	260.00	10869.36	6477.23	232.53	6473.57	1.69
<b>80</b>	<b>17181</b>	<b>90.30</b>	<b>90.20</b>	<b>262.00</b>	<b>10869.53</b>	<b>6573.18</b>	<b>231.94</b>	<b>6569.57</b>	<b>0.89</b>
81	17276	90.90	89.80	264.00	10868.54	6668.15	231.94	6664.56	0.76
82	17370	91.40	89.70	264.00	10866.65	6762.12	232.35	6758.54	0.54
83	17465	90.60	90.00	262.00	10864.99	6857.08	232.60	6853.53	0.90
84	17560	90.90	89.70	260.00	10863.75	6952.05	232.85	6948.52	0.45
<b>85</b>	<b>17655</b>	<b>89.20</b>	<b>90.80</b>	<b>262.00</b>	<b>10863.67</b>	<b>7047.01</b>	<b>232.43</b>	<b>7043.51</b>	<b>2.13</b>
86	17750	88.70	91.20	264.00	10865.41	7141.92	230.77	7138.48	0.67
<b>87</b>	<b>17845</b>	<b>89.50</b>	<b>90.40</b>	<b>262.00</b>	<b>10866.90</b>	<b>7236.84</b>	<b>229.45</b>	<b>7233.46</b>	<b>1.19</b>
88	17940	90.10	90.40	264.00	10867.23	7331.79	228.79	7328.46	0.63
89	18035	91.00	90.20	262.00	10866.32	7426.75	228.29	7423.45	0.97
<b>90</b>	<b>18130</b>	<b>90.50</b>	<b>90.30</b>	<b>260.00</b>	<b>10865.08</b>	<b>7521.70</b>	<b>227.87</b>	<b>7518.44</b>	<b>0.54</b>
91	18178	88.90	89.70	262.00	10865.33	7569.69	227.87	7566.44	3.56
92	18225	88.90	89.70	264.00	10866.23	7616.67	228.12	7613.43	0.00
93	18320	89.40	90.00	266.00	10867.64	7711.64	228.37	7708.42	0.61
94	18416	88.40	89.20	264.00	10869.48	7807.61	229.04	7804.40	1.33
<b>95</b>	<b>18511</b>	<b>89.10</b>	<b>89.60</b>	<b>266.00</b>	<b>10871.55</b>	<b>7902.58</b>	<b>230.03</b>	<b>7899.37</b>	<b>0.85</b>
96	18606	89.80	90.20	266.00	10872.47	7997.55	230.20	7994.36	0.97
97	18701	89.50	89.60	264.00	10873.05	8092.53	230.36	8089.36	0.71
98	18796	88.30	90.30	264.00	10874.87	8187.48	230.45	8184.34	1.46
99	18891	88.70	90.40	267.00	10877.36	8282.41	229.87	8279.30	0.43
<b>100</b>	<b>18987</b>	<b>89.00</b>	<b>90.40</b>	<b>267.00</b>	<b>10879.28</b>	<b>8378.35</b>	<b>229.20</b>	<b>8375.28</b>	<b>0.31</b>
101	19082	89.70	90.60	267.00	10880.36	8473.29	228.37	8470.27	0.77
<b>102</b>	<b>19177</b>	<b>88.80</b>	<b>90.90</b>	<b>266.00</b>	<b>10881.60</b>	<b>8568.22</b>	<b>227.12</b>	<b>8565.26</b>	<b>1.00</b>
103	19271	88.80	90.50	267.00	10883.57	8662.14	225.98	8659.23	0.43
104	19365	89.60	90.90	269.00	10884.89	8756.07	224.83	8753.21	0.95
<b>105</b>	<b>19461</b>	<b>88.20</b>	<b>90.30</b>	<b>267.00</b>	<b>10886.73</b>	<b>8852.00</b>	<b>223.82</b>	<b>8849.18</b>	<b>1.59</b>
106	19556	88.40	90.10	269.00	10889.55	8946.92	223.49	8944.14	0.30
107	19651	89.10	89.80	269.00	10891.62	9041.87	223.57	9039.12	0.80
108	19747	89.50	90.40	269.00	10892.79	9137.84	223.41	9135.11	0.75
109	19842	90.70	89.90	262.00	10892.63	9232.80	223.16	9230.11	1.37
<b>110</b>	<b>19937</b>	<b>88.60</b>	<b>89.70</b>	<b>266.00</b>	<b>10893.21</b>	<b>9327.78</b>	<b>223.49</b>	<b>9325.10</b>	<b>2.22</b>
111	20033	87.80	90.40	264.00	10896.22	9423.70	223.41	9421.05	1.11
112	20128	88.40	90.20	266.00	10899.37	9518.61	222.91	9516.00	0.67
Projection	20195	88.40	90.20	266.00	10901.24	9585.56	222.68	9582.97	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  
SFN 5749 (09-2006)



CTB  
Well File No.  
228394-01

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Notice of Intent

Approximate Start Date  
**February 15, 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

**Central production facility-commingle p**

### Well Name and Number (see details)

Footages	F	L	F	L	Qtr-Qtr	Section	Township	Range
						<b>30</b>	<b>153 N</b>	<b>100 W</b>
Field	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 respectfully requests approval to commingle oil and gas in a central production facility known as 5300 30-29 CTB with common ownership for the following wells:

Well file #28554 Wade Federal 5300 31-30 2B Lot3 Sec. 30 T153N R100W API 33-053-05995

Well file #28394 Wade Federal 5300 41-30 4T Lot4 Sec. 30 T153N R100W API 33-053-05943

Well file #28556 Wade Federal 5300 41-30 5T2 Lot4 Sec. 30 T153N R100W API 33-053-05997

Well file #28425 Wade Federal 5300 41-30 6B Lot4 Sec. 30 T153N R100W API 33-053-05954

Well file #28357 Wade Federal 5300 41-30 7T Lot4 Sec. 30 T153N R100W API 33-053-05998

Well file #28555 Wade Federal 5300 41-30 3T2 is being reevaluated and will not be commingled.

Please find the following attachments:

1. A schematic drawing of the facility which diagrams the testing, treating, routing, and transferring of production. 2. A plat showing the location of the central facility. 3. Affidavit of title indicating common ownership. Oasis will allocate production measured at the central production facility to the various wells on the basis of isolated production tests utilizing oil, gas, and water meters on a test separator at the central production facility. Oasis will measure the production from each well separately each month for a minimum of three days. Oasis believes that such allocation will result in an accurate determination of production from each well. Tank vapor gas is being recovered and burned by a 98% DRE enclosed combuster.

Company <b>Oasis Petroleum North America, LLC</b>	Telephone Number <b>(713) 770-6430</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>David Copeland</b>
Title <b>Regulatory Specialist</b>	Date <b>January 24, 2015</b>
Email Address <b>dcopeland@oasispetroleum.com</b>	

### FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>2-2-2015</b>	
By 	
Title <b>PETROLEUM ENGINEER</b>	

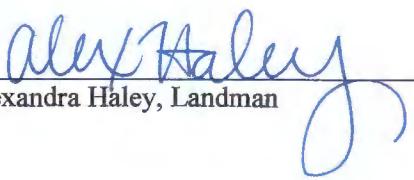
COMMINGLING AFFIDAVIT

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

The under signed, Alex Haley, of lawful age, being first duly sworn on her oath states that she is a duly authorized agent of Oasis Petroleum North America LLC, and that she has personal knowledge of the facts hereinafter set forth to make this Affidavit.

1. Sections 29 & 30, Township 153 North, Range 100 West, McKenzie County North Dakota constitute a spacing unit in accordance with the applicable orders for the Bakken pool.
2. Six wells have been drilled in the spacing unit, which are known as the Wade Federal 5300 31-30 2B, Wade Federal 5300 41-30 4T, Wade Federal 5300 41-30 5T2, Wade Federal 5300 41-30 6B, and the Wade Federal 5300 41-30 7T
3. By NDIC Order 23339 dated March 18, 2014, all oil and gas interest within the aforementioned spacing unit were pooled.
4. All Working Interests, Royalty Interests and Overriding Royalty Interests in the Wade Federal 5300 31-30 2B, -Wade Federal 5300 41-30 4T, Wade Federal 5300 41-30 5T2, Wade Federal 5300 41-30 6B, and the Wade Federal 5300 41-30 7T will be in common.

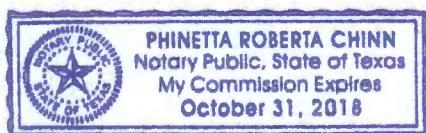
Dated this 22nd day of January, 2015

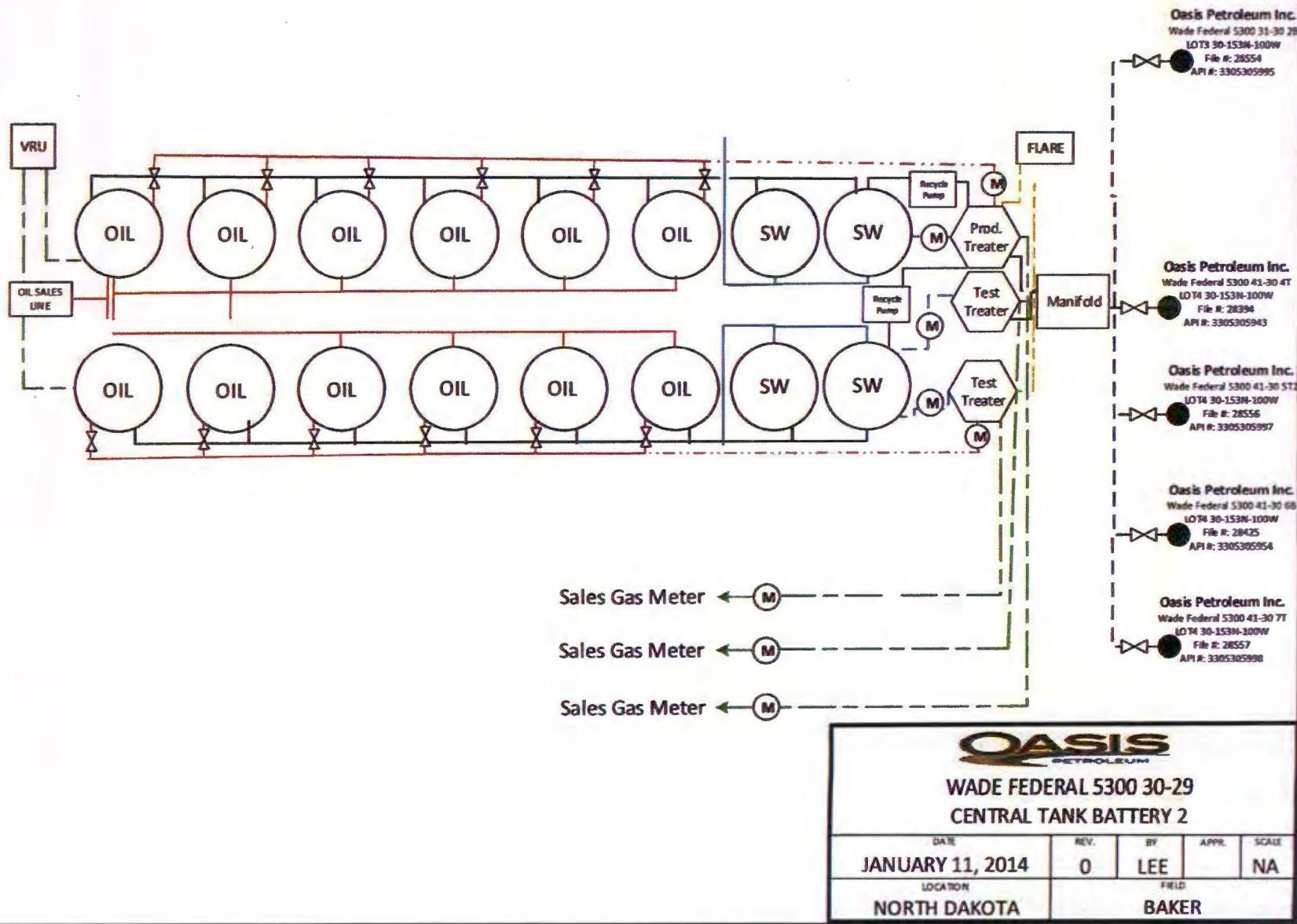
  
Alexandra Haley, Landman

STATE OF TEXAS      )  
                                ) ss.  
COUNTY OF HARRIS      )

Subscribed to and sworn before me this 22nd day of January, 2015

  
PHINETTA ROBERTA CHINN  
Notary Public, State of Texas  
My Commission Expires: October 31, 2018

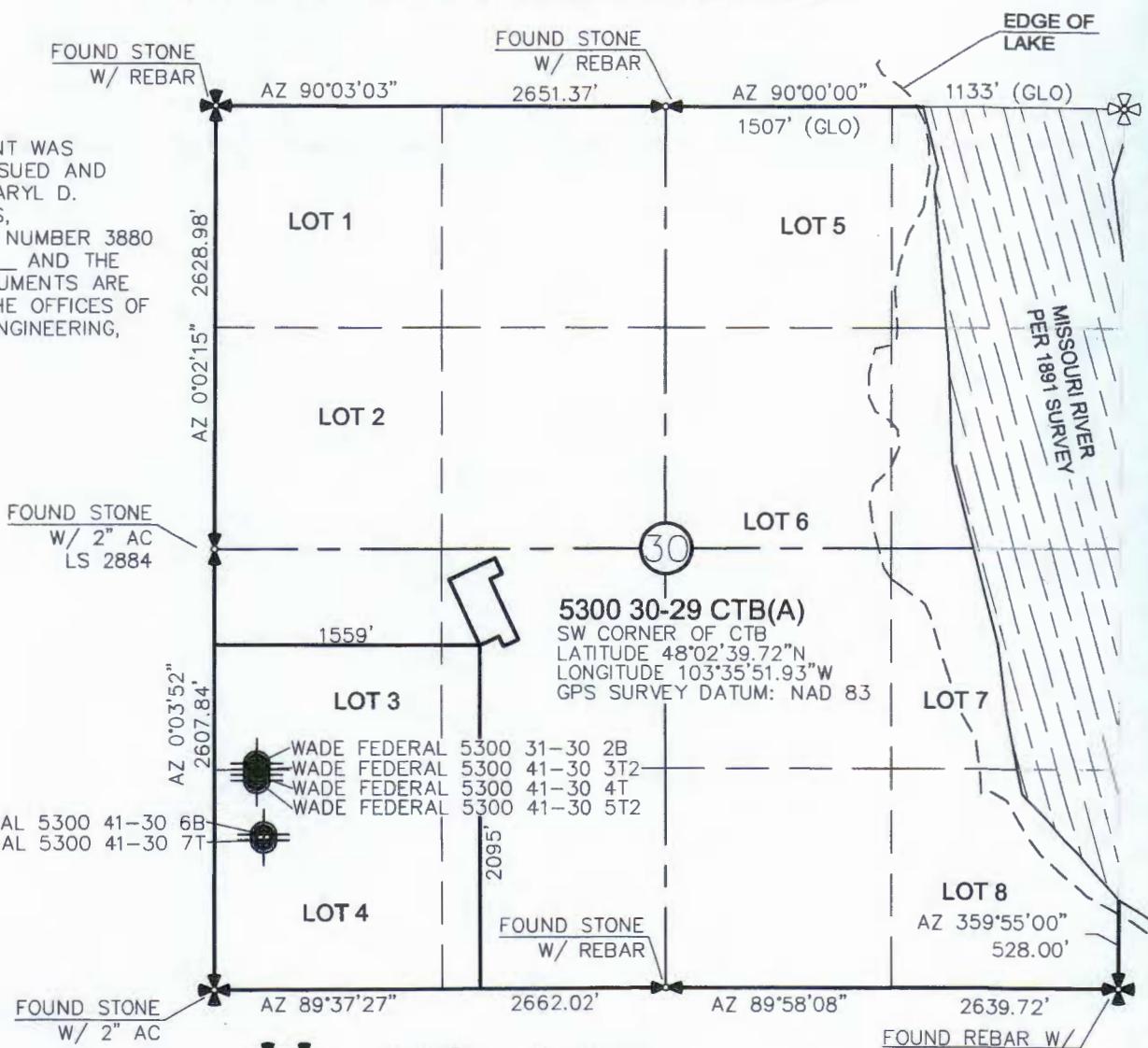




**BATTERY LOCATION PLAT**  
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"5300 30-29 CTB(A)"  
SECTION 30, 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 1/07/15 AND THE  
ORIGINAL DOCUMENTS ARE  
STORED AT THE OFFICES OF  
INTERSTATE ENGINEERING,  
INC.



VICINITY MAP



STAKED ON 3/25/14  
VERTICAL CONTROL DATUM WAS BASED UPON  
CONTROL POINT 705 WITH AN ELEVATION OF 2158.3'

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

DARYL D. KASEMAN LS-3880

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1/5



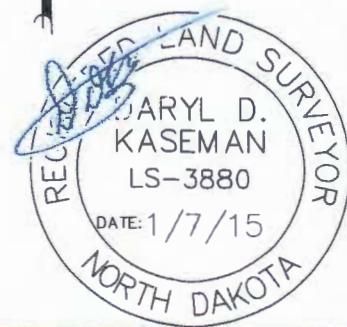
Professionals you need, people you trust

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

OASIS PETROLEUM NORTH AMERICA, LLC  
BATTERY LOCATION PLAT  
SECTION 30, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	J.J.S.	Project No.:	S15-09-003
Checked By:	D.D.K.	Date:	JAN 2015

Revision No.	Date	By	Description



**PAD LAYOUT**  
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"5300 30-29 CTB(A)"  
SECTION 30, 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 1/07/15 AND  
THE ORIGINAL DOCUMENTS ARE  
STORED AT THE OFFICES OF  
INTERSTATE ENGINEERING, INC.



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

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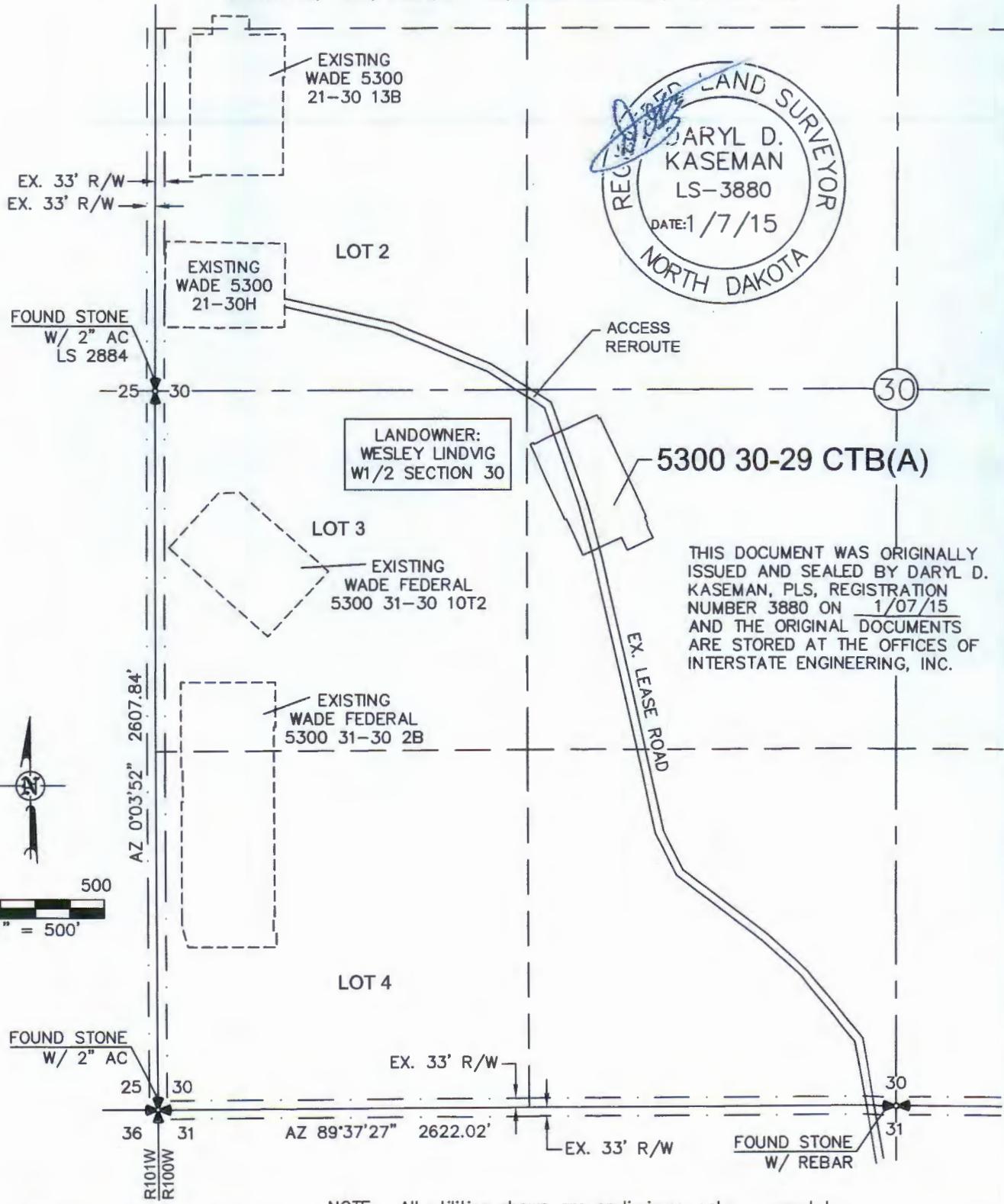


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[www.interstateeng.com](http://www.interstateeng.com)

OASIS PETROLEUM NORTH AMERICA, LLC  
PAD LAYOUT  
SECTION 30, T153N, R100W

**ACCESS APPROACH**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "5300 30-29 CTB(A)"  
 SECTION 30, T153N, R100W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SHEET NO.

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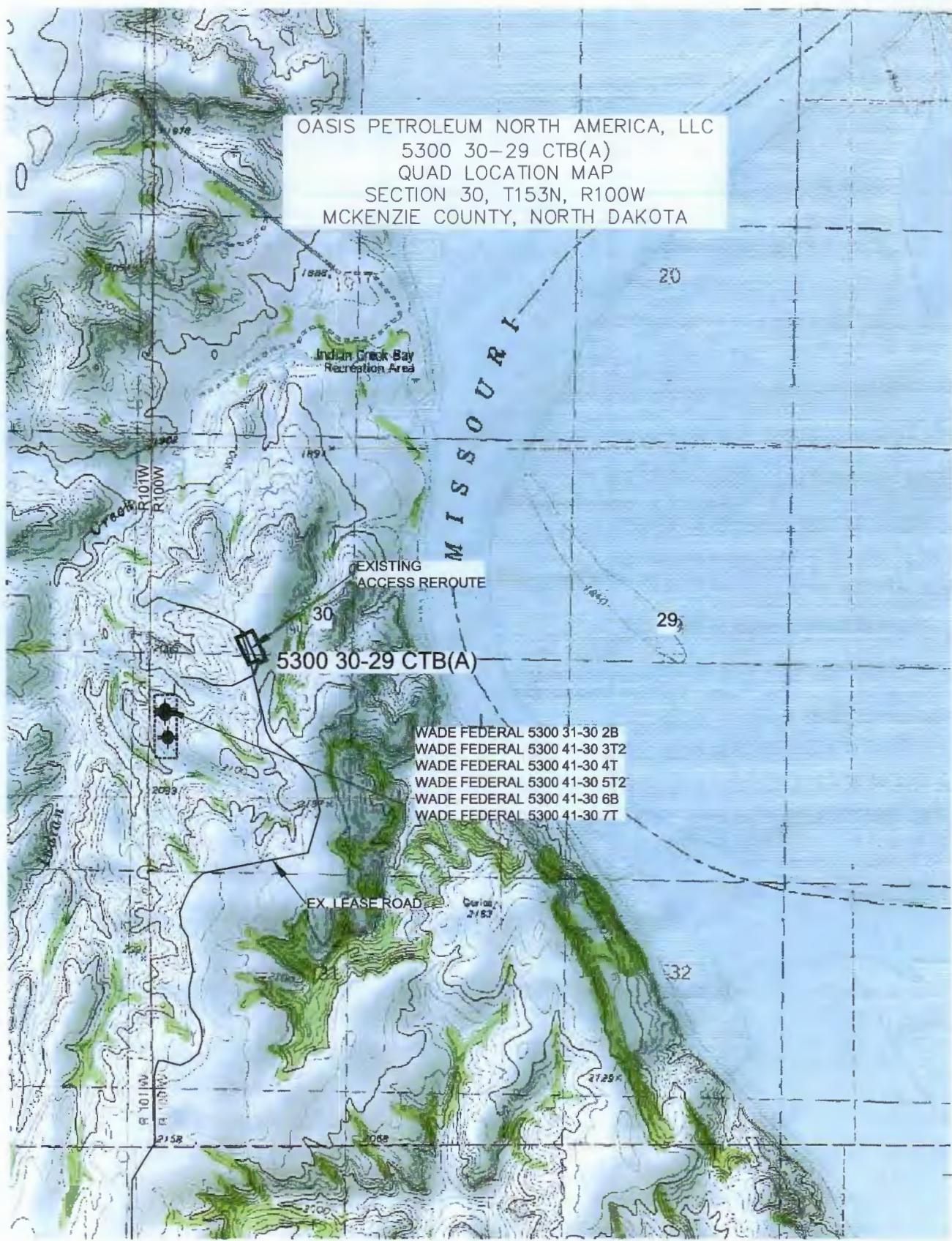
Interstate Engineering, Inc.  
 P.O. Box 648  
 425 East Main Street  
 Sidney, Montana 59270  
 Ph (406) 433-5617  
 Fax (406) 433-5618  
[www.Interstateeng.com](http://www.Interstateeng.com)

Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
 ACCESS APPROACH  
 SECTION 30, T153N, R100W  
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	J.J.S.	Project No.:	S15-09-003
Checked By:	D.D.K.	Date:	JAN 2015

Revision No.	Date	By	Description



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Interstate Engineering, Inc.  
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Sidney, Montana 59270  
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[www.interstateeng.com](http://www.interstateeng.com)

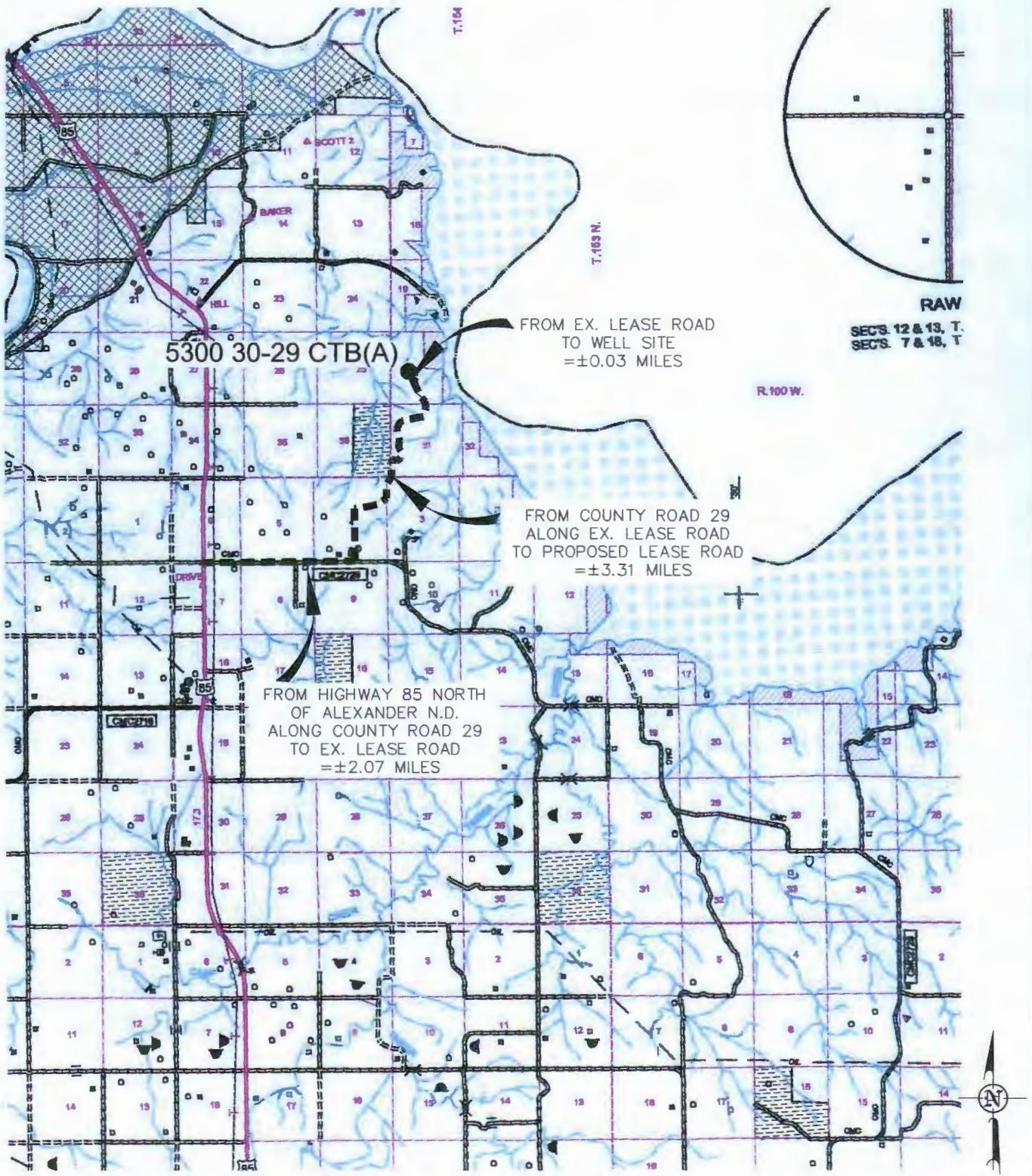
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
QUAD LOCATION MAP  
SECTION 30, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No.: S15-09-003  
Checked By: D.D.K. Date: JAN 2015

Revision No.	Date	By	Description

**COUNTY ROAD MAP**  
OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"5300 30-29 CTB(A)"  
SECTION 30, T153N, R100W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

5/5



SHEET NO

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

Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
COUNTY ROAD MAP  
SECTION 30, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

awarded By: J.J.S. Project No.: S15-09-003

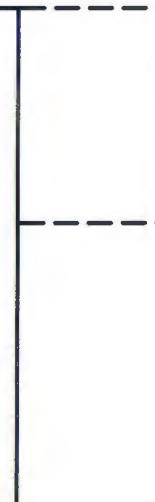
Checked By: D.D.K. Date: JAN 2015

## LAT/LONG PAD CORNERS

48°02'44.48"N  
103°35'51.68"W



48°02'40.64"N  
103°35'49.00"W



5300 30-29 CTB(A)

48°02'43.56"N  
103°35'54.61"W

48°02'39.72"N  
103°35'51.93"W





# SUNDRY NOTICE AND REPORTS ON WELLS - FORM

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

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



Well File No	28394
	28405
	28554
	28555
	28556
	28557
	28558
	28744

<input type="checkbox"/> Notice of Intent	Approximate Start Date	<input type="checkbox"/> Drilling Program	<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	

Well Name and Number <b>Wade Federal 5300 41-30 4T</b> + See Details				
Footages <b>1263 F S L</b>	Qtr-Qtr <b>240 F W L</b>	Section <b>SWSW</b>	Township <b>30</b>	Range <b>153 N 100 W</b>
Field	Pool <b>Bakken</b>	County <b>McKenzie</b>		

## 24-HOUR PRODUCTION RATE

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

Name of Contractor(s)			
Address	City	State	Zip Code

## DETAILS OF WORK

Oasis Petroleum respectfully requests to use an offsite pit for the wells listed below. We are requesting to use an offsite pit because a pit wont fit on location with a rig anchor and the land adjacent is too rough. Attached are the plats.

Wade Federal 5300 31-30 2B - 28554  
Wade Federal 5300 41-30 3T2 - 28555  
Wade Federal 5300 41-30 4T - 28394  
Wade Federal 5300 41-30 5T2 - 28556  
Wade Federal 5300 41-30 6B - 28405  
Wade Federal 5300 41-30 7T - 28557  
Wade Federal 5300 41-30 8T2 - 28558  
Wade Federal 5300 41-30 9B - 28744

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9491</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature 	Printed Name <b>Brandi Terry</b>	
Title <b>Regulatory Specialist</b>	Date <b>May 12, 2014</b>	
Email Address <b>bterry@oasispetroleum.com</b>		

## FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <b>12-23-14</b>	
By 	
Title 	

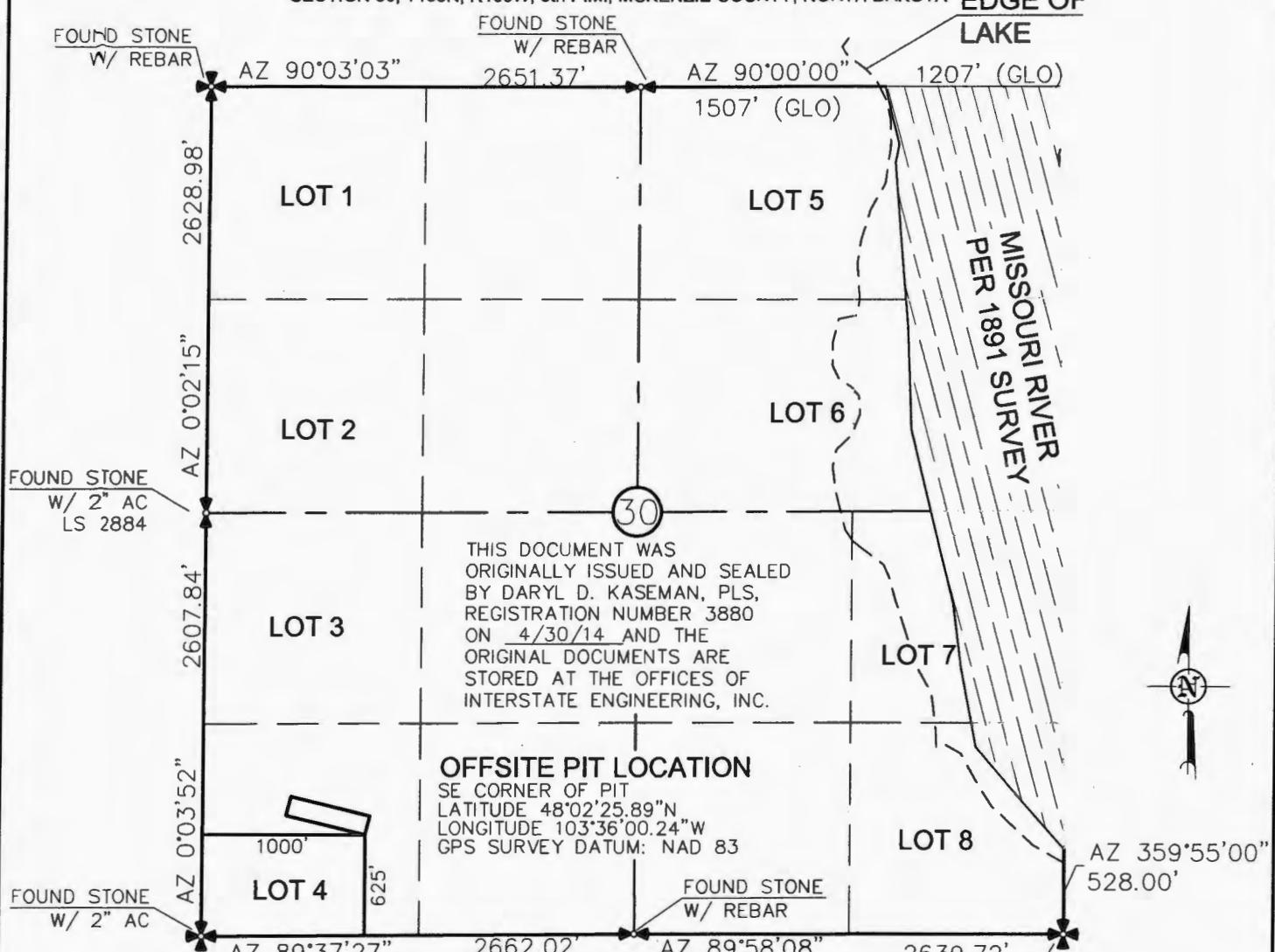
**OFFSITE PIT LOCATION PLAT**  
OASIS PETROLEUM NORTH AMERICA, LLC

1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"AS-STAKED OFFSITE PIT FOR WADE FEDERAL 5300 31-30 2B, WADE FEDERAL 5300 41-30 3T2,  
WADE FEDERAL 5300 41-30 4T, WADE FEDERAL 5300 41-30 5T2, WADE FEDERAL 5300 41-30 6B,  
WADE FEDERAL 5300 41-30 7T, WADE FEDERAL 5300 41-30 8T2, & WADE FEDERAL 5300 41-30 9B"  
625 FEET FROM SOUTH LINE AND 1000 FEET FROM WEST LINE

SECTION 30, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

**EDGE OF  
LAKE**



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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 Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
OFFSITE PIT LOCATION PLAT  
SECTION 30, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H. Project No.: S13-09-381.09  
Checked By: D.D.K. Date: APRIL 2014

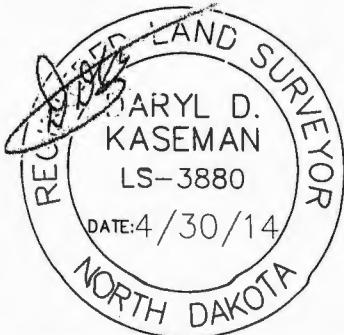
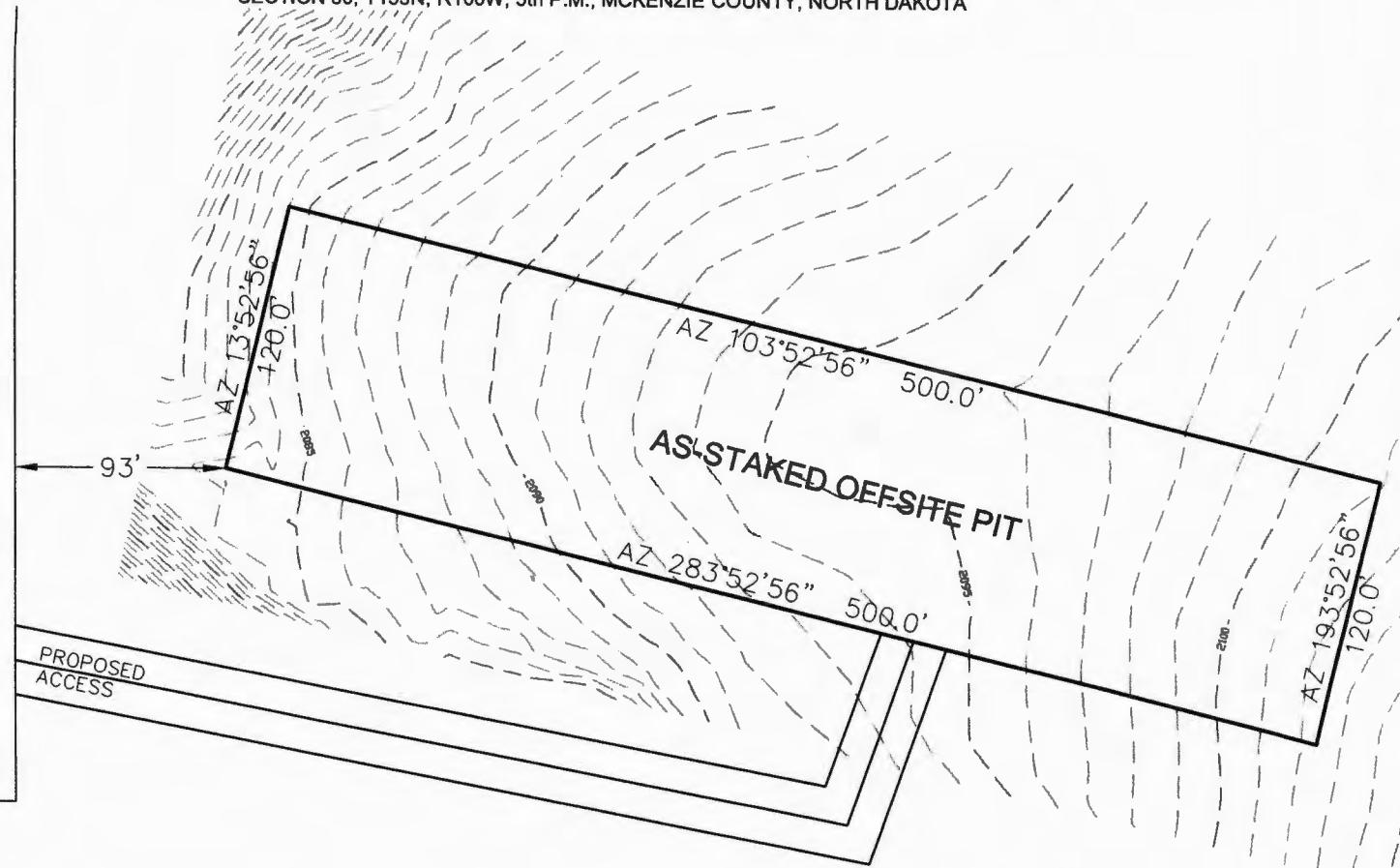
Revision No.	Date	By	Description

# PAD LAYOUT

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

"AS-STAKED OFFSITE PIT FOR WADE FEDERAL 5300 31-30 2B, WADE FEDERAL 5300 41-30 3T2,  
WADE FEDERAL 5300 41-30 4T, WADE FEDERAL 5300 41-30 5T2, WADE FEDERAL 5300 41-30 6B,  
WADE FEDERAL 5300 41-30 7T, WADE FEDERAL 5300 41-30 8T2, & WADE FEDERAL 5300 41-30 9B"  
625 FEET FROM SOUTH LINE AND 1000 FEET FROM WEST LINE  
SECTION 30, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

WADE FEDERAL  
5300 31-30 2B  
WADE FEDERAL  
5300 41-30 3T2  
WADE FEDERAL  
5300 41-30 4T  
WADE FEDERAL  
5300 41-30 5T2  
WADE FEDERAL  
5300 41-30 6B  
WADE FEDERAL  
5300 41-30 7T  
WADE FEDERAL  
5300 41-30 8T2  
WADE FEDERAL  
5300 41-30 9B



THIS DOCUMENT WAS ORIGINALLY ISSUED  
AND SEALED BY DARYL D. KASEMAN,  
PLS, REGISTRATION NUMBER 3880 ON  
4/30/14 AND THE ORIGINAL  
DOCUMENTS ARE STORED AT THE  
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NOTE: All utilities shown are preliminary only, a complete  
utilities location is recommended before construction.

0 80  
1" = 80'

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2/3  
SHEET NO.

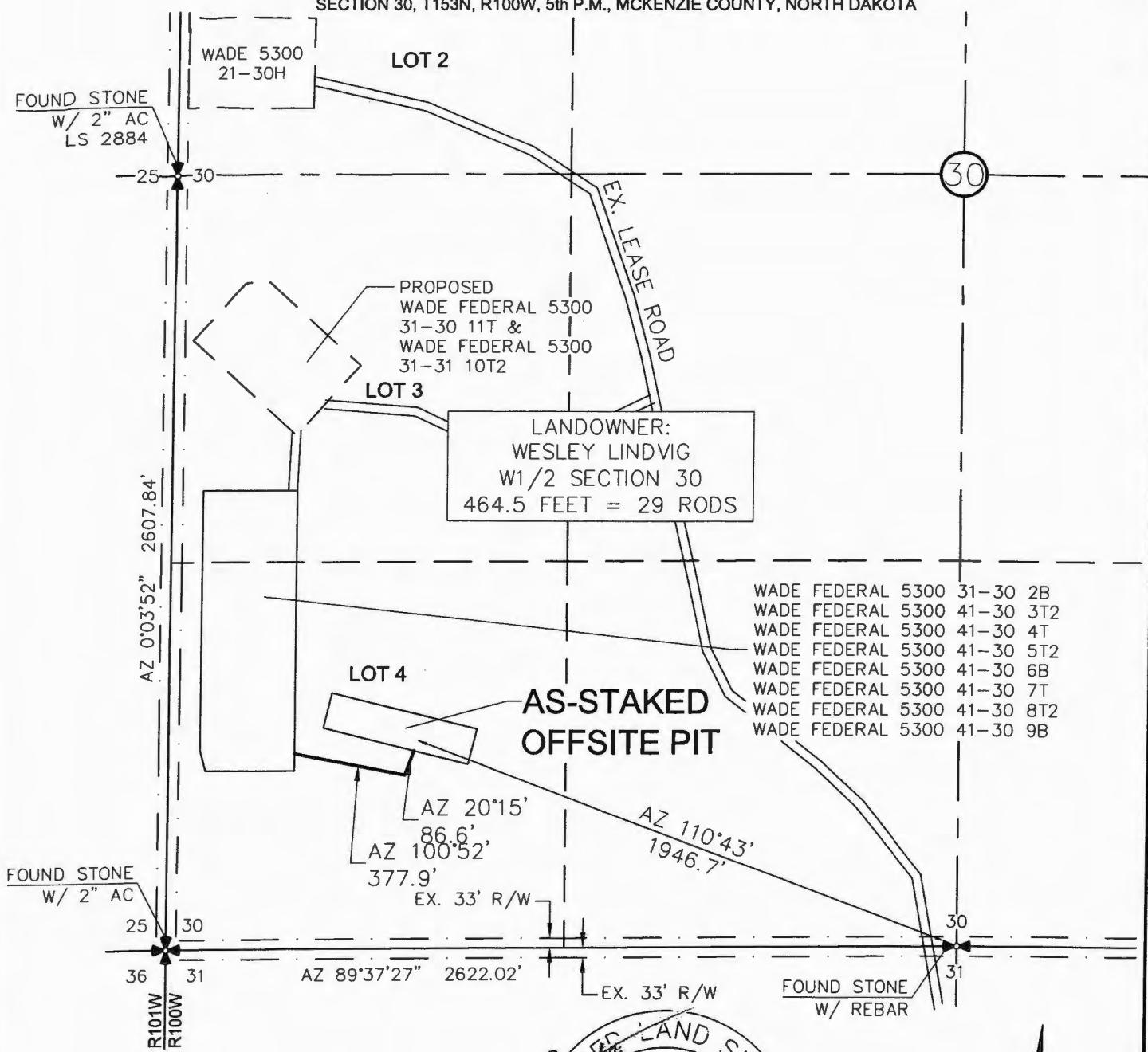
OASIS PETROLEUM NORTH AMERICA, LLC	Section No.	Date	By	Description
PAD LAYOUT				
SECTION 30, T153N, R100W				
MCKENZIE COUNTY, NORTH DAKOTA				
Project No.: S15-063-31-09	Drawn By: B.H.H.	Checked By: D.D.K.	APRIL 2014	
Date: _____				

Interstate Engineering, Inc.  
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Sidney, Montana 59270  
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Fax (406) 433-5618  
[www.interstateeng.com](http://www.interstateeng.com)  
Other offices in Missoula, North Dakota, and South Dakota

# ACCESS APPROACH

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

"AS-STAKED OFFSITE PIT FOR WADE FEDERAL 5300 31-30 2B, WADE FEDERAL 5300 41-30 3T2,  
WADE FEDERAL 5300 41-30 4T, WADE FEDERAL 5300 41-30 5T2, WADE FEDERAL 5300 41-30 6B,  
WADE FEDERAL 5300 41-30 7T, WADE FEDERAL 5300 41-30 8T2, & WADE FEDERAL 5300 41-30 9B"  
625 FEET FROM SOUTH LINE AND 1000 FEET FROM WEST LINE  
SECTION 30, 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 4/30/14 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.



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

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3/3

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OASIS PETROLEUM NORTH AMERICA, LLC  
ACCESS APPROACH  
SECTION 30, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	B.H.H.	Project No.:	S13-09-381.06
Checked By:	D.D.K.	Date:	APRIL 2014

Revision No.	Date	By	Description

Industrial Commission of North Dakota  
Oil and Gas Division Verbal Approval Procedures  
Other

Well or Facility No

**28394**

Tight Hole    **No**

**OPERATOR**

Operator <b>OASIS PETROLEUM NORTH AMERICA LL</b>	Representative <b>Heather Bader</b>	Rep Phone <b>(307) 258-1732</b>
---	--	------------------------------------

**WELL INFORMATION**

Well Name <b>WADE FEDERAL 5300 41-30 4T</b>	Inspector <b>Richard Dunn</b>
Well Location <b>LOT4      30      153 N 100 W</b>	County <b>MCKENZIE</b>
Footages <b>1263      Feet From the S Line</b>	Field <b>BAKER</b>
<b>240      Feet From the Line</b>	Pool <b>BAKKEN</b>

**OTHER INFORMATION**

Contractor

Rig Operator

**PATTERSON-UTI DRILLING COMPANY**

Surface Owner

Pit Water Disposal

**DETAILS OF PROCEDURE**

Change 9 5/8"-40# csnge to 9 5/8"-36# csng.

Start Date	<b>12/15/2014</b>
Date Approved	<b>12/15/2014</b>
Approved By	<b>Tamara Cook</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)

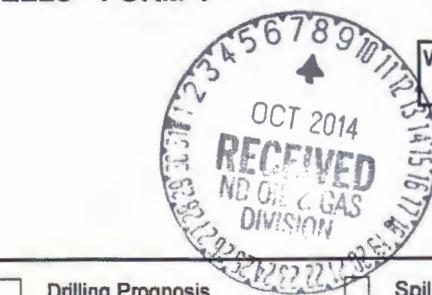
*BEN*

Well File No.  
**28394**

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date <b>October 6, 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>Casing Change</b>

Well Name and Number

**Wade Federal 5300 41-30 4T**

Footages <b>1263 F S L</b>	Qtr-Qtr <b>240 F W L</b>	Section <b>LOT4</b>	Township <b>30</b>	Range <b>153 N</b>	100 W
Field	Pool <b>Bakken</b>	County <b>McKenzie</b>			

## 24-HOUR PRODUCTION RATE

	Before	After
Oil	Bbls	Oil
Water	Bbls	Water
Gas	MCF	Gas

Name of Contractor(s)

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

## DETAILS OF WORK

Oasis Petroleum respectfully requests approval to change the casing design for the above referenced well:

Surface Casing to 13 3/8" casing (previously 9 5/8" casing);

Contingency Surface Casing of 9 5/8" set at 6400';

7" intermediate Casing and 4 1/2" liner will remain the same.

Attached are the revised GeoProg, 8 Point Drill plan, Plot and Plan.

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9589</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature <i>Sonja Rolfs</i>	Printed Name <b>Sonja Rolfs</b>	
Title <b>Regulatory Specialist</b>	Date <b>October 6, 2014</b>	
Email Address <b>srolfs@oasispetroleum.com</b>		

## FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>10/13/14</i>	
By <i>Nathaniel Earle</i>	
Title	

DRILLING PLAN												
OPERATOR	Oasis Petroleum	COUNTY/STATE	McKenzie Co., ND									
WELL NAME	Wade Federal 5300 41-30-4T	RIG	Nabors 456									
WELL TYPE	Horizontal Three Forks											
LOCATION	SW SW 30-153N-100W	Surface Location (survey plat):	1263' FSL	840' FWL								
EST. T.D.	20,887'	GROUND ELEV:	2,045'	Sub Height:	25'	KB ELEV:	2,070'					
TOTAL LATERAL:	9,617'											
MARKER	TVD	Subsea TVD	LOGS:	Type	Interval							
Pierre	NDIC MAP	1,920	150	OH Logs: Request Log waiver based on the Wade Federal 5300 21-30H 2,150' N of surface location								
Greenhorn		4,566	-2,496	CBL/GR: Above top of cement/GR to base of casing								
Mowry		4,968	-2,899	MWD GR: KOP to lateral TD								
Dakota		5,391	-3,321									
Rierdon		6,407	-4,337	DEVIATION:	Surf:	3 deg. max., 1 deg / 100'; surv every 500'						
Durham Salt		6,898	-4,826	Prod:		5 deg. max., 1 deg / 100'; surv every 100'						
Dunham Salt Base		6,942	-4,872									
Pine Salt		7,205	-5,135									
Pine Salt Base		7,229	-5,159									
Opeche Salt		7,291	-5,221									
Opeche Salt Base		7,371	-5,301									
Arnsden		7,815	-5,545									
Tyler		7,771	-5,701									
Otter/Base Minnetusa		7,994	-5,924	DST'S:	None planned							
Kibbey Lime		8,336	-6,266	CORES:	None planned							
Charles Salt		8,484	-6,414									
Base Last Salt		9,163	-7,093									
Mission Canyon		9,377	-7,307									
Lodgepole		9,926	-7,856									
False Bakken		10,656	-8,586	MUDLOGGING:	Two-Man:	Begin 200' above Kibbey 30' samples in curve and lateral						
Upper Bakken Shale		10,868	-8,598									
Middle Bakken		10,863	-8,613									
Lower Bakken Shale		10,719	-8,649									
Pronghorn		10,728	-8,658									
Threeforks		10,744	-8,674									
Threeforks(Top of Target)		10,761	-8,691									
Threeforks(Base of Target)		10,770	-8,700									
Claystone		10,770	-8,700	BOP:	11" 5000 psi blind, pipe & annular							
Est. Dip Rate:												
Max. Anticipated BHP:	4657			Surface Formation: Glacial till								
MUD:	Interval	Type	WT	Vis	WL	Remarks						
Surface:	0' -	2,100' FW	8.4-9.0	28-32	NC	Circ Mud Tanks						
Intermediate:	2,100' -	11,050' Invert	9.5-10.4	40-50	30-HHIp	Circ Mud Tanks						
Laterals:	11,050' -	20,867' Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks						
CASING:	Size	Wt pcf	Hole	Depth	Cement	WOC	Remarks					
Surface:	13-3/8"	54.5#	17-1/2"	2,100'	To Surface	12	100' into Pierre					
Intermediate (Dakota):	9-5/8"	40#	12-1/4"	6,400'	To Surface	24	Set Casing across Dakota					
Intermediate:	7"	32#	8-3/4"	11,050'	3891	24	1500' above Dakota					
Production Liner:	4.5"	13.5#	6"	20,867"	TOL @ 10,237"	50' above KOP						
PROBABLE PLUGS, IF REQ'D:												
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI	Survey Company: Build Rate: 12 deg /100'					
Surface:	2,100	2,100	25' FSL	25' FWL	Sec. 30 T153N R100W							
KOP:	10,287'	10,287'	1263 FSL	240 FWL	Sec. 30 T153N R100W							
EOC:	11,035'	10,765'	1389 FSL	697 FWL	Sec. 30 T153N R100W	74.6						
Casing Point:	11,050'	10,765'	1396 FSL	713 FWL	Sec. 30 T153N R100W	74.6						
Three Forks Lateral TD:	20,867'	10,824'	1497 FSL	210 FEL	Sec. 29 T153N R100W	90.0						
Comments:												
Request Log waiver based on the Wade Federal 5300 21-30H 2,150' N of surface location												
35 packers and 10 sleeves	Oasis Petroleum doesn't use Diesel Fuel as defined by the US EPA in the list below, in our hydraulic fracture operations.											
No frac string planned	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: N. Gabelman	1/20/2014	Engineering: C. Gilbert		1/29/14							

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

Oasis Petroleum intends to drill this well according to the planned program outlined below.

**1. Estimated Tops of Important Geologic Markers**

<b>MARKER</b>		<b>TVD</b>
Pierre	NDIC MAP	1,920
Greenhom		4,566
Mowry		4,969
Dakota		5,391
Rierdon		6,407
Dunham Salt		6,896
Dunham Salt Base		6,942
Pine Salt		7,205
Pine Salt Base		7,229
Opeche Salt		7,291
Opeche Salt Base		7,371
Amsden		7,615
Tyler		7,771
Otter/Base Minnelusa		7,994
Kibbey Lime		8,336
Charles Salt		8,484
Base Last Salt		9,163
Mission Canyon		9,377
Lodgepole		9,926
False Bakken		10,656
Upper Bakken Shale		10,668
Middle Bakken		10,683
Lower Bakken Shale		10,719
Pronghom		10,728
Threeforks		10,744
Threeforks(Top of Target)		10,761
Threeforks(Base of Target)		10,770
Claystone		10,770

(Potential H2S In Mission Canyon)

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

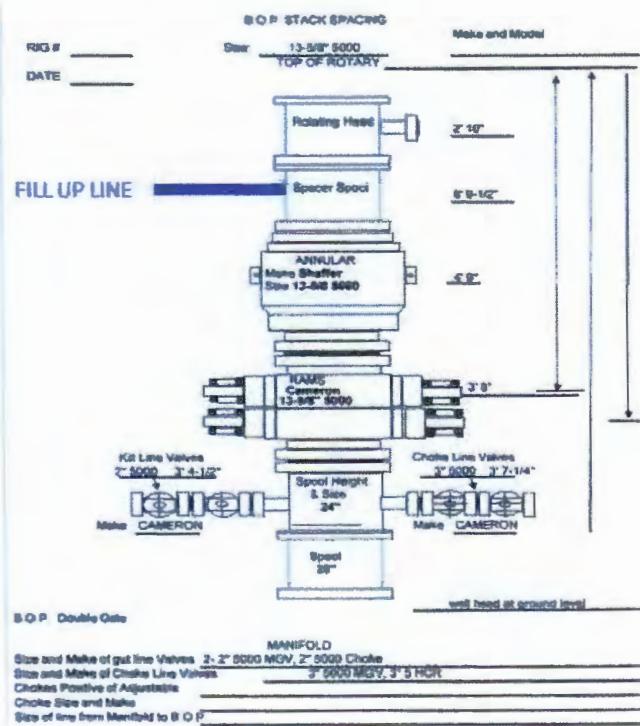
**2. Estimated Depths of Anticipated Water, Oil, Gas or Mineral Formations:**

<u>Substance</u>	<u>Formation</u>	<u>Depth (TVD)</u>
Water	Dakota	5,391'
Oil	Mission Canyon (Potential H2S)	9,377'
Oil	Lodgepole	9,926'
Oil	Three Forks (1 <sup>st</sup> Bench)	10,667'

**3. Pressure Control Equipment:**

After 13-3/8" casing will be set at 2,100' (at least 100' into the Pierre Shale), an 11", 5M, double ram BOP with annular preventer, 5M psi kill lines, choke manifold and rotating head will be used and installed on a 13-3/8" x 11", 5M wellhead (A-Section) to drill from 2,100' to 11,050' MD (7" intermediate casing point). See diagram below.

Note: 13-3/8" BOP to be rented as for hole size if 12-1/4" hole is necessary as contingency. See supplemental letter concerning 9-5/8" contingency.

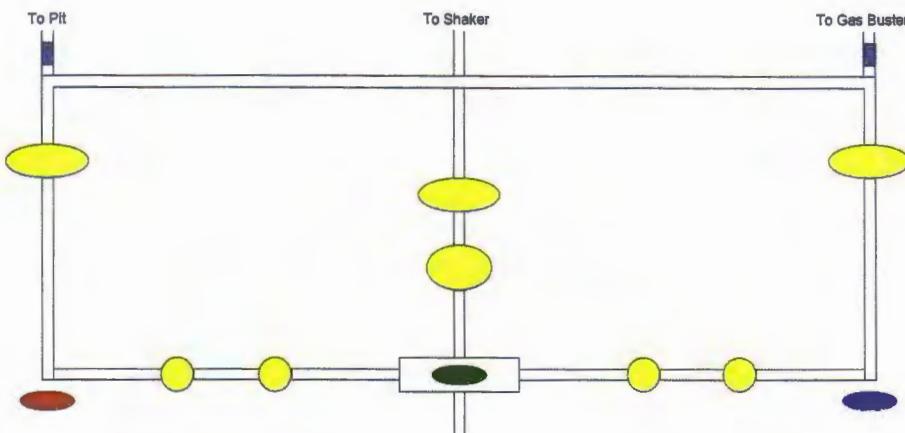


At intermediate casing point, a 5M psi wellhead (B-section) will be installed. Pipe rams and Kelly will be changed out for 4" drill pipe and related equipment that will be used in the lateral from 11,050' to a total

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

depth of 20,711'. The BOPE and related equipment will meet the requirements of the 5M psi system and as outlined in Onshore Order II.

### **Choke Manifold Diagram**



Red is 5000# manual choke  
Purple is 5000# remote controlled choke  
Yellow are 5000# gate valves  
Blue are ball valves  
Green is a pressure guage

#### **OPERATORS MINIMUM SPECIFICATIONS FOR BOPE:**

Surface casing will be equipped with a flanged casing head of 5M psi working pressure. An 11" x 5M psi BOP and 5M psi annular will be nippled up on the surface casing. Install test plug and pressure test annular preventer to 250 psi low and 2500 psi high or 50% of rated working pressure and BOPE 250 psi low and to 5000 psi high for 10 minutes each prior to drill out. The surface casing will be tested to 1500 psi.

Intermediate casing will be tested to the greater of 1500 psi or .22 psi/ft. The choke manifold equipment, upper Kelly cock, floor safety valves will be tested to 5000 psi. The annular preventer will be tested to 250 psi low and 2500 psi high or 50% of rated working pressure. The BOPE will be hydraulically operated.

At minimum, the BOP equipment will be pressure tested after initial installation, after running intermediate casing, after any repairs to the equipment and at least once every 30 days.

Pipe and blind rams will be activated on each trip, annular preventer will be activated weekly and weekly BOP drills will be held with each crew. All BOP drills and tests will be recorded in the IADC driller's log.

#### **Choke Manifold Equipment:**

All choke lines will be straight lines. Whenever possible at turns, tee blocks will be used or will be targeted with running tees, and will be anchored to prevent whip and vibration.

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

**Accumulator System and Location of Hydraulic Controls:**

The accumulator will have sufficient capacity to open the hydraulically controlled choke line valve (if so equipped), close all rams plus the annular preventer, and retain a minimum of 200 psi above pre-charge on the closing manifold without the use of the closing unit pumps. The fluid reservoir capacity will be double the accumulator capacity and the fluid level will be maintained at the manufacturer's recommendations. The BOP system will have two (2) independent power sources to close the preventers. Nitrogen bottles (3 minimum) will be one (1) of these independent power sources and will maintain a charge equal to the manufacturer's specifications.

The accumulator pre-charge pressure test will be conducted prior to connecting the closing unit to the BOP stack and at least once every six (6) months thereafter. The accumulator pressure will be corrected if the measured pre-charge pressure is found to be above or below the maximum or minimum limits specified in *Onshore Oil & Gas Order Number 2*.

**Auxiliary Equipment:**

- A) Mud logger with gas monitor -**8,284'** (200' above Charles Salt to Intermediate TD)
- B) Choke manifold with one manual and one hydraulic operated choke
- C) Full opening floor valve with drill pipe thread
- D) Upper and lower Kelly cock
- E) Shale shakers and possible mud cleaner.

**Miscellaneous Information:**

**Nabors 486** is being considered to be used at the proposed location. Operations will commence after approval of this application.

The blowout preventer and related pressure control equipment will be installed, tested and maintained in compliance with the specifications in and requirements of *Onshore Oil & Gas Order Number 2*.

The choke manifold and BOP extension rods with hand wheels will be located outside the rig substructure. The hydraulic BOP closing unit will be located at least twenty five (25) feet from the wellhead but readily accessible to the driller. Exact locations and configurations of the hydraulic BOP closing unit will depend upon the particular rig contracted to drill this well.

A flare line will be installed after the choke manifold, connecting the manifold to a separate flare tank located at least 125 feet away from the wellbore and any existing production facilities.

Anticipated bottom hole temperature is 265° F.

**4. Proposed Casing & Cementing Program:**

**a. Planned Program**

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 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' to 2,100'	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 2,100'	13-3/8", 54.5#, J-55, STC, 8rd	1130 / 1.15	2730 / 2.78	514 / 2.58

**API Rating & Safety Factor**

- a) Based on full casing evacuation with 9 ppg fluid on backside (2,100' setting depth).
- b) Burst pressure based on 9 ppg fluid with no fluid on backside (2,100' setting depth).
- c) Based on string weight in 9 ppg fluid at 2,100' TVD plus 100k# overpull. (Buoyed weight equals 99k 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:**      **620 sks** (328 bbls) 2.97 yield conventional system with 94 lb/sk cement, .25 lb/sk D130 Lost Circulation Control Agent, 2% CaCl<sub>2</sub>, 4% D079 Extender and 2% D053 Expanding Agent.

**Tail Slurry:**      **201 sks** (72 bbls) 2.01 yield conventional system with 94 lb/sk cement, .25 lb/sk D130 Lost Circulation Control Agent, 2% CaCl<sub>2</sub>, 4% D079 Extender and 2% D053 Expanding Agent.

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

**CONTINGENCY SURFACE CASING AND CEMENT DESIGN**

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
9-5/8"	0' to 6,400'	40	L-80	LTC	8.835"	8.75"	5,450	7,270	9,090

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' to 6,400'	9-5/8", 40#, L-80, LTC, 8rd	3090 / 3.71	5750 / 1.24	837 / 3.86

**API Rating & Safety Factor**

- a) Collapse pressure based on 11.5 ppg fluid on the backside and 9 ppg fluid inside of casing.
- b) Burst pressure calculated from a gas kick coming from the production zone (Bakken Pool) at 9,000 psi 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, (217k lbs buoyed weight) plus 100k lbs overpull.

Cement volumes are based on 9-5/8" casing set in 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:** **592 sks** (210 bbls) Conventional system with 75 lb/sk cement, 0.5 lb/sk lost circulation, 10% expanding agent, 2% extender, 2% CaCl<sub>2</sub>, 0.2% anti-foam and 0.4% fluid loss agent.

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

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 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' – 11050'	32	HCP-110	LTC	6.094"	6.000"	6730	8970	9870

\*\*\*Special drift

Interval	Length	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) c
0' - 11050'	11050'	7", 32#, P-110, LTC, 8rd	11820 / 2.11*	12460 / 1.28	897 / 2.24
6696' - 9377'	2681'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.05**	12460 / 1.29	

**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 10,765' TVD.
- c) Based on string weight in 10 ppg fluid, (300k lbs buoyed weight) plus 100k

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:**      **199 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, 0.5 lb/sk, D130 LCM.**

**Tail Slurry:**      **612 sks (168 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 and 0.5 lb/sk LCM.**

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 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"	10174' - 20667'	13.5	P-110	BTC	3.920"	3.795"	2270	3020	3780

Interval	Length	Description	Collapse	Burst	Tension
			(psi) a	(psi) b	(1000 lbs) c
10237' - 20667'	10430	4-1/2", 13.5 lb, P-110, BTC	10670 / 1.99	12410 / 1.28	443 / 2.0

**API Rating & Safety Factor**

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10,824' TVD.  
 Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external
- b) fluid gradient @ 10,824' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 121k lbs.) plus 100k lbs overpull.

The liner will be placed un-cemented at total depth.

All casing strings will meet or exceed the following design safety factors:

- Collapse = 1.125
- Burst = 1.00
- Tension = 1.2 (including 100k overpull)

**Casing Float Equipment:**

- PDC drillable float shoe, thread locked
- Shoe track
  - 1 joint casing for surface casing
  - 2 joints casing for intermediate string
- PDC drillable float collar, thread locked.

Casing strings will be pressure tested to the greater of 0.22 psi/ft of casing string length or 1,500 psi (not to exceed 70% of the internal yield strength of the casing) after cementing and prior to drilling out from under the casing shoe.

**Cement Designs:**

Cement design calculations will be based on 60% (Surface) and 30% (Intermediate) excess over gauge hole volumes. Actual volumes pumped will be a minimum of 20% excess over caliper volume to designed tops of cement for any section logged.

All waiting on cement (WOC) times will be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

**5. Drilling Fluids Program:**

Proposed Mud Program:

Interval	Type	Mud Weight	Fluid Loss
0' – 2,100'	FW/Gel	8.4 – 9.0	NC
2,100' – 11,050'	Invert Oil Based Mud	9.5 - 10.5	<20-10 cc's (vertical); <10 cc's (curve)
11,050' – 20,667'	Saltwater Brine	9.3 - 10.2	NC

Anticipated mud weights are based on actual offset well bottom hole pressure data plus trip margins. Mud weights utilized may be somewhat higher to allow for trip margin and to provide hole stability for running logs and casing.

Sufficient mud materials to maintain mud properties, control lost circulation and maintain well control will be stored at the well site during the entire drilling operation.

Visual mud monitoring equipment will be utilized.

**6. Evaluation Program:**

Logs: GR/Res to base of surface casing; GR to surface; CND through Dakota

DSTs: None currently planned.

Cores: None currently planned.

Mudlogger: Samples with gas monitor –8,284' (200' above Charles Salt to Intermediate TD)  
10' or 30' samples at the direction of the wellsite geologist.

The proposed Evaluation Program may change at the discretion of the Geologist, with prior approval from the Authorized Officer, Bureau of Land Management.

A Casing Bond Log on the Intermediate Casing will be run by the completion team after drilling moves off location.

Stimulation: A stimulation or frac treatment may be designed for completion of this well based on open hole log results. The drill site, as approved, will be of sufficient size to accommodate all completion activities.

Whether the well is a dry hole or completed as a producer, the Well Completion and Recompletion Report and Log (Form #3160-4) will be submitted no later than thirty (30) days after the completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164.

Two (2) copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample descriptions, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations will be filed on Form #3160-4. Samples (cuttings, fluids and/or gases) will be submitted when requested by the local Area Manager of BLM.

**7. Abnormal Conditions:**

No abnormal temperatures or pressures are anticipated.

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

No H<sub>2</sub>S has been encountered in or is known to exist from previous wells drilled to similar depths in the general area. However, H<sub>2</sub>S is known to exist in the Mission Canyon in the Williston Basin. Preparations will be made to execute H<sub>2</sub>S contingency plan if needed.

Maximum anticipated bottom hole pressure calculated at **10,765'** TVD (base of projected target zone accounting for estimated formation dip rate throughout lateral) equals approximately **4,700** psi (calculated at 0.434 psi/ft).

Maximum anticipated surface pressure equals approximately **2300** psi (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/ft).

**8. Anticipated Starting Date and Notification of Operations**

**A. Anticipated Starting Date and Duration of Operations:**

Anticipated Commencement Date:	<b>Fall, 2014</b>
Drilling Days:	Approximately 30 days
Completions Days:	Approximately 20 days

**B. Notification of Operations:**

Bureau of Land Management North Dakota Field Office 99 23 <sup>rd</sup> Avenue West Dickinson, ND 58601 Phone: 701-227-7700	North Dakota Industrial Commission Oil and Gas Division 600 East Boulevard Ave Dept 405 Bismarck, ND 58505-0840 Phone: 701-328-8020
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The spud date will be orally reported to the Authorized Officer Twenty Four (24) hours prior to spud, unless otherwise required in the site specific conditions of approval.

All wells, whether drilling, producing, suspended or abandoned shall be identified in accordance with 43 CFR 3162.6. This requires the name of the Operator, the lease number, the well number and the location of the well.

In accordance with *Onshore Oil & Gas Order Number 1*, this well will be reported on MMS Form #3160-6, *Monthly Report of Operations and Production*, starting with the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with the Royalty Management Program, Minerals Management Service.

All undesirable events (fires, accidents, blowouts, spills, discharges) as specified in NTL-3A will be reported to the BLM Field Office. Major events will be reported verbally within twenty-four (24) hours and will be followed with a written report within fifteen (15) days. All other events will be reported in writing within fifteen (15) days. Minor events will be reported on the *Monthly Report of Operations and Production* (Form #3160-6).

No well abandonment operations will be commenced without prior approval of the Area Petroleum Engineer. A *Notice of Intention to Abandon* (Form #3160-5) will be filed with the Authorized Officer within five (5) days following the granting of oral approval to plug and abandon. Upon completion of approved plugging, a regulation marker will be erected in accordance with 49 CFR 3162.6. The following information will be permanently placed on the marker with a plate, cap, or beaded-on with a

**OASIS PETROLEUM NORTH AMERICA LLC**  
**Drilling Program**  
**Wade 5300 31-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

welding torch: Company Name, Well Name and Number, Location by Quarter/Quarter, Section, Township, Range, and the Federal Lease Number.

A subsequent *Report of Abandonment* (Form #3160-5) will be submitted within thirty (30) days following the actual plugging of the well bore. This report will indicate where plugs are placed and the current status of surface restoration operations. If surface restoration has not been completed at that time, a follow-up report on Form #3160-5 will be filed when all surface restoration work has been completed and the location is ready for final inspection.

Pursuant to NTL-4A, lessees and operators are authorized to vent / flare gas during initial well evaluation tests, not exceeding a period of thirty (30) days or the production of fifty (50) MMCF of gas, whichever occurs first. An Application must be filed with the Authorized Officer, and approval received for any venting / flaring of gas beyond the initial thirty (30) day or otherwise authorized test period.

Not later than the 5<sup>th</sup> business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than ninety (90) days, the Operator shall notify the Authorized Officer by letter or Sundry Notice of the date on which such production has begun or resumed. The notification shall provide as a minimum the following informational items;

- a. Operator's name, address and telephone number.
- b. Well name and number.
- c. Well location (qtr/qtr, section, township, range, P.M.)
- d. Date well was placed in a producing status.
- e. The nature of the wells' production (i.e. crude oil, casing gas or natural gas and entrained liquid hydrocarbons).
- f. The OCS, Federal prefix and number on which the well is located.

Within sixty (60) days following construction of a new tank battery, a site facility diagram of the battery showing actual conditions and piping must be submitted to the Authorized Officer. Facility diagrams shall be filed within sixty (60) days after existing facilities are modified.

Pursuant to *Onshore Oil & Gas Order Number 1*, lessees and operators have the responsibility to see that their exploration, development, production and construction operations are conducted in such a manner which conforms with applicable federal laws and regulations, and with state and local laws and regulations to the extent that such state and local laws are applicable to operations on Federal and Indian lands.

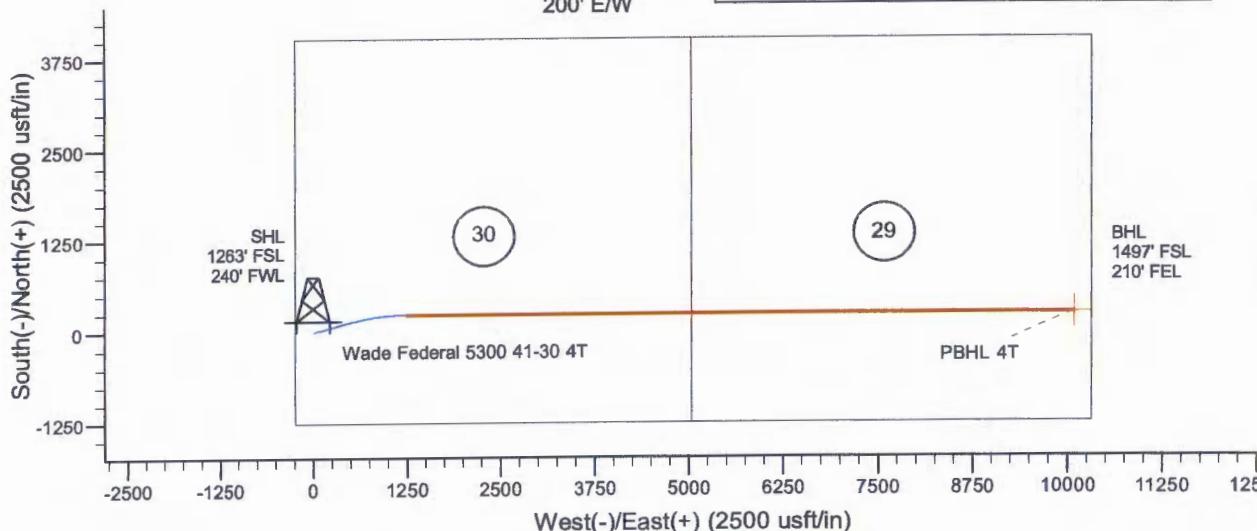
Mike Brown 3/31/2014  
Drilling Engineer


  
 Azimuths to True North: 8.18°  
 Magnetic North: 8.18°  
  
 Magnetic Field Strength: 56488.6nT  
 Dip Angle: 72.95°  
 Date: 1/29/2014  
 Model: IGRF200510

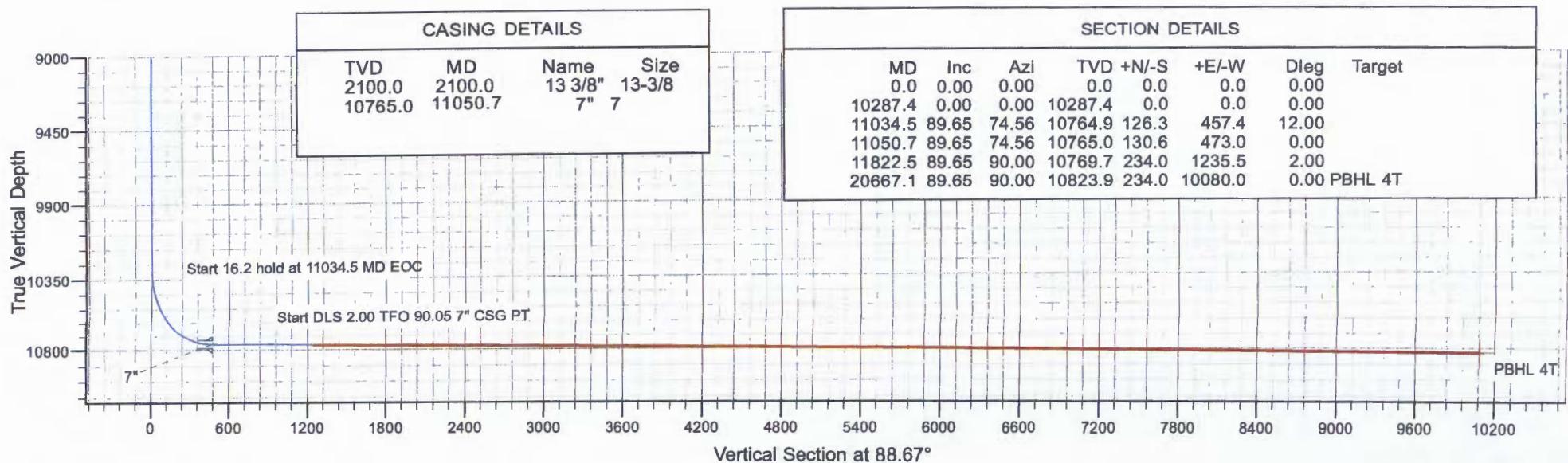
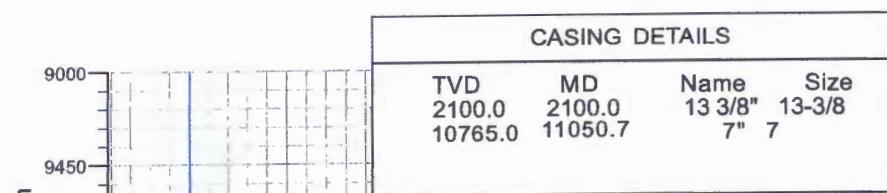
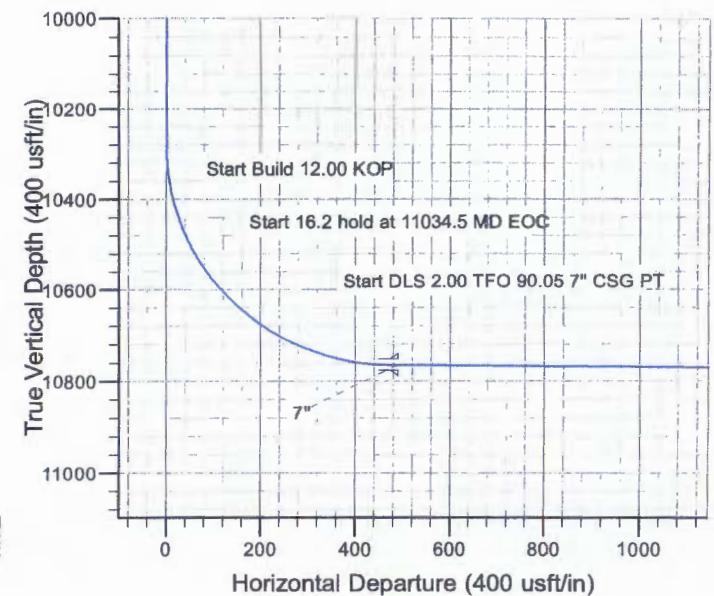


Setbacks  
 500' N/S  
 200' E/W

Project: Indian Hills  
 Site: 153N-100W-29/30  
 Well: Wade Federal 5300 41-30 4T  
 Wellbore: Wade Federal 5300 41-30 4T  
 Design: Plan #1



SITE DETAILS: 153N-100W-29/30
Site Centre Latitude: 48° 2' 32.130 N
Longitude: 103° 36' 11.410 W
Positional Uncertainty: 0.0
Convergence: -2.31
Local North: True



# **Oasis**

**Indian Hills**

**153N-100W-29/30**

**Wade Federal 5300 41-30 4T**

**Wade Federal 5300 41-30 4T**

**Plan: Plan #1**

# **Standard Planning Report**

**06 May, 2014**

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

<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>System Datum:</b>	Mean Sea Level

<b>Site</b>	153N-100W-29/30
<b>Site Position:</b>	Northing: 395,519.95 usft
<b>From:</b> Lat/Long	Easting: 1,209,617.13 usft
<b>Position Uncertainty:</b>	Slot Radius: 0.0 usft
	Latitude: 48° 2' 32.580 N
	Longitude: 103° 36' 11.410 W
	Grid Convergence: -2.31 °

<b>Well</b>	Wade Federal 5300 41-30 4T
<b>Well Position</b>	+N/S -45.6 usft
	+E/W 0.0 usft
<b>Position Uncertainty</b>	Wellhead Elevation: 0.0 usft
	Latitude: 48° 2' 32.130 N
	Longitude: 103° 36' 11.410 W
	Ground Level: 2,045.0 usft

<b>Wellbore</b>	Wade Federal 5300 41-30 4T
<b>Magnetics</b>	Model Name
	IGRF200510
	Sample Date
	1/29/2014
	Declination (°)
	8.18
	Dip Angle (°)
	72.95
	Field Strength (nT)
	56,489

<b>Design</b>	Plan #1
<b>Audit Notes:</b>	
<b>Version:</b>	Phase: PROTOTYPE Tie On Depth: 0.0
<b>Vertical Section:</b>	Depth From (TVD) +N/S +E/W Direction (usft) (usft) (°)
	0.0 0.0 0.0 88.67

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
10,287.4	0.00	0.00	10,287.4	0.0	0.0	0.00	0.00	0.00	0.00	0.00
11,034.5	89.65	74.56	10,764.9	126.3	457.4	12.00	12.00	0.00	74.56	
11,050.7	89.65	74.56	10,765.0	130.6	473.0	0.00	0.00	0.00	0.00	
11,822.5	89.65	90.00	10,769.7	234.0	1,235.5	2.00	0.00	2.00	90.05	
20,667.1	89.65	90.00	10,823.9	234.0	10,080.0	0.00	0.00	0.00	0.00	PBHL 4T

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	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	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	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	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	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	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	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	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	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	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	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	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,566.0	0.00	0.00	4,566.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Greenhorn</b>										
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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)	
4,969.0	0.00	0.00	4,969.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Mowry</b>										
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,391.0	0.00	0.00	5,391.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Dakota</b>										
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,407.0	0.00	0.00	6,407.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Rierdon</b>										
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,896.0	0.00	0.00	6,896.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Dunham Salt</b>										
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,942.0	0.00	0.00	6,942.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Dunham Salt Base</b>										
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,205.0	0.00	0.00	7,205.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Pine Salt</b>										
7,229.0	0.00	0.00	7,229.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Pine Salt Base</b>										
7,291.0	0.00	0.00	7,291.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Opecche Salt</b>										
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,371.0	0.00	0.00	7,371.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Opecche Salt Base</b>										
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,615.0	0.00	0.00	7,615.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Amsden</b>										
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,771.0	0.00	0.00	7,771.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Tyler</b>										
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,994.0	0.00	0.00	7,994.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Otter/Base Minnelusa</b>										

# Oasis Petroleum

## Planning Report

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<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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)	
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,336.0	0.00	0.00	8,336.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Kibbey Lime</b>										
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,484.0	0.00	0.00	8,484.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Charles Salt</b>										
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,163.0	0.00	0.00	9,163.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Base Last Salt</b>										
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,377.0	0.00	0.00	9,377.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Mission Canyon</b>										
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,926.0	0.00	0.00	9,926.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Lodgepole</b>										
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,100.0	0.00	0.00	10,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,287.4	0.00	0.00	10,287.4	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Start Build 12.00 KOP</b>										
10,300.0	1.51	74.56	10,300.0	0.0	0.2	0.2	12.00	12.00	0.00	
10,325.0	4.51	74.56	10,325.0	0.4	1.4	1.4	12.00	12.00	0.00	
10,350.0	7.51	74.56	10,349.8	1.1	3.9	4.0	12.00	12.00	0.00	
10,375.0	10.51	74.56	10,374.5	2.1	7.7	7.8	12.00	12.00	0.00	
10,400.0	13.51	74.56	10,399.0	3.5	12.7	12.8	12.00	12.00	0.00	
10,425.0	16.51	74.56	10,423.1	5.2	19.0	19.1	12.00	12.00	0.00	
10,450.0	19.51	74.56	10,446.9	7.3	26.4	26.6	12.00	12.00	0.00	
10,475.0	22.51	74.56	10,470.2	9.7	35.1	35.3	12.00	12.00	0.00	
10,500.0	25.51	74.56	10,493.0	12.4	44.9	45.1	12.00	12.00	0.00	
10,525.0	28.51	74.56	10,515.3	15.4	55.8	56.2	12.00	12.00	0.00	
10,550.0	31.51	74.56	10,537.0	18.7	67.9	68.3	12.00	12.00	0.00	
10,575.0	34.51	74.56	10,557.9	22.4	81.0	81.5	12.00	12.00	0.00	
10,600.0	37.51	74.56	10,578.1	26.3	95.2	95.7	12.00	12.00	0.00	
10,625.0	40.51	74.56	10,597.6	30.5	110.3	111.0	12.00	12.00	0.00	
10,650.0	43.51	74.56	10,616.1	34.9	126.4	127.2	12.00	12.00	0.00	
10,675.0	46.51	74.56	10,633.8	39.6	143.5	144.4	12.00	12.00	0.00	
10,700.0	49.51	74.56	10,650.5	44.6	161.4	162.4	12.00	12.00	0.00	
10,708.5	50.52	74.56	10,656.0	46.3	167.6	168.7	12.00	12.00	0.00	
<b>False Bakken</b>										

# Oasis Petroleum

## Planning Report

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<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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)	
10,725.0	52.51	74.56	10,666.3	49.7	180.1	181.2	12.00	12.00	0.00	
10,727.8	52.85	74.56	10,668.0	50.3	182.3	183.4	12.00	12.00	0.00	
<b>Upper Bakken Shale</b>										
10,750.0	55.51	74.56	10,681.0	55.1	199.6	200.8	12.00	12.00	0.00	
10,753.6	55.94	74.56	10,683.0	55.9	202.5	203.7	12.00	12.00	0.00	
<b>Middle Bakken</b>										
10,775.0	58.51	74.56	10,694.6	60.7	219.8	221.2	12.00	12.00	0.00	
10,800.0	61.51	74.56	10,707.1	66.5	240.7	242.2	12.00	12.00	0.00	
10,825.0	64.51	74.56	10,718.4	72.4	262.2	263.8	12.00	12.00	0.00	
10,826.3	64.67	74.56	10,719.0	72.7	263.3	264.9	12.00	12.00	0.00	
<b>Lower Bakken Shale</b>										
10,848.5	67.32	74.56	10,728.0	78.1	282.8	284.5	12.00	12.00	0.00	
<b>Pronghorn</b>										
10,850.0	67.51	74.56	10,728.6	78.5	284.2	285.9	12.00	12.00	0.00	
10,875.0	70.51	74.56	10,737.5	84.7	306.7	308.6	12.00	12.00	0.00	
10,895.6	72.98	74.56	10,744.0	89.9	325.5	327.5	12.00	12.00	0.00	
<b>Threeforks</b>										
10,900.0	73.51	74.56	10,745.2	91.0	329.6	331.6	12.00	12.00	0.00	
10,925.0	76.51	74.56	10,751.7	97.4	352.9	355.0	12.00	12.00	0.00	
10,950.0	79.51	74.56	10,756.9	104.0	376.4	378.7	12.00	12.00	0.00	
10,975.0	82.51	74.56	10,760.8	110.5	400.2	402.7	12.00	12.00	0.00	
10,976.3	82.66	74.56	10,761.0	110.9	401.5	403.9	12.00	12.00	0.00	
<b>Threeforks(Top of Target)</b>										
11,000.0	85.51	74.56	10,763.4	117.1	424.2	426.8	12.00	12.00	0.00	
11,025.0	88.51	74.56	10,764.7	123.8	448.3	451.0	12.00	12.00	0.00	
11,034.5	89.65	74.56	10,764.9	126.3	457.4	460.2	12.00	12.00	0.00	
<b>Start 16.2 hold at 11034.5 MD EOC</b>										
11,050.7	89.65	74.56	10,765.0	130.6	473.0	475.9	0.00	0.00	0.00	
<b>Start DLS 2.00 TFO 90.05 7" CSG PT - 7"</b>										
11,100.0	89.65	75.55	10,765.3	143.3	520.7	523.9	2.00	0.00	2.00	
11,200.0	89.65	77.55	10,765.9	166.6	617.9	621.6	2.00	0.00	2.00	
11,300.0	89.65	79.55	10,766.5	186.5	715.9	720.1	2.00	0.00	2.00	
11,400.0	89.65	81.55	10,767.1	202.9	814.6	819.0	2.00	0.00	2.00	
11,500.0	89.65	83.55	10,767.7	215.8	913.7	918.5	2.00	0.00	2.00	
11,600.0	89.65	85.55	10,768.4	225.3	1,013.2	1,018.2	2.00	0.00	2.00	
11,700.0	89.65	87.55	10,769.0	231.4	1,113.1	1,118.1	2.00	0.00	2.00	
11,800.0	89.65	89.55	10,769.6	233.9	1,213.0	1,218.1	2.00	0.00	2.00	
11,822.5	89.65	90.00	10,769.7	234.0	1,235.5	1,240.6	2.00	0.00	2.00	
<b>Start 8888.6 hold at 11822.6 MD</b>										
11,900.0	89.65	90.00	10,770.2	234.0	1,313.0	1,318.1	0.00	0.00	0.00	
12,000.0	89.65	90.00	10,770.8	234.0	1,413.0	1,418.1	0.00	0.00	0.00	
12,100.0	89.65	90.00	10,771.4	234.0	1,513.0	1,518.0	0.00	0.00	0.00	
12,200.0	89.65	90.00	10,772.0	234.0	1,613.0	1,618.0	0.00	0.00	0.00	
12,300.0	89.65	90.00	10,772.6	234.0	1,713.0	1,718.0	0.00	0.00	0.00	
12,400.0	89.65	90.00	10,773.3	234.0	1,813.0	1,817.9	0.00	0.00	0.00	
12,500.0	89.65	90.00	10,773.9	234.0	1,913.0	1,917.9	0.00	0.00	0.00	
12,600.0	89.65	90.00	10,774.5	234.0	2,013.0	2,017.9	0.00	0.00	0.00	
12,700.0	89.65	90.00	10,775.1	234.0	2,113.0	2,117.9	0.00	0.00	0.00	
12,800.0	89.65	90.00	10,775.7	234.0	2,213.0	2,217.8	0.00	0.00	0.00	
12,900.0	89.65	90.00	10,776.3	234.0	2,313.0	2,317.8	0.00	0.00	0.00	
13,000.0	89.65	90.00	10,776.9	234.0	2,413.0	2,417.8	0.00	0.00	0.00	
13,100.0	89.65	90.00	10,777.5	234.0	2,513.0	2,517.7	0.00	0.00	0.00	
13,200.0	89.65	90.00	10,778.2	234.0	2,613.0	2,617.7	0.00	0.00	0.00	
13,300.0	89.65	90.00	10,778.8	234.0	2,713.0	2,717.7	0.00	0.00	0.00	

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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)	
13,400.0	89.65	90.00	10,779.4	234.0	2,813.0	2,817.7	0.00	0.00	0.00	0.00
13,500.0	89.65	90.00	10,780.0	234.0	2,913.0	2,917.6	0.00	0.00	0.00	0.00
13,600.0	89.65	90.00	10,780.6	234.0	3,013.0	3,017.6	0.00	0.00	0.00	0.00
13,700.0	89.65	90.00	10,781.2	234.0	3,113.0	3,117.6	0.00	0.00	0.00	0.00
13,800.0	89.65	90.00	10,781.8	234.0	3,213.0	3,217.5	0.00	0.00	0.00	0.00
13,900.0	89.65	90.00	10,782.4	234.0	3,313.0	3,317.5	0.00	0.00	0.00	0.00
14,000.0	89.65	90.00	10,783.1	234.0	3,413.0	3,417.5	0.00	0.00	0.00	0.00
14,100.0	89.65	90.00	10,783.7	234.0	3,513.0	3,517.5	0.00	0.00	0.00	0.00
14,200.0	89.65	90.00	10,784.3	234.0	3,613.0	3,617.4	0.00	0.00	0.00	0.00
14,300.0	89.65	90.00	10,784.9	234.0	3,713.0	3,717.4	0.00	0.00	0.00	0.00
14,400.0	89.65	90.00	10,785.5	234.0	3,813.0	3,817.4	0.00	0.00	0.00	0.00
14,500.0	89.65	90.00	10,786.1	234.0	3,913.0	3,917.3	0.00	0.00	0.00	0.00
14,600.0	89.65	90.00	10,786.7	234.0	4,013.0	4,017.3	0.00	0.00	0.00	0.00
14,700.0	89.65	90.00	10,787.3	234.0	4,113.0	4,117.3	0.00	0.00	0.00	0.00
14,800.0	89.65	90.00	10,788.0	234.0	4,213.0	4,217.3	0.00	0.00	0.00	0.00
14,900.0	89.65	90.00	10,788.6	234.0	4,313.0	4,317.2	0.00	0.00	0.00	0.00
15,000.0	89.65	90.00	10,789.2	234.0	4,413.0	4,417.2	0.00	0.00	0.00	0.00
15,100.0	89.65	90.00	10,789.8	234.0	4,513.0	4,517.2	0.00	0.00	0.00	0.00
15,200.0	89.65	90.00	10,790.4	234.0	4,613.0	4,617.1	0.00	0.00	0.00	0.00
15,300.0	89.65	90.00	10,791.0	234.0	4,713.0	4,717.1	0.00	0.00	0.00	0.00
15,400.0	89.65	90.00	10,791.6	234.0	4,812.9	4,817.1	0.00	0.00	0.00	0.00
15,500.0	89.65	90.00	10,792.2	234.0	4,912.9	4,917.1	0.00	0.00	0.00	0.00
15,600.0	89.65	90.00	10,792.8	234.0	5,012.9	5,017.0	0.00	0.00	0.00	0.00
15,700.0	89.65	90.00	10,793.5	234.0	5,112.9	5,117.0	0.00	0.00	0.00	0.00
15,800.0	89.65	90.00	10,794.1	234.0	5,212.9	5,217.0	0.00	0.00	0.00	0.00
15,900.0	89.65	90.00	10,794.7	234.0	5,312.9	5,316.9	0.00	0.00	0.00	0.00
16,000.0	89.65	90.00	10,795.3	234.0	5,412.9	5,416.9	0.00	0.00	0.00	0.00
16,100.0	89.65	90.00	10,795.9	234.0	5,512.9	5,516.9	0.00	0.00	0.00	0.00
16,200.0	89.65	90.00	10,796.5	234.0	5,612.9	5,616.9	0.00	0.00	0.00	0.00
16,300.0	89.65	90.00	10,797.1	234.0	5,712.9	5,716.8	0.00	0.00	0.00	0.00
16,400.0	89.65	90.00	10,797.7	234.0	5,812.9	5,816.8	0.00	0.00	0.00	0.00
16,500.0	89.65	90.00	10,798.4	234.0	5,912.9	5,916.8	0.00	0.00	0.00	0.00
16,600.0	89.65	90.00	10,799.0	234.0	6,012.9	6,016.7	0.00	0.00	0.00	0.00
16,700.0	89.65	90.00	10,799.6	234.0	6,112.9	6,116.7	0.00	0.00	0.00	0.00
16,800.0	89.65	90.00	10,800.2	234.0	6,212.9	6,216.7	0.00	0.00	0.00	0.00
16,900.0	89.65	90.00	10,800.8	234.0	6,312.9	6,316.7	0.00	0.00	0.00	0.00
17,000.0	89.65	90.00	10,801.4	234.0	6,412.9	6,416.6	0.00	0.00	0.00	0.00
17,100.0	89.65	90.00	10,802.0	234.0	6,512.9	6,516.6	0.00	0.00	0.00	0.00
17,200.0	89.65	90.00	10,802.6	234.0	6,612.9	6,616.6	0.00	0.00	0.00	0.00
17,300.0	89.65	90.00	10,803.3	234.0	6,712.9	6,716.5	0.00	0.00	0.00	0.00
17,400.0	89.65	90.00	10,803.9	234.0	6,812.9	6,816.5	0.00	0.00	0.00	0.00
17,500.0	89.65	90.00	10,804.5	234.0	6,912.9	6,916.5	0.00	0.00	0.00	0.00
17,600.0	89.65	90.00	10,805.1	234.0	7,012.9	7,016.4	0.00	0.00	0.00	0.00
17,700.0	89.65	90.00	10,805.7	234.0	7,112.9	7,116.4	0.00	0.00	0.00	0.00
17,800.0	89.65	90.00	10,806.3	234.0	7,212.9	7,216.4	0.00	0.00	0.00	0.00
17,900.0	89.65	90.00	10,806.9	234.0	7,312.9	7,316.4	0.00	0.00	0.00	0.00
18,000.0	89.65	90.00	10,807.5	234.0	7,412.9	7,416.3	0.00	0.00	0.00	0.00
18,100.0	89.65	90.00	10,808.1	234.0	7,512.9	7,516.3	0.00	0.00	0.00	0.00
18,200.0	89.65	90.00	10,808.8	234.0	7,612.9	7,616.3	0.00	0.00	0.00	0.00
18,300.0	89.65	90.00	10,809.4	234.0	7,712.9	7,716.2	0.00	0.00	0.00	0.00
18,400.0	89.65	90.00	10,810.0	234.0	7,812.9	7,816.2	0.00	0.00	0.00	0.00
18,500.0	89.65	90.00	10,810.6	234.0	7,912.9	7,916.2	0.00	0.00	0.00	0.00
18,600.0	89.65	90.00	10,811.2	234.0	8,012.9	8,016.2	0.00	0.00	0.00	0.00
18,700.0	89.65	90.00	10,811.8	234.0	8,112.9	8,116.1	0.00	0.00	0.00	0.00
18,800.0	89.65	90.00	10,812.4	234.0	8,212.9	8,216.1	0.00	0.00	0.00	0.00

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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)	
18,900.0	89.65	90.00	10,813.0	234.0	8,312.9	8,316.1	0.00	0.00	0.00	
19,000.0	89.65	90.00	10,813.7	234.0	8,412.9	8,416.0	0.00	0.00	0.00	
19,100.0	89.65	90.00	10,814.3	234.0	8,512.9	8,516.0	0.00	0.00	0.00	
19,200.0	89.65	90.00	10,814.9	234.0	8,612.9	8,616.0	0.00	0.00	0.00	
19,300.0	89.65	90.00	10,815.5	234.0	8,712.9	8,716.0	0.00	0.00	0.00	
19,400.0	89.65	90.00	10,816.1	234.0	8,812.9	8,815.9	0.00	0.00	0.00	
19,500.0	89.65	90.00	10,816.7	234.0	8,912.9	8,915.9	0.00	0.00	0.00	
19,600.0	89.65	90.00	10,817.3	234.0	9,012.9	9,015.9	0.00	0.00	0.00	
19,700.0	89.65	90.00	10,817.9	234.0	9,112.9	9,115.8	0.00	0.00	0.00	
19,800.0	89.65	90.00	10,818.6	234.0	9,212.9	9,215.8	0.00	0.00	0.00	
19,900.0	89.65	90.00	10,819.2	234.0	9,312.9	9,315.8	0.00	0.00	0.00	
20,000.0	89.65	90.00	10,819.8	234.0	9,412.9	9,415.8	0.00	0.00	0.00	
20,100.0	89.65	90.00	10,820.4	234.0	9,512.9	9,515.7	0.00	0.00	0.00	
20,200.0	89.65	90.00	10,821.0	234.0	9,612.9	9,615.7	0.00	0.00	0.00	
20,300.0	89.65	90.00	10,821.6	234.0	9,712.9	9,715.7	0.00	0.00	0.00	
20,400.0	89.65	90.00	10,822.2	234.0	9,812.9	9,815.6	0.00	0.00	0.00	
20,500.0	89.65	90.00	10,822.8	234.0	9,912.9	9,915.6	0.00	0.00	0.00	
20,600.0	89.65	90.00	10,823.4	234.0	10,012.9	10,015.6	0.00	0.00	0.00	
20,667.1	89.65	90.00	10,823.9	234.0	10,080.0	10,082.7	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PBHL 4T	0.00	0.00	10,824.2	234.0	10,080.0	395,302.06	1,219,696.53	48° 2' 34.413 N	103° 33' 43.062 W	
- hit/miss target										
- Shape										
- plan misses target center by 0.3usft at 20667.1usft MD (10823.9 TVD, 234.0 N, 10080.0 E)										
- Point										

Casing Points										
Measured Depth (usft)	Vertical Depth (usft)	Name					Casing Diameter (")	Hole Diameter (")		
2,100.0	2,100.0	13 3/8"					13 3/8	17-1/2		
11,050.7	10,765.0	7"					7	8-3/4		

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

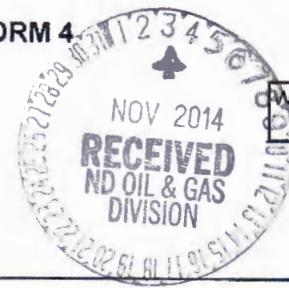
Formations					
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°) Dip Direction (°)
	1,920.0	1,920.0	Pierre		
	4,566.0	4,566.0	Greenhorn		
	4,969.0	4,969.0	Mowry		
	5,391.0	5,391.0	Dakota		
	6,407.0	6,407.0	Rierdon		
	6,896.0	6,896.0	Dunham Salt		
	6,942.0	6,942.0	Dunham Salt Base		
	7,205.0	7,205.0	Pine Salt		
	7,229.0	7,229.0	Pine Salt Base		
	7,291.0	7,291.0	Opeche Salt		
	7,371.0	7,371.0	Opeche Salt Base		
	7,615.0	7,615.0	Amsden		
	7,771.0	7,771.0	Tyler		
	7,994.0	7,994.0	Otter/Base Minnelusa		
	8,336.0	8,336.0	Kibbey Lime		
	8,484.0	8,484.0	Charles Salt		
	9,163.0	9,163.0	Base Last Salt		
	9,377.0	9,377.0	Mission Canyon		
	9,926.0	9,926.0	Lodgepole		
	10,708.5	10,656.0	False Bakken		
	10,727.8	10,668.0	Upper Bakken Shale		
	10,753.6	10,683.0	Middle Bakken		
	10,826.3	10,719.0	Lower Bakken Shale		
	10,848.5	10,728.0	Pronghorn		
	10,895.6	10,744.0	Threeforks		
	10,976.3	10,761.0	Threeforks(Top of Target)		

Plan Annotations					
	Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		
			+N/-S (usft)	+E/-W (usft)	Comment
	10,287.4	10,287.4	0.0	0.0	Start Build 12.00 KOP
	11,034.5	10,764.9	126.3	457.4	Start 16.2 hold at 11034.5 MD EOC
	11,050.7	10,765.0	130.6	473.0	Start DLS 2.00 TFO 90.05 7" CSG PT
	11,822.5	10,769.7	234.0	1,235.5	Start 8888.6 hold at 11822.6 MD
	20,711.1	10,824.1	234.0	10,124.0	TD at 20711.2



## SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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



Well File No.  
**28394**

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date <b>November 5, 2014</b>	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.		<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
Approximate Start Date		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	<b>NDAC 43-02-03-55 Waiver</b>

Well Name and Number <b>Wade Federal 5300 41-30 4T</b>						
Foolages	1263 F S L	240 F W L	Qtr-Qtr Lot4	Section 30	Township 153 N	Range 100 W
Field	Baker	Pool	BAKKEN	County	McKenzie	
1st Bench Three Forks						

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

Name of Contractor(s) <b>Advanced Energy Services</b>			
Address	City	State	Zip Code

### DETAILS OF WORK

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

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

Company <b>Oasis Petroleum North America, LLC</b>	Telephone Number <b>(281) 404-9562</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>Lauri M. Stanfield</b>	
Title <b>Regulatory Specialist</b>	Date <b>November 3, 2014</b>	
Email Address <b>lstanfield@oasispetroleum.com</b>		

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>November 04, 2014</b>	
By <b>Alice D. Webber</b>	
Title <b>Engineering Technician</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.dmr.nd.gov/oilgas](http://www.dmr.nd.gov/oilgas)

28394

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

Date: 5/19/2014

### RE: CORES AND SAMPLES

Well Name: WADE FEDERAL 5300 41-30 4T Well File No.: 28394  
Location: LOT4 30-153-100 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:
    - 30' maximum intervals through all vertical and build sections.
    - 100' maximum intervals through any horizontal sections.
  - Samples must be washed, dried, placed in standard sample envelopes (3" x 4.5"), packed in the correct order into standard sample boxes (3.5" x 5.25" x 15.25").
  - Samples boxes are to be carefully identified with a label that indicates the operator, well name, well file number, American Petroleum Institute (API) number, location and depth of samples; and forwarded in to the state core and sample library within 30 days of the completion of drilling operations.
- 3) Cores: Any cores cut shall be preserved in correct order, boxed in standard core boxes (4.5", 4.5", 35.75"), and the entire core forwarded to the state core and samples library within 180 days of completion of drilling operations.  
Any extension of time must have approval on a Form 4 Sundry Notice.

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

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

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

Sincerely

Stephen Fried  
Geologist



# SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
600 EAST BOULEVARD DEPT 405  
BISMARCK, ND 58505-0840  
SFN 5748 (09-2006)



Well File No.  
**28394**

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>March 26, 2014</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>Waiver to rule Rule 43-02-03-31</u>

Well Name and Number  
**Wade Federal 5300 41-30 4T**

Footages	1263 F S L	240 F W L	Qtr-Qtr	Lot 4	Section	30	Township	153 N	Range	100 W
Field	Pool				County		McKenzie			
	Bakken									

## 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/ Wade Federal 5300 21-30H located within a mile of subject location

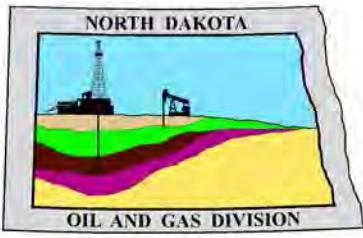
#20197

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

Company <b>Oasis Petroleum North America LLC</b>	Telephone Number <b>281-404-9591</b>	
Address <b>1001 Fannin, Suite 1500</b>		
City <b>Houston</b>	State <b>TX</b>	Zip Code <b>77002</b>
Signature <u>Chelsea Covington</u>	Printed Name <b>Chelsea Covington</b>	
Title <b>Regulatory Assistant</b>	Date <b>March 26, 2014</b>	
Email Address <b>ccovington@oasispetroleum.com</b>		

## FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <b>5-15-2014</b>	
By <u>Stephen Fried</u>	
Title <b>Stephen Fried Geologist</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)

May 15, 2014

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

**RE: HORIZONTAL WELL  
WADE FEDERAL 5300 41-30 4T  
LOT4 Section 30-153N-100W  
McKenzie County  
Well File # 28394**

Dear Chelsea:

Pursuant to Commission Order No. 23752, approval to drill the above captioned well is hereby given. The approval is granted on the condition that all portions of the well bore not isolated by cement, be no closer than the 500' setback from the north & south boundaries and 200' setback from the east & west boundaries within the 1280 acre spacing unit consisting of Sections 29 & 30 T153N R100W. **Tool error is not required pursuant to order.**

**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. OASIS PETROLEUM NORTH AMERICA LLC must take into consideration NDAC 43-02-03-28 (Safety Regulation) when contemplating simultaneous operations on the above captioned location. Pursuant to NDAC 43-02-03-28 (Safety Regulation) "No boiler, portable electric lighting generator, or treater shall be placed nearer than 150 feet to any producing well or oil tank." Due to drainage adjacent to the well site, a dike is required surrounding the entire location. OASIS PETRO NO AMER must contact NDIC Field Inspector Richard Dunn at 701-770-3554 prior to location construction.

### Drilling pit

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

### Form 1 Changes & Hard Lines

Any changes, shortening of casing point or lengthening at Total Depth must have prior approval by the NDIC. The proposed directional plan is at a legal location. Based on the azimuth of the proposed lateral the maximum legal coordinate from the well head is: 10082'E.

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

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

### Permit Fee & Notification

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

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

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

Alice Webber  
Engineering Tech



# 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>04 / 01 / 2014</b>	Confidential Status <b>No</b>
Operator <b>OASIS PETROLEUM NORTH AMERICA LLC</b>		Telephone Number <b>281-404-9591</b>	
Address <b>1001 Fannin, Suite 1500</b>		City <b>Houston</b>	State <b>TX</b> Zip Code <b>77002</b>

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>WADE FEDERAL</b>			Well Number <b>5300 41-30 4T</b>				
Surface Footages <b>1263 F S L</b>		Qtr-Qtr <b>LOT4</b>	Section <b>30</b>	Township <b>153 N</b>	Range <b>100 W</b>	County <b>McKenzie</b>	
Longstring Casing Point Footages <b>1394 F S L</b>		Qtr-Qtr <b>LOT3</b>	Section <b>30</b>	Township <b>153 N</b>	Range <b>100 W</b>	County <b>McKenzie</b>	
Longstring Casing Point Coordinates From Well Head <b>131 N</b> From WH <b>473 E</b> From WH		Azimuth <b>74.56 °</b>	Longstring Total Depth <b>11051</b> Feet MD <b>10765</b> Feet TVD				
Bottom Hole Footages From Nearest Section Line <b>1497 F S L</b>		Qtr-Qtr <b>NESE</b>	Section <b>29</b>	Township <b>153 N</b>	Range <b>100 W</b>	County <b>Williams</b>	
Bottom Hole Coordinates From Well Head <b>234 N</b> From WH <b>10080 E</b> From WH		KOP Lateral 1 <b>10287</b> Feet MD	Azimuth Lateral 1 <b>90.0 °</b>	Estimated Total Depth Lateral 1 <b>20667</b> Feet MD <b>10824</b> Feet TVD			
Latitude of Well Head <b>48 ° 02 ' 32.13 "</b>	Longitude of Well Head <b>-103 ° 36 ' 11.41 "</b>	NAD Reference <b>NAD83</b>	Description of Spacing Unit: <b>Sections 29 &amp; 30 T153N R100W</b> (Subject to NDIC Approval)				
Ground Elevation <b>2052</b> Feet Above S.L.	Acres in Spacing/Drilling Unit <b>1280</b>	Spacing/Drilling Unit Setback Requirement <b>500</b> Feet N/S <b>200</b> Feet E/W			Industrial Commission Order <b>23752</b>		
North Line of Spacing/Drilling Unit <b>10513</b> Feet	South Line of Spacing/Drilling Unit <b>10522</b> Feet	East Line of Spacing/Drilling Unit <b>5082</b> Feet			West Line of Spacing/Drilling Unit <b>5236</b> Feet		
Objective Horizons <b>Three Forks B1</b>						Pierre Shale Top <b>1920</b>	
Proposed Surface Casing	Size <b>9 - 5/8 "</b>	Weight <b>36</b> Lb./Ft.	Depth <b>2100</b> Feet	Cement Volume <b>619</b> Sacks	NOTE: Surface hole must be drilled with fresh water and surface casing must be cemented back to surface.		
Proposed Longstring Casing	Size <b>7 - "</b>	Weight(s) <b>32</b> Lb./Ft.	Longstring Total Depth <b>11051</b> Feet MD <b>10765</b> Feet TVD		Cement Volume <b>811</b> Sacks	Cement Top <b>3891</b> Feet	Top Dakota Sand <b>5391</b> Feet
Base Last Charles Salt (If Applicable) <b>9163</b> Feet		NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.					
Proposed Logs <b>Triple Combo: KOP to Kibbey GR/RES to BSC GR to Soft 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</b> Every 100 Feet		Survey Frequency: Build Section <b>30</b> Feet		Survey Frequency: Lateral <b>90</b> Feet		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**

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

03 / 26 / 2014

ePermit

Printed Name

Chelsea Covington

Title

Regulatory Assistant

**FOR STATE USE ONLY**

Permit and File Number <b>28394</b>	API Number <b>33 - 053 - 05943</b>
Field <b>BAKER</b>	
Pool <b>BAKKEN</b>	Permit Type <b>DEVELOPMENT</b>

**FOR STATE USE ONLY**

Date Approved <b>5 / 15 / 2014</b>
By <b>Alice Webber</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)

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.

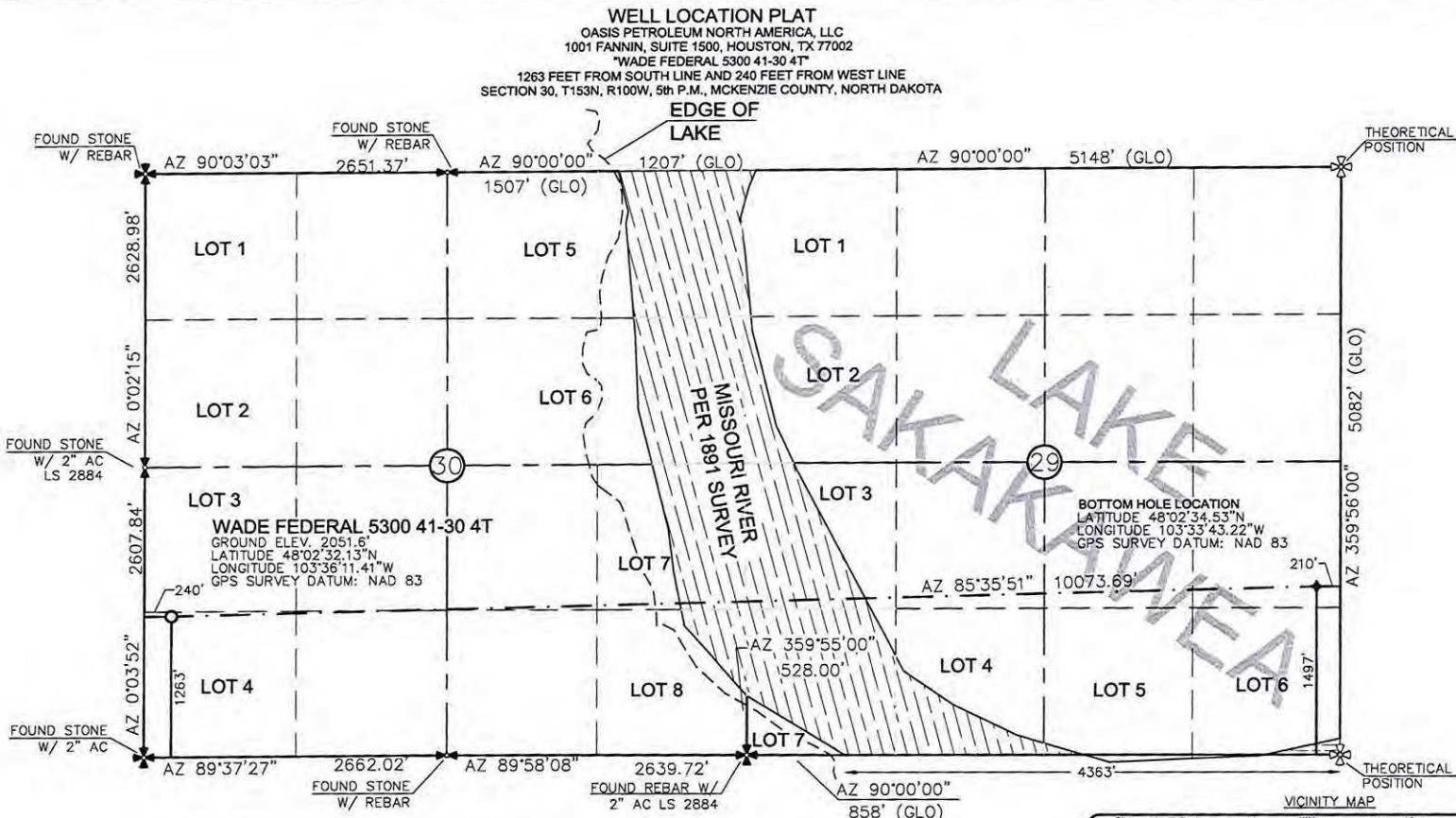
Sincerely,

*Bruce E. Hicks*

Assistant Director

© 2014, INTERSTATE ENGINEERING, INC.

Project No.: S1345201303	Date: JAN 2014
OASIS PETROLEUM NORTH AMERICA, LLC WELL LOCATION PLAT SECTION 30, T153N, R100W, 6th P.M., MCKENZIE COUNTY, NORTH DAKOTA	
Drawn By: S.M.	Checked By: S.M.
Interstate Engineering, Inc. 426 East Main Street Sister, Montana 59270 Ph. (406) 433-5617 Fax. (406) 433-5618 www.interstateeng.com ©2014 Interstate Engineering, Inc. All rights reserved.	
1/8 SHEET NO.	



DRILLING PLAN							
OPERATOR	Oasis Petroleum			COUNTY/STATE	McKenzie Co., ND		
WELL NAME	Wade Federal 5300 41-30 4T			RIG	Nabors 486		
WELL TYPE	Horizontal Three Forks						
LOCATION	SW SW 30-153N-100W	Surface Location (survey plat): 1263' FSL		240' FWL			
EST. T.D.	20,667'			GROUND ELEV: 2,045'	Sub Height: 25'		
TOTAL LATERAL:	9,617'			KB ELEV: 2,070'			
MARKER	NDIC MAP	TVD	Subsea TVD	LOGS:	Type	Interval	
Pierre		1,920	150	OH Logs: Request Log waiver based on the Wade Federal 5300 21-30H 2,150' N of surface location			
Greenhorn		4,566	-2,496	CBL/GR: Above top of cement/GR to base of casing			
Mowry		4,969	-2,899	MWD GR: KOP to lateral TD			
Dakota		5,391	-3,321				
Rierdon		6,407	-4,337	DEVIATION:	Surf: 3 deg. max., 1 deg / 100'; svry every 500' Prod: 5 deg. max., 1 deg / 100'; svry every 100'		
Dunham Salt		6,896	-4,826				
Dunham Salt Base		6,942	-4,872				
Pine Salt		7,205	-5,135				
Pine Salt Base		7,229	-5,159				
Opecche Salt		7,291	-5,221				
Opecche Salt Base		7,371	-5,301				
Amsden		7,615	-5,545				
Tyler		7,771	-5,701				
Otter/Base Minnelusa		7,994	-5,924	DST'S:	None planned		
Kibbey Lime		8,336	-6,266				
Charles Salt		8,484	-6,414	CORES:	None planned		
Base Last Salt		9,163	-7,093				
Mission Canyon		9,377	-7,307				
Lodgepole		9,926	-7,856				
False Bakken		10,656	-8,586				
Upper Bakken Shale		10,668	-8,598	MUDLOGGING:	Two-Man: Begin 200' above Kibbey 30' samples in curve and lateral		
Middle Bakken		10,683	-8,613				
Lower Bakken Shale		10,719	-8,649				
Pronghorn		10,728	-8,658				
Threeforks		10,744	-8,674				
Threeforks(Top of Target)		10,761	-8,691				
Threeforks(Base of Target)		10,770	-8,700				
Claystone		10,770	-8,700	BOP:	11" 5000 psi blind, pipe & annular		
Est. Dip Rate:	-0.35						
Max. Anticipated BHP:	4667			Surface Formation: Glacial till			
MUD:	Interval	Type	WT	Vis	WL	Remarks	
Surface:	0' -	2,100' FW	8.4-9.0	28-32	NC	Circ Mud Tanks	
Intermediate:	2,100' -	11,050' Invert	9.5-10.4	40-50	30+ Ht Hp	Circ Mud Tanks	
Laterals:	11,050' -	20,667' Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks	
CASING:	Size	Wt pfp	Hole	Depth	Cement	WOC	Remarks
Surface:	9-5/8"	36#	13-1/2"	2,100'	To Surface	12	100' into Pierre
Intermediate:	7"	32#	8-3/4"	11,050'	3891	24	1500' above Dakota
Production Liner:	4.5"	13.5#	6"	20,667'	TOL @ 10,237'		50' above KOP
PROBABLE PLUGS, IF REQ'D:							
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI	
Surface:	2,100	2,100	1263 FSL	240 FWL	Sec. 30 T153N R100W	Survey Company:	
KOP:	10,287'	10,287'	1263 FSL	240 FWL	Sec. 30 T153N R100W	Build Rate: 12 deg /100'	
EOC:	11,035'	10,765'	1389 FSL	697 FWL	Sec. 30 T153N R100W	74.6	
Casing Point:	11,050'	10,765'	1396 FSL	713 FWL	Sec. 30 T153N R100W	74.6	
Three Forks Lateral TD:	20,667'	10,824'	1497 FSL	210 FEL	Sec. 29 T153N R100W	90.0	
Comments:							
Request Log waiver based on the Wade Federal 5300 21-30H 2,150' N of surface location							
35 packers and 10 sleeves	Oasis Petroleum doesn't use Diesel Fuel as defined by the US EPA in the list below, in our hydraulic fracture operations.						
No frac string planned	68334-30-5 (Primary Name: Fuels, diesel) 68476-34-6 (Primary Name: Fuels, diesel, No. 2) 68476-30-2 (Primary Name: Fuel oil No. 2) 68476-31-3 (Primary Name: Fuel oil, No. 4) 8008-20-6 (Primary Name: Kerosene)						
							
Geology: N. Gabelman	1/20/2014		Engineering: C. Gilbert 1/29/14				

**Oasis Petroleum**  
**Well Summary**  
**Wade Federal 5300 41-30 4T**  
**Section 30 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
9-5/8"	0' - 2100'	36	J-55	LTC	8.921"	8.765"	3400	4530	5660

Interval	Description	Collapse	Burst	Tension
		(psi) / a	(psi) / b	(1000 lbs) / c
0' - 2100'	9-5/8", 36#, J-55, LTC, 8rd	2020 / 2.05	3520 / 3.58	453 / 2.74

**API Rating & Safety Factor**

- a) Based on full casing evacuation with 9 ppg fluid on backside (2100' setting depth).
- b) Burst pressure based on 9 ppg fluid with no fluid on backside (2100' setting depth).
- c) Based on string weight in 9 ppg fluid at 2100' TVD plus 100k# overpull. (Buoyed weight equals 65k lbs.)

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

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

**Lead Slurry:**      **446 sks** (236 bbls), 11.5 lb/gal, 2.97 cu. Ft./sk Varicem Cement with 0.125 il/sk Lost Circulation Additive

**Tail Slurry:**      **173 sks** (62 bbls), 13.0 lb/gal, 2.01 cu.ft./sk Varicem with .125 lb/sk Lost Circulation Agent

**Oasis Petroleum**  
**Well Summary**  
**Wade Federal 5300 41-30 4T**  
**Section 30 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' - 11050'	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' - 11050'	11050'	7", 32#, P-110, LTC, 8rd	11820 / 2.11*	12460 / 1.28	897 / 2.24
6696' - 9377'	2681'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.05**	12460 / 1.29	

**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 10765' 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

**20bbls** CW8

**20bbls** Fresh Water

**Lead Slurry:**            **199 sks** (81 bbls), 11.8 ppg, 2.28 cu. ft./sk Econocem Cement with .3% Fe-2 and .25 lb/sk Lost Circulation Additive

**Tail Slurry:**            **612 sks** (168 bbls), 14.0 ppg, 1.54 cu. ft./sk Extendcem System with .2% HR-5 Retarder and .25 lb/sk Lost Circulation Additive

**Oasis Petroleum**  
**Well Summary**  
**Wade Federal 5300 41-30 4T**  
**Section 30 T153N R100W**  
**McKenzie County, ND**

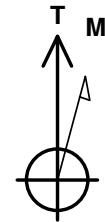
**PRODUCTION LINER**

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
4-1/2"	10237' - <b>20667</b>	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
10237' - <b>20667</b>	<b>10430</b>	4-1/2", 13.5 lb, P-110, BTC	10670 / 1.99	12410 / 1.28	443 / 20

**API Rating & Safety Factor**

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10824' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10824' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 121k lbs.) plus 100k lbs overpull.

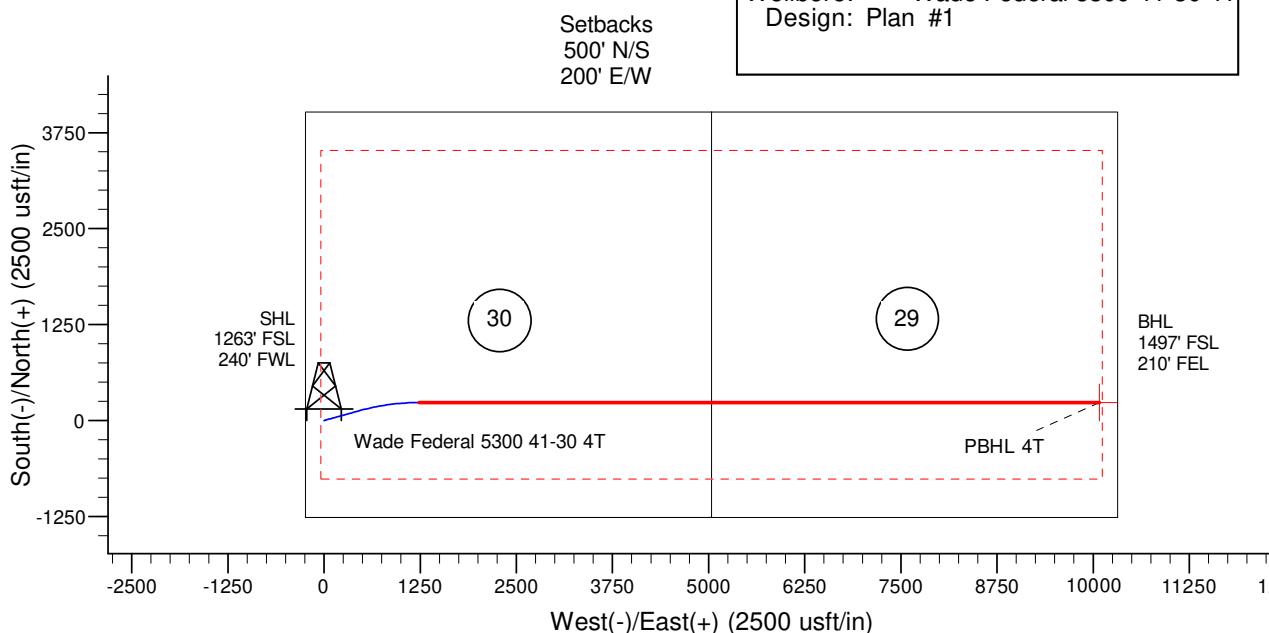


Azimuths to True North  
Magnetic North: 8.18°

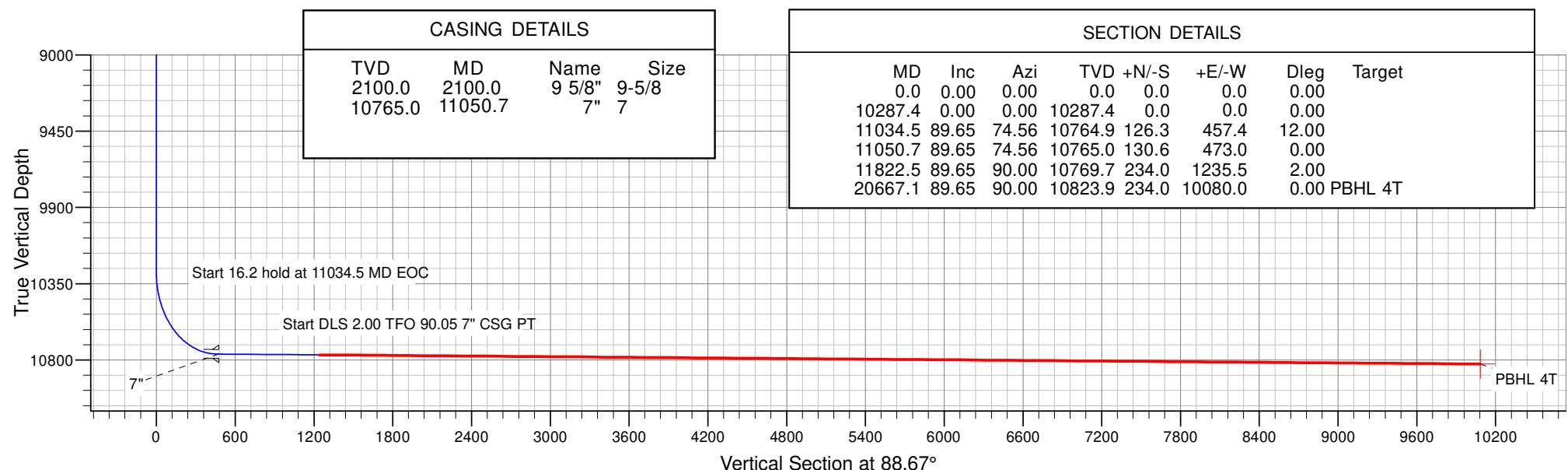
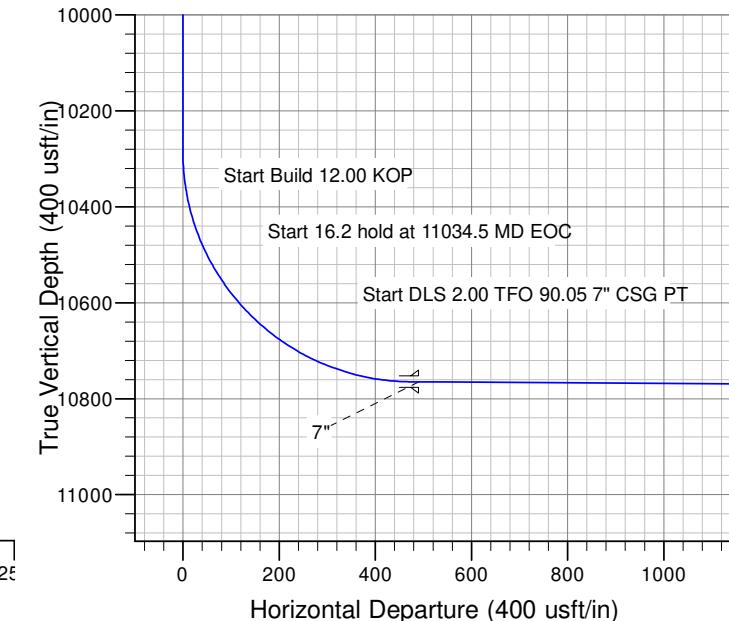
Magnetic Field  
Strength: 56488.6nT  
Dip Angle: 72.95°  
Date: 1/29/2014  
Model: IGRF200510



Project: Indian Hills  
Site: 153N-100W-29/30  
Well: Wade Federal 5300 41-30 4T  
Wellbore: Wade Federal 5300 41-30 4T  
Design: Plan #1



SITE DETAILS: 153N-100W-29/30
Site Centre Latitude: 48° 2' 32.130 N
Longitude: 103° 36' 11.410 W
Positional Uncertainty: 0.0
Convergence: -2.31
Local North: True



# **Oasis**

**Indian Hills  
153N-100W-29/30  
Wade Federal 5300 41-30 4T**

**Wade Federal 5300 41-30 4T**

**Plan: Plan #1**

# **Standard Planning Report**

**06 May, 2014**

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

<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-29/30
<b>Site Position:</b>	<b>Northing:</b> 395,519.95 usft
<b>From:</b> Lat/Long	<b>Easting:</b> 1,209,617.13 usft
<b>Position Uncertainty:</b> 0.0 usft	<b>Slot Radius:</b> 13-3/16 "

<b>Well</b>	Wade Federal 5300 41-30 4T
<b>Well Position</b>	<b>+N/-S</b> -45.6 usft <b>Northing:</b> 395,474.39 usft <b>Latitude:</b> 48° 2' 32.580 N
	<b>+E/-W</b> 0.0 usft <b>Easting:</b> 1,209,615.29 usft <b>Longitude:</b> 103° 36' 11.410 W
<b>Position Uncertainty</b>	0.0 usft <b>Wellhead Elevation:</b> <b>Ground Level:</b> 2,045.0 usft

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	1/29/2014	8.18	72.95	56,489

<b>Design</b>	Plan #1
<b>Audit Notes:</b>	
<b>Version:</b>	
<b>Phase:</b> PROTOTYPE	
<b>Vertical Section:</b>	
<b>Depth From (TVD) (usft)</b>	
0.0	
<b>+N/-S (usft)</b>	
0.0	
<b>+E/-W (usft)</b>	
0.0	
<b>Direction (°)</b>	
88.67	

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
10,287.4	0.00	0.00	10,287.4	0.0	0.0	0.00	0.00	0.00	0.00	0.00
11,034.5	89.65	74.56	10,764.9	126.3	457.4	12.00	12.00	0.00	74.56	
11,050.7	89.65	74.56	10,765.0	130.6	473.0	0.00	0.00	0.00	0.00	
11,822.5	89.65	90.00	10,769.7	234.0	1,235.5	2.00	0.00	2.00	90.05	
20,667.1	89.65	90.00	10,823.9	234.0	10,080.0	0.00	0.00	0.00	0.00	PBHL 4T

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

### 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
1,920.0	0.00	0.00	1,920.0	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
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>9 5/8"</b>									
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,566.0	0.00	0.00	4,566.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Greenhorn</b>									
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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)	
4,969.0	0.00	0.00	4,969.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Mowry</b>										
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,391.0	0.00	0.00	5,391.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Dakota</b>										
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,407.0	0.00	0.00	6,407.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Rierdon</b>										
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,896.0	0.00	0.00	6,896.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Dunham Salt</b>										
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,942.0	0.00	0.00	6,942.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Dunham Salt Base</b>										
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,205.0	0.00	0.00	7,205.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Pine Salt</b>										
7,229.0	0.00	0.00	7,229.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Pine Salt Base</b>										
7,291.0	0.00	0.00	7,291.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Opeche Salt</b>										
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,371.0	0.00	0.00	7,371.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Opeche Salt Base</b>										
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,615.0	0.00	0.00	7,615.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Amsden</b>										
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,771.0	0.00	0.00	7,771.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Tyler</b>										
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,994.0	0.00	0.00	7,994.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Otter/Base Minnelusa</b>										

# Oasis Petroleum

## Planning Report

<b>Database:</b>	OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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)	
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,336.0	0.00	0.00	8,336.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Kibbey Lime</b>										
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,484.0	0.00	0.00	8,484.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Charles Salt</b>										
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,163.0	0.00	0.00	9,163.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Base Last Salt</b>										
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,377.0	0.00	0.00	9,377.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Mission Canyon</b>										
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,926.0	0.00	0.00	9,926.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Lodgepole</b>										
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,100.0	0.00	0.00	10,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,287.4	0.00	0.00	10,287.4	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Start Build 12.00 KOP</b>										
10,300.0	1.51	74.56	10,300.0	0.0	0.2	0.2	12.00	12.00	0.00	
10,325.0	4.51	74.56	10,325.0	0.4	1.4	1.4	12.00	12.00	0.00	
10,350.0	7.51	74.56	10,349.8	1.1	3.9	4.0	12.00	12.00	0.00	
10,375.0	10.51	74.56	10,374.5	2.1	7.7	7.8	12.00	12.00	0.00	
10,400.0	13.51	74.56	10,399.0	3.5	12.7	12.8	12.00	12.00	0.00	
10,425.0	16.51	74.56	10,423.1	5.2	19.0	19.1	12.00	12.00	0.00	
10,450.0	19.51	74.56	10,446.9	7.3	26.4	26.6	12.00	12.00	0.00	
10,475.0	22.51	74.56	10,470.2	9.7	35.1	35.3	12.00	12.00	0.00	
10,500.0	25.51	74.56	10,493.0	12.4	44.9	45.1	12.00	12.00	0.00	
10,525.0	28.51	74.56	10,515.3	15.4	55.8	56.2	12.00	12.00	0.00	
10,550.0	31.51	74.56	10,537.0	18.7	67.9	68.3	12.00	12.00	0.00	
10,575.0	34.51	74.56	10,557.9	22.4	81.0	81.5	12.00	12.00	0.00	
10,600.0	37.51	74.56	10,578.1	26.3	95.2	95.7	12.00	12.00	0.00	
10,625.0	40.51	74.56	10,597.6	30.5	110.3	111.0	12.00	12.00	0.00	
10,650.0	43.51	74.56	10,616.1	34.9	126.4	127.2	12.00	12.00	0.00	
10,675.0	46.51	74.56	10,633.8	39.6	143.5	144.4	12.00	12.00	0.00	
10,700.0	49.51	74.56	10,650.5	44.6	161.4	162.4	12.00	12.00	0.00	
10,708.5	50.52	74.56	10,656.0	46.3	167.6	168.7	12.00	12.00	0.00	
<b>False Bakken</b>										

# Oasis Petroleum

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<b>Company:</b>	Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b>	Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b>	153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

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)
10,725.0	52.51	74.56	10,666.3	49.7	180.1	181.2	12.00	12.00	0.00
10,727.8	52.85	74.56	10,668.0	50.3	182.3	183.4	12.00	12.00	0.00
<b>Upper Bakken Shale</b>									
10,750.0	55.51	74.56	10,681.0	55.1	199.6	200.8	12.00	12.00	0.00
10,753.6	55.94	74.56	10,683.0	55.9	202.5	203.7	12.00	12.00	0.00
<b>Middle Bakken</b>									
10,775.0	58.51	74.56	10,694.6	60.7	219.8	221.2	12.00	12.00	0.00
10,800.0	61.51	74.56	10,707.1	66.5	240.7	242.2	12.00	12.00	0.00
10,825.0	64.51	74.56	10,718.4	72.4	262.2	263.8	12.00	12.00	0.00
10,826.3	64.67	74.56	10,719.0	72.7	263.3	264.9	12.00	12.00	0.00
<b>Lower Bakken Shale</b>									
10,848.5	67.32	74.56	10,728.0	78.1	282.8	284.5	12.00	12.00	0.00
<b>Pronghorn</b>									
10,850.0	67.51	74.56	10,728.6	78.5	284.2	285.9	12.00	12.00	0.00
10,875.0	70.51	74.56	10,737.5	84.7	306.7	308.6	12.00	12.00	0.00
10,895.6	72.98	74.56	10,744.0	89.9	325.5	327.5	12.00	12.00	0.00
<b>Threeforks</b>									
10,900.0	73.51	74.56	10,745.2	91.0	329.6	331.6	12.00	12.00	0.00
10,925.0	76.51	74.56	10,751.7	97.4	352.9	355.0	12.00	12.00	0.00
10,950.0	79.51	74.56	10,756.9	104.0	376.4	378.7	12.00	12.00	0.00
10,975.0	82.51	74.56	10,760.8	110.5	400.2	402.7	12.00	12.00	0.00
10,976.3	82.66	74.56	10,761.0	110.9	401.5	403.9	12.00	12.00	0.00
<b>Threeforks(Top of Target)</b>									
11,000.0	85.51	74.56	10,763.4	117.1	424.2	426.8	12.00	12.00	0.00
11,025.0	88.51	74.56	10,764.7	123.8	448.3	451.0	12.00	12.00	0.00
11,034.5	89.65	74.56	10,764.9	126.3	457.4	460.2	12.00	12.00	0.00
<b>Start 16.2 hold at 11034.5 MD EOC</b>									
11,050.7	89.65	74.56	10,765.0	130.6	473.0	475.9	0.00	0.00	0.00
<b>Start DLS 2.00 TFO 90.05 7" CSG PT - 7"</b>									
11,100.0	89.65	75.55	10,765.3	143.3	520.7	523.9	2.00	0.00	2.00
11,200.0	89.65	77.55	10,765.9	166.6	617.9	621.6	2.00	0.00	2.00
11,300.0	89.65	79.55	10,766.5	186.5	715.9	720.1	2.00	0.00	2.00
11,400.0	89.65	81.55	10,767.1	202.9	814.6	819.0	2.00	0.00	2.00
11,500.0	89.65	83.55	10,767.7	215.8	913.7	918.5	2.00	0.00	2.00
11,600.0	89.65	85.55	10,768.4	225.3	1,013.2	1,018.2	2.00	0.00	2.00
11,700.0	89.65	87.55	10,769.0	231.4	1,113.1	1,118.1	2.00	0.00	2.00
11,800.0	89.65	89.55	10,769.6	233.9	1,213.0	1,218.1	2.00	0.00	2.00
11,822.5	89.65	90.00	10,769.7	234.0	1,235.5	1,240.6	2.00	0.00	2.00
<b>Start 8888.6 hold at 11822.6 MD</b>									
11,900.0	89.65	90.00	10,770.2	234.0	1,313.0	1,318.1	0.00	0.00	0.00
12,000.0	89.65	90.00	10,770.8	234.0	1,413.0	1,418.1	0.00	0.00	0.00
12,100.0	89.65	90.00	10,771.4	234.0	1,513.0	1,518.0	0.00	0.00	0.00
12,200.0	89.65	90.00	10,772.0	234.0	1,613.0	1,618.0	0.00	0.00	0.00
12,300.0	89.65	90.00	10,772.6	234.0	1,713.0	1,718.0	0.00	0.00	0.00
12,400.0	89.65	90.00	10,773.3	234.0	1,813.0	1,817.9	0.00	0.00	0.00
12,500.0	89.65	90.00	10,773.9	234.0	1,913.0	1,917.9	0.00	0.00	0.00
12,600.0	89.65	90.00	10,774.5	234.0	2,013.0	2,017.9	0.00	0.00	0.00
12,700.0	89.65	90.00	10,775.1	234.0	2,113.0	2,117.9	0.00	0.00	0.00
12,800.0	89.65	90.00	10,775.7	234.0	2,213.0	2,217.8	0.00	0.00	0.00
12,900.0	89.65	90.00	10,776.3	234.0	2,313.0	2,317.8	0.00	0.00	0.00
13,000.0	89.65	90.00	10,776.9	234.0	2,413.0	2,417.8	0.00	0.00	0.00
13,100.0	89.65	90.00	10,777.5	234.0	2,513.0	2,517.7	0.00	0.00	0.00
13,200.0	89.65	90.00	10,778.2	234.0	2,613.0	2,617.7	0.00	0.00	0.00
13,300.0	89.65	90.00	10,778.8	234.0	2,713.0	2,717.7	0.00	0.00	0.00

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<b>Wellbore:</b>	Wade Federal 5300 41-30 4T		
<b>Design:</b>	Plan #1		

### 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)
13,400.0	89.65	90.00	10,779.4	234.0	2,813.0	2,817.7	0.00	0.00	0.00
13,500.0	89.65	90.00	10,780.0	234.0	2,913.0	2,917.6	0.00	0.00	0.00
13,600.0	89.65	90.00	10,780.6	234.0	3,013.0	3,017.6	0.00	0.00	0.00
13,700.0	89.65	90.00	10,781.2	234.0	3,113.0	3,117.6	0.00	0.00	0.00
13,800.0	89.65	90.00	10,781.8	234.0	3,213.0	3,217.5	0.00	0.00	0.00
13,900.0	89.65	90.00	10,782.4	234.0	3,313.0	3,317.5	0.00	0.00	0.00
14,000.0	89.65	90.00	10,783.1	234.0	3,413.0	3,417.5	0.00	0.00	0.00
14,100.0	89.65	90.00	10,783.7	234.0	3,513.0	3,517.5	0.00	0.00	0.00
14,200.0	89.65	90.00	10,784.3	234.0	3,613.0	3,617.4	0.00	0.00	0.00
14,300.0	89.65	90.00	10,784.9	234.0	3,713.0	3,717.4	0.00	0.00	0.00
14,400.0	89.65	90.00	10,785.5	234.0	3,813.0	3,817.4	0.00	0.00	0.00
14,500.0	89.65	90.00	10,786.1	234.0	3,913.0	3,917.3	0.00	0.00	0.00
14,600.0	89.65	90.00	10,786.7	234.0	4,013.0	4,017.3	0.00	0.00	0.00
14,700.0	89.65	90.00	10,787.3	234.0	4,113.0	4,117.3	0.00	0.00	0.00
14,800.0	89.65	90.00	10,788.0	234.0	4,213.0	4,217.3	0.00	0.00	0.00
14,900.0	89.65	90.00	10,788.6	234.0	4,313.0	4,317.2	0.00	0.00	0.00
15,000.0	89.65	90.00	10,789.2	234.0	4,413.0	4,417.2	0.00	0.00	0.00
15,100.0	89.65	90.00	10,789.8	234.0	4,513.0	4,517.2	0.00	0.00	0.00
15,200.0	89.65	90.00	10,790.4	234.0	4,613.0	4,617.1	0.00	0.00	0.00
15,300.0	89.65	90.00	10,791.0	234.0	4,713.0	4,717.1	0.00	0.00	0.00
15,400.0	89.65	90.00	10,791.6	234.0	4,812.9	4,817.1	0.00	0.00	0.00
15,500.0	89.65	90.00	10,792.2	234.0	4,912.9	4,917.1	0.00	0.00	0.00
15,600.0	89.65	90.00	10,792.8	234.0	5,012.9	5,017.0	0.00	0.00	0.00
15,700.0	89.65	90.00	10,793.5	234.0	5,112.9	5,117.0	0.00	0.00	0.00
15,800.0	89.65	90.00	10,794.1	234.0	5,212.9	5,217.0	0.00	0.00	0.00
15,900.0	89.65	90.00	10,794.7	234.0	5,312.9	5,316.9	0.00	0.00	0.00
16,000.0	89.65	90.00	10,795.3	234.0	5,412.9	5,416.9	0.00	0.00	0.00
16,100.0	89.65	90.00	10,795.9	234.0	5,512.9	5,516.9	0.00	0.00	0.00
16,200.0	89.65	90.00	10,796.5	234.0	5,612.9	5,616.9	0.00	0.00	0.00
16,300.0	89.65	90.00	10,797.1	234.0	5,712.9	5,716.8	0.00	0.00	0.00
16,400.0	89.65	90.00	10,797.7	234.0	5,812.9	5,816.8	0.00	0.00	0.00
16,500.0	89.65	90.00	10,798.4	234.0	5,912.9	5,916.8	0.00	0.00	0.00
16,600.0	89.65	90.00	10,799.0	234.0	6,012.9	6,016.7	0.00	0.00	0.00
16,700.0	89.65	90.00	10,799.6	234.0	6,112.9	6,116.7	0.00	0.00	0.00
16,800.0	89.65	90.00	10,800.2	234.0	6,212.9	6,216.7	0.00	0.00	0.00
16,900.0	89.65	90.00	10,800.8	234.0	6,312.9	6,316.7	0.00	0.00	0.00
17,000.0	89.65	90.00	10,801.4	234.0	6,412.9	6,416.6	0.00	0.00	0.00
17,100.0	89.65	90.00	10,802.0	234.0	6,512.9	6,516.6	0.00	0.00	0.00
17,200.0	89.65	90.00	10,802.6	234.0	6,612.9	6,616.6	0.00	0.00	0.00
17,300.0	89.65	90.00	10,803.3	234.0	6,712.9	6,716.5	0.00	0.00	0.00
17,400.0	89.65	90.00	10,803.9	234.0	6,812.9	6,816.5	0.00	0.00	0.00
17,500.0	89.65	90.00	10,804.5	234.0	6,912.9	6,916.5	0.00	0.00	0.00
17,600.0	89.65	90.00	10,805.1	234.0	7,012.9	7,016.4	0.00	0.00	0.00
17,700.0	89.65	90.00	10,805.7	234.0	7,112.9	7,116.4	0.00	0.00	0.00
17,800.0	89.65	90.00	10,806.3	234.0	7,212.9	7,216.4	0.00	0.00	0.00
17,900.0	89.65	90.00	10,806.9	234.0	7,312.9	7,316.4	0.00	0.00	0.00
18,000.0	89.65	90.00	10,807.5	234.0	7,412.9	7,416.3	0.00	0.00	0.00
18,100.0	89.65	90.00	10,808.1	234.0	7,512.9	7,516.3	0.00	0.00	0.00
18,200.0	89.65	90.00	10,808.8	234.0	7,612.9	7,616.3	0.00	0.00	0.00
18,300.0	89.65	90.00	10,809.4	234.0	7,712.9	7,716.2	0.00	0.00	0.00
18,400.0	89.65	90.00	10,810.0	234.0	7,812.9	7,816.2	0.00	0.00	0.00
18,500.0	89.65	90.00	10,810.6	234.0	7,912.9	7,916.2	0.00	0.00	0.00
18,600.0	89.65	90.00	10,811.2	234.0	8,012.9	8,016.2	0.00	0.00	0.00
18,700.0	89.65	90.00	10,811.8	234.0	8,112.9	8,116.1	0.00	0.00	0.00
18,800.0	89.65	90.00	10,812.4	234.0	8,212.9	8,216.1	0.00	0.00	0.00

# Oasis Petroleum

## Planning Report

<b>Database:</b> OpenWellsCompass - EDM Prod	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Company:</b> Oasis	<b>TVD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Project:</b> Indian Hills	<b>MD Reference:</b>	WELL @ 2070.0usft (Original Well Elev)
<b>Site:</b> 153N-100W-29/30	<b>North Reference:</b>	True
<b>Well:</b> Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b> Wade Federal 5300 41-30 4T		
<b>Design:</b> Plan #1		

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)
18,900.0	89.65	90.00	10,813.0	234.0	8,312.9	8,316.1	0.00	0.00	0.00
19,000.0	89.65	90.00	10,813.7	234.0	8,412.9	8,416.0	0.00	0.00	0.00
19,100.0	89.65	90.00	10,814.3	234.0	8,512.9	8,516.0	0.00	0.00	0.00
19,200.0	89.65	90.00	10,814.9	234.0	8,612.9	8,616.0	0.00	0.00	0.00
19,300.0	89.65	90.00	10,815.5	234.0	8,712.9	8,716.0	0.00	0.00	0.00
19,400.0	89.65	90.00	10,816.1	234.0	8,812.9	8,815.9	0.00	0.00	0.00
19,500.0	89.65	90.00	10,816.7	234.0	8,912.9	8,915.9	0.00	0.00	0.00
19,600.0	89.65	90.00	10,817.3	234.0	9,012.9	9,015.9	0.00	0.00	0.00
19,700.0	89.65	90.00	10,817.9	234.0	9,112.9	9,115.8	0.00	0.00	0.00
19,800.0	89.65	90.00	10,818.6	234.0	9,212.9	9,215.8	0.00	0.00	0.00
19,900.0	89.65	90.00	10,819.2	234.0	9,312.9	9,315.8	0.00	0.00	0.00
20,000.0	89.65	90.00	10,819.8	234.0	9,412.9	9,415.8	0.00	0.00	0.00
20,100.0	89.65	90.00	10,820.4	234.0	9,512.9	9,515.7	0.00	0.00	0.00
20,200.0	89.65	90.00	10,821.0	234.0	9,612.9	9,615.7	0.00	0.00	0.00
20,300.0	89.65	90.00	10,821.6	234.0	9,712.9	9,715.7	0.00	0.00	0.00
20,400.0	89.65	90.00	10,822.2	234.0	9,812.9	9,815.6	0.00	0.00	0.00
20,500.0	89.65	90.00	10,822.8	234.0	9,912.9	9,915.6	0.00	0.00	0.00
20,600.0	89.65	90.00	10,823.4	234.0	10,012.9	10,015.6	0.00	0.00	0.00
20,667.1	89.65	90.00	10,823.9	234.0	10,080.0	10,082.7	0.00	0.00	0.00

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/S (usft)	+E/W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
PBHL 4T	0.00		10,824.2		234.0		10,080.0		395,302.06	
- plan misses target center by 0.3usft at 20667.1usft MD (10823.9 TVD, 234.0 N, 10080.0 E)										
- Point										

Casing Points									
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter ("")	Hole Diameter ("")					
2,100.0	2,100.0 9 5/8"		9-5/8	13-1/2					
11,050.7	10,765.0 7"		7	8-3/4					

# **Oasis**

**Indian Hills**

**153N-100W-29/30**

**Wade Federal 5300 41-30 4T**

**Wade Federal 5300 41-30 4T**

**Plan #1**

## **Anticollision Report**

**30 January, 2014**

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #1		
<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 10,000.0 ft	<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	1/30/2014	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	20,715.0	Plan #1 (Wade Federal 5300 41-30 4T)		MWD
				MWD - Standard

Summary		Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance			Separation Factor	Warning
Site Name	Offset Well - Wellbore - Design	Depth	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Factor		
153N-100W-29/30								
Wade Federal 5300 41-30 3T2 - Wade Federal 5300 41-		2,100.0	2,100.0	33.4	24.3	3.651	CC	
Wade Federal 5300 41-30 3T2 - Wade Federal 5300 41-		20,715.0	20,836.8	499.2	-85.9	0.853	Level 1, ES, SF	
Wade Federal 5300 41-30 5T2 - Wade Federal 5300 41-		2,100.0	2,100.0	32.4	23.3	3.540	CC	
Wade Federal 5300 41-30 5T2 - Wade Federal 5300 41-		20,715.0	20,738.6	498.0	-91.1	0.845	Level 1, ES, SF	

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 3T2 - Wade Federal 5300 41-30 3T2 - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (")	Offset Wellbore Centre +N/S (ft)	Offset Wellbore Centre +E/W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	33.4	0.0	33.4				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	33.4	0.0	33.4	33.3	0.17	198.345	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	33.4	0.0	33.4	32.8	0.62	54.094	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	33.4	0.0	33.4	32.4	1.07	31.318	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	33.4	0.0	33.4	31.9	1.52	22.038	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	33.4	0.0	33.4	31.5	1.97	17.001	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	33.4	0.0	33.4	31.0	2.42	13.838	
700.0	700.0	700.0	700.0	1.4	1.4	0.00	33.4	0.0	33.4	30.6	2.87	11.667	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	33.4	0.0	33.4	30.1	3.32	10.085	
900.0	900.0	900.0	900.0	1.9	1.9	0.00	33.4	0.0	33.4	29.7	3.76	8.881	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	33.4	0.0	33.4	29.2	4.21	7.934	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	0.00	33.4	0.0	33.4	28.8	4.66	7.169	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.00	33.4	0.0	33.4	28.3	5.11	6.539	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	0.00	33.4	0.0	33.4	27.9	5.56	6.010	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	0.00	33.4	0.0	33.4	27.4	6.01	5.561	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	0.00	33.4	0.0	33.4	27.0	6.46	5.174	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	0.00	33.4	0.0	33.4	26.5	6.91	4.838	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	0.00	33.4	0.0	33.4	26.1	7.36	4.542	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	0.00	33.4	0.0	33.4	25.6	7.81	4.281	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.1	0.00	33.4	0.0	33.4	25.2	8.26	4.048	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	0.00	33.4	0.0	33.4	24.7	8.71	3.839	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	0.00	33.4	0.0	33.4	24.3	9.16	3.651 CC	
2,200.0	2,200.0	2,199.8	2,199.8	4.8	4.8	1.21	33.9	0.7	33.9	24.3	9.59	3.529	
2,300.0	2,300.0	2,299.8	2,299.8	5.0	5.0	2.45	34.3	1.5	34.3	24.3	10.03	3.422	
2,400.0	2,400.0	2,399.8	2,399.8	5.3	5.2	3.66	34.7	2.2	34.8	24.3	10.47	3.324	

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 3T2 - Wade Federal 5300 41-30 3T2 - Plan #1												Offset Site Error:	0.0 ft	
Survey Program: 0-MWD												Offset Well Error:	0.0 ft	
Reference			Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre	+N/S (ft)	+E/W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,500.0	2,500.0	2,499.8	2,499.8	5.5	5.4	4.84	35.2	3.0	35.3	24.4	10.91	3.236		
2,600.0	2,600.0	2,599.8	2,599.8	5.7	5.6	5.99	35.6	3.7	35.8	24.5	11.35	3.155		
2,700.0	2,700.0	2,699.8	2,699.8	5.9	5.9	7.10	36.0	4.5	36.3	24.5	11.79	3.082		
2,800.0	2,800.0	2,799.8	2,799.8	6.2	6.1	8.18	36.5	5.2	36.9	24.6	12.23	3.014		
2,900.0	2,900.0	2,899.8	2,899.8	6.4	6.3	9.22	36.9	6.0	37.4	24.7	12.67	2.953		
3,000.0	3,000.0	2,999.8	2,999.8	6.6	6.5	10.24	37.4	6.8	38.0	24.9	13.11	2.896		
3,100.0	3,100.0	3,099.8	3,099.8	6.8	6.7	11.23	37.8	7.5	38.5	25.0	13.55	2.843		
3,200.0	3,200.0	3,199.8	3,199.8	7.1	7.0	12.19	38.2	8.3	39.1	25.1	14.00	2.795		
3,300.0	3,300.0	3,299.8	3,299.8	7.3	7.2	13.12	38.7	9.0	39.7	25.3	14.44	2.750		
3,400.0	3,400.0	3,399.8	3,399.8	7.5	7.4	14.02	39.1	9.8	40.3	25.4	14.88	2.709		
3,500.0	3,500.0	3,499.8	3,499.7	7.7	7.6	14.90	39.6	10.5	40.9	25.6	15.33	2.670		
3,600.0	3,600.0	3,599.8	3,599.7	8.0	7.8	15.75	40.0	11.3	41.6	25.8	15.77	2.635		
3,700.0	3,700.0	3,699.8	3,699.7	8.2	8.1	16.57	40.4	12.0	42.2	26.0	16.22	2.601		
3,800.0	3,800.0	3,799.8	3,799.7	8.4	8.3	17.37	40.9	12.8	42.8	26.2	16.66	2.570		
3,900.0	3,900.0	3,899.8	3,899.7	8.6	8.5	18.15	41.3	13.5	43.5	26.4	17.11	2.541		
4,000.0	4,000.0	3,999.8	3,999.7	8.9	8.7	18.90	41.7	14.3	44.1	26.6	17.55	2.514		
4,100.0	4,100.0	4,099.8	4,099.7	9.1	8.9	19.63	42.2	15.0	44.8	26.8	18.00	2.489		
4,200.0	4,200.0	4,199.8	4,199.7	9.3	9.2	20.34	42.6	15.8	45.5	27.0	18.44	2.465		
4,300.0	4,300.0	4,299.8	4,299.7	9.5	9.4	21.03	43.1	16.6	46.1	27.2	18.89	2.442		
4,400.0	4,400.0	4,399.8	4,399.7	9.7	9.6	21.70	43.5	17.3	46.8	27.5	19.34	2.421		
4,500.0	4,500.0	4,499.8	4,499.7	10.0	9.8	22.35	43.9	18.1	47.5	27.7	19.78	2.402		
4,600.0	4,600.0	4,599.8	4,599.7	10.2	10.0	22.98	44.4	18.8	48.2	28.0	20.23	2.383		
4,700.0	4,700.0	4,699.8	4,699.7	10.4	10.3	23.59	44.8	19.6	48.9	28.2	20.68	2.365		
4,800.0	4,800.0	4,799.8	4,799.7	10.6	10.5	24.19	45.3	20.3	49.6	28.5	21.12	2.349		
4,900.0	4,900.0	4,899.7	4,899.6	10.9	10.7	24.77	45.7	21.1	50.3	28.8	21.57	2.333		
5,000.0	5,000.0	4,999.7	4,999.6	11.1	10.9	25.33	46.1	21.8	51.0	29.0	22.02	2.318		
5,100.0	5,100.0	5,099.7	5,099.6	11.3	11.2	25.88	46.6	22.6	51.8	29.3	22.46	2.304		
5,200.0	5,200.0	5,199.7	5,199.6	11.5	11.4	26.41	47.0	23.3	52.5	29.6	22.91	2.291		
5,300.0	5,300.0	5,299.7	5,299.6	11.8	11.6	26.93	47.4	24.1	53.2	29.9	23.36	2.278		
5,400.0	5,400.0	5,399.7	5,399.6	12.0	11.8	27.43	47.9	24.9	54.0	30.1	23.81	2.266		
5,500.0	5,500.0	5,499.7	5,499.6	12.2	12.0	27.92	48.3	25.6	54.7	30.4	24.25	2.255		
5,600.0	5,600.0	5,599.7	5,599.6	12.4	12.3	28.40	48.8	26.4	55.4	30.7	24.70	2.244		
5,700.0	5,700.0	5,699.7	5,699.6	12.7	12.5	28.86	49.2	27.1	56.2	31.0	25.15	2.234		
5,800.0	5,800.0	5,799.7	5,799.6	12.9	12.7	29.31	49.6	27.9	56.9	31.3	25.60	2.224		
5,900.0	5,900.0	5,899.7	5,899.6	13.1	12.9	29.75	50.1	28.6	57.7	31.6	26.05	2.215		
6,000.0	6,000.0	5,999.7	5,999.6	13.3	13.2	30.18	50.5	29.4	58.4	31.9	26.49	2.206		
6,100.0	6,100.0	6,099.7	6,099.5	13.6	13.4	30.60	51.0	30.1	59.2	32.3	26.94	2.197		
6,200.0	6,200.0	6,199.7	6,199.5	13.8	13.6	31.01	51.4	30.9	60.0	32.6	27.39	2.189		
6,300.0	6,300.0	6,299.7	6,299.5	14.0	13.8	31.40	51.8	31.6	60.7	32.9	27.84	2.182		
6,400.0	6,400.0	6,399.7	6,399.5	14.2	14.1	31.79	52.3	32.4	61.5	33.2	28.29	2.174		
6,500.0	6,500.0	6,499.7	6,499.5	14.5	14.3	32.17	52.7	33.2	62.3	33.5	28.74	2.167		
6,600.0	6,600.0	6,599.7	6,599.5	14.7	14.5	32.54	53.2	33.9	63.0	33.9	29.18	2.160		
6,700.0	6,700.0	6,699.7	6,699.5	14.9	14.7	32.90	53.6	34.7	63.8	34.2	29.63	2.154		
6,800.0	6,800.0	6,799.7	6,799.5	15.1	15.0	33.25	54.0	35.4	64.6	34.5	30.08	2.148		
6,900.0	6,900.0	6,899.7	6,899.5	15.4	15.2	33.59	54.5	36.2	65.4	34.9	30.53	2.142		
7,000.0	7,000.0	6,999.7	6,999.5	15.6	15.4	33.92	54.9	36.9	66.2	35.2	30.98	2.136		
7,100.0	7,100.0	7,099.7	7,099.5	15.8	15.6	34.25	55.3	37.7	67.0	35.5	31.43	2.131		
7,200.0	7,200.0	7,199.7	7,199.5	16.0	15.9	34.57	55.8	38.4	67.7	35.9	31.87	2.125		
7,300.0	7,300.0	7,299.7	7,299.5	16.3	16.1	34.88	56.2	39.2	68.5	36.2	32.32	2.120		
7,400.0	7,400.0	7,399.7	7,399.5	16.5	16.3	35.18	56.7	39.9	69.3	36.6	32.77	2.115		
7,500.0	7,500.0	7,499.6	7,499.4	16.7	16.5	35.48	57.1	40.7	70.1	36.9	33.22	2.111		
7,600.0	7,600.0	7,599.6	7,599.4	16.9	16.7	35.77	57.5	41.5	70.9	37.2	33.67	2.106		
7,700.0	7,700.0	7,699.6	7,699.4	17.2	17.0	36.06	58.0	42.2	71.7	37.6	34.12	2.102		

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 3T2 - Wade Federal 5300 41-30 3T2 - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,800.0	7,800.0	7,799.6	7,799.4	17.4	17.2	36.33	58.4	43.0	72.5	37.9	34.57	2.098		
7,900.0	7,900.0	7,900.2	7,900.0	17.6	17.4	36.35	58.4	43.0	72.6	37.6	34.99	2.073		
8,000.0	8,000.0	8,000.2	8,000.0	17.8	17.6	36.35	58.4	43.0	72.6	37.1	35.43	2.048		
8,100.0	8,100.0	8,100.2	8,100.0	18.1	17.8	36.35	58.4	43.0	72.6	36.7	35.87	2.022		
8,200.0	8,200.0	8,200.2	8,200.0	18.3	18.0	36.35	58.4	43.0	72.6	36.2	36.32	1.998		
8,300.0	8,300.0	8,300.2	8,300.0	18.5	18.3	36.35	58.4	43.0	72.6	35.8	36.76	1.974		
8,400.0	8,400.0	8,400.2	8,400.0	18.7	18.5	36.35	58.4	43.0	72.6	35.4	37.20	1.950		
8,500.0	8,500.0	8,500.2	8,500.0	19.0	18.7	36.35	58.4	43.0	72.6	34.9	37.64	1.927		
8,600.0	8,600.0	8,600.2	8,600.0	19.2	18.9	36.35	58.4	43.0	72.6	34.5	38.09	1.905		
8,700.0	8,700.0	8,700.2	8,700.0	19.4	19.1	36.35	58.4	43.0	72.6	34.0	38.53	1.883		
8,800.0	8,800.0	8,800.2	8,800.0	19.6	19.4	36.35	58.4	43.0	72.6	33.6	38.97	1.862		
8,900.0	8,900.0	8,900.2	8,900.0	19.9	19.6	36.35	58.4	43.0	72.6	33.1	39.42	1.841		
9,000.0	9,000.0	9,000.2	9,000.0	20.1	19.8	36.35	58.4	43.0	72.6	32.7	39.86	1.820		
9,100.0	9,100.0	9,100.2	9,100.0	20.3	20.0	36.35	58.4	43.0	72.6	32.2	40.30	1.800		
9,200.0	9,200.0	9,200.2	9,200.0	20.5	20.2	36.35	58.4	43.0	72.6	31.8	40.75	1.781		
9,300.0	9,300.0	9,300.2	9,300.0	20.8	20.4	36.35	58.4	43.0	72.6	31.4	41.19	1.761		
9,400.0	9,400.0	9,400.2	9,400.0	21.0	20.7	36.35	58.4	43.0	72.6	30.9	41.63	1.743		
9,500.0	9,500.0	9,500.2	9,500.0	21.2	20.9	36.35	58.4	43.0	72.6	30.5	42.08	1.724		
9,600.0	9,600.0	9,600.2	9,600.0	21.4	21.1	36.35	58.4	43.0	72.6	30.0	42.52	1.706		
9,700.0	9,700.0	9,700.2	9,700.0	21.7	21.3	36.35	58.4	43.0	72.6	29.6	42.97	1.689		
9,800.0	9,800.0	9,800.2	9,800.0	21.9	21.5	36.35	58.4	43.0	72.6	29.1	43.41	1.671		
9,900.0	9,900.0	9,900.2	9,900.0	22.1	21.8	36.35	58.4	43.0	72.6	28.7	43.85	1.654		
10,000.0	10,000.0	10,000.2	10,000.0	22.3	22.0	36.35	58.4	43.0	72.6	28.3	44.30	1.638		
10,100.0	10,100.0	10,100.2	10,100.0	22.6	22.2	36.35	58.4	43.0	72.6	27.8	44.74	1.621		
10,200.0	10,200.0	10,200.2	10,200.0	22.8	22.4	36.35	58.4	43.0	72.6	27.4	45.19	1.606		
10,287.4	10,287.4	10,287.6	10,287.4	23.0	22.6	36.35	58.4	43.0	72.6	27.0	45.58	1.592		
10,300.0	10,300.0	10,300.2	10,300.0	23.0	22.6	-37.42	58.4	43.0	72.4	26.8	45.64	1.587		
10,325.0	10,325.0	10,325.2	10,325.0	23.1	22.7	-38.14	58.4	43.0	71.4	25.7	45.70	1.562		
10,350.0	10,349.8	10,347.4	10,347.2	23.1	22.7	-39.31	58.7	43.3	69.8	24.0	45.73	1.526		
10,375.0	10,374.5	10,369.4	10,369.1	23.2	22.8	-40.79	59.4	44.5	68.2	22.5	45.72	1.492 Level 3	Level 3	
10,400.0	10,399.0	10,391.4	10,391.0	23.2	22.8	-42.61	60.7	46.6	66.8	21.1	45.69	1.462 Level 3	Level 3	
10,425.0	10,423.1	10,413.6	10,412.9	23.3	22.9	-44.76	62.5	49.5	65.5	19.8	45.66	1.435 Level 3	Level 3	
10,450.0	10,446.9	10,435.8	10,434.6	23.3	23.0	-47.26	64.9	53.3	64.4	18.8	45.63	1.412 Level 3	Level 3	
10,475.0	10,470.2	10,458.0	10,456.2	23.4	23.0	-50.08	67.8	58.0	63.6	18.0	45.63	1.394 Level 3	Level 3	
10,500.0	10,493.0	10,480.4	10,477.6	23.5	23.1	-53.22	71.2	63.5	63.1	17.4	45.66	1.382 Level 3	Level 3	
10,520.7	10,511.5	10,498.9	10,495.0	23.5	23.1	-56.00	74.5	68.8	62.9	17.2	45.73	1.376 Level 3	Level 3	
10,525.0	10,515.3	10,502.8	10,498.6	23.5	23.1	-56.61	75.2	69.9	62.9	17.2	45.75	1.376 Level 3	Level 3	
10,550.0	10,537.0	10,525.0	10,519.2	23.6	23.2	-60.16	79.7	77.1	63.2	17.3	45.89	1.378 Level 3	Level 3	
10,575.0	10,557.9	10,547.8	10,539.9	23.7	23.2	-63.93	84.8	85.3	64.0	17.9	46.10	1.388 Level 3	Level 3	
10,600.0	10,578.1	10,570.4	10,559.9	23.7	23.3	-67.70	90.4	94.2	65.3	18.9	46.36	1.408 Level 3	Level 3	
10,625.0	10,597.6	10,593.2	10,579.5	23.8	23.4	-71.45	96.5	104.0	67.1	20.4	46.65	1.438 Level 3	Level 3	
10,650.0	10,616.1	10,616.0	10,598.5	23.9	23.4	-75.08	103.1	114.6	69.5	22.5	46.96	1.479 Level 3	Level 3	
10,675.0	10,633.8	10,638.9	10,617.1	24.0	23.5	-78.54	110.2	126.0	72.4	25.1	47.28	1.531		
10,700.0	10,650.5	10,661.9	10,635.0	24.1	23.6	-81.77	117.8	138.2	75.9	28.3	47.59	1.594		
10,725.0	10,666.3	10,685.0	10,652.3	24.3	23.7	-84.74	125.9	151.2	79.9	32.0	47.89	1.668		
10,750.0	10,681.0	10,708.2	10,668.9	24.4	23.8	-87.44	134.5	165.0	84.3	36.2	48.17	1.751		
10,775.0	10,694.6	10,731.5	10,684.8	24.6	23.9	-89.85	143.6	179.5	89.2	40.8	48.44	1.842		
10,800.0	10,707.1	10,755.0	10,699.9	24.7	24.0	-92.00	153.0	194.7	94.6	45.9	48.70	1.942		
10,825.0	10,718.4	10,778.5	10,714.2	24.9	24.1	-93.88	163.0	210.6	100.3	51.3	48.96	2.047		
10,850.0	10,728.6	10,802.3	10,727.7	25.1	24.2	-95.52	173.3	227.2	106.3	57.0	49.23	2.159		
10,875.0	10,737.5	10,826.2	10,740.2	25.3	24.4	-96.93	184.1	244.4	112.6	63.1	49.51	2.274		
10,900.0	10,745.3	10,850.2	10,751.8	25.6	24.6	-98.14	195.3	262.3	119.2	69.4	49.81	2.393		
10,925.0	10,751.7	10,874.4	10,762.3	25.8	24.7	-99.16	206.8	280.8	126.0	75.9	50.14	2.513		

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 3T2 - Wade Federal 5300 41-30 3T2 - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference			Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/S (ft)	Centre +E/W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,950.0	10,756.9	10,898.9	10,771.8	26.1	24.9	-100.01	218.7	299.9	133.0	82.5	50.49	2.635		
10,975.0	10,760.8	10,923.5	10,780.2	26.3	25.1	-100.71	230.9	319.5	140.2	89.3	50.88	2.756		
11,000.0	10,763.4	10,948.3	10,787.5	26.6	25.3	-101.28	243.5	339.7	147.6	96.3	51.30	2.876		
11,025.0	10,764.7	10,973.4	10,793.6	26.9	25.6	-101.73	256.4	360.3	155.0	103.2	51.75	2.995		
11,034.5	10,764.9	10,983.0	10,795.6	27.0	25.7	-101.87	261.4	368.3	157.8	105.9	51.93	3.040		
11,052.8	10,765.0	11,001.7	10,798.9	27.3	25.9	-102.65	271.1	383.9	163.3	111.1	52.23	3.127		
11,100.0	10,765.3	11,050.5	10,804.1	27.9	26.4	-103.36	296.8	425.1	177.1	123.9	53.21	3.328		
11,200.0	10,765.9	11,152.3	10,805.4	29.4	27.6	-101.67	350.0	511.8	206.1	150.1	56.01	3.680		
11,300.0	10,766.5	11,255.6	10,806.0	31.2	29.1	-100.22	401.2	601.5	235.3	176.2	59.12	3.980		
11,400.0	10,767.1	11,360.1	10,806.7	33.0	30.8	-99.10	449.6	694.2	264.5	202.0	62.49	4.233		
11,500.0	10,767.8	11,465.9	10,807.3	35.0	32.7	-98.21	495.1	789.6	293.7	227.6	66.08	4.444		
11,600.0	10,768.4	11,572.9	10,808.0	37.2	34.8	-97.48	537.5	887.9	322.6	252.7	69.86	4.618		
11,700.0	10,769.0	11,681.3	10,808.7	39.4	37.0	-96.88	576.7	989.0	351.3	277.6	73.79	4.761		
11,800.0	10,769.6	11,791.1	10,809.4	41.7	39.3	-96.38	612.5	1,092.7	379.8	302.0	77.84	4.879		
11,868.9	10,770.0	11,867.5	10,809.9	43.3	41.0	-96.07	635.0	1,165.7	399.3	318.6	80.70	4.948		
11,900.0	10,770.2	11,902.2	10,810.1	44.0	41.8	-95.93	644.6	1,199.1	407.8	325.6	82.18	4.962		
12,000.0	10,770.8	12,015.6	10,810.8	46.5	44.4	-95.53	673.1	1,308.8	432.8	345.7	87.12	4.968		
12,100.0	10,771.4	12,131.1	10,811.6	48.9	47.2	-95.24	697.7	1,421.7	454.0	361.7	92.28	4.920		
12,200.0	10,772.0	12,248.5	10,812.3	51.4	50.0	-95.01	717.9	1,537.3	471.2	373.6	97.62	4.827		
12,300.0	10,772.7	12,367.4	10,813.0	54.0	52.9	-94.85	733.6	1,655.1	484.4	381.3	103.13	4.697		
12,400.0	10,773.3	12,487.4	10,813.8	56.6	55.9	-94.75	744.5	1,774.6	493.4	384.6	108.77	4.536		
12,500.0	10,773.9	12,608.1	10,814.5	59.2	58.9	-94.69	750.4	1,895.2	498.3	383.7	114.52	4.351		
12,600.0	10,774.5	12,721.8	10,815.2	61.9	61.8	-94.68	751.4	2,008.9	499.2	379.0	120.16	4.154		
12,700.0	10,775.1	12,821.8	10,815.8	64.5	64.3	-94.68	751.4	2,108.9	499.2	373.7	125.47	3.978		
12,800.0	10,775.7	12,921.8	10,816.5	67.2	66.9	-94.68	751.4	2,208.9	499.2	368.3	130.83	3.815		
12,900.0	10,776.3	13,021.8	10,817.1	69.9	69.5	-94.68	751.4	2,308.9	499.2	362.9	136.24	3.664		
13,000.0	10,776.9	13,121.8	10,817.7	72.7	72.1	-94.68	751.4	2,408.9	499.2	357.5	141.67	3.523		
13,100.0	10,777.5	13,221.8	10,818.3	75.4	74.7	-94.68	751.4	2,508.9	499.2	352.0	147.14	3.392		
13,200.0	10,778.1	13,321.8	10,818.9	78.2	77.4	-94.68	751.4	2,608.9	499.2	346.5	152.63	3.270		
13,300.0	10,778.8	13,421.8	10,819.5	80.9	80.1	-94.68	751.4	2,708.9	499.2	341.0	158.15	3.156		
13,400.0	10,779.4	13,521.8	10,820.1	83.7	82.8	-94.68	751.4	2,808.9	499.2	335.5	163.69	3.049		
13,500.0	10,780.0	13,621.8	10,820.7	86.5	85.5	-94.68	751.4	2,908.9	499.2	329.9	169.25	2.949		
13,600.0	10,780.6	13,721.8	10,821.3	89.3	88.2	-94.68	751.4	3,008.9	499.2	324.3	174.83	2.855		
13,700.0	10,781.2	13,821.8	10,821.9	92.1	91.0	-94.68	751.4	3,108.9	499.2	318.7	180.43	2.767		
13,800.0	10,781.8	13,921.8	10,822.6	94.9	93.7	-94.68	751.4	3,208.9	499.2	313.1	186.04	2.683		
13,900.0	10,782.4	14,021.8	10,823.2	97.8	96.5	-94.68	751.4	3,308.9	499.2	307.5	191.66	2.604		
14,000.0	10,783.0	14,121.8	10,823.8	100.6	99.2	-94.68	751.4	3,408.9	499.2	301.9	197.30	2.530		
14,100.0	10,783.6	14,221.8	10,824.4	103.4	102.0	-94.68	751.4	3,508.9	499.2	296.2	202.95	2.459		
14,200.0	10,784.3	14,321.8	10,825.0	106.3	104.8	-94.68	751.4	3,608.9	499.2	290.5	208.61	2.393		
14,300.0	10,784.9	14,421.8	10,825.6	109.1	107.6	-94.68	751.4	3,708.9	499.2	284.9	214.28	2.329		
14,400.0	10,785.5	14,521.8	10,826.2	112.0	110.4	-94.68	751.4	3,808.9	499.2	279.2	219.96	2.269		
14,500.0	10,786.1	14,621.8	10,826.8	114.8	113.2	-94.68	751.4	3,908.9	499.2	273.5	225.64	2.212		
14,600.0	10,786.7	14,721.8	10,827.4	117.7	116.0	-94.68	751.4	4,008.9	499.2	267.8	231.34	2.158		
14,700.0	10,787.3	14,821.8	10,828.1	120.5	118.9	-94.68	751.4	4,108.9	499.2	262.1	237.04	2.106		
14,800.0	10,787.9	14,921.8	10,828.7	123.4	121.7	-94.68	751.4	4,208.9	499.2	256.4	242.74	2.056		
14,900.0	10,788.5	15,021.8	10,829.3	126.3	124.5	-94.68	751.4	4,308.9	499.2	250.7	248.46	2.009		
15,000.0	10,789.1	15,121.8	10,829.9	129.1	127.3	-94.68	751.4	4,408.9	499.2	245.0	254.18	1.964		
15,100.0	10,789.8	15,221.8	10,830.5	132.0	130.2	-94.68	751.4	4,508.9	499.2	239.3	259.90	1.921		
15,200.0	10,790.4	15,321.8	10,831.1	134.9	133.0	-94.68	751.4	4,608.9	499.2	233.5	265.63	1.879		
15,300.0	10,791.0	15,421.8	10,831.7	137.8	135.9	-94.68	751.4	4,708.8	499.2	227.8	271.37	1.839		
15,400.0	10,791.6	15,521.8	10,832.3	140.6	138.7	-94.68	751.4	4,808.8	499.2	222.1	277.10	1.801		
15,500.0	10,792.2	15,621.8	10,832.9	143.5	141.6	-94.68	751.4	4,908.8	499.2	216.3	282.85	1.765		
15,600.0	10,792.8	15,721.8	10,833.6	146.4	144.4	-94.68	751.4	5,008.8	499.2	210.6	288.59	1.730		

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 3T2 - Wade Federal 5300 41-30 3T2 - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference			Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
15,700.0	10,793.4	15,821.8	10,834.2	149.3	147.3	-94.68	751.4	5,108.8	499.2	204.8	294.35	1.696		
15,800.0	10,794.0	15,921.8	10,834.8	152.2	150.2	-94.68	751.4	5,208.8	499.2	199.1	300.10	1.663		
15,900.0	10,794.6	16,021.8	10,835.4	155.1	153.0	-94.68	751.4	5,308.8	499.2	193.3	305.86	1.632		
16,000.0	10,795.2	16,121.8	10,836.0	158.0	155.9	-94.68	751.4	5,408.8	499.2	187.5	311.62	1.602		
16,100.0	10,795.9	16,221.8	10,836.6	160.8	158.8	-94.68	751.4	5,508.8	499.2	181.8	317.38	1.573		
16,200.0	10,796.5	16,321.8	10,837.2	163.7	161.6	-94.68	751.4	5,608.8	499.2	176.0	323.15	1.545		
16,300.0	10,797.1	16,421.8	10,837.8	166.6	164.5	-94.68	751.4	5,708.8	499.2	170.2	328.91	1.518		
16,400.0	10,797.7	16,521.8	10,838.4	169.5	167.4	-94.68	751.4	5,808.8	499.2	164.5	334.69	1.491 Level 3		
16,500.0	10,798.3	16,621.8	10,839.0	172.4	170.3	-94.68	751.4	5,908.8	499.2	158.7	340.46	1.466 Level 3		
16,600.0	10,798.9	16,721.8	10,839.7	175.3	173.1	-94.68	751.4	6,008.8	499.2	152.9	346.23	1.442 Level 3		
16,700.0	10,799.5	16,821.8	10,840.3	178.2	176.0	-94.68	751.4	6,108.8	499.2	147.1	352.01	1.418 Level 3		
16,800.0	10,800.1	16,921.8	10,840.9	181.1	178.9	-94.68	751.4	6,208.8	499.2	141.4	357.79	1.395 Level 3		
16,900.0	10,800.7	17,021.8	10,841.5	184.0	181.8	-94.68	751.4	6,308.8	499.2	135.6	363.57	1.373 Level 3		
17,000.0	10,801.4	17,121.8	10,842.1	186.9	184.7	-94.68	751.4	6,408.8	499.2	129.8	369.36	1.351 Level 3		
17,100.0	10,802.0	17,221.8	10,842.7	189.8	187.6	-94.68	751.4	6,508.8	499.2	124.0	375.14	1.331 Level 3		
17,200.0	10,802.6	17,321.8	10,843.3	192.7	190.4	-94.68	751.4	6,608.8	499.2	118.2	380.93	1.310 Level 3		
17,300.0	10,803.2	17,421.8	10,843.9	195.6	193.3	-94.68	751.4	6,708.8	499.2	112.4	386.72	1.291 Level 3		
17,400.0	10,803.8	17,521.8	10,844.5	198.5	196.2	-94.68	751.4	6,808.8	499.2	106.6	392.51	1.272 Level 3		
17,500.0	10,804.4	17,621.8	10,845.2	201.4	199.1	-94.68	751.4	6,908.8	499.2	100.9	398.30	1.253 Level 3		
17,600.0	10,805.0	17,721.8	10,845.8	204.3	202.0	-94.68	751.4	7,008.8	499.2	95.1	404.09	1.235 Level 2		
17,700.0	10,805.6	17,821.8	10,846.4	207.2	204.9	-94.68	751.4	7,108.8	499.2	89.3	409.89	1.218 Level 2		
17,800.0	10,806.2	17,921.8	10,847.0	210.2	207.8	-94.68	751.4	7,208.8	499.2	83.5	415.68	1.201 Level 2		
17,900.0	10,806.9	18,021.8	10,847.6	213.1	210.7	-94.68	751.4	7,308.8	499.2	77.7	421.48	1.184 Level 2		
18,000.0	10,807.5	18,121.8	10,848.2	216.0	213.6	-94.68	751.4	7,408.8	499.2	71.9	427.28	1.168 Level 2		
18,100.0	10,808.1	18,221.8	10,848.8	218.9	216.5	-94.68	751.4	7,508.8	499.2	66.1	433.07	1.153 Level 2		
18,200.0	10,808.7	18,321.8	10,849.4	221.8	219.4	-94.68	751.4	7,608.8	499.2	60.3	438.87	1.137 Level 2		
18,300.0	10,809.3	18,421.8	10,850.0	224.7	222.3	-94.68	751.4	7,708.8	499.2	54.5	444.68	1.123 Level 2		
18,400.0	10,809.9	18,521.8	10,850.6	227.6	225.2	-94.68	751.4	7,808.8	499.2	48.7	450.48	1.108 Level 2		
18,500.0	10,810.5	18,621.8	10,851.3	230.5	228.1	-94.68	751.4	7,908.8	499.2	42.9	456.28	1.094 Level 2		
18,600.0	10,811.1	18,721.8	10,851.9	233.4	231.0	-94.68	751.4	8,008.8	499.2	37.1	462.08	1.080 Level 2		
18,700.0	10,811.7	18,821.8	10,852.5	236.3	233.9	-94.68	751.4	8,108.8	499.2	31.3	467.89	1.067 Level 2		
18,800.0	10,812.4	18,921.8	10,853.1	239.3	236.8	-94.68	751.4	8,208.8	499.2	25.5	473.69	1.054 Level 2		
18,900.0	10,813.0	19,021.8	10,853.7	242.2	239.7	-94.68	751.4	8,308.8	499.2	19.7	479.50	1.041 Level 2		
19,000.0	10,813.6	19,121.8	10,854.3	245.1	242.6	-94.68	751.4	8,408.8	499.2	13.8	485.31	1.029 Level 2		
19,100.0	10,814.2	19,221.8	10,854.9	248.0	245.5	-94.68	751.4	8,508.8	499.2	8.0	491.12	1.016 Level 2		
19,200.0	10,814.8	19,321.8	10,855.5	250.9	248.4	-94.68	751.4	8,608.8	499.2	2.2	496.93	1.004 Level 2		
19,300.0	10,815.4	19,421.8	10,856.1	253.8	251.3	-94.68	751.4	8,708.8	499.2	-3.6	502.73	0.993 Level 1		
19,400.0	10,816.0	19,521.8	10,856.8	256.7	254.2	-94.68	751.4	8,808.8	499.2	-9.4	508.55	0.982 Level 1		
19,500.0	10,816.6	19,621.8	10,857.4	259.7	257.1	-94.68	751.4	8,908.8	499.2	-15.2	514.36	0.970 Level 1		
19,600.0	10,817.2	19,721.8	10,858.0	262.6	260.0	-94.68	751.4	9,008.8	499.2	-21.0	520.17	0.960 Level 1		
19,700.0	10,817.8	19,821.8	10,858.6	265.5	263.0	-94.68	751.4	9,108.8	499.2	-26.8	525.98	0.949 Level 1		
19,800.0	10,818.5	19,921.8	10,859.2	268.4	265.9	-94.68	751.4	9,208.8	499.2	-32.6	531.79	0.939 Level 1		
19,900.0	10,819.1	20,021.8	10,859.8	271.3	268.8	-94.68	751.4	9,308.8	499.2	-38.5	537.61	0.928 Level 1		
20,000.0	10,819.7	20,121.8	10,860.4	274.2	271.7	-94.68	751.4	9,408.8	499.2	-44.3	543.42	0.919 Level 1		
20,100.0	10,820.3	20,221.8	10,861.0	277.1	274.6	-94.68	751.4	9,508.8	499.2	-50.1	549.23	0.909 Level 1		
20,200.0	10,820.9	20,321.8	10,861.6	280.1	277.5	-94.68	751.4	9,608.8	499.2	-55.9	555.05	0.899 Level 1		
20,300.0	10,821.5	20,421.8	10,862.3	283.0	280.4	-94.68	751.4	9,708.8	499.2	-61.7	560.86	0.890 Level 1		
20,400.0	10,822.1	20,521.8	10,862.9	285.9	283.3	-94.68	751.4	9,808.8	499.2	-67.5	566.68	0.881 Level 1		
20,500.0	10,822.7	20,621.8	10,863.5	288.8	286.2	-94.68	751.4	9,908.8	499.2	-73.3	572.50	0.872 Level 1		
20,600.0	10,823.3	20,721.8	10,864.1	291.7	289.1	-94.68	751.4	10,008.7	499.2	-79.2	578.31	0.863 Level 1		
20,700.0	10,824.0	20,821.8	10,864.7	294.7	292.1	-94.68	751.4	10,108.7	499.2	-85.0	584.13	0.855 Level 1		
20,715.0	10,824.0	20,836.8	10,864.8	295.1	292.5	-94.68	751.4	10,123.8	499.2	-85.9	585.00	0.853 Level 1, ES, SF		

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 5T2 - Wade Federal 5300 41-30 5T2 - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Hightside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-32.4	0.0	32.4				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-32.4	0.0	32.4	32.3	0.17	192.346	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-32.4	0.0	32.4	31.8	0.62	52.458	
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-32.4	0.0	32.4	31.4	1.07	30.370	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-32.4	0.0	32.4	30.9	1.52	21.372	
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-32.4	0.0	32.4	30.5	1.97	16.487	
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-32.4	0.0	32.4	30.0	2.42	13.419	
700.0	700.0	700.0	700.0	1.4	1.4	180.00	-32.4	0.0	32.4	29.6	2.87	11.314	
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-32.4	0.0	32.4	29.1	3.32	9.780	
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-32.4	0.0	32.4	28.7	3.76	8.613	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-32.4	0.0	32.4	28.2	4.21	7.694	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	180.00	-32.4	0.0	32.4	27.8	4.66	6.952	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	180.00	-32.4	0.0	32.4	27.3	5.11	6.341	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	180.00	-32.4	0.0	32.4	26.9	5.56	5.829	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	180.00	-32.4	0.0	32.4	26.4	6.01	5.393	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	180.00	-32.4	0.0	32.4	26.0	6.46	5.018	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	180.00	-32.4	0.0	32.4	25.5	6.91	4.691	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	180.00	-32.4	0.0	32.4	25.1	7.36	4.405	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	180.00	-32.4	0.0	32.4	24.6	7.81	4.151	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.1	180.00	-32.4	0.0	32.4	24.2	8.26	3.925	
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	180.00	-32.4	0.0	32.4	23.7	8.71	3.723	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	180.00	-32.4	0.0	32.4	23.3	9.16	3.540 CC	
2,200.0	2,200.0	2,199.7	2,199.7	4.8	4.7	180.00	-33.3	0.0	33.3	23.7	9.55	3.481	
2,300.0	2,300.0	2,299.7	2,299.7	5.0	4.9	180.00	-34.1	0.0	34.1	24.2	9.95	3.430	
2,400.0	2,400.0	2,399.7	2,399.7	5.3	5.1	180.00	-35.0	0.0	35.0	24.6	10.35	3.381	
2,500.0	2,500.0	2,499.7	2,499.7	5.5	5.3	180.00	-35.9	0.0	35.9	25.1	10.76	3.335	
2,600.0	2,600.0	2,599.7	2,599.7	5.7	5.5	180.00	-36.7	0.0	36.7	25.6	11.16	3.291	
2,700.0	2,700.0	2,699.7	2,699.7	5.9	5.6	180.00	-37.6	0.0	37.6	26.0	11.57	3.250	
2,800.0	2,800.0	2,799.7	2,799.7	6.2	5.8	180.00	-38.5	0.0	38.5	26.5	11.99	3.210	
2,900.0	2,900.0	2,899.7	2,899.7	6.4	6.0	180.00	-39.4	0.0	39.4	27.0	12.41	3.173	
3,000.0	3,000.0	2,999.7	2,999.6	6.6	6.2	180.00	-40.2	0.0	40.2	27.4	12.82	3.137	
3,100.0	3,100.0	3,099.7	3,099.6	6.8	6.4	180.00	-41.1	0.0	41.1	27.9	13.24	3.104	
3,200.0	3,200.0	3,199.7	3,199.6	7.1	6.6	180.00	-42.0	0.0	42.0	28.3	13.67	3.071	
3,300.0	3,300.0	3,299.7	3,299.6	7.3	6.8	180.00	-42.8	0.0	42.9	28.8	14.09	3.041	
3,400.0	3,400.0	3,399.7	3,399.6	7.5	7.0	180.00	-43.7	0.0	43.7	29.2	14.52	3.012	
3,500.0	3,500.0	3,499.7	3,499.6	7.7	7.2	180.00	-44.6	0.0	44.6	29.7	14.95	2.984	
3,600.0	3,600.0	3,599.7	3,599.6	8.0	7.4	180.00	-45.5	0.0	45.5	30.1	15.38	2.957	
3,700.0	3,700.0	3,699.7	3,699.6	8.2	7.6	180.00	-46.3	0.0	46.3	30.5	15.81	2.932	
3,800.0	3,800.0	3,799.7	3,799.6	8.4	7.8	180.00	-47.2	0.0	47.2	31.0	16.24	2.908	
3,900.0	3,900.0	3,899.6	3,899.6	8.6	8.0	180.00	-48.1	0.0	48.1	31.4	16.67	2.885	
4,000.0	4,000.0	3,999.6	3,999.6	8.9	8.3	180.00	-49.0	0.0	49.0	31.9	17.10	2.863	
4,100.0	4,100.0	4,099.6	4,099.6	9.1	8.5	180.00	-49.8	0.0	49.8	32.3	17.54	2.842	
4,200.0	4,200.0	4,199.6	4,199.6	9.3	8.7	180.00	-50.7	0.0	50.7	32.7	17.97	2.821	
4,300.0	4,300.0	4,299.6	4,299.5	9.5	8.9	180.00	-51.6	0.0	51.6	33.2	18.41	2.802	
4,400.0	4,400.0	4,399.6	4,399.5	9.7	9.1	180.00	-52.4	0.0	52.5	33.6	18.84	2.783	
4,500.0	4,500.0	4,499.6	4,499.5	10.0	9.3	180.00	-53.3	0.0	53.3	34.0	19.28	2.765	
4,600.0	4,600.0	4,599.6	4,599.5	10.2	9.5	180.00	-54.2	0.0	54.2	34.5	19.72	2.748	
4,700.0	4,700.0	4,699.6	4,699.5	10.4	9.7	180.00	-55.1	0.0	55.1	34.9	20.16	2.732	
4,800.0	4,800.0	4,799.6	4,799.5	10.6	10.0	180.00	-55.9	0.0	55.9	35.3	20.60	2.716	
4,900.0	4,900.0	4,899.6	4,899.5	10.9	10.2	180.00	-56.8	0.0	56.8	35.8	21.04	2.701	
5,000.0	5,000.0	4,999.6	4,999.5	11.1	10.4	180.00	-57.7	0.0	57.7	36.2	21.48	2.686	
5,100.0	5,100.0	5,099.6	5,099.5	11.3	10.6	180.00	-58.6	0.0	58.6	36.6	21.92	2.672	
5,200.0	5,200.0	5,199.6	5,199.5	11.5	10.8	180.00	-59.4	0.0	59.4	37.1	22.36	2.658	

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 5T2 - Wade Federal 5300 41-30 5T2 - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,300.0	5,300.0	5,299.6	5,299.5	11.8	11.0	180.00	-60.3	0.0	60.3	37.5	22.80	2.645		
5,400.0	5,400.0	5,399.6	5,399.5	12.0	11.2	180.00	-61.2	0.0	61.2	37.9	23.24	2.632		
5,500.0	5,500.0	5,499.6	5,499.5	12.2	11.5	180.00	-62.0	0.0	62.0	38.4	23.68	2.620		
5,600.0	5,600.0	5,599.6	5,599.5	12.4	11.7	180.00	-62.9	0.0	62.9	38.8	24.13	2.608		
5,700.0	5,700.0	5,699.6	5,699.4	12.7	11.9	180.00	-63.8	0.0	63.8	39.2	24.57	2.596		
5,800.0	5,800.0	5,799.6	5,799.4	12.9	12.1	180.00	-64.7	0.0	64.7	39.7	25.01	2.585		
5,900.0	5,900.0	5,899.6	5,899.4	13.1	12.3	180.00	-65.5	0.0	65.5	40.1	25.46	2.575		
6,000.0	6,000.0	5,999.6	5,999.4	13.3	12.6	180.00	-66.4	0.0	66.4	40.5	25.90	2.564		
6,100.0	6,100.0	6,099.6	6,099.4	13.6	12.8	180.00	-67.3	0.0	67.3	40.9	26.34	2.554		
6,200.0	6,200.0	6,199.6	6,199.4	13.8	13.0	180.00	-68.2	0.0	68.2	41.4	26.79	2.544		
6,300.0	6,300.0	6,299.6	6,299.4	14.0	13.2	180.00	-69.0	0.0	69.0	41.8	27.23	2.535		
6,400.0	6,400.0	6,399.6	6,399.4	14.2	13.4	180.00	-69.9	0.0	69.9	42.2	27.68	2.526		
6,500.0	6,500.0	6,499.5	6,499.4	14.5	13.7	180.00	-70.8	0.0	70.8	42.7	28.12	2.517		
6,600.0	6,600.0	6,599.5	6,599.4	14.7	13.9	180.00	-71.6	0.0	71.6	43.1	28.57	2.508		
6,700.0	6,700.0	6,699.5	6,699.4	14.9	14.1	180.00	-72.5	0.0	72.5	43.5	29.01	2.500		
6,800.0	6,800.0	6,799.5	6,799.4	15.1	14.3	180.00	-73.4	0.0	73.4	43.9	29.46	2.492		
6,900.0	6,900.0	6,899.5	6,899.4	15.4	14.5	180.00	-74.3	0.0	74.3	44.4	29.90	2.484		
7,000.0	7,000.0	6,999.5	6,999.3	15.6	14.8	180.00	-75.1	0.0	75.1	44.8	30.35	2.476		
7,100.0	7,100.0	7,099.5	7,099.3	15.8	15.0	180.00	-76.0	0.0	76.0	45.2	30.79	2.468		
7,200.0	7,200.0	7,199.5	7,199.3	16.0	15.2	180.00	-76.9	0.0	76.9	45.6	31.24	2.461		
7,300.0	7,300.0	7,299.5	7,299.3	16.3	15.4	180.00	-77.8	0.0	77.8	46.1	31.69	2.454		
7,400.0	7,400.0	7,399.5	7,399.3	16.5	15.6	180.00	-78.6	0.0	78.6	46.5	32.13	2.447		
7,500.0	7,500.0	7,499.5	7,499.3	16.7	15.9	180.00	-79.5	0.0	79.5	46.9	32.58	2.440		
7,600.0	7,600.0	7,599.5	7,599.3	16.9	16.1	180.00	-80.4	0.0	80.4	47.3	33.03	2.434		
7,700.0	7,700.0	7,699.5	7,699.3	17.2	16.3	180.00	-81.2	0.0	81.2	47.8	33.47	2.427		
7,800.0	7,800.0	7,799.5	7,799.3	17.4	16.5	180.00	-82.1	0.0	82.1	48.2	33.92	2.421		
7,900.0	7,900.0	7,900.2	7,900.0	17.6	16.7	180.00	-82.4	0.0	82.4	48.1	34.36	2.399		
8,000.0	8,000.0	8,000.2	8,000.0	17.8	16.9	180.00	-82.4	0.0	82.4	47.7	34.77	2.370		
8,100.0	8,100.0	8,100.2	8,100.0	18.1	17.1	180.00	-82.4	0.0	82.4	47.2	35.19	2.342		
8,200.0	8,200.0	8,200.2	8,200.0	18.3	17.3	180.00	-82.4	0.0	82.4	46.8	35.61	2.315		
8,300.0	8,300.0	8,300.2	8,300.0	18.5	17.5	180.00	-82.4	0.0	82.4	46.4	36.02	2.288		
8,400.0	8,400.0	8,400.2	8,400.0	18.7	17.7	180.00	-82.4	0.0	82.4	46.0	36.44	2.262		
8,500.0	8,500.0	8,500.2	8,500.0	19.0	17.9	180.00	-82.4	0.0	82.4	45.6	36.86	2.236		
8,600.0	8,600.0	8,600.2	8,600.0	19.2	18.1	180.00	-82.4	0.0	82.4	45.1	37.28	2.211		
8,700.0	8,700.0	8,700.2	8,700.0	19.4	18.3	180.00	-82.4	0.0	82.4	44.7	37.70	2.186		
8,800.0	8,800.0	8,800.2	8,800.0	19.6	18.5	180.00	-82.4	0.0	82.4	44.3	38.12	2.162		
8,900.0	8,900.0	8,900.2	8,900.0	19.9	18.7	180.00	-82.4	0.0	82.4	43.9	38.54	2.138		
9,000.0	9,000.0	9,000.2	9,000.0	20.1	18.9	180.00	-82.4	0.0	82.4	43.5	38.97	2.115		
9,100.0	9,100.0	9,100.2	9,100.0	20.3	19.1	180.00	-82.4	0.0	82.4	43.0	39.39	2.093		
9,200.0	9,200.0	9,200.2	9,200.0	20.5	19.3	180.00	-82.4	0.0	82.4	42.6	39.81	2.070		
9,300.0	9,300.0	9,300.2	9,300.0	20.8	19.5	180.00	-82.4	0.0	82.4	42.2	40.24	2.048		
9,400.0	9,400.0	9,400.2	9,400.0	21.0	19.7	180.00	-82.4	0.0	82.4	41.8	40.66	2.027		
9,500.0	9,500.0	9,500.2	9,500.0	21.2	19.9	180.00	-82.4	0.0	82.4	41.3	41.09	2.006		
9,600.0	9,600.0	9,600.2	9,600.0	21.4	20.1	180.00	-82.4	0.0	82.4	40.9	41.51	1.985		
9,700.0	9,700.0	9,700.2	9,700.0	21.7	20.3	180.00	-82.4	0.0	82.4	40.5	41.94	1.965		
9,800.0	9,800.0	9,800.2	9,800.0	21.9	20.5	180.00	-82.4	0.0	82.4	40.1	42.37	1.946		
9,900.0	9,900.0	9,900.2	9,900.0	22.1	20.7	180.00	-82.4	0.0	82.4	39.6	42.79	1.926		
10,000.0	10,000.0	10,000.2	10,000.0	22.3	20.9	180.00	-82.4	0.0	82.4	39.2	43.22	1.907		
10,100.0	10,100.0	10,100.2	10,100.0	22.6	21.1	180.00	-82.4	0.0	82.4	38.8	43.65	1.888		
10,200.0	10,200.0	10,200.2	10,200.0	22.8	21.3	180.00	-82.4	0.0	82.4	38.3	44.08	1.870		
10,287.4	10,287.4	10,287.7	10,287.4	23.0	21.5	180.00	-82.4	0.0	82.4	38.0	44.45	1.854		
10,300.0	10,300.0	10,300.2	10,300.0	23.0	21.5	106.43	-82.4	0.0	82.5	38.0	44.48	1.854		
10,325.0	10,325.0	10,325.2	10,325.0	23.1	21.5	107.25	-82.4	0.0	82.9	38.3	44.57	1.859		

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 5T2 - Wade Federal 5300 41-30 5T2 - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference			Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,350.0	10,349.8	10,349.4	10,349.2	23.1	21.6	108.48	-82.5	0.5	83.7	39.1	44.66	1.875		
10,375.0	10,374.5	10,373.6	10,373.4	23.2	21.7	109.59	-82.9	2.2	85.3	40.6	44.74	1.907		
10,400.0	10,399.0	10,397.9	10,397.4	23.2	21.7	110.56	-83.5	5.0	87.5	42.7	44.81	1.953		
10,425.0	10,423.1	10,422.2	10,421.3	23.3	21.8	111.39	-84.3	9.1	90.4	45.5	44.87	2.015		
10,450.0	10,446.9	10,446.4	10,445.0	23.3	21.8	112.04	-85.4	14.4	93.9	49.0	44.92	2.091		
10,475.0	10,470.2	10,470.7	10,468.4	23.4	21.9	112.53	-86.8	20.8	98.0	53.1	44.96	2.180		
10,500.0	10,493.0	10,494.9	10,491.3	23.5	21.9	112.85	-88.3	28.4	102.7	57.7	45.00	2.283		
10,525.0	10,515.3	10,519.1	10,513.8	23.5	22.0	113.00	-90.2	37.1	108.0	63.0	45.03	2.399		
10,550.0	10,537.0	10,543.2	10,535.7	23.6	22.0	113.01	-92.2	46.8	113.9	68.8	45.07	2.527		
10,575.0	10,557.9	10,567.2	10,557.1	23.7	22.1	112.88	-94.4	57.6	120.3	75.2	45.12	2.666		
10,600.0	10,578.1	10,591.1	10,577.8	23.7	22.1	112.61	-96.9	69.4	127.2	82.0	45.18	2.815		
10,625.0	10,597.6	10,615.0	10,597.7	23.8	22.2	112.24	-99.6	82.1	134.6	89.3	45.27	2.974		
10,650.0	10,616.1	10,638.7	10,617.0	23.9	22.3	111.75	-102.4	95.7	142.5	97.1	45.37	3.141		
10,675.0	10,633.8	10,662.4	10,635.4	24.0	22.4	111.18	-105.4	110.2	150.8	105.3	45.50	3.315		
10,700.0	10,650.5	10,685.9	10,653.0	24.1	22.4	110.52	-108.6	125.5	159.6	114.0	45.66	3.496		
10,725.0	10,666.3	10,709.3	10,669.8	24.3	22.5	109.79	-112.0	141.5	168.8	122.9	45.85	3.681		
10,750.0	10,681.0	10,732.7	10,685.6	24.4	22.6	108.99	-115.5	158.3	178.4	132.3	46.08	3.871		
10,775.0	10,694.6	10,755.9	10,700.6	24.6	22.8	108.14	-119.1	175.7	188.3	141.9	46.35	4.063		
10,800.0	10,707.1	10,779.1	10,714.6	24.7	22.9	107.23	-122.9	193.8	198.6	151.9	46.65	4.256		
10,825.0	10,718.4	10,802.2	10,727.7	24.9	23.0	106.28	-126.8	212.5	209.1	162.1	46.99	4.451		
10,850.0	10,728.6	10,825.3	10,739.8	25.1	23.2	105.29	-130.8	231.7	220.0	172.6	47.36	4.645		
10,875.0	10,737.5	10,848.3	10,750.9	25.3	23.4	104.27	-134.9	251.4	231.1	183.3	47.77	4.837		
10,900.0	10,745.3	10,871.3	10,761.0	25.6	23.6	103.22	-139.1	271.6	242.4	194.2	48.21	5.028		
10,925.0	10,751.7	10,894.3	10,770.2	25.8	23.8	102.14	-143.4	292.3	253.9	205.3	48.68	5.216		
10,950.0	10,756.9	10,917.4	10,778.3	26.1	24.0	101.05	-147.8	313.4	265.7	216.5	49.18	5.401		
10,975.0	10,760.8	10,940.5	10,785.4	26.3	24.2	99.94	-152.3	334.9	277.5	227.8	49.71	5.583		
11,000.0	10,763.4	10,963.7	10,791.4	26.6	24.5	98.83	-156.9	356.8	289.5	239.2	50.25	5.760		
11,025.0	10,764.7	10,986.9	10,796.3	26.9	24.8	97.71	-161.5	379.1	301.5	250.7	50.82	5.933		
11,034.5	10,764.9	10,995.8	10,797.9	27.0	24.9	97.28	-163.3	387.7	306.1	255.1	51.04	5.998		
11,052.8	10,765.0	11,013.1	10,800.6	27.3	25.1	97.59	-166.8	404.3	315.0	263.5	51.41	6.126		
11,100.0	10,765.3	11,058.3	10,804.5	27.9	25.7	97.70	-176.0	448.4	337.1	284.5	52.54	6.416		
11,200.0	10,765.9	11,158.8	10,805.4	29.4	27.2	96.67	-195.7	547.0	380.2	324.7	55.47	6.854		
11,300.0	10,766.5	11,266.7	10,806.1	31.2	29.0	95.91	-213.1	653.4	416.9	358.0	58.93	7.074		
11,400.0	10,767.1	11,378.9	10,806.8	33.0	31.2	95.38	-226.9	764.8	446.8	383.9	62.91	7.102		
11,500.0	10,767.8	11,494.7	10,807.5	35.0	33.5	95.02	-236.6	880.2	469.5	402.2	67.33	6.973		
11,600.0	10,768.4	11,613.2	10,808.2	37.2	36.1	94.79	-241.7	998.6	484.8	412.7	72.13	6.721		
11,700.0	10,769.0	11,723.7	10,808.9	39.4	38.7	94.68	-242.4	1,109.0	493.0	416.0	76.97	6.405		
11,800.0	10,769.6	11,823.6	10,809.5	41.7	41.0	94.62	-242.4	1,208.9	497.1	415.5	81.68	6.086		
11,868.9	10,770.0	11,892.5	10,810.0	43.3	42.7	94.60	-242.4	1,277.8	498.0	413.0	84.98	5.860		
11,900.0	10,770.2	11,923.6	10,810.2	44.0	43.5	94.60	-242.4	1,308.9	498.0	411.5	86.49	5.757		
12,000.0	10,770.8	12,023.6	10,810.8	46.5	46.0	94.60	-242.4	1,408.9	498.0	406.5	91.43	5.447		
12,100.0	10,771.4	12,123.6	10,811.4	48.9	48.5	94.60	-242.4	1,508.9	498.0	401.5	96.46	5.162		
12,200.0	10,772.0	12,223.6	10,812.0	51.4	51.1	94.61	-242.4	1,608.9	498.0	396.4	101.58	4.902		
12,300.0	10,772.7	12,323.6	10,812.6	54.0	53.7	94.61	-242.4	1,708.9	498.0	391.2	106.78	4.663		
12,400.0	10,773.3	12,423.6	10,813.3	56.6	56.4	94.61	-242.4	1,808.9	498.0	385.9	112.04	4.445		
12,500.0	10,773.9	12,523.6	10,813.9	59.2	59.1	94.61	-242.4	1,908.9	498.0	380.6	117.35	4.243		
12,600.0	10,774.5	12,623.6	10,814.5	61.9	61.8	94.61	-242.4	2,008.9	498.0	375.2	122.72	4.058		
12,700.0	10,775.1	12,723.6	10,815.1	64.5	64.5	94.61	-242.4	2,108.9	498.0	369.8	128.12	3.887		
12,800.0	10,775.7	12,823.6	10,815.7	67.2	67.2	94.61	-242.4	2,208.9	498.0	364.4	133.56	3.728		
12,900.0	10,776.3	12,923.6	10,816.4	69.9	70.0	94.61	-242.4	2,308.9	498.0	358.9	139.04	3.582		
13,000.0	10,776.9	13,023.6	10,817.0	72.7	72.8	94.61	-242.4	2,408.9	498.0	353.4	144.54	3.445		
13,100.0	10,777.5	13,123.6	10,817.6	75.4	75.5	94.61	-242.4	2,508.9	498.0	347.9	150.07	3.318		
13,200.0	10,778.1	13,223.6	10,818.2	78.2	78.3	94.62	-242.4	2,608.9	498.0	342.4	155.62	3.200		

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 5T2 - Wade Federal 5300 41-30 5T2 - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference			Offset		Semi Major Axis			Distance					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface		Offset Wellbore Centre +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
13,300.0	10,778.8	13,323.6	10,818.8	80.9	81.1	94.62	-242.4	2,708.9	498.0	336.8	161.19	3.089	
13,400.0	10,779.4	13,423.6	10,819.5	83.7	83.9	94.62	-242.4	2,808.9	498.0	331.2	166.78	2.986	
13,500.0	10,780.0	13,523.6	10,820.1	86.5	86.8	94.62	-242.4	2,908.9	498.0	325.6	172.39	2.889	
13,600.0	10,780.6	13,623.6	10,820.7	89.3	89.6	94.62	-242.4	3,008.9	498.0	320.0	178.01	2.797	
13,700.0	10,781.2	13,723.6	10,821.3	92.1	92.4	94.62	-242.4	3,108.9	498.0	314.3	183.65	2.712	
13,800.0	10,781.8	13,823.6	10,821.9	94.9	95.2	94.62	-242.4	3,208.9	498.0	308.7	189.30	2.631	
13,900.0	10,782.4	13,923.6	10,822.6	97.8	98.1	94.62	-242.4	3,308.9	498.0	303.0	194.96	2.554	
14,000.0	10,783.0	14,023.6	10,823.2	100.6	100.9	94.62	-242.4	3,408.9	498.0	297.3	200.63	2.482	
14,100.0	10,783.6	14,123.6	10,823.8	103.4	103.8	94.62	-242.4	3,508.9	498.0	291.7	206.31	2.414	
14,200.0	10,784.3	14,223.6	10,824.4	106.3	106.6	94.63	-242.4	3,608.9	498.0	286.0	211.99	2.349	
14,300.0	10,784.9	14,323.6	10,825.0	109.1	109.5	94.63	-242.4	3,708.9	498.0	280.3	217.69	2.288	
14,400.0	10,785.5	14,423.6	10,825.7	112.0	112.4	94.63	-242.4	3,808.9	498.0	274.6	223.40	2.229	
14,500.0	10,786.1	14,523.6	10,826.3	114.8	115.2	94.63	-242.4	3,908.9	498.0	268.9	229.11	2.174	
14,600.0	10,786.7	14,623.6	10,826.9	117.7	118.1	94.63	-242.4	4,008.9	498.0	263.2	234.82	2.121	
14,700.0	10,787.3	14,723.6	10,827.5	120.5	121.0	94.63	-242.4	4,108.9	498.0	257.4	240.55	2.070	
14,800.0	10,787.9	14,823.6	10,828.1	123.4	123.9	94.63	-242.4	4,208.9	498.0	251.7	246.28	2.022	
14,900.0	10,788.5	14,923.6	10,828.7	126.3	126.7	94.63	-242.4	4,308.9	498.0	246.0	252.01	1.976	
15,000.0	10,789.1	15,023.6	10,829.4	129.1	129.6	94.63	-242.4	4,408.9	498.0	240.2	257.75	1.932	
15,100.0	10,789.8	15,123.6	10,830.0	132.0	132.5	94.63	-242.4	4,508.9	498.0	234.5	263.49	1.890	
15,200.0	10,790.4	15,223.6	10,830.6	134.9	135.4	94.64	-242.4	4,608.8	498.0	228.7	269.24	1.850	
15,300.0	10,791.0	15,323.6	10,831.2	137.8	138.3	94.64	-242.4	4,708.8	498.0	223.0	274.99	1.811	
15,400.0	10,791.6	15,423.6	10,831.8	140.6	141.2	94.64	-242.4	4,808.8	498.0	217.2	280.75	1.774	
15,500.0	10,792.2	15,523.6	10,832.5	143.5	144.1	94.64	-242.4	4,908.8	498.0	211.5	286.51	1.738	
15,600.0	10,792.8	15,623.6	10,833.1	146.4	146.9	94.64	-242.4	5,008.8	498.0	205.7	292.27	1.704	
15,700.0	10,793.4	15,723.6	10,833.7	149.3	149.8	94.64	-242.4	5,108.8	498.0	200.0	298.04	1.671	
15,800.0	10,794.0	15,823.6	10,834.3	152.2	152.7	94.64	-242.4	5,208.8	498.0	194.2	303.81	1.639	
15,900.0	10,794.6	15,923.6	10,834.9	155.1	155.6	94.64	-242.4	5,308.8	498.0	188.4	309.58	1.609	
16,000.0	10,795.2	16,023.6	10,835.6	158.0	158.5	94.64	-242.4	5,408.8	498.0	182.6	315.35	1.579	
16,100.0	10,795.9	16,123.6	10,836.2	160.8	161.4	94.64	-242.4	5,508.8	498.0	176.9	321.13	1.551	
16,200.0	10,796.5	16,223.6	10,836.8	163.7	164.3	94.65	-242.4	5,608.8	498.0	171.1	326.91	1.523	
16,300.0	10,797.1	16,323.6	10,837.4	166.6	167.2	94.65	-242.4	5,708.8	498.0	165.3	332.69	1.497 Level 3Level 3	
16,400.0	10,797.7	16,423.6	10,838.0	169.5	170.1	94.65	-242.4	5,808.8	498.0	159.5	338.47	1.471 Level 3Level 3	
16,500.0	10,798.3	16,523.6	10,838.7	172.4	173.0	94.65	-242.4	5,908.8	498.0	153.7	344.25	1.447 Level 3Level 3	
16,600.0	10,798.9	16,623.6	10,839.3	175.3	175.9	94.65	-242.4	6,008.8	498.0	148.0	350.04	1.423 Level 3Level 3	
16,700.0	10,799.5	16,723.6	10,839.9	178.2	178.8	94.65	-242.4	6,108.8	498.0	142.2	355.83	1.400 Level 3Level 3	
16,800.0	10,800.1	16,823.6	10,840.5	181.1	181.7	94.65	-242.4	6,208.8	498.0	136.4	361.62	1.377 Level 3Level 3	
16,900.0	10,800.7	16,923.6	10,841.1	184.0	184.6	94.65	-242.4	6,308.8	498.0	130.6	367.41	1.355 Level 3Level 3	
17,000.0	10,801.4	17,023.6	10,841.8	186.9	187.6	94.65	-242.4	6,408.8	498.0	124.8	373.20	1.334 Level 3Level 3	
17,100.0	10,802.0	17,123.6	10,842.4	189.8	190.5	94.65	-242.4	6,508.8	498.0	119.0	379.00	1.314 Level 3Level 3	
17,200.0	10,802.6	17,223.6	10,843.0	192.7	193.4	94.65	-242.4	6,608.8	498.0	113.2	384.79	1.294 Level 3Level 3	
17,300.0	10,803.2	17,323.6	10,843.6	195.6	196.3	94.66	-242.4	6,708.8	498.0	107.4	390.59	1.275 Level 3Level 3	
17,400.0	10,803.8	17,423.6	10,844.2	198.5	199.2	94.66	-242.4	6,808.8	498.0	101.6	396.39	1.256 Level 3Level 3	
17,500.0	10,804.4	17,523.6	10,844.9	201.4	202.1	94.66	-242.4	6,908.8	498.0	95.8	402.19	1.238 Level 2	
17,600.0	10,805.0	17,623.6	10,845.5	204.3	205.0	94.66	-242.4	7,008.8	498.0	90.0	407.99	1.221 Level 2	
17,700.0	10,805.6	17,723.6	10,846.1	207.2	207.9	94.66	-242.4	7,108.8	498.0	84.2	413.79	1.203 Level 2	
17,800.0	10,806.2	17,823.6	10,846.7	210.2	210.8	94.66	-242.4	7,208.8	498.0	78.4	419.60	1.187 Level 2	
17,900.0	10,806.9	17,923.6	10,847.3	213.1	213.7	94.66	-242.4	7,308.8	498.0	72.6	425.40	1.171 Level 2	
18,000.0	10,807.5	18,023.6	10,847.9	216.0	216.6	94.66	-242.4	7,408.8	498.0	66.8	431.21	1.155 Level 2	
18,100.0	10,808.1	18,123.6	10,848.6	218.9	219.6	94.66	-242.4	7,508.8	498.0	61.0	437.01	1.140 Level 2	
18,200.0	10,808.7	18,223.6	10,849.2	221.8	222.5	94.66	-242.4	7,608.8	498.0	55.2	442.82	1.125 Level 2	
18,300.0	10,809.3	18,323.6	10,849.8	224.7	225.4	94.67	-242.4	7,708.8	498.0	49.4	448.63	1.110 Level 2	
18,400.0	10,809.9	18,423.6	10,850.4	227.6	228.3	94.67	-242.4	7,808.8	498.0	43.6	454.44	1.096 Level 2	
18,500.0	10,810.5	18,523.6	10,851.0	230.5	231.2	94.67	-242.4	7,908.8	498.0	37.8	460.25	1.082 Level 2	

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

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design 153N-100W-29/30 - Wade Federal 5300 41-30 5T2 - Wade Federal 5300 41-30 5T2 - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Hightside Toolface	Offset Wellbore Centre +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
18,600.0	10,811.1	18,623.6	10,851.7	233.4	234.1	94.67	-242.4	8,008.8	498.0	31.9	466.06	1.069	Level 2
18,700.0	10,811.7	18,723.6	10,852.3	236.3	237.0	94.67	-242.4	8,108.8	498.0	26.1	471.87	1.055	Level 2
18,800.0	10,812.4	18,823.6	10,852.9	239.3	240.0	94.67	-242.4	8,208.8	498.0	20.3	477.68	1.043	Level 2
18,900.0	10,813.0	18,923.6	10,853.5	242.2	242.9	94.67	-242.4	8,308.8	498.0	14.5	483.50	1.030	Level 2
19,000.0	10,813.6	19,023.6	10,854.1	245.1	245.8	94.67	-242.4	8,408.8	498.0	8.7	489.31	1.018	Level 2
19,100.0	10,814.2	19,123.6	10,854.8	248.0	248.7	94.67	-242.4	8,508.8	498.0	2.9	495.12	1.006	Level 2
19,200.0	10,814.8	19,223.6	10,855.4	250.9	251.6	94.67	-242.4	8,608.8	498.0	-2.9	500.94	0.994	Level 1
19,300.0	10,815.4	19,323.6	10,856.0	253.8	254.5	94.68	-242.4	8,708.8	498.0	-8.7	506.75	0.983	Level 1
19,400.0	10,816.0	19,423.6	10,856.6	256.7	257.5	94.68	-242.4	8,808.8	498.0	-14.6	512.57	0.972	Level 1
19,500.0	10,816.6	19,523.6	10,857.2	259.7	260.4	94.68	-242.4	8,908.8	498.0	-20.4	518.39	0.961	Level 1
19,600.0	10,817.2	19,623.6	10,857.9	262.6	263.3	94.68	-242.4	9,008.8	498.0	-26.2	524.20	0.950	Level 1
19,700.0	10,817.8	19,723.6	10,858.5	265.5	266.2	94.68	-242.4	9,108.8	498.0	-32.0	530.02	0.940	Level 1
19,800.0	10,818.5	19,823.6	10,859.1	268.4	269.1	94.68	-242.4	9,208.8	498.0	-37.8	535.84	0.929	Level 1
19,900.0	10,819.1	19,923.6	10,859.7	271.3	272.1	94.68	-242.4	9,308.8	498.0	-43.6	541.66	0.919	Level 1
20,000.0	10,819.7	20,023.6	10,860.3	274.2	275.0	94.68	-242.4	9,408.8	498.0	-49.5	547.48	0.910	Level 1
20,100.0	10,820.3	20,123.6	10,861.0	277.1	277.9	94.68	-242.4	9,508.8	498.0	-55.3	553.30	0.900	Level 1
20,200.0	10,820.9	20,223.6	10,861.6	280.1	280.8	94.68	-242.4	9,608.8	498.0	-61.1	559.12	0.891	Level 1
20,300.0	10,821.5	20,323.6	10,862.2	283.0	283.7	94.69	-242.4	9,708.8	498.0	-66.9	564.94	0.882	Level 1
20,400.0	10,822.1	20,423.6	10,862.8	285.9	286.7	94.69	-242.4	9,808.7	498.0	-72.7	570.76	0.873	Level 1
20,500.0	10,822.7	20,523.6	10,863.4	288.8	289.6	94.69	-242.4	9,908.7	498.0	-78.6	576.58	0.864	Level 1
20,600.0	10,823.3	20,623.6	10,864.1	291.7	292.5	94.69	-242.4	10,008.7	498.0	-84.4	582.40	0.855	Level 1
20,700.0	10,824.0	20,723.6	10,864.7	294.7	295.4	94.69	-242.4	10,108.7	498.0	-90.2	588.22	0.847	Level 1
20,715.0	10,824.0	20,738.6	10,864.8	295.1	295.9	94.69	-242.4	10,123.7	498.0	-91.1	589.09	0.845	Level 1, ES, SF

# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 2070.0ft (Original Well Elev)

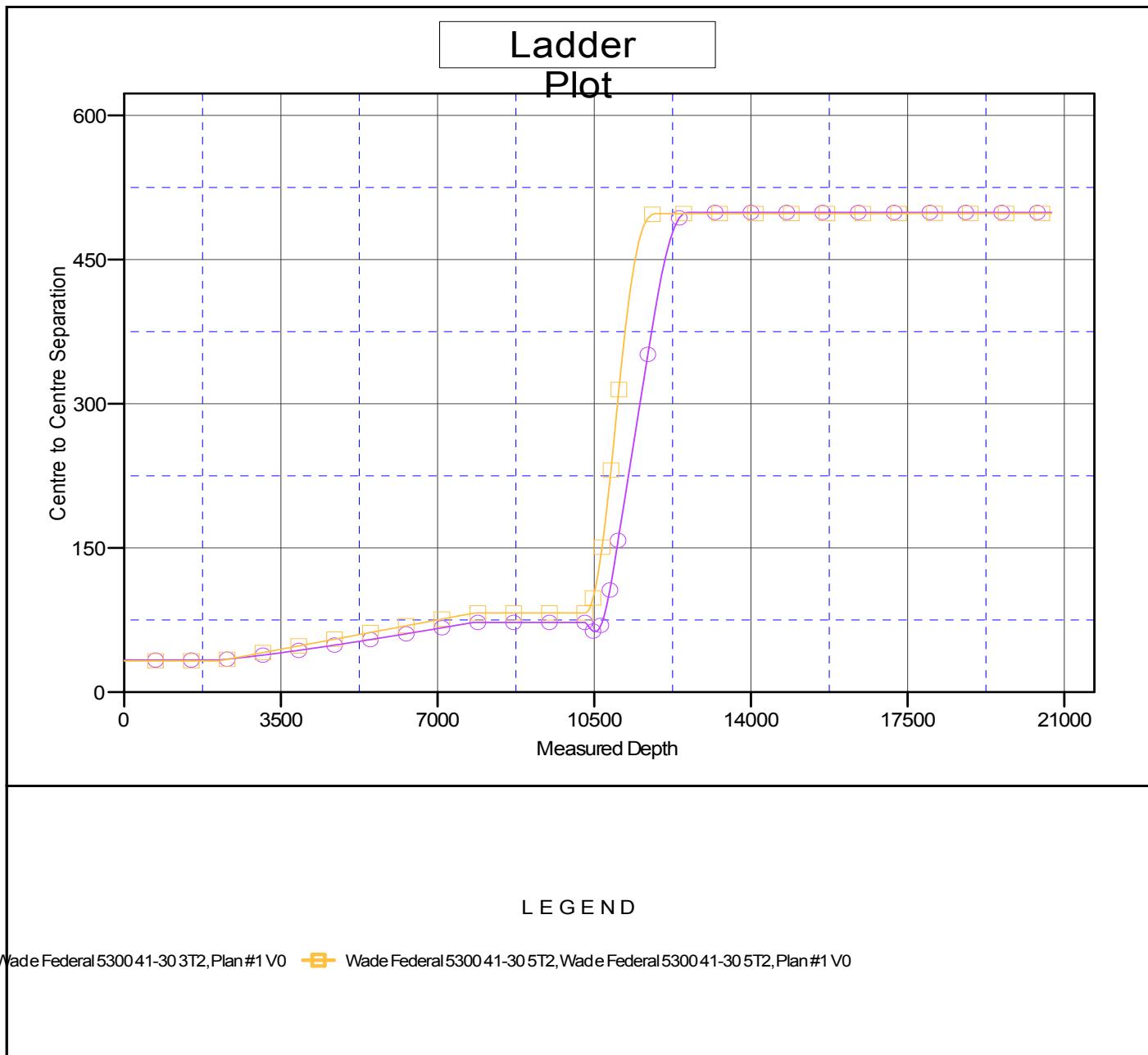
Coordinates are relative to: Wade Federal 5300 41-30 4T

Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, North Dakota Northern Zone

Central Meridian is 100° 30' 0.000 W

Grid Convergence at Surface is: -2.31°



# Oasis Petroleum

## Anticollision Report

<b>Company:</b>	Oasis	<b>Local Co-ordinate Reference:</b>	Well Wade Federal 5300 41-30 4T
<b>Project:</b>	Indian Hills	<b>TVD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Reference Site:</b>	153N-100W-29/30	<b>MD Reference:</b>	WELL @ 2070.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Wade Federal 5300 41-30 4T	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wade Federal 5300 41-30 4T	<b>Database:</b>	OpenWellsCompass - EDM Prod
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 2070.0ft (Original Well Elev)

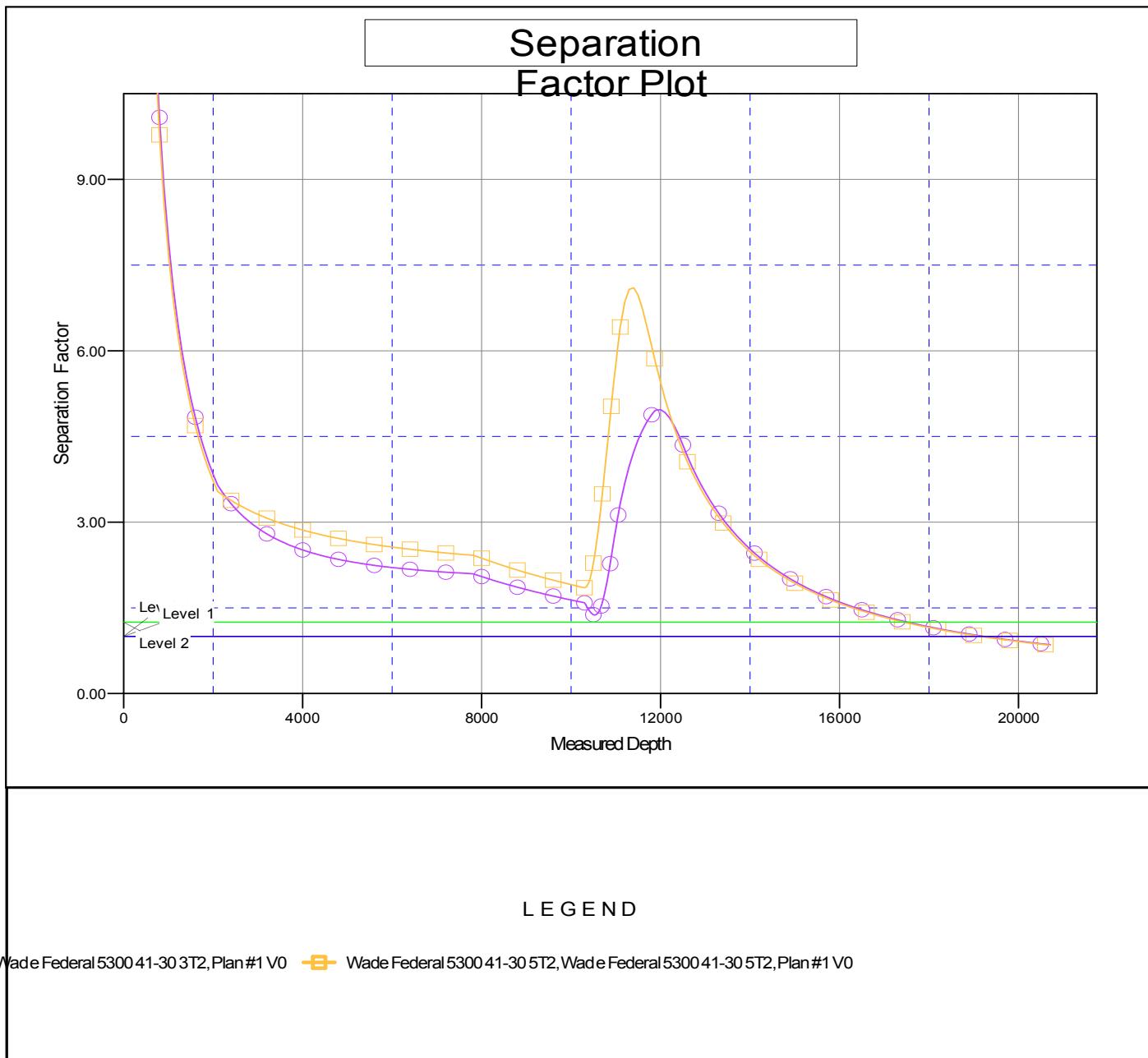
Coordinates are relative to: Wade Federal 5300 41-30 4T

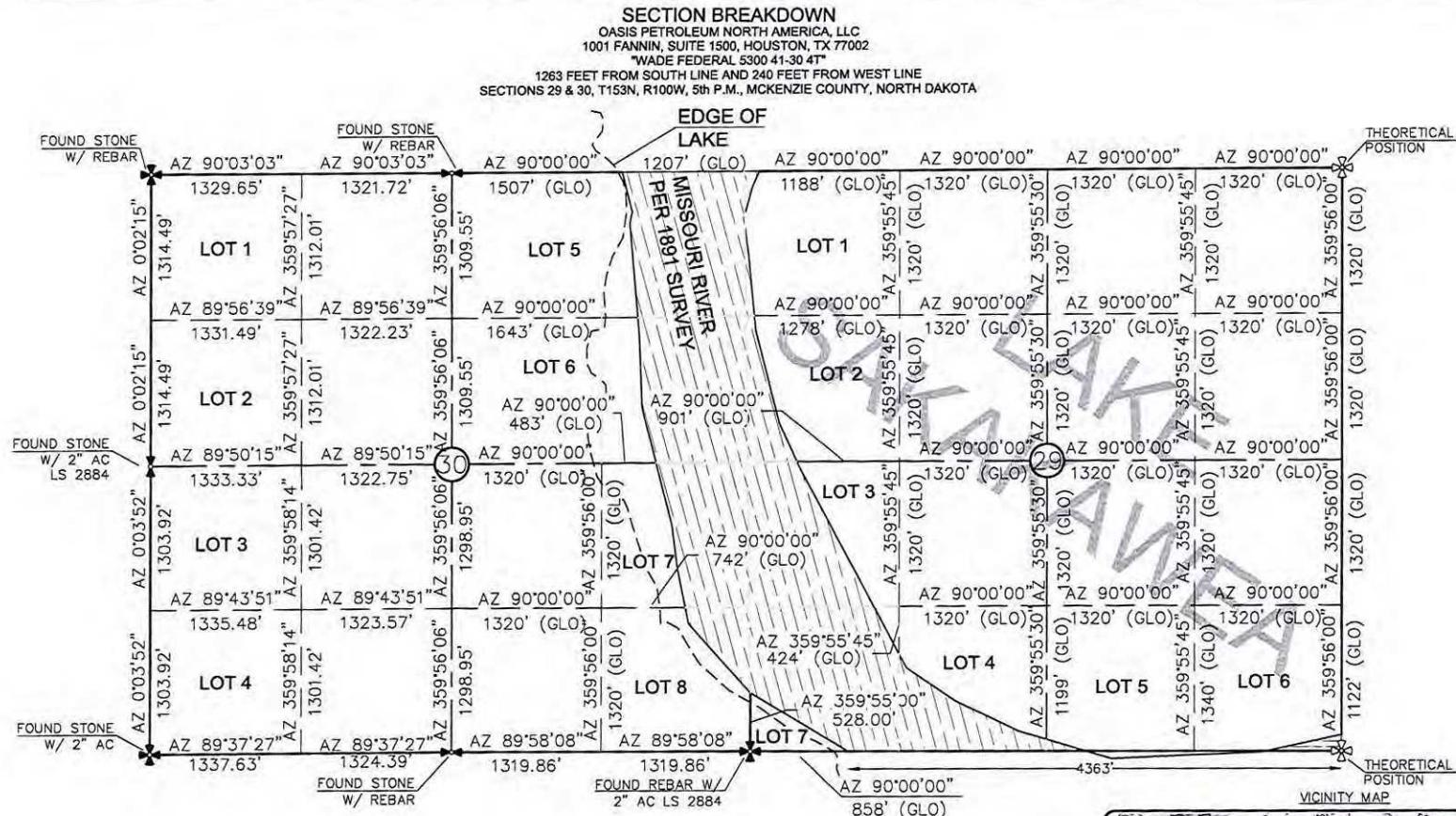
Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, North Dakota Northern Zone

Central Meridian is 100° 30' 0.000 W

Grid Convergence at Surface is: -2.31°

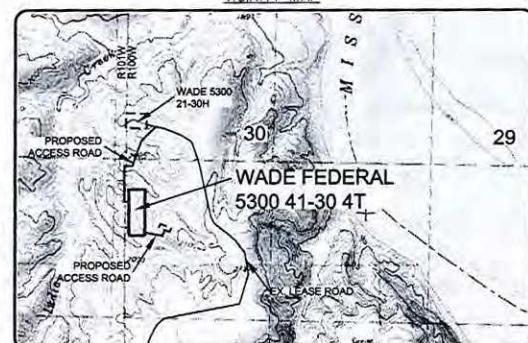
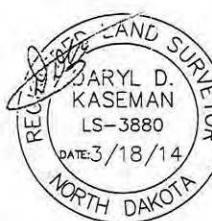




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- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED

0 1000  
1" = 1000'



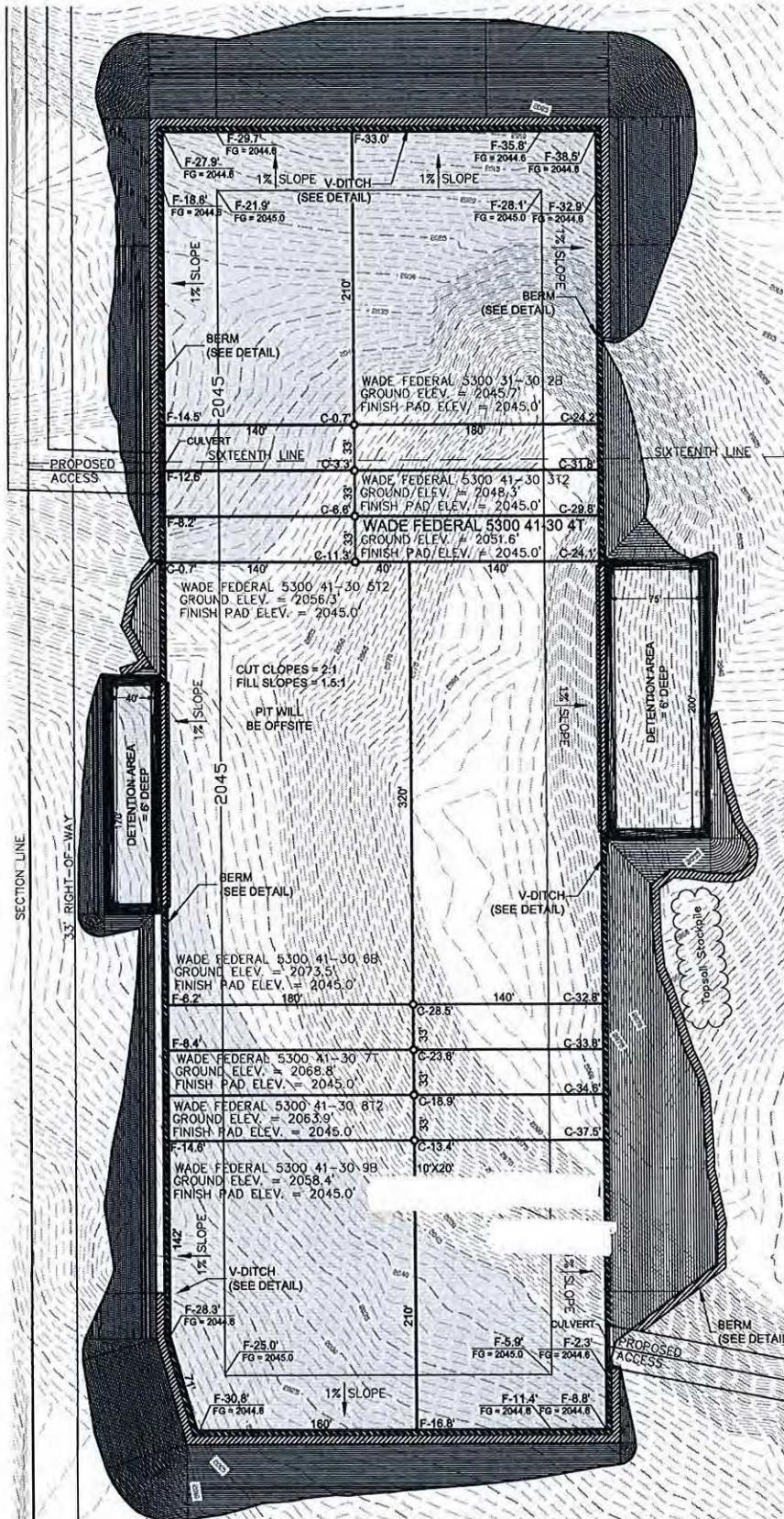
**2/8**



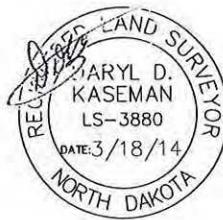
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Project No.: S153N-R100W	Date: 3/17/14	By: J.B.H.
Section Breakdown	Revised:	Initials:
Sections 29 & 30, T153N, R100W	29	J.B.H.
MCKENZIE COUNTY, NORTH DAKOTA	30	
Drawn By: B.H.H.	Checked By: D.D.K.	Approved By: J.B.H.
One copy to owner, one copy to each party involved.		

**PAD LAYOUT**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "WADE FEDERAL 5300 41-30 4T"  
 1263 FEET FROM SOUTH LINE AND 240 FEET FROM WEST LINE  
 SECTION 30, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

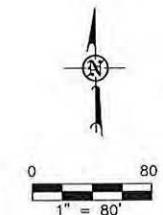


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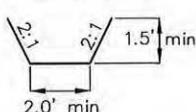


NOTE: Pad dimensions shown are to usable area, the v-ditch and berm areas shall be built to the outside of the pad dimensions.

- Hatched area — BERM
- Solid black area — DITCH
- Proposed Contours
- Original Contours



**V-DITCH DETAIL**



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

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**3/8**  
 SHEET NO.



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

OASIS PETROLEUM NORTH AMERICA, LLC  
 PAD LAYOUT  
 SECTION 30, T153N, R100W  
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-36103  
 Checked By: D.D.K. Date: JAN 2014

Revision No.	Date	By	Description
REV 1	3/17/14	JJS	Moved wells on pad & access road

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 2-Bell Petco-VERIFIED MADE At Long - 3/18/2014 12:40 PM by user

**WELL LOCATION SITE QUANTITIES**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "WADE FEDERAL 5300 41-30 4T"  
 1263 FEET FROM SOUTH LINE AND 240 FEET FROM WEST LINE  
 SECTION 30, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL SITE ELEVATION	2051.6
WELL PAD ELEVATION	2045.0
EXCAVATION	149,966
PLUS PIT	0
	149,966
EMBANKMENT	113,402
PLUS SHRINKAGE (25%)	28,351
	141,753
STOCKPILE PIT	0
STOCKPILE TOP SOIL (6")	7,955
BERMS	2,533 LF = 821 CY
DITCHES	1,655 LF = 253 CY
DETENTION AREA	4,219 CY
STOCKPILE MATERIAL	3,909
DISTURBED AREA FROM PAD	10.18 ACRES

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

CUT END SLOPES AT 2:1

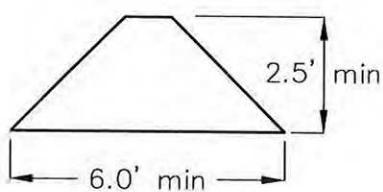
FILL END SLOPES AT 1.5:1

**WELL SITE LOCATION**

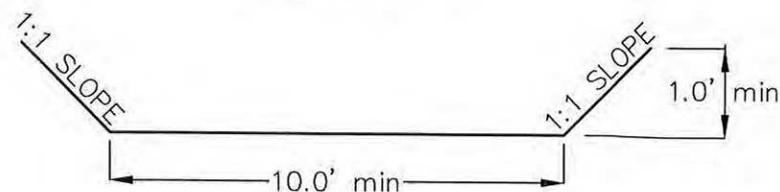
1263 FSL

240' FWL

**BERM DETAIL**



**DITCH DETAIL**



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SHEET NO.



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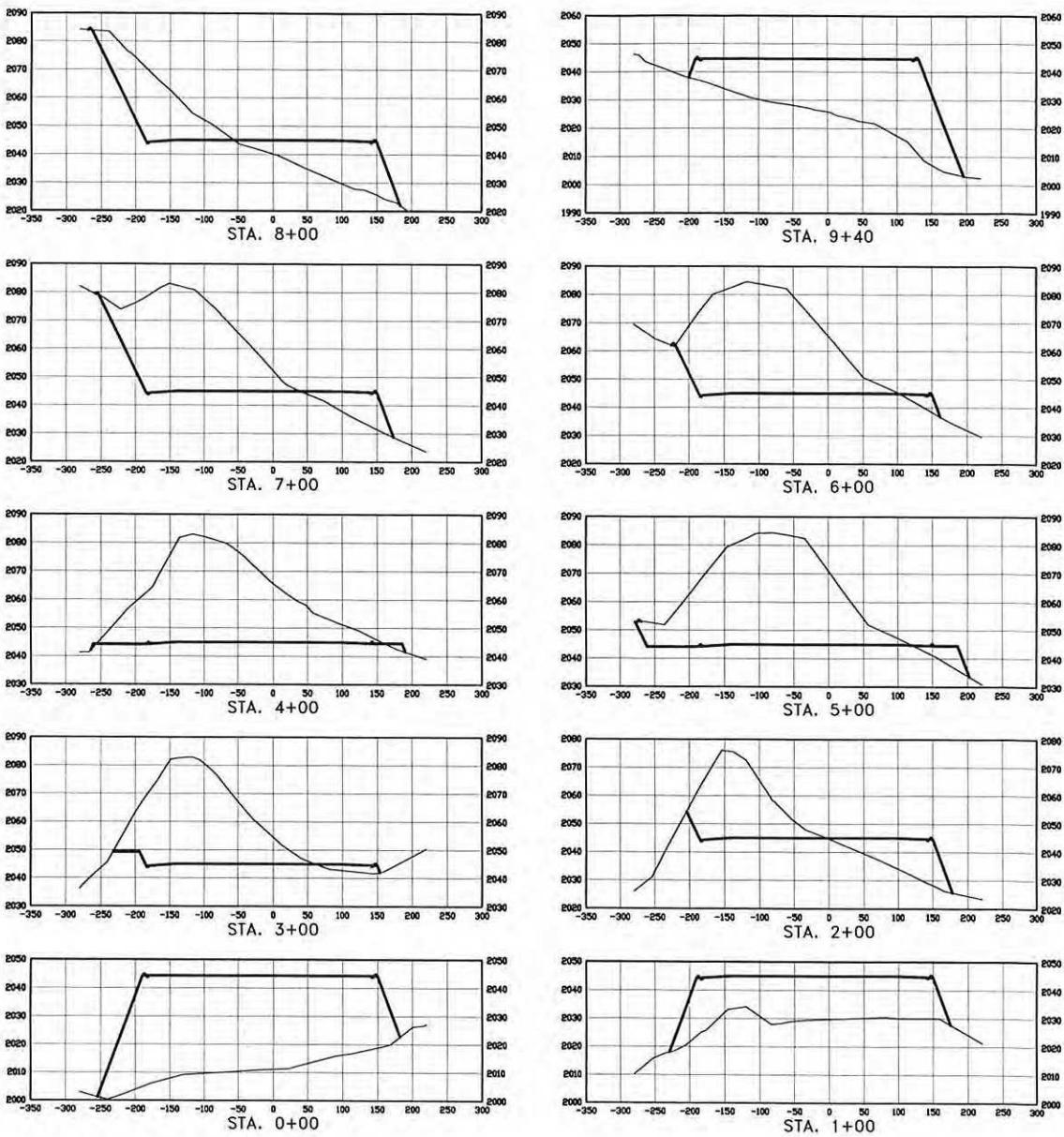
Interstate Engineering, Inc.  
 P.O. Box 648  
 425 East Main Street  
 Sidney, Montana 59270  
 Ph (406) 433-5617  
 Fax (406) 433-5618  
[www.interstateeng.com](http://www.interstateeng.com)  
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC  
 QUANTITIES  
 SECTION 30, T153N, R100W  
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-381.03  
 Checked By: D.D.K. Data: JAN 2014

Revision No.	Date	By	Description
REV 1	3/17/14	J.S.	MOVED WELLS ON PAD & ACCESS ROAD

**CROSS SECTIONS**  
 OASIS PETROLEUM NORTH AMERICA, LLC  
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
 "WADE FEDERAL 5300 41-30 4T"  
 1263 FEET FROM SOUTH LINE AND 240 FEET FROM WEST LINE  
 SECTION 30, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE  
 HORIZ 1"=160'  
 VERT 1"=40'

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OASIS PETROLEUM NORTH AMERICA, LLC  
**CROSS SECTIONS**  
 SECTION 30, T153N, R100W  
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-381.03  
 Checked By: D.D.K. Date: JAN 2014

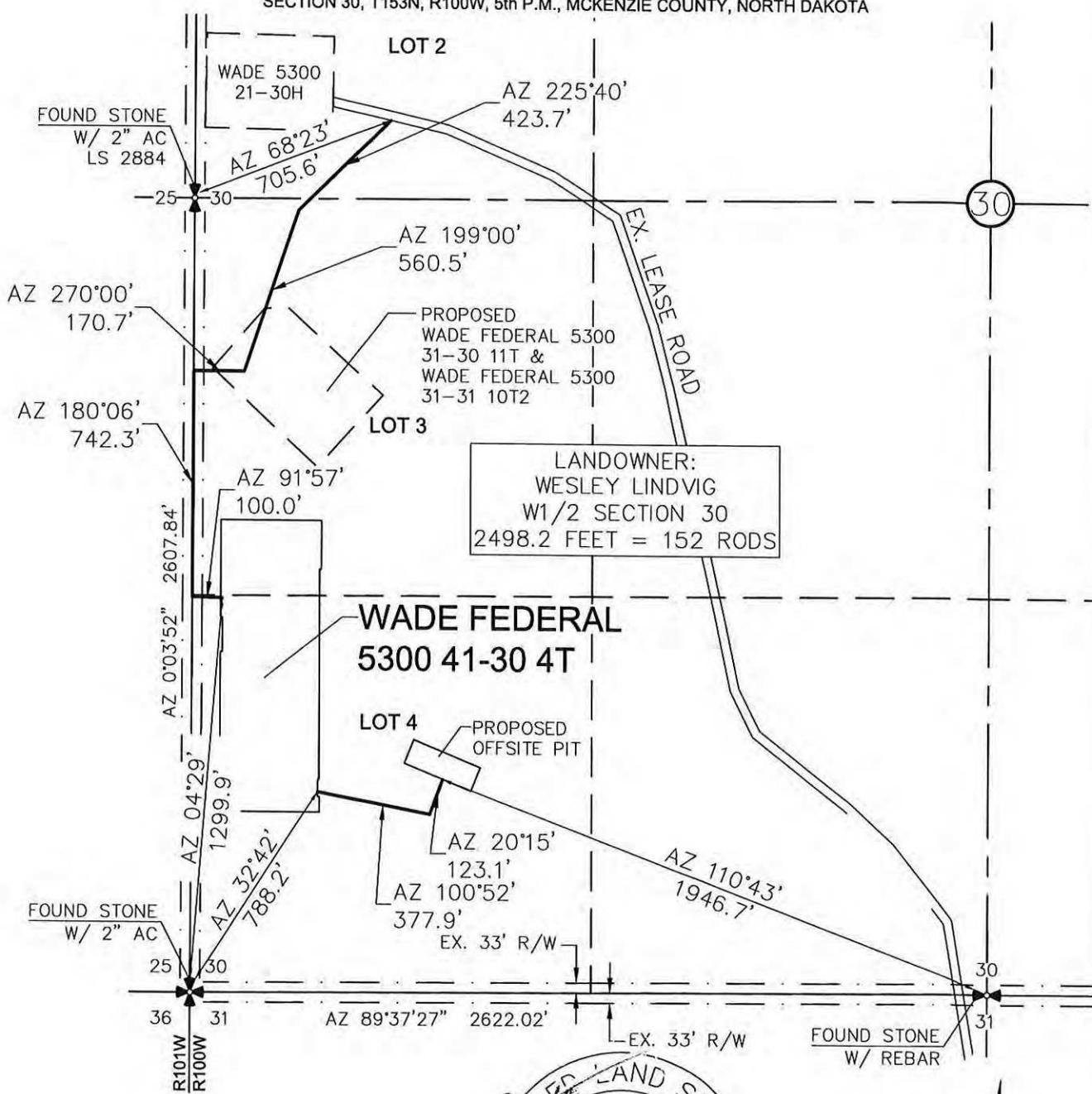
Revision No.	Date	By	Description
REV 1	3/17/14	JJS	WROVE WELL ON PAD & ACCESS ROAD

U.S. GOVERNMENT PRINTING OFFICE: 2014 OASIS PETROLEUM NORTH AMERICA, LLC  
 124-2014-01-01-00000  
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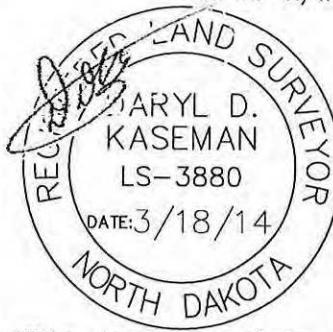
# ACCESS APPROACH

OASIS PETROLEUM NORTH AMERICA, LLC  
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002  
"WADE FEDERAL 5300 41-30 4T"

1263 FEET FROM SOUTH LINE AND 240 FEET FROM WEST LINE  
SECTION 30, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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0 500  
1" = 500'

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OASIS PETROLEUM NORTH AMERICA, LLC  
ACCESS APPROACH  
SECTION 30, T153N, R100W

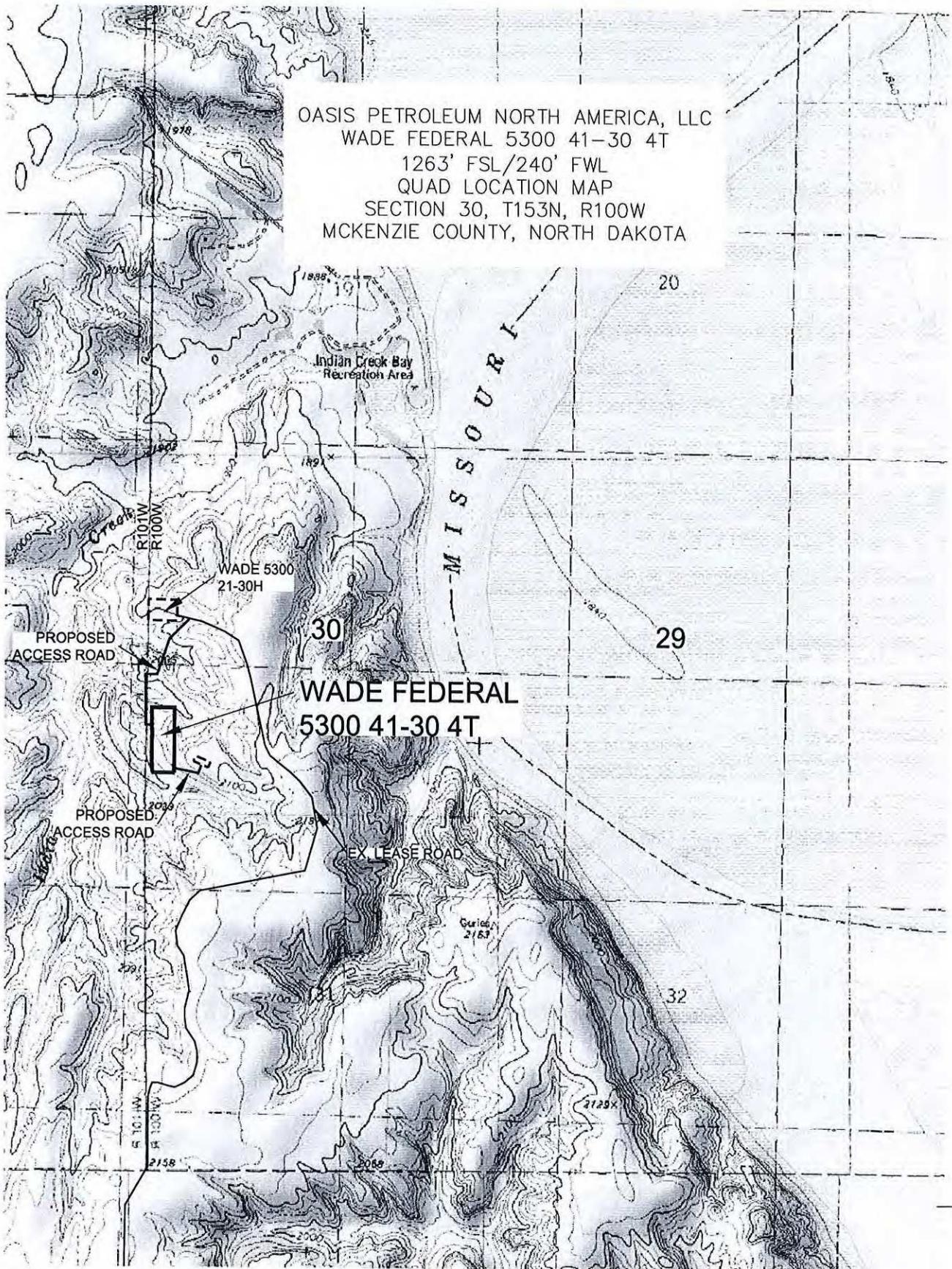
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H.	Project No.: S13-09-381.03
Checked By: D.D.K.	Date: JAN 2014

Revision No.	Date	By	Description
REV 1	3/17/14	JJS	MOVED WELLS ON PAD & ACCESS ROAD

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

OASIS PETROLEUM NORTH AMERICA, LLC  
QUAD LOCATION MAP  
SECTION 30, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

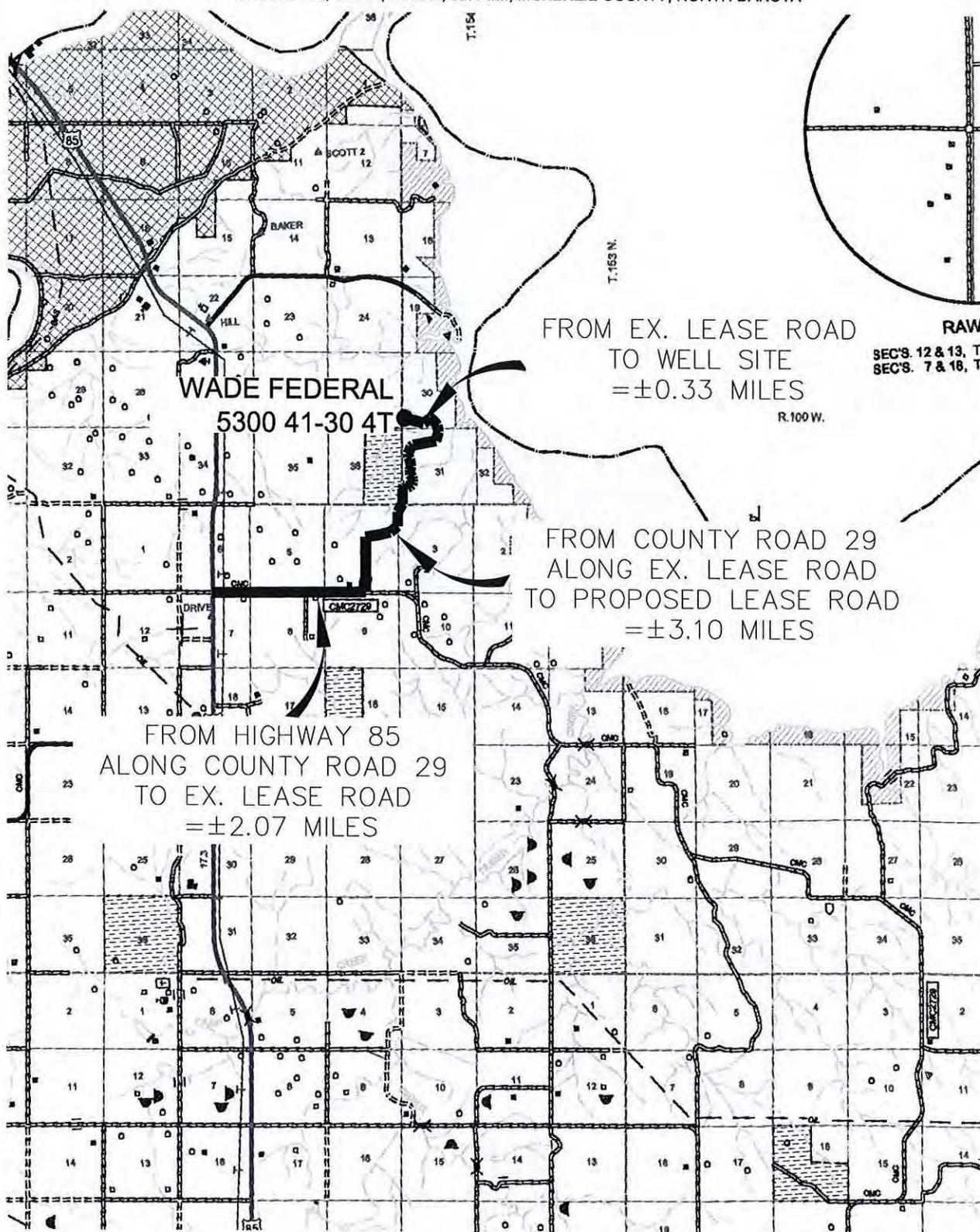
Revision No.	Date	By	Description
REV 1	3/17/14	JAS	MOVED WELLS ON PAD & ACCESS ROAD

# COUNTY ROAD MAP

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

"WADE FEDERAL 5300 41-30 4T"

1263 FEET FROM SOUTH LINE AND 240 FEET FROM WEST LINE  
SECTION 30, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

6/8



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OASIS PETROLEUM NORTH AMERICA, LLC  
COUNTY ROAD MAP  
SECTION 30, T153N, R100W  
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-381.03  
Checked By: D.D.K. Date: JAN 2014

Revision No.	Date	By	Description
REV 1	3/17/14	JJS	Moved wells on pad & access road

From: [Lauri Stanfield](#)  
To: [Webber, Alice D.](#)  
Cc: [Lauri Stanfield](#); [Heather McCowan](#); [Brandi Terry](#); [Chelsea Covington](#)  
Subject: FW: Wade Federal 5300 41-30 4T, 3T2, 5T2 and 31-30 2B  
Date: Thursday, May 15, 2014 9:50:38 AM  
Attachments: [image001.png](#)

---

Alice,

We are aware that the 3T2, 4T, 5T2 penetrate federal minerals and have submitted the APD's to the BLM for approval. The 2B is not in federal minerals so no federal permit was submitted.

Regards,

*Lauri M. Stanfield*

**Regulatory Specialist**  
**1001 Fannin, Suite 1500**  
**Houston, TX 77002**  
**Direct: 281-404-9562**



---

From: Chelsea Covington  
Sent: Thursday, May 15, 2014 9:49 AM  
To: Lauri Stanfield; Heather McCowan; Brandi Terry  
Subject: FW: Wade Federal 5300 41-30 4T, 3T2, 5T2 and 31-30 2B

Please see below

---

**From:** Webber, Alice D. [<mailto:adwebber@nd.gov>]  
**Sent:** Thursday, May 15, 2014 9:48 AM  
**To:** Chelsea Covington  
**Subject:** Wade Federal 5300 41-30 4T, 3T2, 5T2 and 31-30 2B

Good morning Chelsea,

Since the laterals for these wells penetrate BLM lands/minerals does Oasis have the requisite BLM permits?

Thanks,  
Alice

*Alice D. Webber*

**Engineering Technician IV**  
**North Dakota Industrial Commission**  
**Department of Mineral Resources**  
**Oil and Gas Division**  
**600 E. Boulevard Avenue Dept 405**  
**Bismarck, ND 58501**  
**[adwebber@nd.gov](mailto:adwebber@nd.gov)**  
**701-328-7996**





### **STATEMENT**

This statement is being sent in order to comply with NDAC 43-02-03-16 (Application for permit to drill and recomplete) which states (in part that) "confirmation that a legal street address has been requested for the well site, and well facility if separate from the well site, and the proposed road access to the nearest existing public road". On the date noted below a legal street address was requested from the appropriate county office.

McKenzie County  
Aaron Chisolm – McKenzie County Dept.

Wade Federal 5300 31-30 2B  
Wade Federal 5300 31-30 3T2  
Wade Federal 5300 41-30 4T  
Wade Federal 5300 41-30 5T2  
Wade Federal 5300 41-30 6B  
Wade Federal 5300 41-30 7T  
Wade Federal 5300 41-30 8T2  
Wade Federal 5300 41-30 9B

Brandi Terry

Brandi Terry  
Regulatory Specialist  
Oasis Petroleum North America, LLC