



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)

RECEIVED

OCT 23 2017

Well File No.

29316-

29317

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

ND OIL & GAS DIVISION

<input type="checkbox"/> Notice of Intent	Approximate Start Date	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input checked="" type="checkbox"/> Report of Work Done	Date Work Completed February 1, 2016	<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	Well is now on pump

Well Name and Number

Gramma Federal 5300 41-31 13T

Footages	Qtr-Qtr	Section	Township	Range
647 F S L	320 F W L	LOT4	31	153 N 100 W
Field Baker	Pool Bakken	County McKenzie		

24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address	City	State	Zip Code
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DETAILS OF WORK

Effective 02/01/2016 the above referenced well is on pump.

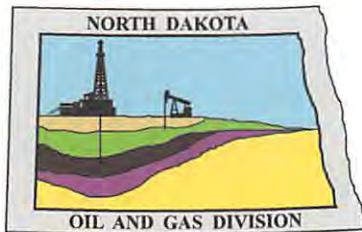
End of Tubing: 2-7/8" L-80 tubing @ 8134.78'

Pump: 2-1/2" x 2.0" x 24' insert pump @ 8026.63'

Company Oasis Petroleum North America LLC	Telephone Number 281 404-9436	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Jennifer Swenson	
Title Regulatory Specialist	Date March 17, 2016	
Email Address jswenson@oasispetroleum.com		

FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date 11-2-2017	
By 	
Title JARED THUNE	Engineering Technician



Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.dmr.nd.gov/oilgas/

October 5, 2017

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

RE: Attached List of 17 Wells

Dear Michael Kukuk:

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

Sincerely,



Tom Delling
Petroleum Engineer - Field Inspector

TKD/RSD/RLR



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/

LEWIS FEDERAL 5300 31-31H
LOT 3 31-153N-100W
MCKENZIE COUNTY
WELL FILE NO.: 20314

NEWBERRY 5200 41-20T
SWSW 20-152N-100W
MCKENZIE COUNTY
WELL FILE NO.: 24644

EMMA 13-7H
SWSW 7-151N-99W
MCKENZIE COUNTY
WELL FILE NO.: 26659

CAROL 12-35H
NNSW 35-152N-100W
MCKENZIE COUNTY
WELL FILE NO.: 27623

LUELLA 13-35H
SWSW 35-152N-100W
MCKENZIE COUNTY
WELL FILE NO.: 27768

CHALMERS WADE FEDERAL 5301 44-24 12TXR
SESE 24-153N-101W
MCKENZIE COUNTY
WELL FILE NO.: 28601

GRAMMA FEDERAL 5300 41-31 13T
LOT4 31-153N-100W
MCKENZIE COUNTY
WELL FILE NO.: 29317

LAWLAR 26-35H
NWNE 26-151N-99W
MCKENZIE COUNTY
WELL FILE NO.: 20460

HANK 13X-7H
SWSW 7-151N-99W
MCKENZIE COUNTY
WELL FILE NO.: 26658

HAGEN BANKS 5298 #42-31 7T3
SESW 31-152N-98W
MCKENZIE COUNTY
WELL FILE NO.: 27109

TODD 13X-35H
SWSW 35-152N-100W
MCKENZIE COUNTY
WELL FILE NO.: 27767

DALLAS 2X-13H
NWNE 13-151N-100W
MCKENZIE COUNTY
WELL FILE NO.: 28201

FOSSUM 15-35HR
SWSE 35-153N-101W
MCKENZIE COUNTY
WELL FILE NO.: 30754



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
SBN 5698 (03-2000)

Well File No.

29317

NDIC CTB No.

To be assigned

229316

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number GRAMMA FEDERAL 5300 41-31 13T2	Qtr-Qtr LOT4	Section 31	Township 153	Range 100	County Williams
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McKenziz

Operator Oasis Petroleum North America LLC	Telephone Number (281) 404-9573	Field BAKER
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Address 1001 Fannin, Suite 1500	City Houston	State TX	Zip Code 77002
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Name of First Purchaser Oasis Petroleum Marketing LLC	Telephone Number (281) 404-9627	% Purchased 100%	Date Effective July 5, 2015
Principal Place of Business 1001 Fannin, Suite 1500	City Houston	State TX	Zip Code 77002
Field Address	City	State	Zip Code
Transporter Hiland Crude, LLC	Telephone Number (580) 616-2058	% Transported 75%	Date Effective July 5, 2015
Address P.O. Box 3886	City Enid	State OK	Zip Code 73702

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
Hofmann Trucking	25%	July 8, 2015
Other Transporters Transporting From This Lease	% Transported	Date Effective
		July 8, 2015
Comments		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date August 13, 2015
Signature 	Printed Name Brianna Salinas
	Title Marketing Assistant

Above Signature Witnessed By:	Printed Name	Title
Signature 	Dina Barron	Mktg. Contracts Administrator



FOR STATE USE ONLY	
Date Approved	AUG 20 2015
By	
Title	Oil & Gas Production Analyst

Oil & Gas Production Analyst



WELL COMPLETION OR RECOMPLETION REPORT - FORM 6

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

Well File No.
29317

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Designate Type of Completion

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

Well Name and Number Gramma Federal 5300 41-31 13T		Spacing Unit Description Sec. 31/32 T153N R100W
Operator Oasis Petroleum North America	Telephone Number (281) 404-9591	Field Baker
Address 1001 Fannin, Suite 1500		Pool Bakken
City Houston	State TX	Zip Code 77002

LOCATION OF WELL

At Surface	647 F S L	320 F WL	Qtr-Qtr LOT4	Section 31	Township 153 N	Range 100 W	County McKenzie
Spud Date <u>December 23, 2014</u>	Date TD Reached <u>March 3, 2015</u>	Drilling Contractor and Rig Number Nabors B27	KB Elevation (Ft) 2183	Graded Elevation (Ft) 2158			

Type of Electric and Other Logs Run (See Instructions)

MWD/GR FROM KOP TO TD: CBL FROM INT. TD TO SURFACE

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

PERFORATION & OPEN HOLE INTERVALS

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft) Lateral 1- 11228' TO 20545'							Name of Zone (If Different from Pool Name)	
Date Well Completed (SEE INSTRUCTIONS) July 5, 2015			Producing Method Flowing		Pumping-Size & Type of Pump			Well Status (Producing or Shut-In) Producing
Date of Test 07/05/2015	Hours Tested 24	Choke Size 46 /64	Production for Test	Oil (Bbls) 1358	Gas (MCF) 1821	Water (Bbls) 3006	Oil Gravity-API (Corr.) °	Disposition of Gas Sold
Flowing Tubing Pressure (PSI)		Flowing Casing Pressure (PSI) 1150		Calculated 24-Hour Rate	Oil (Bbls) 1358	Gas (MCF) 1821	Water (Bbls) 3006	Gas-Oil Ratio 1341

GEOLOGICAL MARKERS

PLUG BACK INFORMATION

CORES CUT

CORES CUT					
Top (Ft)	Bottom (Ft)	Formation	Top (Ft)	Bottom (Ft)	Formation

Drill Stem Test

Well Specific Stimulation

Date Stimulated 06/26/2015	Stimulated Formation Three Forks		Top (Ft) 11228	Bottom (Ft) 20545	Stimulation Stages 50	Volume 170334	Volume Units Barrels
Type Treatment Sand Frac	Acid %	Lbs Proppant 9246908	Maximum Treatment Pressure (PSI) 8985			Maximum Treatment Rate (BBLS/Min) 10.4	
Details 40/70 White: 1185500 20/40 White: 6423398 20/40 Resin Coated: 1396960 100 Mesh White: 241050							
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 jswenson@oasispetroleum.com	Date 07/27/2015
Signature 	Printed Name Jennifer Swenson	Title Regulatory Specialist

Industrial Commission of North Dakota
Oil and Gas Division

Verbal Approval To Purchase and Transport Oil

Well or Facility No

29317

Tight Hole Yes

OPERATOR

Operator OASIS PETROLEUM NORTH AMERICA LL	Representative Todd Hanson	Rep Phone (701) 577-1632
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WELL INFORMATION

Well Name GRAMMA FEDERAL 5300 41-31 13T	Inspector Richard Dunn
Well Location QQ Sec Twp Rng LOT4 31 153 N 100 W	County MCKENZIE
Footages 713 Feet From the S Line 320 Feet From the W Line	Field BAKER
	Pool BAKKEN
Date of First Production Through Permanent Wellhead 7/4/2015	This Is The First Sales

PURCHASER / TRANSPORTER

Purchaser OASIS PETROLEUM MARKETING LLC	Transporter HOFMANN TRUCKING, LLC
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TANK BATTERY

Central Tank Battery Number : 229316-01

SALES INFORMATION This Is The First Sales

ESTIMATED BARRELS TO BE SOLD	ACTUAL BARRELS SOLD	DATE
15000 BBLS	240 BBLS	7/4/2015
BBLS	BBLS	

DETAILS

Must E-Mail or Call Inspector at 701-770-3554/rsdunn@nd.gov on first date of sales and report amount sold, date sold, and first date of production through the permanent wellhead

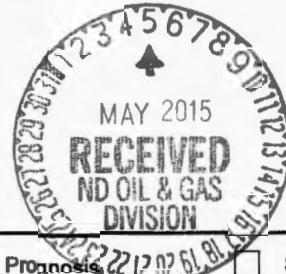
Start Date **7/4/2015**
Date Approved **7/13/2015**
Approved By **Richard Dunn**



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.
29317



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 March 31, 2015
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03. Approximate Start Date	

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

Well Name and Number Gramma Federal 5300 41-31 13T2					
Footages 713 F S L	320 F W L	Qtr-Qtr LOT4	Section 24	Township 153 N	Range 100 W
Field Baker	Pool Bakken			County McKenzie	

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

Name of Contractor(s) Neu Construction	Address 602 W. 9th Street	City Fairview	State MT	Zip Code 59221
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DETAILS OF WORK

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

The NDIC field inspector, Rick Dunn (NDIC) was notified on 03/20/2015

The surface owner, Wes Lindvig, was contacted on 03/20/2015 at 14705 41st Street NW Alexander ND 58831

Spread material out in pit, cut top edge of liner and fold over cuttings, cover entire pit with liner, back fill with clay slope and contour well site to ensure proper drainage

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9436	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Jennifer Swenson	
Title Regulatory Specialist	Date May 4, 2015	
Email Address jswenson@oasispetroleum.com		

FOR STATE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date 5-1-15	
By Connie Walker	
Title 	



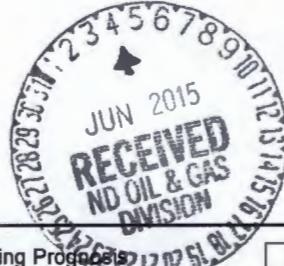
SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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 checked="" type="checkbox"/> Notice of Intent	Approximate Start Date June 2, 2015
<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	



Well File No. 29317

- | | |
|---|---|
| <input type="checkbox"/> Drilling Progress | <input type="checkbox"/> Spill Report |
| <input type="checkbox"/> Redrilling or Repair | <input type="checkbox"/> Shooting |
| <input type="checkbox"/> Casing or Liner | <input type="checkbox"/> Acidizing |
| <input type="checkbox"/> Plug Well | <input type="checkbox"/> Fracture Treatment |
| <input type="checkbox"/> Supplemental History | <input type="checkbox"/> Change Production Method |
| <input type="checkbox"/> Temporarily Abandon | <input type="checkbox"/> Reclamation |
| <input type="checkbox"/> Other | Waiver from tubing/packer requirement |

Well Name and Number

Gramma Federal 5300 41-31 13T

Footages		Qtr-Qtr	Section	Township	Range
713 F S L	320 F W L	LOT4	31	153 N	100 W
Field	Pool		County		
Baker	Bakken		McKenzie		

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

Name of Contractor(s)

Address

City

State

Zip Code

DETAILS OF WORK

Oasis Petroleum 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 Oasis Petroleum North America LLC		Telephone Number 281-404-9436
Address 1001 Fannin, Suite 1500		
City Houston		State TX
Signature 		Printed Name Jennifer Swenson
Title Regulatory Specialist		Date June 2, 2015
Email Address jswenson@oasispetroleum.com		

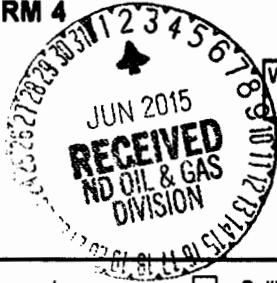
FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date	June 4, 2015
By	<i>W. Johnson</i>
Title	PETROLEUM ENGINEER



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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



Well File No.
29317

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
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Notice of Intent

Approximate Start Date
60/02/2015

Report of Work Done

Date Work Completed

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

Approximate Start Date

Drilling Prognosis

Spill Report

Redrilling or Repair

Shooting

Casing or Liner

Acidizing

Plug Well

Fracture Treatment

Supplemental History

Change Production Method

Temporarily Abandon

Reclamation

Other **Change well status to CONFIDENTIAL**

Well Name and Number

Gramma Federal 5300 41-31 13T

Footages	Qtr-Qtr	Section	Township	Range
713 F S L	320 F W L	LOT4	31	153 N 100 W
Field Baker	Pool BAKKEN		County McKenzie	

24-HOUR PRODUCTION RATE

Before	After
Oil	Bbls
Water	Bbls
Gas	MCF

Name of Contractor(s)

Address	City	State	Zip Code

DETAILS OF WORK

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

This well has not been completed

OFF CONFIDENTIAL 12/02/15.

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9436	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Jennifer Swenson	
Title Regulatory Specialist	Date June 2, 2015	
Email Address jswenson@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 6/03/15	
By 	
Title Engineering Technician	

Gramma Federal 5300 41-31 13T

End of Well Report

Gramma Federal 5300 41-31 13T

**713' FSL & 320' FWL
SEC 31, T153N, R100W
Williams County, North Dakota**

Prepared by:

Mark Miller, Adam Harris, *well-site geologists*
Columbine Logging, Inc.
602 S. Lipan St.
Denver CO 80223



Prepared for:



Michael Steed, *operations geologist*
Oasis Petroleum North America, LLC
1001 Fannin
Suite 1500
Houston, TX 77002

1.0 INTRODUCTION

Gramma Federal 5300 41-31 13T is an east lateral Three Forks first bench well located in SW SW SEC 31, T153N, R100W in McKenzie County, North Dakota. The primary pay zone extended from 13'-24' below the top of the Three Forks. 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.

Directional drilling was performed by RPM and MWD services were performed by Ryan Directional Services. Mark Miller and Adam Harris were the primary well site geologists; providing geo-steering and mud logging from Columbine Logging, Inc.

Well Information

API #: 33-053-06232

Field: Baker

Spud Date: 01/19/2015

TD Date: 3/2/2015

Surface Location: SW SW SEC 31, T153N, R100W, 713' FSL & 320'FWL, McKenzie County, North Dakota

Intermediate Casing Point: SW SW SEC 31, T153N, R100W, McKenzie County, North Dakota; 11,295' MD, 10,883' TVD

Bottom Hole Location: SE SE SEC 32, T153N, R100W, McKenzie County, North Dakota, 20,550' MD, 10932.38' TVD

Surface Elevation: 2,158'

KB: 2183'

Casing Shoe: 11,295' MD, 10,883' TVD

Total Depth Drilled: 20550'

Operator: Oasis Petroleum North America LLC

Rig: Nabors B27

Well-site Geologist: Mark Miller, Adam Harris

DD: RPM

Mud logging: Columbine Logging

Mud Service: Mi Swaco

MWD: Ryan Directional Services

Drilling Mud: Invert, Brine

2.0 SERVICES

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

Geological consulting and mud logging started on 1/19/2015. 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 primary offset GR TVD log was the Gramma Federal 5300 41-31 31T well, located 33' south on the same pad. From this offset log the Three Forks was determined to be approximately 26' feet thick. Within the Three Forks, the primary objective was to stay within an 6' thick target window within the Three Forks "A" unit, which extended from 13' to 26' below the top of the Three Forks. 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 Ryan Directional Services. The upper 13' of the Three Forks, referred to as the "B" unit, consisted of overall high gamma compared to the "A" unit. The highest gamma readings of 170 api were just above the target line. The top of the "A" was marked by a gamma peak of approximately 120 api. The "A" unit extended from 14' to 26' below the upper shale. The upper portion of the "A" consisted of lower gamma readings of 55 – 85 api.

The "A" unit was expected to extend from 14' to 26' below the top of the Three Forks, based on an offset Three Forks well on the same pad. The 13T wellbore dropped into the claystone, confirming the basic thickness of the zone. The base of the "A" had a clean section of gamma, followed by the Claystone 1. After landing the curve, the wellbore was drilled almost entirely within the "B" and "A" units.

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 HCl¹, 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, IC5, NC5, H2S, O2 and CO₂.

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 thereby adjust lag time when needed.

3.0 GEOLOGY

3.1 Formation Tops Formation tops are picked using ROP, lithology, and gamma ray. (Table 3.1).

FORMATION TOPS							
Formation/Marker Beds	ACTUAL				Prognosis		
	Vertical Section	Top MD (ft)	Top TVD (ft)	THICKNESS	H/L TO PROG	TVD KB/DF(ft)	TVDS (ft)
Kibbey Lime		8,460'	8,459'	150'	-1' Low	8,458'	(6,275)
Charles Salt		8,610'	8,609'	603'	-3' Low	8,606'	(6,423)
Base Last Salt		9,276'	9,275'	37'	3' High	9,278'	(7,095)
Mission Canyon		9,492'	9,491'	540'	-3' Low	9,488'	(7,305)
Lodgepole		10,032'	10,031'	648'	2' High	10,033'	(7,850)
False Bakken		10,855	10,679'	10'	-4 Low	10,765'	(8,582)
Upper Bakken Shale		10,872'	10,779'	36'	-3 Low	10,776'	(8,593)
Middle Bakken		10,906'	10,797'	18'	-5 Low	10,792'	(8,609)
Lower Bakken Shale		10,990'	10,833'	7'	-2 Low	10,831'	(8,648)
Pronghorn		11,012'	10,840'	22'	-1 Low	10,839'	(8,656)
Threeforks		11,082'	10,862'		-1 Low	10,858'	(8,675)
Threeforks(Top of Target)						10,869'	(8,686)
Threeforks(Base of Target)						10,879'	(8,696)
Claystone						10,879'	(8,696)

Table 3.1 Gramma Federal 5300 41-31 13T Formation Tops

3.2 Lithology

Sample analysis began at 8,200' MD in the Kibbey Formation. See appendices "A" beginning on page 23, for lithologic pictures.

3.3 Formation Dip

The formation had an average apparent dip of 89.6 degrees. Dip changes are shown in table 3.3, on the following page

STRUCTURE (MD - TVD)									
MD (ft)	Pronghorn Top	Three Forks Top	3 Forks Target Top	3 Forks Target Bottom	Target line (gamma peak)	Target Base	Claystone 1	Dip (angle)	Dip Rate (ft/100)
11000.0	10841.5	10861.5	10874.5	10880.5	10883.5	10885.5	10887.5		
11391.0	10842.8	10862.8	10875.8	10881.8	10884.8	10886.8	10888.8	89.8	0.3
12075.0	10846.6	10866.6	10879.6	10885.6	10888.6	10890.6	10892.6	89.68	0.6
12375.0	10848.9	10868.9	10881.9	10887.9	10890.9	10892.9	10894.9	89.56	0.8
13000.0	10853.7	10873.7	10886.7	10892.7	10895.7	10897.7	10899.7	89.56	0.8
14000.0	10862.5	10882.5	10895.5	10901.5	10904.5	10906.5	10908.5	89.50	0.9
14540.0	10869.0	10889.0	10902.0	10908.0	10911.0	10913.0	10915.0	89.31	1.2
15097.0	10874.0	10894.0	10907.0	10913.0	10916.0	10918.0	10920.0	89.49	0.9
15500.0	10877.5	10897.5	10910.5	10916.5	10919.5	10921.5	10923.5	89.50	0.9
15993.0	10880.5	10900.5	10913.5	10919.5	10922.5	10924.5	10926.5	89.65	0.6
16288.0	10880.0	10900.0	10913.0	10919.0	10922.0	10924.0	10926.0	90.10	-0.2
16700.0	10883.0	10903.0	10916.0	10922.0	10925.0	10927.0	10929.0	89.58	0.7
17050.0	10882.4	10902.4	10915.4	10921.4	10924.4	10926.4	10928.4	90.10	-0.2
17350.0	10883.5	10903.5	10916.5	10922.5	10925.5	10927.5	10929.5	89.79	0.4
18300.0	10892.1	10912.1	10925.1	10931.1	10934.1	10936.1	10938.1	89.48	0.9
19225.0	10898.6	10918.6	10931.6	10937.6	10940.6	10942.6	10944.6	89.60	0.7
19800.0	10902.6	10922.6	10935.6	10941.6	10944.6	10946.6	10948.6	89.60	0.7
20550.0	10905.0	10925.0	10938.0	10944.0	10947.0	10949.0	10951.0	89.82	0.3

Table 3.3 Gramma Federal 5300 41-31 13T formation dip changes

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 100-150 units, and saturated cuttings with oil, making all cuttings in the vertical show the same cut and fluorescence. Within the lateral, Gas shows increased as the lateral progressed. The beginning of the lateral had shows of 600-1500 units, which slightly increased to peaks of 2000 units at connections, with a background of 1500 units. Flares were intermittent at 3' to 10'.

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 described as: Frequent-abundant dull to bright yellow-green fluorescence with a moderate to flash streaming-diffuse bright blue cut fluorescence and a medium brown residue ring.

3.6 Gas Shows

Gas logged while drilling the lateral is shown in Figure 3.6.

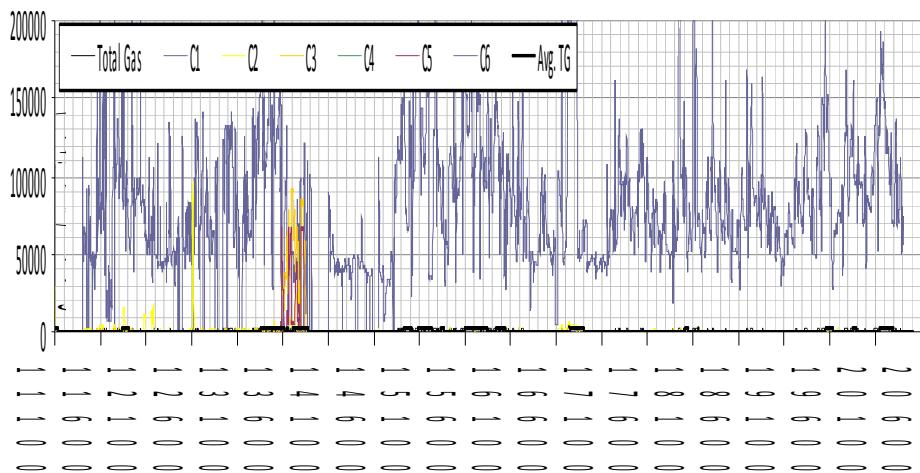


Figure 3.6 Total hydrocarbons (black) where 1 unit = 100 ppm methane eq, and chromatograph data (ppm)

4.0 WELL HISTORY

A summary of the daily progress of the well is listed below (Table 4.0).

24 HR. FOOTAGE TALLY				
Day	Date	12AM Depth	24 hr. Footage	Current 24 hr. Operations
1	1/21/2015	2,340'	0'	Drill vertical
2	1/22/2015	5,071'	2731'	Drilling ahead in vertical
3	1/23/2015	6005'	934'	Drilled ahead to casing point, casing operations
4	1/24/2015	6005'	0'	TIH, TOOH to replace MWD tool
5	1/25/2015	7007'	1545'	TIH and drill curve from 05:00 hrs.
6	1/26/2015	8709'	1517'	Drilling ahead in Vertical
7	1/27/2015	10005'	1196'	Drilling ahead in Vertical
8	1/28/2015	10331'	68'	Drilled to KOP, TOOH, TIH with BHA
9	1/29/2015	10925'	849'	Drill ahead in Curve
10	1/30/2015	11295'	0'	Landed Curve, TOOH
11	2/24/2015	11,526'	545'	TIH, Drill Lateral
12	2/25/2015	13334'	1752'	Drill lateral
13	2/26/2015	15020'	1900'	Drill lateral
14	2/27/2015	16656'	1164'	TOOH New Mud Motor
15	2/28/2015	16656'	84'	TIH, TOOH bad MWD tools, TIH
16	3/1/2015	17543'	1250'	Drill lateral
17	3/2/2015	19397'	1709	Drill lateral, TD @ 20550'

Table 4.0 Gramma Federal 5300 41-31 13T well history

5.0 WELLBORE

The surface location is SW SW SEC 31, T153N, R100W, 713' FSL & 320'FWL, McKenzie County, North Dakota. Ground elevation is 2,158' and KB elevation was 2,183', referenced to the kelly bushing of Nabors B27. The curve was landed in the Three Forks at 11,295' MD; 10,884.15' TVD. The lateral was drilled to TD at: 20,550' MD, with a projection to bit at: 10,932.98' TVD, 9,893.94' VS, SE SE SEC 32, T153N, R100W. Figure 5.1 shows a cross-section of the lateral.

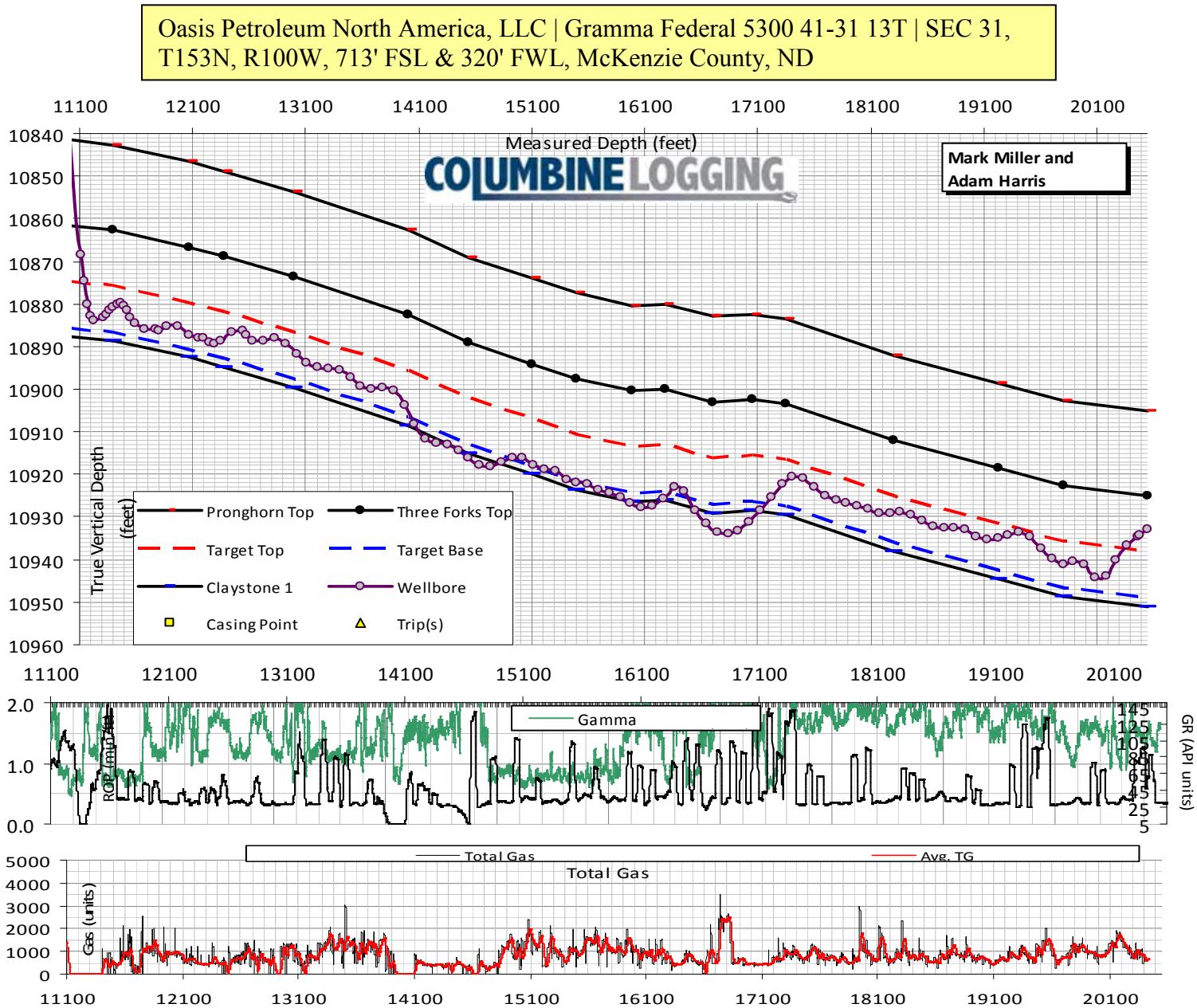


Figure 5.0 Wellbore Cross Section

5.1 DEVIATION SURVEYS

No.	Tool Type	MD (ft)	INC (°)	AZI (°)	CL (ft)	TVD (ft)	VS (ft)	Coordinates		
								N/S (ft)	E/W (ft)	Z (ft)
0	TIE-IN	2243	0.4	39.6		2242.95	-5.89	1.73		-5.89
1	MWD	2376	0.60	29.10	133	2375.94	-5.26	2.70	N	-5.26
2	MWD	2470	0.50	38.90	94	2469.94	-4.76	3.45	N	-4.76
3	MWD	2564	0.70	40.40	94	2563.94	-4.13	4.20	N	-4.13
4	MWD	2658	0.80	29.70	94	2657.93	-3.43	5.21	N	-3.43
5	MWD	2752	1.10	28.10	94	2751.91	-2.68	6.58	N	-2.68
6	MWD	2847	1.20	42.80	95	2846.90	-1.58	8.11	N	-1.58
7	MWD	2941	1.30	58.70	94	2940.87	0.00	9.39	N	0.00
8	MWD	3035	1.30	68.80	94	3034.85	1.91	10.33	N	1.91
9	MWD	3129	1.40	69.00	94	3128.82	3.98	11.12	N	3.98
10	MWD	3223	0.60	333.70	94	3222.81	4.83	11.98	N	4.83
11	MWD	3318	0.80	306.20	95	3317.81	4.07	12.81	N	4.07
12	MWD	3412	0.70	290.60	94	3411.80	3.01	13.40	N	3.01
13	MWD	3506	0.70	306.30	94	3505.79	2.01	13.94	N	2.01
14	MWD	3600	0.90	289.60	94	3599.78	0.85	14.53	N	0.85
15	MWD	3694	0.80	295.10	94	3693.77	-0.44	15.06	N	-0.44
16	MWD	3788	0.40	302.20	94	3787.77	-1.31	15.51	N	-1.31
17	MWD	3882	0.40	302.20	94	3881.76	-1.87	15.86	N	-1.87
18	MWD	3976	0.20	336.00	94	3975.76	-2.21	16.19	N	-2.21
19	MWD	4071	0.10	345.20	95	4070.76	-2.30	16.42	N	-2.30
20	MWD	4165	0.30	312.80	94	4164.76	-2.50	16.66	N	-2.50
21	MWD	4259	0.30	327.70	94	4258.76	-2.82	17.04	N	-2.82
22	MWD	4353	0.30	354.30	94	4352.76	-2.97	17.49	N	-2.97
23	MWD	4448	0.40	15.10	95	4447.76	-2.91	18.06	N	-2.91
24	MWD	4542	0.60	20.90	94	4541.75	-2.65	18.84	N	-2.65
25	MWD	4636	0.70	39.40	94	4635.75	-2.11	19.74	N	-2.11
26	MWD	4730	0.80	40.20	94	4729.74	-1.32	20.68	N	-1.32
27	MWD	4824	0.80	48.00	94	4823.73	-0.41	21.62	N	-0.41
28	MWD	4919	0.90	59.90	95	4918.72	0.73	22.44	N	0.73
29	MWD	5013	0.90	71.80	94	5012.71	2.07	23.04	N	2.07
30	MWD	5107	1.00	82.20	94	5106.69	3.58	23.39	N	3.58
31	MWD	5201	1.20	97.70	94	5200.68	5.37	23.36	N	5.37
32	MWD	5295	1.60	99.50	94	5294.65	7.64	23.02	N	7.64

33	MWD	5389	0.70	112.60	94	5388.63	9.47	22.58	N	9.47	E
34	MWD	5483	0.60	124.00	94	5482.62	10.40	22.08	N	10.40	E
35	MWD	5577	0.70	114.50	94	5576.62	11.33	21.57	N	11.33	E
36	MWD	5672	0.70	112.50	95	5671.61	12.40	21.11	N	12.40	E
37	MWD	5765	0.70	87.90	93	5764.60	13.49	20.91	N	13.49	E
38	MWD	5859	0.80	82.30	94	5858.59	14.72	21.02	N	14.72	E
39	MWD	5948	0.90	93.50	89	5947.58	16.03	21.06	N	16.03	E
40	MWD	6037	0.80	102.80	89	6036.58	17.33	20.88	N	17.33	E
41	MWD	6131	0.60	280.60	94	6130.57	17.49	20.82	N	17.49	E
42	MWD	6225	0.40	326.40	94	6224.57	16.82	21.19	N	16.82	E
43	MWD	6319	0.60	16.40	94	6318.57	16.78	21.93	N	16.78	E
44	MWD	6414	0.80	42.10	95	6413.56	17.37	22.90	N	17.37	E
45	MWD	6508	0.60	18.70	94	6507.55	17.96	23.86	N	17.96	E
46	MWD	6602	0.40	24.60	94	6601.55	18.26	24.62	N	18.26	E
47	MWD	6696	0.90	51.20	94	6695.54	18.97	25.38	N	18.97	E
48	MWD	6791	1.20	330.70	95	6790.53	19.06	26.72	N	19.06	E
49	MWD	6885	1.50	337.00	94	6884.50	18.10	28.71	N	18.10	E
50	MWD	6979	1.70	345.30	94	6978.47	17.27	31.19	N	17.27	E
51	MWD	7073	1.80	348.30	94	7072.42	16.61	33.98	N	16.61	E
52	MWD	7167	1.50	348.40	94	7166.39	16.07	36.63	N	16.07	E
53	MWD	7261	1.60	351.10	94	7260.35	15.62	39.14	N	15.62	E
54	MWD	7356	1.50	357.30	95	7355.32	15.35	41.69	N	15.35	E
55	MWD	7450	1.60	357.90	94	7449.28	15.25	44.23	N	15.25	E
56	MWD	7544	1.80	354.40	94	7543.24	15.05	47.01	N	15.05	E
57	MWD	7638	1.30	281.50	94	7637.21	13.87	48.69	N	13.87	E
58	MWD	7732	1.50	283.00	94	7731.18	11.62	49.18	N	11.62	E
59	MWD	7827	1.70	289.20	95	7826.15	9.08	49.92	N	9.08	E
60	MWD	7921	1.40	280.30	94	7920.11	6.63	50.59	N	6.63	E
61	MWD	8015	1.10	269.20	94	8014.09	4.60	50.78	N	4.60	E
62	MWD	8109	0.80	253.20	94	8108.08	3.07	50.58	N	3.07	E
63	MWD	8204	0.70	256.40	95	8203.07	1.87	50.25	N	1.87	E
64	MWD	8298	0.70	264.20	94	8297.06	0.74	50.06	N	0.74	E
65	MWD	8392	0.70	247.20	94	8391.06	-0.36	49.78	N	-0.36	W
66	MWD	8486	0.70	249.30	94	8485.05	-1.42	49.35	N	-1.42	W
67	MWD	8580	0.60	240.60	94	8579.04	-2.39	48.91	N	-2.39	W
68	MWD	8675	0.40	219.10	95	8674.04	-3.03	48.40	N	-3.03	W
69	MWD	8769	0.40	200.10	94	8768.04	-3.35	47.84	N	-3.35	W
70	MWD	8863	0.40	215.80	94	8862.03	-3.66	47.27	N	-3.66	W

71	MWD	8958	0.30	249.40	95	8957.03	-4.08	46.91	N	-4.08	W
72	MWD	9052	0.10	227.50	94	9051.03	-4.38	46.77	N	-4.38	W
73	MWD	9146	0.30	253.00	94	9145.03	-4.67	46.64	N	-4.67	W
74	MWD	9240	0.40	209.20	94	9239.03	-5.07	46.28	N	-5.07	W
75	MWD	9335	0.20	212.40	95	9334.03	-5.32	45.85	N	-5.32	W
76	MWD	9429	0.10	236.30	94	9428.03	-5.47	45.67	N	-5.47	W
77	MWD	9523	0.10	205.00	94	9522.03	-5.58	45.55	N	-5.58	W
78	MWD	9618	0.30	199.60	95	9617.03	-5.69	45.24	N	-5.69	W
79	MWD	9712	0.40	176.10	94	9711.03	-5.75	44.68	N	-5.75	W
80	MWD	9806	0.40	179.30	94	9805.02	-5.73	44.03	N	-5.73	W
81	MWD	9900	0.40	183.10	94	9899.02	-5.74	43.37	N	-5.74	W
82	MWD	9995	0.30	232.00	95	9994.02	-5.96	42.89	N	-5.96	W
83	MWD	10089	0.30	246.70	94	10088.02	-6.38	42.64	N	-6.38	W
84	MWD	10183	0.30	234.00	94	10182.02	-6.80	42.40	N	-6.80	W
85	MWD	10277	0.30	203.80	94	10276.02	-7.10	42.03	N	-7.10	W
86	MWD	10293	0.30	213.80	16	10292.02	-7.14	41.95	N	-7.14	W
87	MWD	10325	0.80	78.90	32	10324.01	-6.97	41.93	N	-6.97	W
88	MWD	10356	4.40	76.90	31	10354.98	-5.60	42.24	N	-5.60	W
89	MWD	10388	8.50	77.20	32	10386.77	-2.09	43.04	N	-2.09	W
90	MWD	10419	12.70	77.90	31	10417.23	3.48	44.26	N	3.48	E
91	MWD	10450	16.10	80.30	31	10447.25	11.05	45.70	N	11.05	E
92	MWD	10482	19.90	81.50	32	10477.68	20.81	47.25	N	20.81	E
93	MWD	10513	23.30	81.60	31	10506.50	32.10	48.93	N	32.10	E
94	MWD	10544	25.50	80.80	31	10534.73	44.75	50.89	N	44.75	E
95	MWD	10576	28.50	80.30	32	10563.24	59.08	53.28	N	59.08	E
96	MWD	10607	31.50	79.60	31	10590.08	74.34	55.99	N	74.34	E
97	MWD	10639	33.10	79.50	32	10617.13	91.15	59.09	N	91.15	E
98	MWD	10670	36.00	79.70	31	10642.66	108.44	62.26	N	108.44	E
99	MWD	10701	40.30	79.50	31	10667.03	127.27	65.72	N	127.27	E
100	MWD	10733	42.90	79.70	32	10690.96	148.17	69.56	N	148.17	E
101	MWD	10764	46.30	80.10	31	10713.03	169.60	73.37	N	169.60	E
102	MWD	10795	51.10	80.50	31	10733.48	192.55	77.29	N	192.55	E
103	MWD	10827	53.80	80.10	32	10752.99	217.55	81.57	N	217.55	E
104	MWD	10858	54.40	79.60	31	10771.16	242.27	85.99	N	242.27	E
105	MWD	10890	57.40	77.40	32	10789.10	268.23	91.28	N	268.23	E
106	MWD	10921	61.50	75.40	31	10804.86	294.17	97.57	N	294.17	E
107	MWD	10952	65.60	75.30	31	10818.66	321.01	104.59	N	321.01	E
108	MWD	10984	69.70	75.10	32	10830.83	349.62	112.14	N	349.62	E

109	MWD	11015	70.10	74.80	31	10841.48	377.73	119.70	N	377.73	E
110	MWD	11046	70.90	75.00	31	10851.83	405.95	127.32	N	405.95	E
111	MWD	11078	75.30	76.40	32	10861.13	435.61	134.87	N	435.61	E
112	MWD	11109	77.80	76.40	31	10868.34	464.91	141.96	N	464.91	E
113	MWD	11140	78.50	76.30	31	10874.71	494.39	149.12	N	494.39	E
114	MWD	11172	82.30	77.50	32	10880.04	525.12	156.27	N	525.12	E
115	MWD	11203	86.80	79.00	31	10882.99	555.32	162.55	N	555.32	E
116	MWD	11230	89.70	79.70	27	10883.81	581.84	167.54	N	581.84	E
117	MWD	11307	91.20	77.90	77	10883.21	657.37	182.49	N	657.37	E
118	MWD	11338	91.60	78.40	31	10882.45	687.70	188.86	N	687.70	E
119	MWD	11368	91.60	79.00	30	10881.61	717.10	194.73	N	717.10	E
120	MWD	11399	91.70	81.00	31	10880.72	747.62	200.11	N	747.62	E
121	MWD	11430	91.10	81.60	31	10879.96	778.25	204.80	N	778.25	E
122	MWD	11460	89.10	82.60	30	10879.91	807.97	208.92	N	807.97	E
123	MWD	11491	88.70	83.40	31	10880.50	838.73	212.70	N	838.73	E
124	MWD	11523	87.30	84.90	32	10881.62	870.54	215.96	N	870.54	E
125	MWD	11555	87.00	87.00	32	10883.21	902.42	218.22	N	902.42	E
126	MWD	11586	88.00	89.50	31	10884.56	933.37	219.16	N	933.37	E
127	MWD	11682	90.20	91.20	96	10886.07	1029.35	218.58	N	1029.35	E
128	MWD	11778	89.80	91.60	96	10886.07	1125.32	216.23	N	1125.32	E
129	MWD	11809	90.00	91.70	31	10886.13	1156.31	215.34	N	1156.31	E
130	MWD	11873	91.60	92.40	64	10885.23	1220.26	213.05	N	1220.26	E
131	MWD	11969	88.50	90.30	96	10885.15	1316.22	210.79	N	1316.22	E
132	MWD	12064	89.00	90.30	95	10887.22	1411.19	210.29	N	1411.19	E
133	MWD	12160	90.20	91.30	96	10887.89	1507.18	208.95	N	1507.18	E
134	MWD	12191	89.10	91.40	31	10888.08	1538.17	208.22	N	1538.17	E
135	MWD	12255	89.10	91.30	64	10889.09	1602.14	206.71	N	1602.14	E
136	MWD	12287	89.80	91.50	32	10889.39	1634.13	205.93	N	1634.13	E
137	MWD	12350	91.50	92.50	63	10888.68	1697.08	203.73	N	1697.08	E
138	MWD	12446	91.00	91.90	96	10886.58	1792.99	200.05	N	1792.99	E
139	MWD	12541	89.20	90.40	95	10886.42	1887.96	198.14	N	1887.96	E
140	MWD	12573	88.10	90.20	32	10887.17	1919.95	197.97	N	1919.95	E
141	MWD	12636	89.20	90.10	63	10888.66	1982.94	197.81	N	1982.94	E
142	MWD	12732	90.80	90.20	96	10888.66	2078.93	197.56	N	2078.93	E
143	MWD	12827	89.90	89.80	95	10888.08	2173.93	197.56	N	2173.93	E
144	MWD	12923	88.60	87.70	96	10889.33	2269.89	199.65	N	2269.89	E
145	MWD	13018	88.30	87.70	95	10891.90	2364.78	203.46	N	2364.78	E
146	MWD	13114	89.50	88.00	96	10893.75	2460.69	207.06	N	2460.69	E

147	MWD	13209	89.00	89.20	95	10894.99	2555.65	209.38	N	2555.65	E
148	MWD	13305	90.60	89.40	96	10895.32	2651.64	210.56	N	2651.64	E
149	MWD	13400	89.00	88.30	95	10895.66	2746.62	212.46	N	2746.62	E
150	MWD	13496	88.90	89.80	96	10897.41	2842.59	214.05	N	2842.59	E
151	MWD	13591	88.80	90.50	95	10899.32	2937.57	213.81	N	2937.57	E
152	MWD	13686	90.20	89.80	95	10900.15	3032.56	213.56	N	3032.56	E
153	MWD	13782	90.40	90.70	96	10899.65	3128.56	213.14	N	3128.56	E
154	MWD	13877	88.80	91.30	95	10900.31	3223.54	211.48	N	3223.54	E
155	MWD	13973	87.20	91	96	10903.66	3319.45	209.55	N	3319.45	E
156	MWD	14068	87.30	91.2	95	10908.22	3414.33	207.73	N	3414.33	E
157	MWD	14164	88.50	91.6	96	10911.74	3510.23	205.39	N	3510.23	E
158	MWD	14259	90.20	91.3	95	10912.81	3605.19	202.99	N	3605.19	E
159	MWD	14355	89.50	90.3	96	10913.07	3701.18	201.64	N	3701.18	E
160	MWD	14450	89.00	90.6	95	10914.31	3796.17	200.90	N	3796.17	E
161	MWD	14546	88.90	91.00	96	10916.07	3892.14	199.56	N	3892.14	E
162	MWD	14641	88.80	90.90	95	10917.98	3987.11	197.98	N	3987.11	E
163	MWD	14736	90.80	90.80	95	10918.31	4082.10	196.57	N	4082.10	E
164	MWD	14832	90.60	89.80	96	10917.13	4178.09	196.07	N	4178.09	E
165	MWD	14927	90.70	90.00	95	10916.06	4273.08	196.24	N	4273.08	E
166	MWD	15023	89.30	89.90	96	10916.06	4369.08	196.32	N	4369.08	E
167	MWD	15118	88.70	89.20	95	10917.71	4464.06	197.07	N	4464.06	E
168	MWD	15214	90.10	89.90	96	10918.72	4560.05	197.82	N	4560.05	E
169	MWD	15309	89.40	89.40	95	10919.13	4655.04	198.40	N	4655.04	E
170	MWD	15404	88.20	88.80	95	10921.12	4750.01	199.89	N	4750.01	E
171	MWD	15500	90.80	88.70	96	10921.96	4845.97	201.99	N	4845.97	E
172	MWD	15595	89.00	87.50	95	10922.13	4940.92	205.14	N	4940.92	E
173	MWD	15691	89.20	88.40	96	10923.63	5036.84	208.57	N	5036.84	E
174	MWD	15786	90.00	88.40	95	10924.30	5131.80	211.22	N	5131.80	E
175	MWD	15882	88.90	88.40	96	10925.22	5227.76	213.90	N	5227.76	E
176	MWD	15977	89.20	89.90	95	10926.79	5322.73	215.31	N	5322.73	E
177	MWD	16073	89.70	90.80	96	10927.72	5418.72	214.73	N	5418.72	E
178	MWD	16168	90.50	90.60	95	10927.55	5513.72	213.57	N	5513.72	E
179	MWD	16264	91.70	89.90	96	10925.71	5609.70	213.15	N	5609.70	E
180	MWD	16359	91.60	90.70	95	10922.97	5704.65	212.65	N	5704.65	E
181	MWD	16455	87.10	89.00	96	10924.06	5800.62	212.90	N	5800.62	E
182	MWD	16551	87.70	89.30	96	10928.42	5896.51	214.32	N	5896.51	E
183	MWD	16647	88.40	88.30	96	10931.68	5992.43	216.33	N	5992.43	E
184	MWD	16742	89.40	88.90	95	10933.51	6087.38	218.65	N	6087.38	E

185	MWD	16838	90.00	88.80	96	10934.01	6183.36	220.58	N	6183.36	E
186	MWD	16933	90.90	88.90	95	10933.26	6278.34	222.49	N	6278.34	E
187	MWD	17029	91.40	89.20	96	10931.34	6374.31	224.08	N	6374.31	E
188	MWD	17124	91.90	89.90	95	10928.60	6469.26	224.82	N	6469.26	E
189	MWD	17220	92.00	90.80	96	10925.33	6565.21	224.24	N	6565.21	E
190	MWD	17315	91.70	92.00	95	10922.27	6660.13	221.92	N	6660.13	E
191	MWD	17411	90.50	92.60	96	10920.42	6756.03	218.06	N	6756.03	E
192	MWD	17507	88.90	91.20	96	10920.93	6851.97	214.88	N	6851.97	E
193	MWD	17602	88.50	91.30	95	10923.08	6946.92	212.81	N	6946.92	E
194	MWD	17698	89.10	92.10	96	10925.09	7042.86	209.96	N	7042.86	E
195	MWD	17793	89.70	92.30	95	10926.09	7137.78	206.32	N	7137.78	E
196	MWD	17889	89.50	91.70	96	10926.76	7233.72	202.97	N	7233.72	E
197	MWD	17984	89.80	91.40	95	10927.34	7328.68	200.40	N	7328.68	E
198	MWD	18080	89.10	90.00	96	10928.26	7424.67	199.22	N	7424.67	E
199	MWD	18175	89.80	89.70	95	10929.17	7519.66	199.47	N	7519.66	E
200	MWD	18271	90.40	89.20	96	10929.00	7615.66	200.39	N	7615.66	E
201	MWD	18366	89.90	89.90	95	10928.76	7710.65	201.14	N	7710.65	E
202	MWD	18462	89.20	90.40	96	10929.51	7806.65	200.89	N	7806.65	E
203	MWD	18557	89.10	89.60	95	10930.92	7901.64	200.89	N	7901.64	E
204	MWD	18653	89.50	89.40	96	10932.09	7997.63	201.73	N	7997.63	E
205	MWD	18748	90.10	88.80	95	10932.42	8092.61	203.22	N	8092.61	E
206	MWD	18843	89.90	89.10	95	10932.42	8187.60	204.96	N	8187.60	E
207	MWD	18940	89.40	89.20	97	10933.02	8284.59	206.40	N	8284.59	E
208	MWD	19035	88.80	88.40	95	10934.51	8379.55	208.39	N	8379.55	E
209	MWD	19131	90.20	89.20	96	10935.35	8475.52	210.40	N	8475.52	E
210	MWD	19226	90.30	88.30	95	10934.93	8570.50	212.47	N	8570.50	E
211	MWD	19321	90.50	89.10	95	10934.27	8665.47	214.63	N	8665.47	E
212	MWD	19417	90.50	89.80	96	10933.43	8761.46	215.55	N	8761.46	E
213	MWD	19512	88.10	90.60	95	10934.59	8856.45	215.22	N	8856.45	E
214	MWD	19608	88.40	91.70	96	10937.52	8952.38	213.29	N	8952.38	E
215	MWD	19703	88.80	90.90	95	10939.84	9047.33	211.13	N	9047.33	E
216	MWD	19799	89.80	90.80	96	10941.02	9143.31	209.71	N	9143.31	E
217	MWD	19894	90.90	90.30	95	10940.44	9238.30	208.80	N	9238.30	E
218	MWD	19990	88.30	89.90	96	10941.11	9334.29	208.63	N	9334.29	E
219	MWD	20085	88.00	88.90	95	10944.17	9429.23	209.63	N	9429.23	E
220	MWD	20180	92.20	91.00	95	10944.01	9524.21	209.71	N	9524.21	E
221	MWD	20276	92.60	91.00	96	10939.99	9620.11	208.03	N	9620.11	E
222	MWD	20371	91.40	91.10	95	10936.67	9715.03	206.29	N	9715.03	E
223	MWD	20467	91.10	91.30	96	10934.58	9810.99	204.28	N	9810.99	E
224	MWD	20483	91.10	91.60	16	10934.27	9826.98	203.88	N	9826.98	E
225	MWD	20550	91.10	91.60	67	10932.98	9893.94	202.01	N	9893.94	E

Previous Pages: Deviation Surveys for Gramma Federal 5300 41-31 13T

5.2 BOTTOM HOLE ASSEMBLY INFORMATION

The following pages contain copies of the bottom hole assembly sheets provided to Columbine Logging, Inc. while drilling the vertical through lateral wellbore



RYAN DIRECTIONAL SERVICES, INC.

A MEMBER OF DRILLCRAY

BOTTOM HOLE ASSEMBLY										2
DIRECTIONAL RESPONSE										BIT INFO.
OIL COMPANY	Oasis Petroleum		DATE:	IN	OUT	CHANGE RATE	SIZE	6"		
RIG #:	Nabors B-27		DATE	2/27/2015				T406X		
LOCATION	McKenzie Co., ND		DEPTH (MD)	16656				6 x 18s		
WELL	Tina Federal 5300 41-31		DEPTH (TVD)	10928				7155695		
JOB NUMBER	8327		INCLINATION	8°.7				FEET		
MWD SUPERVISOR	David Foley/Carlo Marullo		AZIMUTH	89.3				HOURS		
CUSTOMER OFFICE CONTACT			SLIDE PERCENT					ROP		
CUSTOMER WELL SITE SUPERVISOR	RICHARD CEYNAR		MUD-WT. TYPE	Saltwater				DULL		
OBJECTIVE:	Run 2. Drill lateral.									
COMMENTS:	Bit to Sensor:		68	Bit to Gamma:		56	Bit Neck:		CL--Box	3.22
ITEM #	TOOL	COMPANY	SER. #	CONN. UP	CONN. DOWN	O.D.	I.D.	BLADE O.D.	LENGTH	SUBTOTAL
BIT	BAKER	BAKER	7155695			6"			1.00	1.00
MID MOTOR	BAKER	BAKER	13395423				4 3/4"			32.84
NM PONY COLLAR	RYAN	RYAN	DR8426	3 1/2" IF	3 1/2" IF		4 5/8"	2 11/16"		9.16
UBHO (NON MAG)	RYAN	RYAN	RY8779	3 1/2" IF	3 1/2" IF		4 5/8"	2 3/4"		4.90
NMDC	RYAN	RYAN	RY4751686	3 1/2" IF	3 1/2" IF		4 3/4"	2 5/8"		30.77
NMDC	RYAN	RYAN	RY4751729	3 1/2" IF	3 1/2" IF		4 11/16"			30.20
XO	RG	RG	X-1-35	3 1/2" IF	3 1/2" IF					108.87
										31.12
										111.99
TOTAL										

RYAN DIRECTIONAL SERVICES, INC.
A MACHRIES COMPANY

BOTTOM HOLE ASSEMBLY										3
WELL INFORMATION			DIRECTIONAL RESPONSE				BIT INFO.			
OIL COMPANY	Cards Petroleum	DATE:	IN	OUT	CHANGE RATE	SIZE	6"			
RIG #:	Nations B-27	DATE	2/27/2015				T405X			
LOCATION	McKenzie Co, ND	DEPTH (MD)	16656				6 x 185			
WELL	mina Federal 5300 41-31	DEPTH (TVD)	10928				715585			
JOB NUMBER	B-27	INCLINATION	87.7				-16556			
MWD SUPERVISOR	David Foley Callo Maitland	AZIMUTH	89.3				FEET			
CUSTOMER OFFICE CONTACT		SLIDE PERCENT					HOURS			
CUSTOMER WELL SITE SUPERVISOR	RICHARD CYNAR	MUD-WT.-TYPE	Salwater				ROP			
OBJECTIVE:	Run 3. Drill lateral.						DULL			
COMMENTS:										
Bit to Sensor:			67	Bit to Gamma:			56	Pin-CL		
ITEM #	TOOL	COMPANY	SER. #	CONN. UP	CORN. DOWN	O.D.	I.D.	FISH NECK	BLADE O.D.	CL--BOX
BIT	BAKER	BAKER	7155695			6"				1.00
MID MOTOR	BAKER	BAKER	13395423			4 3/4"				32.84
NM PONY COLLAR	RYAN	DRB425	3 1/2" IF	3 1/2" IF	4 5/8"	2 11/16"				33.84
UB HO (NON MAG)	RYAN	RY8790	3 1/2" IF	3 1/2" IF	4 5/8"	2 3/4"				9.16
NMDC	RYAN	RY4751686	3 1/2" IF	3 1/2" IF	4 3/4"	2 5/8"				4.86
NMDC	RYAN	RY4751729	3 1/2" IF	3 1/2" IF	4 11/16"	2 11/16"				30.77
XO	RIG		X T-36	3 1/2" F						30.20
										108.83
										3.12
										111.95
										3.22
										1.68

Preceding pages: Vertical, curve, and lateral BHA's

6.0 SUMMARY AND CONCLUSION

Gramma Federal 5300 41-31 13T is an east lateral Three Forks well located in SW SW SEC 31, T153N, R100W, 713' FSL & 320' FWL, McKenzie County, North Dakota. The well was drilled to completion at 17:30 hours, 3/02/2015. The projected bottom hole location is: SE SE SEC 32, T153N, R100W, McKenzie County, North Dakota, with a projected TVD of 10,932.98'.

The targeted pay zone for the wellbore was a window within the Three Forks first bench. This window extended from 13' to 24' below the top of the Three Forks. The anticipated dip of the formation was 0.5 degrees down overall, with a possibly dip reversal structure between 16000' MD and 17500' MD. Anticipated dip was based on a subsurface structure map provided by Oasis Petroleum, and nearby laterals. Our primary offset GR TVD log was from the Gramma Federal 5300 41-31 31T, located on the same pad, 33' to the south. From this offset log the Three Forks was determined to be approximately 26' feet thick

The formation had an average dip of 89.6 degrees. The anticipated dip reversal was encountered. We did see a flattening to 90.1 degrees between 16000' and 17500'. Gas readings and oil shows were best in the lower 5'-6' of the Three Forks "A".

Currently the well is awaiting completion.

Mark Miller, Adam Harris, Well-Site Geologists
Columbine Logging, Inc.
602 S. Lipan St.
Denver CO 80223
(303) 289-7764



APPENDIX A:

Vertical/Curve Section Geology:

Otter @ 8230' MD; 8230' TVD

Figure A.1, Otter



Kibbey @ 8460' MD; 8459' TVD

Figure A.2, Kibbey



Charles@ 8610'MD; 8609' TVD

Figure A.3, Charles



UB @ 9213' MD, 9212' TVD

Figure A.4, UB



Base of Last Charles Salt @ 9276' MD; 9275 TVD

Figure A.5, Base of Last Charles Salt



Ratcliffe @ 9313' MD; 9312 'TVD

Figure A.6, Ratcliffe



Mission Canyon @ 9492' MD; 9491' TVD
Figure A.7, Mission Canyon



Lodgepole @ 10032' MD; 10031 TVD
Figure A.8, Lodgepole



Lodgepole A @ 10137' MD; 10136' TVD
Figure A.9, Lodgepole A



Lodgepole B @ 10280' MD; 10279' TVD
Figure A.10, Lodgepole B



Lodgepole C @ 10340' MD; 10339' TVD
Figure A.11, Lodgepole C



Lodgepole D @ 10450' MD; 10447' TVD
Figure A.12, Lodgepole D



Lodgepole E @ 10652' MD; 10629' TVD
Figure A.13, Lodgepole E



Lodgepole F @ 10726' MD; 10685' TVD
Figure A.14, Lodgepole F



False Bakken@ 10855' MD; 10769 TVD
Figure A.15, False Bakken



Upper Bakken Shale @ 10872' MD; 10779' TVD
Figure A.16, Upper Bakken Shale



Middle Bakken@ 10906' MD; 10797' TVD



Figure A.17, Middle Bakken

Lower Bakken Shale @ 10990' MD, 10833' TVD



Figure A.18 Lower Bakken Shale

Pronghorn @ 11012' MD, 10840' TVD



Figure A.19 Pronghorn

Three Forks @ 11082' MD, 10862' TVD



Figure A.20 Three Forks



Oil and Gas Division

29317

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

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# 29317

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:** Gramma Federal 5300 41-31 13T2 **API:** 33-053-06232

Enseco Job#: S14065-02 **Job Type:** MWD D&I **County, State:** McKenzie County, N. Dakota

Well Surface Hole Location (SHL): Lot 4 , Sec. 31, T153N, R100W (713' FSL & 320 FWL)

Latitude: 48° 01' 34.88 N **Longitude:** 103° 36' 10.35 W **Datum:** Nad 83

Final MWD Report Date: Dec. 25, 2014 **MWD Survey Run Date:** Dec. 23, 2014 to Dec. 24, 2014

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

MWD Surveyed from 00 ft to 2,261.0 ft MD **Survey Type:** Positive Pulse D&I MWD **Sensor to Bit:** 39 ft

Rig Contractor: Nabors **Rig Number:** B25 **RKB Height:** 2,183.0 ft **GL Elevation:** 2,158.0 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

January 2nd 2015

Date Signed

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

Seal: _____
Notary Public

Commission Expiry



Enseco Survey Report

02 January, 2015

Oasis Petroleum LLC

McKenzie County, North Dakota
Lot 4 Sec.31 Twp.153N Rge,100W
Gramma Federal 5300 41-31 13T2
Job # S14065-02
API#: 33-053-06232

Survey: Final Surveys Vertical Section



Company:	Oasis Petroleum LLC	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Project:	McKenzie County, North Dakota	Ground Level Elevation:	2,158.00usft
Site:	Lot 4 Sec.31 Twp.153N Rge,100W	Wellhead Elevation:	KB 25 @ 2183.00usft (Nabors B25)
Well:	Gramma Federal 5300 41-31 13T2	North Reference:	True
Wellbore:	Job # S14065-02	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys Vertical Section	Database:	EDM5000

Project	McKenzie County, North Dakota		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	North Dakota Northern Zone		Using geodetic scale factor

Site	Lot 4 Sec.31 Twp.153N Rge,100W		
Site Position:		Northing:	389,608.43 usft
From:	Lat/Long	Easting:	1,209,450.86 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "

Well	Gramma Federal 5300 41-31 13T2		API#: 33-053-06232	
Well Position	+N/S +E/W	66.88 usft 0.00 usft	Northing: Easting:	389,675.25 usft 1,209,453.55 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	2,183.00 usft

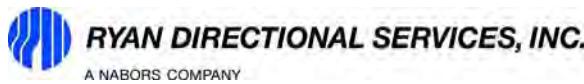
Wellbore	Job # S14065-02				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/2/2015	8.169	72.928	56,355

Design:	Final Surveys Vertical Section	Survey Error Model:	Standard ISCWSA MWD Tool
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:		Depth From (TVD) (usft)	+N/S (usft)
		0.00	0.00
			+E/W (usft)
			0.00
			Direction (°)
			286.38

Company:	Oasis Petroleum LLC	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Project:	McKenzie County, North Dakota	Ground Level Elevation:	2,158.00usft
Site:	Lot 4 Sec.31 Twp.153N Rge,100W	Wellhead Elevation:	KB 25 @ 2183.00usft (Nabors B25)
Well:	Gramma Federal 5300 41-31 13T2	North Reference:	True
Wellbore:	Job # S14065-02	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys Vertical Section	Database:	EDM5000

Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N-S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (%/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Tie-in from Surface										
0.00	0.00	0.00	0.00	2,183.00	0.00	0.00	0.00	0.00	0.00	0.00
155.00	0.50	289.60	155.00	2,028.00	0.23	-0.64	0.68	0.32	0.32	0.00
246.00	0.50	269.50	245.99	1,937.01	0.36	-1.41	1.45	0.19	0.00	-22.09
339.00	0.50	270.60	338.99	1,844.01	0.36	-2.22	2.23	0.01	0.00	1.18
427.00	0.20	248.80	426.99	1,756.01	0.31	-2.75	2.72	0.37	-0.34	-24.77
516.00	0.00	282.90	515.99	1,667.01	0.25	-2.89	2.84	0.22	-0.22	0.00
604.00	0.40	188.50	603.99	1,579.01	-0.05	-2.94	2.80	0.45	0.45	0.00
693.00	0.50	190.80	692.99	1,490.01	-0.74	-3.06	2.72	0.11	0.11	2.58
780.00	0.40	153.50	779.98	1,403.02	-1.39	-2.99	2.48	0.35	-0.11	-42.87
866.00	0.50	161.60	865.98	1,317.02	-2.01	-2.74	2.06	0.14	0.12	9.42
955.00	0.50	213.60	954.98	1,228.02	-2.70	-2.83	1.95	0.49	0.00	58.43
1,043.00	0.40	282.20	1,042.98	1,140.02	-2.96	-3.34	2.37	0.58	-0.11	77.95
1,130.00	0.40	20.60	1,129.97	1,053.03	-2.61	-3.53	2.65	0.70	0.00	113.10
1,220.00	0.40	52.90	1,219.97	963.03	-2.13	-3.17	2.44	0.25	0.00	35.89
1,311.00	0.40	70.90	1,310.97	872.03	-1.83	-2.62	2.00	0.14	0.00	19.78
1,398.00	0.40	282.20	1,397.97	785.03	-1.67	-2.63	2.05	0.89	0.00	-170.92
1,481.00	0.50	311.30	1,480.97	702.03	-1.37	-3.18	2.67	0.30	0.12	35.06
1,569.00	0.50	276.90	1,568.96	614.04	-1.07	-3.85	3.40	0.34	0.00	-39.09
1,656.00	0.20	225.60	1,655.96	527.04	-1.13	-4.34	3.85	0.47	-0.34	-58.97
1,743.00	0.70	347.60	1,742.96	440.04	-0.72	-4.56	4.18	0.95	0.57	140.23
1,830.00	0.50	327.90	1,829.96	353.04	0.12	-4.88	4.72	0.33	-0.23	-22.64
1,918.00	0.50	312.80	1,917.95	265.05	0.71	-5.36	5.35	0.15	0.00	-17.16
2,005.00	0.40	356.00	2,004.95	178.05	1.27	-5.66	5.79	0.40	-0.11	49.66
2,091.00	0.40	293.10	2,090.95	92.05	1.69	-5.96	6.19	0.49	0.00	-73.14
2,181.00	0.20	158.10	2,180.95	2.05	1.67	-6.19	6.41	0.62	-0.22	-150.00
Last MWD Survey										
2,261.00	0.40	39.60	2,260.95	-77.95	1.75	-5.96	6.21	0.66	0.25	-148.12

Survey Annotations					
Local Coordinates					
MD (usft)	TVD (usft)	+N-S (usft)	+E/W (usft)	Comment	
0.00	0.00	0.00	0.00	Tie-in from Surface	
2,261.00	2,260.95	1.75	-5.96	Last MWD Survey	



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

Wednesday, March 04, 2015

State of North Dakota

Subject: **Surveys**

Re: **Oasis**
Gramma Federal 5300 41-31 13T
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:

Surveyor Name	Surveyor Title	Borehole Number	Start Depth	End Depth	Start Date	End Date	Type of	TD Straight Line Projection
David Foley	MWD Operator	O.H.	2261'	20483'	01/21/15	03/03/15	MWD	20550'

If any other information is required please contact the undersigned at the letterhead address or phone number.

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

Douglas Hudson
Well Planner



RYAN DIRECTIONAL SERVICES, INC.
A NABORS COMPANY

Ryan Directional Services, Inc.
19510 Oil Center Blvd.
Houston, Texas 77073
Bus: 281.443.1414
Fax: 281.443.1676

Monday, March 02, 2015

State of North Dakota
County of MCKENZIE

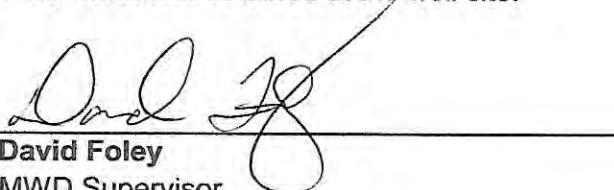
Subject: **Survey Certification Letter**

Survey Company: Ryan Directional Services, Inc.
Job Number: 8527
Survey Job Type: Ryan MWD
Customer: OASIS PETROLEUM
Well Name: Gramma Federal 5300 41-31 13T
Rig Name: NABORS B27

Surface: 48° 1' 34.880 N / 103° 36' 10.350 W
A.P.I. No: 33-053-06232
Location: MCKENZIE, ND
RKB Height: 2183'
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 Foley	MWD Supervisor	OH	2261'	20483'	01/21/15	03/03/15	MWD	20550'

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


David Foley
MWD Supervisor
Ryan Directional Services, Inc.



SURVEY REPORT

Customer: **OASIS PETROLEUM**
Well Name: **Gramma Federal 5300 41-31 13T**
Rig #: **NABORS B27**
API #: **33-053-06232**
Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **D Foley/J Lanclos**
Directional Drillers: **RPM**
Survey Corrected To: **True North**
Vertical Section Direction: **90**
Total Correction: **8.38**
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
Tie in to Gyro Surveys									
Tie In	2261	0.40	39.60		2260.95	-5.89	1.75	-5.96	
1	2376	0.60	29.10	66.00	2375.94	-5.41	2.59	-5.41	0.19
2	2470	0.50	38.90	69.00	2469.94	-4.92	3.34	-4.92	0.15
3	2564	0.70	40.40	75.00	2563.93	-4.29	4.09	-4.29	0.21
4	2658	0.80	29.70	77.00	2657.92	-3.59	5.10	-3.59	0.18
5	2752	1.10	28.10	78.00	2751.91	-2.84	6.47	-2.84	0.32
6	2847	1.20	42.80	82.00	2846.89	-1.73	8.00	-1.73	0.33
7	2941	1.30	58.70	84.00	2940.87	-0.15	9.28	-0.15	0.38
8	3035	1.30	68.80	86.00	3034.85	1.75	10.22	1.75	0.24
9	3129	1.40	69.00	87.00	3128.82	3.82	11.01	3.82	0.11
10	3223	0.60	333.70	91.00	3222.81	4.67	11.87	4.67	1.67
11	3318	0.80	306.20	95.00	3317.80	3.92	12.70	3.92	0.41
12	3412	0.70	290.60	96.00	3411.79	2.85	13.29	2.85	0.24
13	3506	0.70	306.30	100.00	3505.79	1.85	13.84	1.85	0.20
14	3600	0.90	289.60	102.00	3599.78	0.69	14.42	0.69	0.32
15	3694	0.80	295.10	104.00	3693.77	-0.60	14.95	-0.60	0.14
16	3788	0.40	302.20	107.00	3787.76	-1.47	15.40	-1.47	0.43
17	3882	0.40	302.20	107.00	3881.76	-2.03	15.75	-2.03	0.00
18	3976	0.20	336.00	110.00	3975.76	-2.37	16.08	-2.37	0.28
19	4071	0.10	345.20	113.00	4070.76	-2.46	16.31	-2.46	0.11
20	4165	0.30	312.80	114.00	4164.76	-2.66	16.55	-2.66	0.24
21	4259	0.30	327.70	116.00	4258.76	-2.97	16.93	-2.97	0.08
22	4353	0.30	354.30	118.00	4352.76	-3.13	17.38	-3.13	0.15
23	4448	0.40	15.10	114.00	4447.75	-3.07	17.95	-3.07	0.17
24	4542	0.60	20.90	118.00	4541.75	-2.81	18.73	-2.81	0.22
25	4636	0.70	39.40	122.00	4635.74	-2.27	19.63	-2.27	0.25
26	4730	0.80	40.20	122.00	4729.74	-1.48	20.58	-1.48	0.11
27	4824	0.80	48.00	124.00	4823.73	-0.57	21.52	-0.57	0.12
28	4919	0.90	59.90	125.00	4918.72	0.57	22.33	0.57	0.21
29	5013	0.90	71.80	127.00	5012.71	1.91	22.93	1.91	0.20
30	5107	1.00	82.20	129.00	5106.69	3.43	23.28	3.43	0.21
31	5201	1.20	97.70	129.00	5200.68	5.21	23.26	5.21	0.38
32	5295	1.60	99.50	127.00	5294.65	7.48	22.91	7.48	0.43
33	5389	0.70	112.60	129.00	5388.63	9.31	22.47	9.31	0.99
34	5483	0.60	124.00	131.00	5482.62	10.25	21.97	10.25	0.17
35	5577	0.70	114.50	132.00	5576.62	11.18	21.46	11.18	0.16
36	5672	0.70	112.50	136.00	5671.61	12.24	21.00	12.24	0.03
37	5765	0.70	87.90	140.00	5764.60	13.33	20.80	13.33	0.32
38	5859	0.80	82.30	141.00	5858.59	14.56	20.91	14.56	0.13
39	5948	0.90	93.50	147.00	5947.58	15.87	20.95	15.87	0.22
40	6037	0.80	102.80	98.00	6036.57	17.18	20.77	17.18	0.19
41	6131	0.60	280.60	104.00	6130.57	17.33	20.72	17.33	1.49
42	6225	0.40	326.40	111.00	6224.57	16.67	21.08	16.67	0.46
43	6319	0.60	16.40	116.00	6318.56	16.62	21.83	16.62	0.49
44	6414	0.80	42.10	120.00	6413.56	17.21	22.79	17.21	0.39
45	6508	0.60	18.70	123.00	6507.55	17.81	23.75	17.81	0.37
46	6602	0.40	24.60	129.00	6601.55	18.10	24.51	18.10	0.22
47	6696	0.90	51.20	132.00	6695.54	18.81	25.27	18.81	0.61
48	6791	1.20	330.70	136.00	6790.53	18.91	26.61	18.91	1.45
49	6885	1.50	337.00	140.00	6884.50	17.94	28.60	17.94	0.36
50	6979	1.70	345.30	141.00	6978.47	17.11	31.08	17.11	0.33
51	7073	1.80	348.30	143.00	7072.42	16.46	33.87	16.46	0.14
52	7167	1.50	348.40	145.00	7166.38	15.91	36.53	15.91	0.32
53	7261	1.60	351.10	147.00	7260.35	15.46	39.03	15.46	0.13
54	7356	1.50	357.30	149.00	7355.31	15.20	41.58	15.20	0.21
55	7450	1.60	357.90	150.00	7449.28	15.09	44.12	15.09	0.11
56	7544	1.80	354.40	152.00	7543.24	14.90	46.90	14.90	0.24
57	7638	1.30	281.50	150.00	7637.21	13.71	48.58	13.71	2.01
58	7732	1.50	283.00	154.00	7731.18	11.47	49.07	11.47	0.22
59	7827	1.70	289.20	156.00	7826.15	8.92	49.82	8.92	0.28
60	7921	1.40	280.30	158.00	7920.11	6.48	50.48	6.48	0.41

**SURVEY REPORT**

Customer: **OASIS PETROLEUM**
 Well Name: **Gramma Federal 5300 41-31 13T**
 Rig #: **NABORS B27**
 API #: **33-053-06232**
 Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **D Foley/J Lanclos**
 Directional Drillers: **RPM**
 Survey Corrected To: **True North**
 Vertical Section Direction: **90**
 Total Correction: **8.38**
 Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
61	8015	1.10	269.20	159.00	8014.09	4.44	50.67	4.44	0.41
62	8109	0.80	253.20	161.00	8108.08	2.91	50.47	2.91	0.42
63	8204	0.70	256.40	163.00	8203.07	1.71	50.14	1.71	0.11
64	8298	0.70	264.20	163.00	8297.06	0.59	49.95	0.59	0.10
65	8392	0.70	247.20	163.00	8391.06	-0.52	49.67	-0.52	0.22
66	8486	0.70	249.30	163.00	8485.05	-1.58	49.24	-1.58	0.03
67	8580	0.60	240.60	163.00	8579.04	-2.55	48.80	-2.55	0.15
68	8675	0.40	219.10	163.00	8674.04	-3.19	48.30	-3.19	0.29
69	8769	0.40	200.10	165.00	8768.04	-3.51	47.73	-3.51	0.14
70	8863	0.40	215.80	165.00	8862.03	-3.81	47.16	-3.81	0.12
71	8958	0.30	249.40	167.00	8957.03	-4.24	46.80	-4.24	0.24
72	9052	0.10	227.50	168.00	9051.03	-4.53	46.66	-4.53	0.22
73	9146	0.30	253.00	170.00	9145.03	-4.83	46.53	-4.83	0.23
74	9240	0.40	209.20	170.00	9239.03	-5.22	46.17	-5.22	0.29
75	9335	0.20	212.40	170.00	9334.03	-5.47	45.75	-5.47	0.21
76	9429	0.10	236.30	174.00	9428.03	-5.63	45.56	-5.63	0.12
77	9523	0.10	205.00	177.00	9522.03	-5.73	45.44	-5.73	0.06
78	9618	0.30	199.60	179.00	9617.03	-5.85	45.13	-5.85	0.21
79	9712	0.40	176.10	179.00	9711.03	-5.91	44.57	-5.91	0.18
80	9806	0.40	179.30	183.00	9805.02	-5.89	43.92	-5.89	0.02
81	9900	0.40	183.10	183.00	9989.02	-5.90	43.26	-5.90	0.03
82	9995	0.30	232.00	177.00	9994.02	-6.11	42.78	-6.11	0.32
83	10089	0.30	246.70	183.00	10088.02	-6.53	42.53	-6.53	0.08
84	10183	0.30	234.00	185.00	10182.02	-6.96	42.29	-6.96	0.07
85	10277	0.30	203.80	185.00	10276.02	-7.26	41.92	-7.26	0.17
86	10293	0.30	213.80	163.00	10292.02	-7.30	41.84	-7.30	0.33
87	10325	0.80	78.90	167.00	10324.01	-7.12	41.82	-7.12	3.23
88	10356	4.40	76.90	168.00	10354.98	-5.75	42.13	-5.75	11.61
89	10388	8.50	77.20	170.00	10386.77	-2.25	42.93	-2.25	12.81
90	10419	12.70	77.90	174.00	10417.23	3.32	44.15	3.32	13.55
91	10450	16.10	80.30	174.00	10447.25	10.89	45.59	10.89	11.13
92	10482	19.90	81.50	174.00	10477.68	20.65	47.15	20.65	11.93
93	10513	23.30	81.60	177.00	10506.50	31.94	48.82	31.94	10.97
94	10544	25.50	80.80	176.00	10534.73	44.59	50.78	44.59	7.18
95	10576	28.50	80.30	176.00	10563.24	58.92	53.17	58.92	9.40
96	10607	31.50	79.60	176.00	10590.08	74.18	55.88	74.18	9.74
97	10639	33.10	79.50	174.00	10617.13	91.00	58.98	91.00	5.00
98	10670	36.00	79.70	170.00	10642.66	108.29	62.15	108.29	9.36
99	10701	40.30	79.50	179.00	10667.03	127.12	65.61	127.12	13.88
100	10733	42.90	79.70	177.00	10690.96	148.01	69.45	148.01	8.14
101	10764	46.30	80.10	179.00	10713.03	169.44	73.26	169.44	11.01
102	10795	51.10	80.50	183.00	10733.48	192.39	77.18	192.39	15.51
103	10827	53.80	80.10	183.00	10752.99	217.39	81.46	217.39	8.50
104	10858	54.40	79.60	181.00	10771.16	242.11	85.88	242.11	2.34
105	10890	57.40	77.40	183.00	10789.10	268.07	91.17	268.07	10.97
106	10921	61.50	75.40	183.00	10804.86	294.01	97.46	294.01	14.34
107	10952	65.60	75.30	183.00	10818.66	320.85	104.48	320.85	13.23
108	10984	69.70	75.10	185.00	10830.83	349.46	112.04	349.46	12.83
109	11015	70.10	74.80	185.00	10841.48	377.58	119.60	377.58	1.58
110	11046	70.90	75.00	185.00	10851.83	405.79	127.21	405.79	2.65
111	11078	75.30	76.40	186.00	10861.13	435.45	134.76	435.45	14.37
112	11109	77.80	76.40	186.00	10868.34	464.75	141.85	464.75	8.06
113	11140	78.50	76.30	186.00	10874.71	494.24	149.01	494.24	2.28
114	11172	82.30	77.50	188.00	10880.04	524.96	156.16	524.96	12.44
115	11203	86.80	79.00	190.00	10882.99	555.17	162.44	555.17	15.29
116	11230	89.70	79.70	190.00	10883.81	581.68	167.43	581.68	11.05
117	11307	91.20	77.90	224.00	10883.21	657.21	182.38	657.21	3.04
118	11338	91.60	78.40	221.00	10882.45	687.54	188.75	687.54	2.07
119	11368	91.60	79.00	221.00	10881.61	716.95	194.62	716.95	2.00
120	11399	91.70	81.00	217.00	10880.72	747.46	200.00	747.46	6.46



SURVEY REPORT

Customer: **OASIS PETROLEUM**
 Well Name: **Gramma Federal 5300 41-31 13T**
 Rig #: **NABORS B27**
 API #: **33-053-06232**
 Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **D Foley/J Lanclos**
 Directional Drillers: **RPM**
 Survey Corrected To: **True North**
 Vertical Section Direction: **90**
 Total Correction: **8.38**
 Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
121	11430	91.10	81.60	217.00	10879.96	778.10	204.69	778.10	2.74
122	11460	89.10	82.60	215.00	10879.91	807.81	208.81	807.81	7.45
123	11491	88.70	83.40	213.00	10880.50	838.57	212.59	838.57	2.88
124	11523	87.30	84.90	213.00	10881.62	870.39	215.85	870.39	6.41
125	11555	87.00	87.00	213.00	10883.21	902.26	218.11	902.26	6.62
126	11586	88.00	89.50	215.00	10884.56	933.22	219.05	933.22	8.68
127	11682	90.20	91.20	219.00	10886.07	1029.19	218.47	1029.19	2.90
128	11778	89.80	91.60	221.00	10886.07	1125.16	216.12	1125.16	0.59
129	11809	90.00	91.70	221.00	10886.13	1156.15	215.23	1156.15	0.72
130	11873	91.60	92.40	221.00	10885.23	1220.10	212.94	1220.10	2.73
131	11969	88.50	90.30	222.00	10885.15	1316.06	210.68	1316.06	3.90
132	12064	89.00	90.30	226.00	10887.22	1411.03	210.18	1411.03	0.53
133	12160	90.20	91.30	226.00	10887.89	1507.02	208.84	1507.02	1.63
134	12191	89.10	91.40	226.00	10888.08	1538.01	208.11	1538.01	3.56
135	12255	89.10	91.30	228.00	10889.09	1601.98	206.60	1601.98	0.16
136	12287	89.80	91.50	230.00	10889.39	1633.97	205.82	1633.97	2.28
137	12350	91.50	92.50	228.00	10888.68	1696.93	203.62	1696.93	3.13
138	12446	91.00	91.90	228.00	10886.58	1792.83	199.94	1792.83	0.81
139	12541	89.20	90.40	230.00	10886.42	1887.81	198.03	1887.81	2.47
140	12573	88.10	90.20	231.00	10887.17	1919.80	197.86	1919.80	3.49
141	12636	89.20	90.10	231.00	10888.66	1982.78	197.70	1982.78	1.75
142	12732	90.80	90.20	233.00	10888.66	2078.78	197.45	2078.78	1.67
143	12827	89.90	89.80	233.00	10888.08	2173.77	197.45	2173.77	1.04
144	12923	88.60	87.70	233.00	10889.33	2269.73	199.54	2269.73	2.57
145	13018	88.30	87.70	235.00	10891.90	2364.62	203.35	2364.62	0.32
146	13114	89.50	88.00	235.00	10893.75	2460.54	206.95	2460.54	1.29
147	13209	89.00	89.20	235.00	10894.99	2555.50	209.27	2555.50	1.37
148	13305	90.60	89.40	239.00	10895.32	2651.49	210.45	2651.49	1.68
149	13400	89.00	88.30	237.00	10895.66	2746.46	212.35	2746.46	2.04
150	13496	88.90	89.80	239.00	10897.41	2842.43	213.95	2842.43	1.57
151	13591	88.80	90.50	239.00	10899.32	2937.41	213.70	2937.41	0.74
152	13686	90.20	89.80	240.00	10900.15	3032.40	213.45	3032.40	1.65
153	13782	90.40	90.70	237.00	10899.65	3128.40	213.03	3128.40	0.96
154	13877	88.80	91.30	235.00	10900.31	3223.38	211.37	3223.38	1.80
155	13973	87.20	91.00	239.00	10903.66	3319.30	209.45	3319.30	1.70
156	14068	87.30	91.20	233.00	10908.22	3414.17	207.62	3414.17	0.24
157	14164	88.50	91.60	233.00	10911.74	3510.08	205.28	3510.08	1.32
158	14259	90.20	91.30	235.00	10912.81	3605.04	202.88	3605.04	1.82
159	14355	89.50	90.30	239.00	10913.07	3701.02	201.54	3701.02	1.27
160	14450	89.00	90.60	240.00	10914.31	3796.01	200.79	3796.01	0.61
161	14546	88.90	91.00	242.00	10916.07	3891.99	199.45	3891.99	0.43
162	14641	88.80	90.90	237.00	10917.98	3986.96	197.88	3986.96	0.15
163	14736	90.80	90.80	240.00	10918.31	4081.94	196.47	4081.94	2.11
164	14832	90.60	89.80	240.00	10917.13	4177.93	195.96	4177.93	1.06
165	14927	90.70	90.00	242.00	10916.06	4272.92	196.13	4272.92	0.24
166	15023	89.30	89.90	242.00	10916.06	4368.92	196.21	4368.92	1.46
167	15118	88.70	89.20	246.00	10917.71	4463.90	196.96	4463.90	0.97
168	15214	90.10	89.90	244.00	10918.72	4559.89	197.71	4559.89	1.63
169	15309	89.40	89.40	246.00	10919.13	4654.89	198.29	4654.89	0.91
170	15404	88.20	88.80	248.00	10921.12	4749.85	199.78	4749.85	1.41
171	15500	90.80	88.70	246.00	10921.96	4845.82	201.88	4845.82	2.71
172	15595	89.00	87.50	248.00	10922.13	4940.76	205.03	4940.76	2.28
173	15691	89.20	88.40	246.00	10923.64	5036.69	208.46	5036.69	0.96
174	15786	90.00	88.40	249.00	10924.30	5131.65	211.11	5131.65	0.84
175	15882	88.90	88.40	251.00	10925.22	5227.60	213.79	5227.60	1.15
176	15977	89.20	89.90	249.00	10926.79	5322.58	215.20	5322.58	1.61
177	16073	89.70	90.80	249.00	10927.72	5418.57	214.62	5418.57	1.07
178	16168	90.50	90.60	249.00	10927.55	5513.56	213.46	5513.56	0.87
179	16264	91.70	89.90	251.00	10925.71	5609.54	213.04	5609.54	1.45
180	16359	91.60	90.70	249.00	10922.97	5704.50	212.54	5704.50	0.85



SURVEY REPORT

Customer:	OASIS PETROLEUM
Well Name:	Gramma Federal 5300 41-31 13T
Rig #:	NABORS B27
API #:	33-053-06232
Calculation Method:	Minimum Curvature Calculation

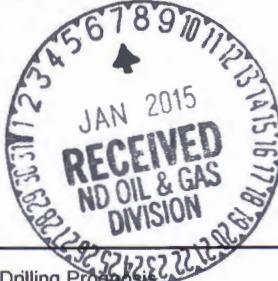
MWD Operator:	D Foley/J Lanclos
Directional Drillers:	RPM
Survey Corrected To:	True North
Vertical Section Direction:	90
Total Correction:	8.38
Temperature Forecasting Model (Chart Only):	Logarithmic

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
181	16455	87.10	89.00	249.00	10924.06	5800.46	212.79	5800.46	5.01
182	16551	87.70	89.30	249.00	10928.42	5896.35	214.21	5896.35	0.70
183	16647	88.40	88.30	251.00	10931.68	5992.27	216.22	5992.27	1.27
184	16742	89.40	88.90	249.00	10933.51	6087.23	218.54	6087.23	1.23
185	16838	90.00	88.80	249.00	10934.01	6183.21	220.47	6183.21	0.63
186	16933	90.90	88.90	249.00	10933.26	6278.18	222.38	6278.18	0.95
187	17029	91.40	89.20	248.00	10931.34	6374.15	223.97	6374.15	0.61
188	17124	91.90	89.90	248.00	10928.60	6469.11	224.71	6469.11	0.91
189	17220	92.00	90.80	249.00	10925.33	6565.05	224.13	6565.05	0.94
190	17315	91.70	92.00	248.00	10922.27	6659.97	221.81	6659.97	1.30
191	17411	90.50	92.60	251.00	10920.42	6755.87	217.96	6755.87	1.40
192	17507	88.90	91.20	251.00	10920.93	6851.81	214.77	6851.81	2.21
193	17602	88.50	91.30	251.00	10923.08	6946.76	212.70	6946.76	0.43
194	17698	89.10	92.10	253.00	10925.09	7042.70	209.85	7042.70	1.04
195	17793	89.70	92.30	253.00	10926.09	7137.62	206.21	7137.62	0.67
196	17889	89.50	91.70	251.00	10926.76	7233.56	202.86	7233.56	0.66
197	17984	89.80	91.40	251.00	10927.34	7328.53	200.29	7328.53	0.45
198	18080	89.10	90.00	253.00	10928.26	7424.51	199.11	7424.51	1.63
199	18175	89.80	89.70	255.00	10929.17	7519.51	199.36	7519.51	0.80
200	18271	90.40	89.20	253.00	10929.00	7615.50	200.28	7615.50	0.81
201	18366	89.90	89.90	253.00	10928.76	7710.50	201.03	7710.50	0.91
202	18462	89.20	90.40	255.00	10929.51	7806.49	200.78	7806.49	0.90
203	18557	89.10	89.60	255.00	10930.92	7901.48	200.78	7901.48	0.85
204	18653	89.50	89.40	255.00	10932.09	7997.47	201.62	7997.47	0.47
205	18748	90.10	88.80	257.00	10932.42	8092.46	203.11	8092.46	0.89
206	18844	89.90	89.10	255.00	10932.42	8188.44	204.87	8188.44	0.38
207	18940	89.40	89.20	255.00	10933.01	8284.43	206.29	8284.43	0.53
208	19035	88.80	88.40	257.00	10934.50	8379.39	208.28	8379.39	1.05
209	19131	90.20	89.20	257.00	10935.34	8475.37	210.29	8475.37	1.68
210	19226	90.30	88.30	255.00	10934.92	8570.34	212.36	8570.34	0.95
211	19321	90.50	89.10	255.00	10934.26	8665.31	214.52	8665.31	0.87
212	19417	90.50	89.80	253.00	10933.42	8761.31	215.44	8761.31	0.73
213	19512	88.10	90.60	255.00	10934.58	8856.29	215.11	8856.29	2.66
214	19608	88.40	91.70	257.00	10937.52	8952.23	213.18	8952.23	1.19
215	19703	88.80	90.90	257.00	10939.84	9047.17	211.03	9047.17	0.94
216	19799	89.80	90.80	258.00	10941.01	9143.15	209.61	9143.15	1.05
217	19894	90.90	90.30	255.00	10940.43	9238.14	208.69	9238.14	1.27
218	19990	88.30	89.90	255.00	10941.10	9334.13	208.53	9334.13	2.74
219	20085	88.00	88.90	257.00	10944.17	9429.08	209.52	9429.08	1.10
220	20180	92.20	91.00	257.00	10944.00	9524.05	209.60	9524.05	4.94
221	20276	92.60	91.00	253.00	10939.98	9619.95	207.93	9619.95	0.42
222	20371	91.40	91.10	253.00	10936.67	9714.88	206.19	9714.88	1.27
223	20467	91.10	91.30	255.00	10934.57	9810.83	204.18	9810.83	0.38
224	20483	91.10	91.60	255.00	10934.26	9826.82	203.77	9826.82	1.87
Projection	20550	91.10	91.60	255.00	10932.98	9893.79	201.90	9893.79	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)



Well File No.
29317

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date January 14, 2015	<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 checked="" type="checkbox"/> Other	Change to Original APD

Well Name and Number Gramma Federal 5300 41-31 13T2					
Footages	Qtr-Qtr	Section	Township	Range	
713 F S L	320 F W L	Lot 4	31	153 N	100 W
Field	Pool	County			
Baker	Bakken	McKenzie			

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

Name of Contractor(s)			
Address	City	State	Zip Code

DETAILS OF WORK

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

Name Change: Gramma Federal 5300 41-31 13T (previously 13T2)

Formation Change: Three Forks 1st Bench (previously 2nd Bench)

27Y FCL ND2C calc.

BHL change: 918' FSL & 250' FEL Sec 32 T153N R100W
(previously: 1285' FSL & 224' FEL Sec 32 T153N R100W)

Casing Design Change:

Surface Casing of 13 3/8" set at 2,223' (Previously set at 2,230)

Intermediate Casing of 7" set at 11,144' (previously set at 11,232')

Production liner of 4 1/2" set from 10,347' to 20,625' (previously set from 10,419' to 20,858')

See attached supporting documents.

CC 25.00 1-16-15 KB

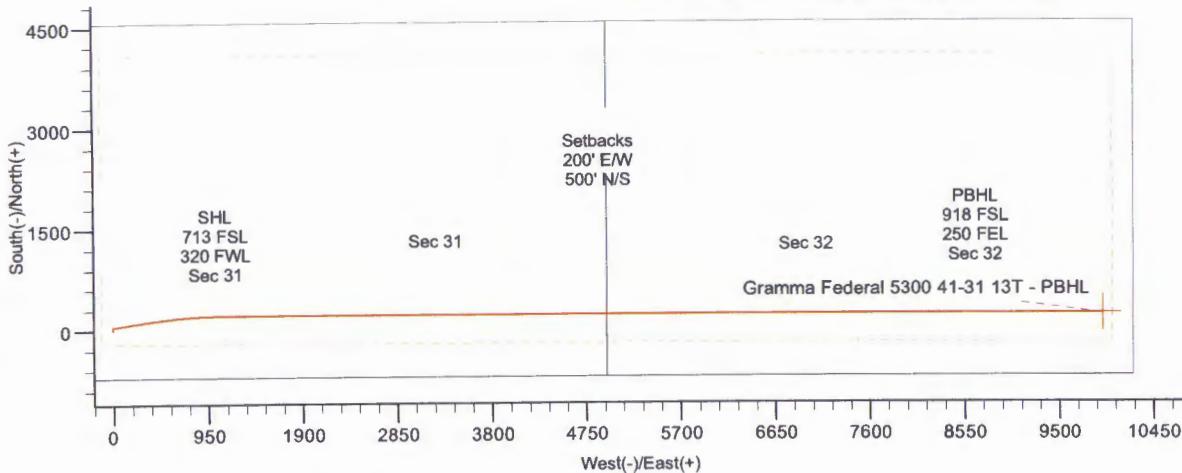
CC 25.00

Company Oasis Petroleum North America LLC	Telephone Number (281) 404-9652	
Address 1001 Fannin Suite 1500		
City Houston	State TX	Zip Code 77002
Signature <i>VS</i>	Printed Name Victoria Siemieniewski	
Title Regulatory Specialist	Date January 6, 2015	
Email Address vsiemieniewski@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>1-15-2015</i>	
By <i>David Burns</i>	
Title Engineering Tech.	

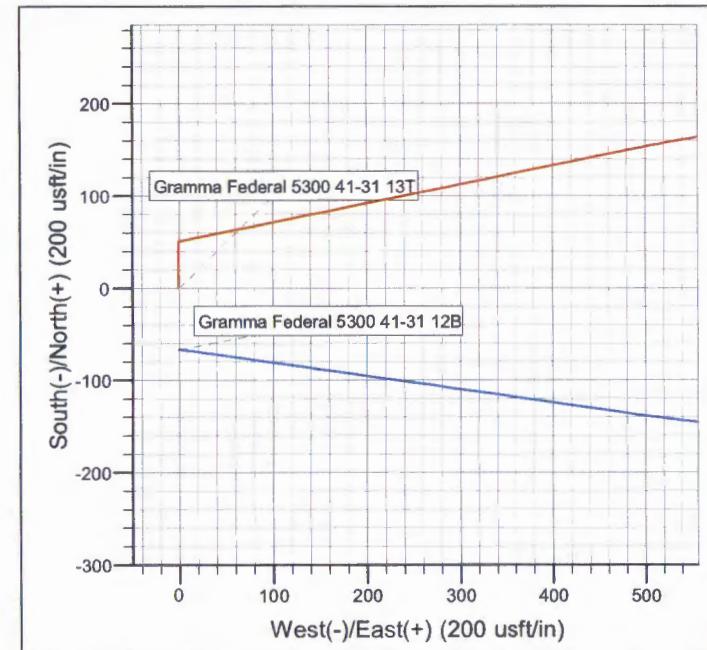
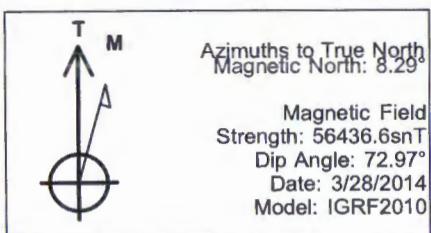
DRILLING PLAN								
OPERATOR	Oasis Petroleum	COUNTY/STATE	McKenzie Co., ND					
WELL NAME	Gramma Federal 5300 41-31 13T	RIG	Nabors B-Series					
WELL TYPE	Horizontal Three Forks 1st Bench							
LOCATION	SWSW 31-153N-100W	Surface Location (survey plat):	713' Rel	323' Rel	GROUND ELEV:	2158 Finished Pad Elev.		
EST. T.D.	20,625'	KB ELEV:	2183	Sub Height:	25			
TOTAL LATERAL:	9,481' (est)							
PROGNOSIS:	Based on 2,153 KB(esl)	LOGS:	Type	Interval				
MARKER	DEPTH (Surf Loc)	DATUM (Surf Loc)	OH Logs: Triple Combo KOP to Kirby (or min run of 1800' whichever is greater); GR/Res to BSC; GR to surf; CND through the Dakota					
Pierre	NDIC MAP	2,123	60'	CBL/GR: Above top of cement/GR to base of casing				
Greenhorn		4,738	-2,555'	MWD GR: KOP to lateral TD				
Mowry		5,129	-2,946'					
Dakota		5,558	-3,375'					
Rierdon		6,346	-4,163'	Surf:	3 deg. max., 1 deg / 100'; surv every 500'			
Dunham Salt		6,903	-4,720'	Prod:	5 deg. max., 1 deg / 100'; surv every 100'			
Dunham Salt Base		7,020	-4,837'					
Spearfish		7,036	-4,853'					
Pine Salt		7,363	-5,180'					
Pine Salt Base		7,385	-5,202'					
Opeche Salt		7,437	-5,254'					
Opeche Salt Base		7,503	-5,320'					
Broom Creek (Top of Minnelusa Gp.)		7,669	-5,486'	DST'S:				
Amsden		7,734	-5,551'	None planned				
Tyler		7,878	-5,695'					
Otter (Base of Minnelusa Gp.)		8,102	-5,919'					
Kibbey		8,400	-6,217'					
Charles Salt		8,606	-6,423'	CORES:				
UB		9,202	-7,019'	None planned				
Base Last Salt		9,278	-7,095'					
Ratcliffe		9,313	-7,130'					
Mission Canyon		9,488	-7,305'	MUDLOGGING:				
Lodgepole		10,033	-7,830'	Two-Man:	8,406'			
Lodgepole Fracture Zone		10,496	-8,313'	~200' above the Charles (Kibbey) to				
False Bakken		10,765	-8,582'	Casing point; Casing point to TD				
Upper Bakken		10,776	-8,593'	30' samples at direction of wellsite geologist; 10' through target @				
Middle Bakken		10,792	-8,609'	curve land				
Lower Bakken		10,831	-8,648'					
Pronghorn		10,839	-8,656'					
Three Forks 1st Bench		10,858	-8,675'	BOP:				
Three Forks 1st Bench Claystone		10,879	-8,696'	11" 5000 psi blind, pipe & annular				
Three Forks 2nd Bench		10,934	-8,751'					
Three Forks 2nd Bench Claystone		10,958	-8,775'					
Three Forks 3rd Bench		10,994	-8,811'					
Dip Rate:	-0.3							
Max. Anticipated BHP:	4743	Surface Formation: Glacial till						
MUD:	Interval	Type	WT	Vis	WL	Remarks		
Surface:	0' -	2,223' FWL	8.4-9.0	28-32	NC	Circ Mud Tanks		
Intermediate:	2,223' -	11,144' Invert	9.5-10.4	40-50	30+HtIp	Circ Mud Tanks		
Laterall:	11,144' -	20,625' Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks		
CASING:	Size	Wt ppf	Hole	Depth	Cement	WOC	Remarks	
Surface:	13-3/8"	54.5#	13-1/2"	2,223'	To Surface	12	100' into Pierre	
Intermediate (Dakota):	9-5/8"	40#	12-1/4"	6,346'	2223	24	Set Casing across Dakota	
Intermediate:	7"	32#	8-3/4"	11,144'	4058	24	TOC 1500' above Dakota	
Production Liner:	4.5"	13.5#	6"	20,625'	TOL @ 10,347'		50' above KOP	
PROBABLE PLUGS, IF REQ'D:								
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI		
Surface:	2,223	2,223	713' FSL	320' FWL	Sec. 31-T153N-R100W	Survey Company:		
KOP:	10,397'	10,397'	763' FSL	320' FWL	Sec. 31-T153N-R100W	Build Rate:	12 deg /100'	
EOC:	11,144'	10,874'	859' FSL	785' FWL	Sec. 31-T153N-R100W	Turn Rate:	2 deg /100'	
Casing Point:	11,144'	10,874'	859' FSL	785' FWL	Sec. 31-T153N-R100W			
Three Forks Lateral TD:	20,625'	10,924'	918' FSL	250' FEL	Sec. 32-T153N-R100W		90.0	
Comments:								
Request Sundry to Waive Open Hole Logs								
Justification Well - LOG WAIVER REQUESTED Oasis Petroleum Lewis 5300 31-31H 700' north in sec. 31								
No frac string planned								
35 packers and 25 sleeves								
Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations.								
68334-30-5 (Primary Name: Fuels, diesel) 68476-34-6 (Primary Name: Fuels, diesel, No. 2) 68476-30-2 (Primary Name: Fuel oil No. 2)								
68476-31-3 (Primary Name: Fuel oil, No. 4) 8008-20-6 (Primary Name: Kerosene)								
OASIS PETROLEUM								
Geology: M Steed 3/18/2014	Engineering: DA 12-30-14							

Project: Indian Hills
 Site: 153N-100W-31/32
 Well: Gramma Federal 5300 41-31 13T
 Wellbore: Gramma Federal 5300 41-31 13T
 Design: Plan #1



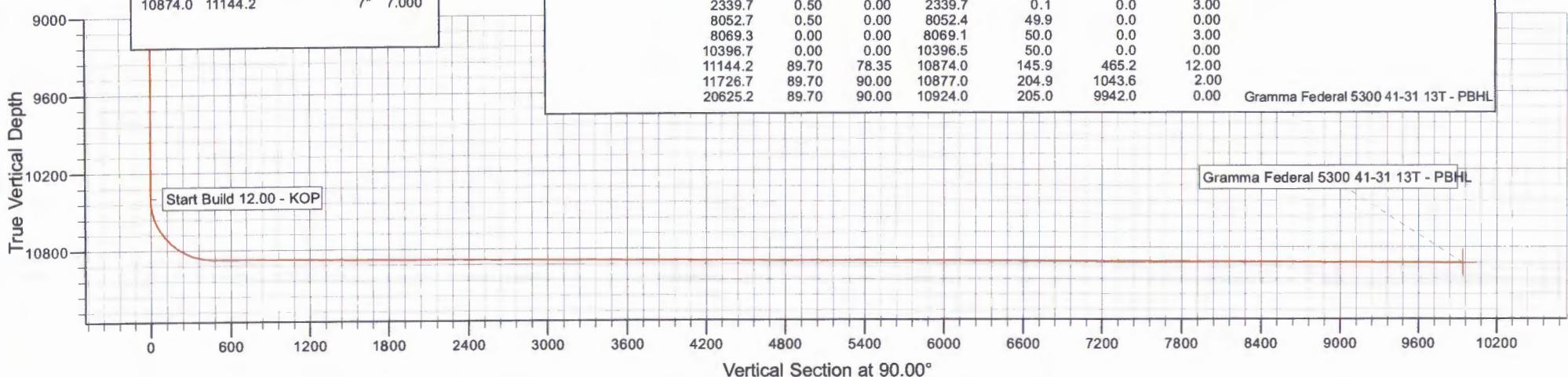
WELL DETAILS: Gramma Federal 5300 41-31 13T

Northing 389675.24	Ground Level: 2158.0
Easting 1209453.55	Latitude 48° 1' 34.880 N
	Longitude 103° 36' 10.350 W



CASING DETAILS			
TVD	MD	Name	Size
2223.0	2223.0	13 3/8"	13.375
6345.8	6346.0	9 5/8"	9.625
10874.0	11144.2	7"	7.000

SECTION DETAILS							
MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	
2323.0	0.00	0.00	2323.0	0.0	0.0	0.00	
2339.7	0.50	0.00	2339.7	0.1	0.0	3.00	
8052.7	0.50	0.00	8052.4	49.9	0.0	0.00	
8069.3	0.00	0.00	8069.1	50.0	0.0	3.00	
10396.7	0.00	0.00	10396.5	50.0	0.0	0.00	
11144.2	89.70	78.35	10874.0	145.9	465.2	12.00	
11726.7	89.70	90.00	10877.0	204.9	1043.6	2.00	
20625.2	89.70	90.00	10924.0	205.0	9942.0	0.00	Gramma Federal 5300 41-31 13T - PBHL



Oasis

**Indian Hills
153N-100W-31/32
Gramma Federal 5300 41-31 13T
T153N R101W SECTION 31
Gramma Federal 5300 41-31 13T**

Plan: Plan #1

Standard Planning Report

30 December, 2014

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T
Company:	Oasis	TVD Reference:	WELL @ 2183.0usft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0usft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 13T		
Design:	Plan #1		

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

Site	153N-100W-31/32			
Site Position:	Northing:	390,397.86 usft	Latitude:	48° 1' 42.010 N
From: Lat/Long	Easting:	1,209,464.32 usft	Longitude:	103° 36' 10.620 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence: -2.31 °

Well	Gramma Federal 5300 41-31 13T				
Well Position	+N-S +E-W	-722.5 usft 18.4 usft	Northing: Easting:	389,675.24 usft 1,209,453.55 usft	Latitude: Longitude:
Position Uncertainty	0.0 usft		Wellhead Elevation:		Ground Level: 2,158.0 usft

Wellbore	Gramma Federal 5300 41-31 13T				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/28/2014	8.29	72.97	56,437

Design	Plan #1				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
		0.0	0.0	0.0	90.00

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,323.0	0.00	0.00	2,323.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,339.7	0.50	0.00	2,339.7	0.1	0.0	3.00	3.00	0.00	0.00	0.00
8,052.7	0.50	0.00	8,052.4	49.9	0.0	0.00	0.00	0.00	0.00	0.00
8,069.3	0.00	0.00	8,069.1	50.0	0.0	3.00	-3.00	0.00	180.00	
10,396.7	0.00	0.00	10,396.5	50.0	0.0	0.00	0.00	0.00	0.00	0.00
11,144.2	89.70	78.35	10,874.0	145.9	465.2	12.00	12.00	0.00	78.35	
11,726.7	89.70	90.00	10,877.0	204.9	1,043.6	2.00	0.00	2.00	90.04	
20,625.2	89.70	90.00	10,924.0	205.0	9,942.0	0.00	0.00	0.00	0.00	Gramma Federal 5301

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T
Company:	Oasis	TVD Reference:	WELL @ 2183.0usft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0usft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 13T		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
2,223.0	0.00	0.00	2,223.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
13 3/8"										
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,323.0	0.00	0.00	2,323.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Start Build 3.00										
2,339.7	0.50	0.00	2,339.7	0.1	0.0	0.0	3.00	3.00	0.00	0.00
Start 5713.0 hold at 2339.7 MD										
2,400.0	0.50	0.00	2,400.0	0.6	0.0	0.0	0.00	0.00	0.00	0.00
2,500.0	0.50	0.00	2,500.0	1.5	0.0	0.0	0.00	0.00	0.00	0.00
2,600.0	0.50	0.00	2,600.0	2.3	0.0	0.0	0.00	0.00	0.00	0.00
2,700.0	0.50	0.00	2,700.0	3.2	0.0	0.0	0.00	0.00	0.00	0.00
2,800.0	0.50	0.00	2,800.0	4.1	0.0	0.0	0.00	0.00	0.00	0.00
2,900.0	0.50	0.00	2,900.0	5.0	0.0	0.0	0.00	0.00	0.00	0.00
3,000.0	0.50	0.00	3,000.0	5.8	0.0	0.0	0.00	0.00	0.00	0.00
3,100.0	0.50	0.00	3,100.0	6.7	0.0	0.0	0.00	0.00	0.00	0.00
3,200.0	0.50	0.00	3,200.0	7.6	0.0	0.0	0.00	0.00	0.00	0.00
3,300.0	0.50	0.00	3,300.0	8.5	0.0	0.0	0.00	0.00	0.00	0.00
3,400.0	0.50	0.00	3,400.0	9.3	0.0	0.0	0.00	0.00	0.00	0.00
3,500.0	0.50	0.00	3,500.0	10.2	0.0	0.0	0.00	0.00	0.00	0.00
3,600.0	0.50	0.00	3,600.0	11.1	0.0	0.0	0.00	0.00	0.00	0.00
3,700.0	0.50	0.00	3,699.9	11.9	0.0	0.0	0.00	0.00	0.00	0.00
3,800.0	0.50	0.00	3,799.9	12.8	0.0	0.0	0.00	0.00	0.00	0.00
3,900.0	0.50	0.00	3,899.9	13.7	0.0	0.0	0.00	0.00	0.00	0.00
4,000.0	0.50	0.00	3,999.9	14.6	0.0	0.0	0.00	0.00	0.00	0.00
4,100.0	0.50	0.00	4,099.9	15.4	0.0	0.0	0.00	0.00	0.00	0.00
4,200.0	0.50	0.00	4,199.9	16.3	0.0	0.0	0.00	0.00	0.00	0.00
4,300.0	0.50	0.00	4,299.9	17.2	0.0	0.0	0.00	0.00	0.00	0.00
4,400.0	0.50	0.00	4,399.9	18.1	0.0	0.0	0.00	0.00	0.00	0.00
4,500.0	0.50	0.00	4,499.9	18.9	0.0	0.0	0.00	0.00	0.00	0.00
4,600.0	0.50	0.00	4,599.9	19.8	0.0	0.0	0.00	0.00	0.00	0.00
4,700.0	0.50	0.00	4,699.9	20.7	0.0	0.0	0.00	0.00	0.00	0.00
4,738.1	0.50	0.00	4,738.0	21.0	0.0	0.0	0.00	0.00	0.00	0.00
Greenhorn										
4,800.0	0.50	0.00	4,799.9	21.5	0.0	0.0	0.00	0.00	0.00	0.00
4,900.0	0.50	0.00	4,899.9	22.4	0.0	0.0	0.00	0.00	0.00	0.00
5,000.0	0.50	0.00	4,999.9	23.3	0.0	0.0	0.00	0.00	0.00	0.00
5,100.0	0.50	0.00	5,099.9	24.2	0.0	0.0	0.00	0.00	0.00	0.00
5,129.1	0.50	0.00	5,129.0	24.4	0.0	0.0	0.00	0.00	0.00	0.00
Mowry										
5,200.0	0.50	0.00	5,199.9	25.0	0.0	0.0	0.00	0.00	0.00	0.00
5,300.0	0.50	0.00	5,299.9	25.9	0.0	0.0	0.00	0.00	0.00	0.00
5,400.0	0.50	0.00	5,399.9	26.8	0.0	0.0	0.00	0.00	0.00	0.00
5,500.0	0.50	0.00	5,499.9	27.7	0.0	0.0	0.00	0.00	0.00	0.00
5,558.1	0.50	0.00	5,558.0	28.2	0.0	0.0	0.00	0.00	0.00	0.00
Dakota										
5,600.0	0.50	0.00	5,599.9	28.5	0.0	0.0	0.00	0.00	0.00	0.00
5,700.0	0.50	0.00	5,699.9	29.4	0.0	0.0	0.00	0.00	0.00	0.00
5,800.0	0.50	0.00	5,799.9	30.3	0.0	0.0	0.00	0.00	0.00	0.00
5,900.0	0.50	0.00	5,899.9	31.1	0.0	0.0	0.00	0.00	0.00	0.00
6,000.0	0.50	0.00	5,999.9	32.0	0.0	0.0	0.00	0.00	0.00	0.00
6,100.0	0.50	0.00	6,099.9	32.9	0.0	0.0	0.00	0.00	0.00	0.00
6,200.0	0.50	0.00	6,199.9	33.8	0.0	0.0	0.00	0.00	0.00	0.00
6,300.0	0.50	0.00	6,299.8	34.6	0.0	0.0	0.00	0.00	0.00	0.00
6,346.0	0.50	0.00	6,345.8	35.0	0.0	0.0	0.00	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T
Company:	Oasis	TVD Reference:	WELL @ 2183.0usft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0usft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 13T		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
9 5/8"										
6,346.2	0.50	0.00	6,346.0	35.0	0.0	0.0	0.00	0.00	0.00	0.00
Rierdon										
6,400.0	0.50	0.00	6,399.8	35.5	0.0	0.0	0.00	0.00	0.00	0.00
6,500.0	0.50	0.00	6,499.8	36.4	0.0	0.0	0.00	0.00	0.00	0.00
6,600.0	0.50	0.00	6,599.8	37.3	0.0	0.0	0.00	0.00	0.00	0.00
6,700.0	0.50	0.00	6,699.8	38.1	0.0	0.0	0.00	0.00	0.00	0.00
6,800.0	0.50	0.00	6,799.8	39.0	0.0	0.0	0.00	0.00	0.00	0.00
6,900.0	0.50	0.00	6,899.8	39.9	0.0	0.0	0.00	0.00	0.00	0.00
6,903.2	0.50	0.00	6,903.0	39.9	0.0	0.0	0.00	0.00	0.00	0.00
Dunham Salt										
7,000.0	0.50	0.00	6,999.8	40.7	0.0	0.0	0.00	0.00	0.00	0.00
7,020.2	0.50	0.00	7,020.0	40.9	0.0	0.0	0.00	0.00	0.00	0.00
Dunham Salt Base										
7,036.2	0.50	0.00	7,036.0	41.1	0.0	0.0	0.00	0.00	0.00	0.00
Spearfish										
7,100.0	0.50	0.00	7,099.8	41.6	0.0	0.0	0.00	0.00	0.00	0.00
7,200.0	0.50	0.00	7,199.8	42.5	0.0	0.0	0.00	0.00	0.00	0.00
7,300.0	0.50	0.00	7,299.8	43.4	0.0	0.0	0.00	0.00	0.00	0.00
7,363.2	0.50	0.00	7,363.0	43.9	0.0	0.0	0.00	0.00	0.00	0.00
Pine Salt										
7,385.2	0.50	0.00	7,385.0	44.1	0.0	0.0	0.00	0.00	0.00	0.00
Pine Salt Base										
7,400.0	0.50	0.00	7,399.8	44.2	0.0	0.0	0.00	0.00	0.00	0.00
7,437.2	0.50	0.00	7,437.0	44.6	0.0	0.0	0.00	0.00	0.00	0.00
Opecche Salt										
7,500.0	0.50	0.00	7,499.8	45.1	0.0	0.0	0.00	0.00	0.00	0.00
7,503.2	0.50	0.00	7,503.0	45.1	0.0	0.0	0.00	0.00	0.00	0.00
Opecche Salt Base										
7,600.0	0.50	0.00	7,599.8	46.0	0.0	0.0	0.00	0.00	0.00	0.00
7,669.2	0.50	0.00	7,669.0	46.6	0.0	0.0	0.00	0.00	0.00	0.00
Broom Creek (Top of Minnelusa Gp.)										
7,700.0	0.50	0.00	7,699.8	46.8	0.0	0.0	0.00	0.00	0.00	0.00
7,734.2	0.50	0.00	7,734.0	47.1	0.0	0.0	0.00	0.00	0.00	0.00
Amsden										
7,800.0	0.50	0.00	7,799.8	47.7	0.0	0.0	0.00	0.00	0.00	0.00
7,878.2	0.50	0.00	7,878.0	48.4	0.0	0.0	0.00	0.00	0.00	0.00
Tyler										
7,900.0	0.50	0.00	7,899.8	48.6	0.0	0.0	0.00	0.00	0.00	0.00
8,000.0	0.50	0.00	7,999.8	49.5	0.0	0.0	0.00	0.00	0.00	0.00
8,052.7	0.50	0.00	8,052.4	49.9	0.0	0.0	0.00	0.00	0.00	0.00
Start Drop -3.00										
8,069.3	0.00	0.00	8,069.1	50.0	0.0	0.0	3.00	-3.00	0.00	0.00
Start 2327.4 hold at 8069.3 MD										
8,100.0	0.00	0.00	8,099.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
8,102.2	0.00	0.00	8,102.0	50.0	0.0	0.0	0.00	0.00	0.00	0.00
Otter (Base of Minnelusa Gp.)										
8,200.0	0.00	0.00	8,199.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
8,300.0	0.00	0.00	8,299.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
8,400.0	0.00	0.00	8,399.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
8,400.2	0.00	0.00	8,400.0	50.0	0.0	0.0	0.00	0.00	0.00	0.00
Kibbey										
8,500.0	0.00	0.00	8,499.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T
Company:	Oasis	TVD Reference:	WELL @ 2183.0usft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0usft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 13T		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,600.0	0.00	0.00	8,599.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
8,606.2	0.00	0.00	8,606.0	50.0	0.0	0.0	0.00	0.00	0.00	0.00
Charles Salt										
8,700.0	0.00	0.00	8,699.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
8,800.0	0.00	0.00	8,799.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
8,900.0	0.00	0.00	8,899.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,000.0	0.00	0.00	8,999.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,100.0	0.00	0.00	9,099.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,200.0	0.00	0.00	9,199.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,202.2	0.00	0.00	9,202.0	50.0	0.0	0.0	0.00	0.00	0.00	0.00
UB										
9,278.2	0.00	0.00	9,278.0	50.0	0.0	0.0	0.00	0.00	0.00	0.00
Base Last Salt										
9,300.0	0.00	0.00	9,299.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,313.2	0.00	0.00	9,313.0	50.0	0.0	0.0	0.00	0.00	0.00	0.00
Ratcliffe										
9,400.0	0.00	0.00	9,399.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,488.2	0.00	0.00	9,488.0	50.0	0.0	0.0	0.00	0.00	0.00	0.00
Mission Canyon										
9,500.0	0.00	0.00	9,499.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,600.0	0.00	0.00	9,599.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,700.0	0.00	0.00	9,699.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,800.0	0.00	0.00	9,799.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
9,900.0	0.00	0.00	9,899.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
10,000.0	0.00	0.00	9,999.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
10,033.2	0.00	0.00	10,033.0	50.0	0.0	0.0	0.00	0.00	0.00	0.00
Lodgepole										
10,100.0	0.00	0.00	10,099.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
10,200.0	0.00	0.00	10,199.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
10,300.0	0.00	0.00	10,299.8	50.0	0.0	0.0	0.00	0.00	0.00	0.00
10,396.7	0.00	0.00	10,396.5	50.0	0.0	0.0	0.00	0.00	0.00	0.00
Start Build 12.00 - KOP										
10,400.0	0.39	78.35	10,399.8	50.0	0.0	0.0	12.00	12.00	0.00	
10,497.0	12.03	78.35	10,496.0	52.1	10.3	10.3	12.00	12.00	0.00	
Lodgepole Fracture Zone										
10,500.0	12.39	78.35	10,499.0	52.2	10.9	10.9	12.00	12.00	0.00	
10,600.0	24.39	78.35	10,593.7	58.6	41.7	41.7	12.00	12.00	0.00	
10,700.0	36.39	78.35	10,679.8	68.8	91.2	91.2	12.00	12.00	0.00	
10,800.0	48.39	78.35	10,753.5	82.4	157.1	157.1	12.00	12.00	0.00	
10,817.7	50.51	78.35	10,765.0	85.1	170.3	170.3	12.00	12.00	0.00	
False Bakken										
10,835.4	52.64	78.35	10,776.0	87.9	183.9	183.9	12.00	12.00	0.00	
Upper Bakken										
10,862.8	55.93	78.35	10,792.0	92.4	205.6	205.6	12.00	12.00	0.00	
Middle Bakken										
10,900.0	60.39	78.35	10,811.6	98.8	236.6	236.6	12.00	12.00	0.00	
10,942.6	65.51	78.35	10,831.0	106.4	273.8	273.8	12.00	12.00	0.00	
Lower Bakken										
10,962.9	67.94	78.35	10,839.0	110.2	292.0	292.0	12.00	12.00	0.00	
Pronghorn										
11,000.0	72.39	78.35	10,851.6	117.3	326.2	326.2	12.00	12.00	0.00	
11,022.9	75.14	78.35	10,858.0	121.7	347.7	347.7	12.00	12.00	0.00	
Three Forks 1st Bench										

Oasis Petroleum

Planning Report

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Company:	Oasis	TVD Reference:	WELL @ 2183.0usft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0usft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 13T		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
11,100.0	84.39	78.35	10,871.7	137.0	421.9	421.9	12.00	12.00	0.00	
11,144.2	89.70	78.35	10,874.0	145.9	465.2	465.2	12.00	12.00	0.00	
Start DLS 2.00 TFO 90.04 - EOC - 7"										
11,200.0	89.70	79.47	10,874.2	156.6	519.9	519.9	2.00	0.00	2.00	
11,300.0	89.70	81.47	10,874.8	173.2	618.5	618.5	2.00	0.00	2.00	
11,400.0	89.70	83.47	10,875.3	186.3	717.7	717.7	2.00	0.00	2.00	
11,500.0	89.70	85.47	10,875.8	196.0	817.2	817.2	2.00	0.00	2.00	
11,600.0	89.70	87.47	10,876.4	202.1	917.0	917.0	2.00	0.00	2.00	
11,700.0	89.70	89.47	10,876.9	204.8	1,017.0	1,017.0	2.00	0.00	2.00	
11,726.7	89.70	90.00	10,877.0	204.9	1,043.6	1,043.6	2.00	0.00	2.00	
Start 8898.5 hold at 11726.7 MD										
11,800.0	89.70	90.00	10,877.4	204.9	1,116.9	1,116.9	0.00	0.00	0.00	
11,900.0	89.70	90.00	10,877.9	204.9	1,216.9	1,216.9	0.00	0.00	0.00	
12,000.0	89.70	90.00	10,878.5	204.9	1,316.9	1,316.9	0.00	0.00	0.00	
12,099.9	89.70	90.00	10,879.0	204.9	1,416.8	1,416.8	0.00	0.00	0.00	
Three Forks 1st Bench Claystone										
12,100.0	89.70	90.00	10,879.0	204.9	1,416.9	1,416.9	0.00	0.00	0.00	
12,200.0	89.70	90.00	10,879.5	204.9	1,516.9	1,516.9	0.00	0.00	0.00	
12,300.0	89.70	90.00	10,880.1	204.9	1,616.9	1,616.9	0.00	0.00	0.00	
12,400.0	89.70	90.00	10,880.6	204.9	1,716.9	1,716.9	0.00	0.00	0.00	
12,500.0	89.70	90.00	10,881.1	204.9	1,816.9	1,816.9	0.00	0.00	0.00	
12,600.0	89.70	90.00	10,881.6	204.9	1,916.9	1,916.9	0.00	0.00	0.00	
12,700.0	89.70	90.00	10,882.2	204.9	2,016.9	2,016.9	0.00	0.00	0.00	
12,800.0	89.70	90.00	10,882.7	204.9	2,116.9	2,116.9	0.00	0.00	0.00	
12,900.0	89.70	90.00	10,883.2	204.9	2,216.9	2,216.9	0.00	0.00	0.00	
13,000.0	89.70	90.00	10,883.8	204.9	2,316.9	2,316.9	0.00	0.00	0.00	
13,100.0	89.70	90.00	10,884.3	204.9	2,416.9	2,416.9	0.00	0.00	0.00	
13,200.0	89.70	90.00	10,884.8	204.9	2,516.9	2,516.9	0.00	0.00	0.00	
13,300.0	89.70	90.00	10,885.3	204.9	2,616.9	2,616.9	0.00	0.00	0.00	
13,400.0	89.70	90.00	10,885.9	204.9	2,716.9	2,716.9	0.00	0.00	0.00	
13,500.0	89.70	90.00	10,886.4	204.9	2,816.9	2,816.9	0.00	0.00	0.00	
13,600.0	89.70	90.00	10,886.9	204.9	2,916.9	2,916.9	0.00	0.00	0.00	
13,700.0	89.70	90.00	10,887.4	204.9	3,016.9	3,016.9	0.00	0.00	0.00	
13,800.0	89.70	90.00	10,888.0	204.9	3,116.9	3,116.9	0.00	0.00	0.00	
13,900.0	89.70	90.00	10,888.5	204.9	3,216.9	3,216.9	0.00	0.00	0.00	
14,000.0	89.70	90.00	10,889.0	204.9	3,316.9	3,316.9	0.00	0.00	0.00	
14,100.0	89.70	90.00	10,889.6	204.9	3,416.9	3,416.9	0.00	0.00	0.00	
14,200.0	89.70	90.00	10,890.1	204.9	3,516.9	3,516.9	0.00	0.00	0.00	
14,300.0	89.70	90.00	10,890.6	204.9	3,616.9	3,616.9	0.00	0.00	0.00	
14,400.0	89.70	90.00	10,891.1	204.9	3,716.9	3,716.9	0.00	0.00	0.00	
14,500.0	89.70	90.00	10,891.7	204.9	3,816.9	3,816.9	0.00	0.00	0.00	
14,600.0	89.70	90.00	10,892.2	204.9	3,916.9	3,916.9	0.00	0.00	0.00	
14,700.0	89.70	90.00	10,892.7	205.0	4,016.9	4,016.9	0.00	0.00	0.00	
14,800.0	89.70	90.00	10,893.3	205.0	4,116.9	4,116.9	0.00	0.00	0.00	
14,900.0	89.70	90.00	10,893.8	205.0	4,216.9	4,216.9	0.00	0.00	0.00	
15,000.0	89.70	90.00	10,894.3	205.0	4,316.9	4,316.9	0.00	0.00	0.00	
15,100.0	89.70	90.00	10,894.8	205.0	4,416.9	4,416.9	0.00	0.00	0.00	
15,200.0	89.70	90.00	10,895.4	205.0	4,516.9	4,516.9	0.00	0.00	0.00	
15,300.0	89.70	90.00	10,895.9	205.0	4,616.9	4,616.9	0.00	0.00	0.00	
15,400.0	89.70	90.00	10,896.4	205.0	4,716.9	4,716.9	0.00	0.00	0.00	
15,500.0	89.70	90.00	10,896.9	205.0	4,816.9	4,816.9	0.00	0.00	0.00	
15,600.0	89.70	90.00	10,897.5	205.0	4,916.9	4,916.9	0.00	0.00	0.00	
15,700.0	89.70	90.00	10,898.0	205.0	5,016.9	5,016.9	0.00	0.00	0.00	
15,800.0	89.70	90.00	10,898.5	205.0	5,116.9	5,116.9	0.00	0.00	0.00	
15,900.0	89.70	90.00	10,899.1	205.0	5,216.9	5,216.9	0.00	0.00	0.00	

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T
Company:	Oasis	TVD Reference:	WELL @ 2183.0usft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0usft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 13T		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
16,000.0	89.70	90.00	10,899.6	205.0	5,316.9	5,316.9	0.00	0.00	0.00	0.00
16,100.0	89.70	90.00	10,900.1	205.0	5,416.9	5,416.9	0.00	0.00	0.00	0.00
16,200.0	89.70	90.00	10,900.6	205.0	5,516.9	5,516.9	0.00	0.00	0.00	0.00
16,300.0	89.70	90.00	10,901.2	205.0	5,616.9	5,616.9	0.00	0.00	0.00	0.00
16,400.0	89.70	90.00	10,901.7	205.0	5,716.9	5,716.9	0.00	0.00	0.00	0.00
16,500.0	89.70	90.00	10,902.2	205.0	5,816.9	5,816.9	0.00	0.00	0.00	0.00
16,600.0	89.70	90.00	10,902.8	205.0	5,916.9	5,916.9	0.00	0.00	0.00	0.00
16,700.0	89.70	90.00	10,903.3	205.0	6,016.9	6,016.9	0.00	0.00	0.00	0.00
16,800.0	89.70	90.00	10,903.8	205.0	6,116.9	6,116.9	0.00	0.00	0.00	0.00
16,900.0	89.70	90.00	10,904.3	205.0	6,216.9	6,216.9	0.00	0.00	0.00	0.00
17,000.0	89.70	90.00	10,904.9	205.0	6,316.9	6,316.9	0.00	0.00	0.00	0.00
17,100.0	89.70	90.00	10,905.4	205.0	6,416.9	6,416.9	0.00	0.00	0.00	0.00
17,200.0	89.70	90.00	10,905.9	205.0	6,516.9	6,516.9	0.00	0.00	0.00	0.00
17,300.0	89.70	90.00	10,906.4	205.0	6,616.9	6,616.9	0.00	0.00	0.00	0.00
17,400.0	89.70	90.00	10,907.0	205.0	6,716.9	6,716.9	0.00	0.00	0.00	0.00
17,500.0	89.70	90.00	10,907.5	205.0	6,816.9	6,816.9	0.00	0.00	0.00	0.00
17,600.0	89.70	90.00	10,908.0	205.0	6,916.9	6,916.9	0.00	0.00	0.00	0.00
17,700.0	89.70	90.00	10,908.6	205.0	7,016.9	7,016.9	0.00	0.00	0.00	0.00
17,800.0	89.70	90.00	10,909.1	205.0	7,116.9	7,116.9	0.00	0.00	0.00	0.00
17,900.0	89.70	90.00	10,909.6	205.0	7,216.9	7,216.9	0.00	0.00	0.00	0.00
18,000.0	89.70	90.00	10,910.1	205.0	7,316.9	7,316.9	0.00	0.00	0.00	0.00
18,100.0	89.70	90.00	10,910.7	205.0	7,416.9	7,416.9	0.00	0.00	0.00	0.00
18,200.0	89.70	90.00	10,911.2	205.0	7,516.9	7,516.9	0.00	0.00	0.00	0.00
18,300.0	89.70	90.00	10,911.7	205.0	7,616.9	7,616.9	0.00	0.00	0.00	0.00
18,400.0	89.70	90.00	10,912.3	205.0	7,716.9	7,716.9	0.00	0.00	0.00	0.00
18,500.0	89.70	90.00	10,912.8	205.0	7,816.9	7,816.9	0.00	0.00	0.00	0.00
18,600.0	89.70	90.00	10,913.3	205.0	7,916.9	7,916.9	0.00	0.00	0.00	0.00
18,700.0	89.70	90.00	10,913.8	205.0	8,016.9	8,016.9	0.00	0.00	0.00	0.00
18,800.0	89.70	90.00	10,914.4	205.0	8,116.9	8,116.9	0.00	0.00	0.00	0.00
18,900.0	89.70	90.00	10,914.9	205.0	8,216.8	8,216.8	0.00	0.00	0.00	0.00
19,000.0	89.70	90.00	10,915.4	205.0	8,316.8	8,316.8	0.00	0.00	0.00	0.00
19,100.0	89.70	90.00	10,915.9	205.0	8,416.8	8,416.8	0.00	0.00	0.00	0.00
19,200.0	89.70	90.00	10,916.5	205.0	8,516.8	8,516.8	0.00	0.00	0.00	0.00
19,300.0	89.70	90.00	10,917.0	205.0	8,616.8	8,616.8	0.00	0.00	0.00	0.00
19,400.0	89.70	90.00	10,917.5	205.0	8,716.8	8,716.8	0.00	0.00	0.00	0.00
19,500.0	89.70	90.00	10,918.1	205.0	8,816.8	8,816.8	0.00	0.00	0.00	0.00
19,600.0	89.70	90.00	10,918.6	205.0	8,916.8	8,916.8	0.00	0.00	0.00	0.00
19,700.0	89.70	90.00	10,919.1	205.0	9,016.8	9,016.8	0.00	0.00	0.00	0.00
19,800.0	89.70	90.00	10,919.6	205.0	9,116.8	9,116.8	0.00	0.00	0.00	0.00
19,900.0	89.70	90.00	10,920.2	205.0	9,216.8	9,216.8	0.00	0.00	0.00	0.00
20,000.0	89.70	90.00	10,920.7	205.0	9,316.8	9,316.8	0.00	0.00	0.00	0.00
20,100.0	89.70	90.00	10,921.2	205.0	9,416.8	9,416.8	0.00	0.00	0.00	0.00
20,200.0	89.70	90.00	10,921.8	205.0	9,516.8	9,516.8	0.00	0.00	0.00	0.00
20,300.0	89.70	90.00	10,922.3	205.0	9,616.8	9,616.8	0.00	0.00	0.00	0.00
20,400.0	89.70	90.00	10,922.8	205.0	9,716.8	9,716.8	0.00	0.00	0.00	0.00
20,500.0	89.70	90.00	10,923.3	205.0	9,816.8	9,816.8	0.00	0.00	0.00	0.00
20,600.0	89.70	90.00	10,923.9	205.0	9,916.8	9,916.8	0.00	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T
Company:	Oasis	TVD Reference:	WELL @ 2183.0usft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0usft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 13T		
Design:	Plan #1		

Design Targets										
Target Name		Dip Angle	Dip Dir.	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude
- hit/miss target	- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Gramma Federal 5300 4		0.00	0.00	10,924.0	205.0	9,942.0	389,479.53	1,219,395.74	48° 1' 36.877 N	103° 33' 44.079 W
- plan misses target center by 25.2usft at 20600.0usft MD (10923.9 TVD, 205.0 N, 9916.8 E)										
- Point										

Casing Points										
	Measured Depth (usft)	Vertical Depth (usft)	Name			Casing Diameter (in)	Hole Diameter (in)			
	2,223.0	2,223.0	13 3/8"				13.375	17.500		
	6,346.0	6,345.8	9 5/8"				9.625	12.250		
	11,144.2	10,874.0	7"				7.000	8.750		

Formations										
	Measured Depth (usft)	Vertical Depth (usft)	Name			Lithology	Dip (°)	Dip Direction (°)		
	2,123.0	2,123.0	Pierre							
	4,738.1	4,738.0	Greenhorn							
	5,129.1	5,129.0	Mowry							
	5,558.1	5,558.0	Dakota							
	6,346.2	6,346.0	Rierdon							
	6,903.2	6,903.0	Dunham Salt							
	7,020.2	7,020.0	Dunham Salt Base							
	7,036.2	7,036.0	Spearfish							
	7,363.2	7,363.0	Pine Salt							
	7,385.2	7,385.0	Pine Salt Base							
	7,437.2	7,437.0	Opecche Salt							
	7,503.2	7,503.0	Opecche Salt Base							
	7,669.2	7,669.0	Broom Creek (Top of Minnelusa Gp.)							
	7,734.2	7,734.0	Amsden							
	7,878.2	7,878.0	Tyler							
	8,102.2	8,102.0	Otter (Base of Minnelusa Gp.)							
	8,400.2	8,400.0	Kibbey							
	8,606.2	8,606.0	Charles Salt							
	9,202.2	9,202.0	UB							
	9,278.2	9,278.0	Base Last Salt							
	9,313.2	9,313.0	Ratcliffe							
	9,488.2	9,488.0	Mission Canyon							
	10,033.2	10,033.0	Lodgepole							
	10,497.0	10,496.0	Lodgepole Fracture Zone							
	10,817.7	10,765.0	False Bakken							
	10,835.4	10,776.0	Upper Bakken							
	10,862.8	10,792.0	Middle Bakken							
	10,942.6	10,831.0	Lower Bakken							
	10,962.9	10,839.0	Pronghorn							
	11,022.9	10,858.0	Three Forks 1st Bench							
	12,099.9	10,879.0	Three Forks 1st Bench Claystone							

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T
Company:	Oasis	TVD Reference:	WELL @ 2183.0usft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0usft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 13T		
Design:	Plan #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/S (usft)	+E/W (usft)		
2,323.0	2,323.0	0.0	0.0		Start Build 3.00
2,339.7	2,339.7	0.1	0.0		Start 5713.0 hold at 2339.7 MD
8,052.7	8,052.4	49.9	0.0		Start Drop -3.00
8,069.3	8,069.1	50.0	0.0		Start 2327.4 hold at 8069.3 MD
10,396.7	10,396.5	50.0	0.0		Start Build 12.00 - KOP
11,144.2	10,874.0	145.9	465.2		Start DLS 2.00 TFO 90.04 - EOC
11,726.7	10,877.0	204.9	1,043.6		Start 8898.5 hold at 11726.7 MD
20,625.2	10,924.0	205.0	9,942.0		TD at 20625.2

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 13T
Section 31 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' - 2223'	54.5	J-55	STC	12.615"	12.459"	4100	5470	6840

Interval	Description	Collapse	Burst	Tension
		(psi) / a	(psi) / b	(1000 lbs) / c
0' - 2223'	13-3/8", 54.5#, J-55, LTC, 8rd	1130 / 1.08	2730 / 1.81	514 / 2.51

API Rating & Safety Factor

- a) Collapse based on full casing evacuation with 9 ppg fluid on backside (2223' setting depth).
- b) Burst pressure based on 13 ppg fluid with no fluid on backside (2223' setting depth).
- c) Based on string weight in 9 ppg fluid at 2223' TVD plus 100k# overpull. (Buoyed weight equals 104k 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: **753 sks** (389 bbls), 11.5 lb/gal, 2.97 cu. Ft./sk Varicem Cement with 0.125 il/sk Lost Circulation Additive

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

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 13T
Section 31 T153N R100W
McKenzie County, ND

Contingency INTERMEDIATE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
9-5/8"	0' - 6346'	36	HCL-80	LTC	8.835"	8.75"	5450	7270	9090

Interval	Description	Collapse	Burst	Tension
		(psi) / a	(psi) / b	(1000 lbs) / c
0' - 6346'	9-5/8", 36#, J-55, LTC, 8rd	2020 / 2.29	3520 / 1.30	453 / 1.55

API Rating & Safety Factor

- a) Collapse based on full casing evacuation with 10.4 ppg fluid on backside (6346' setting depth).
- b) Burst pressure calculated from a gas kick coming from the production zone (Bakken Pool) at 9,000psi and a subsequent breakdown at the 9-5/8" shoe, based on a 15.2#/ft fracture gradient. Backup of 9 ppg fluid..
- c) Tension based on string weight in 10.4 ppg fluid at 6346' TVD plus 100k# overpull. (Buoyed weight equals 192k lbs.)

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

Pre-flush (Spacer): 20 bbls Chem wash

Lead Slurry: 584 sks (302 bbls), 2.90 ft3/sk, 11.5 lb/gal Conventional system with 94 lb/sk cement, 4% D079 extender, 2% D053 expanding agent, 2% CaCl2 and 0.250 lb/sk D130 lost circulation control agent.

Tail Slurry: 548 sks (113 bbls), 1.16 ft3/sk 15.8 lb/gal Conventional system with 94 lb/sk cement, 0.25% CaCl2, and 0.250 lb/sk lost circulation control agent

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 13T
Section 31 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' - 11144'	32	HCP-110	LTC	6.094"	6.000***	6730	8970	9870

**Special Drift 7"32# to 6.0"

Interval	Length	Description	Collapse		Burst		Tension
			(psi) a	(psi) b	(psi) b	(1000 lbs) / c	
0' - 8458'	8458'	7", 32#, P-110, LTC, 8rd	11820 / 2.09*	12460 / 1.28	12460 / 1.28	897 / 2.23	
5431' - 6683'	1252'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.47**	12460 / 1.32	12460 / 1.32		

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 10874' TVD.
- c) Based on string weight in 10 ppg fluid, (302k lbs buoyed weight) plus 100k lbs overpull.

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

Mix and pump the following slurry

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

Lead Slurry: **177 sks** (82 bbls), 11.8 ppg, 2.55 cu. ft./sk Econocem Cement with .3% Fe-2 and .25 lb/sk Lost Circulation Additive

Tail Slurry: **579 sks** (169 bbls), 14.0 ppg, 1.55 cu. ft./sk Extendcem System with .2% HR-5 Retarder and .25 lb/sk Lost Circulation Additive

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 13T
Section 31 T153N R100W
McKenzie County, ND

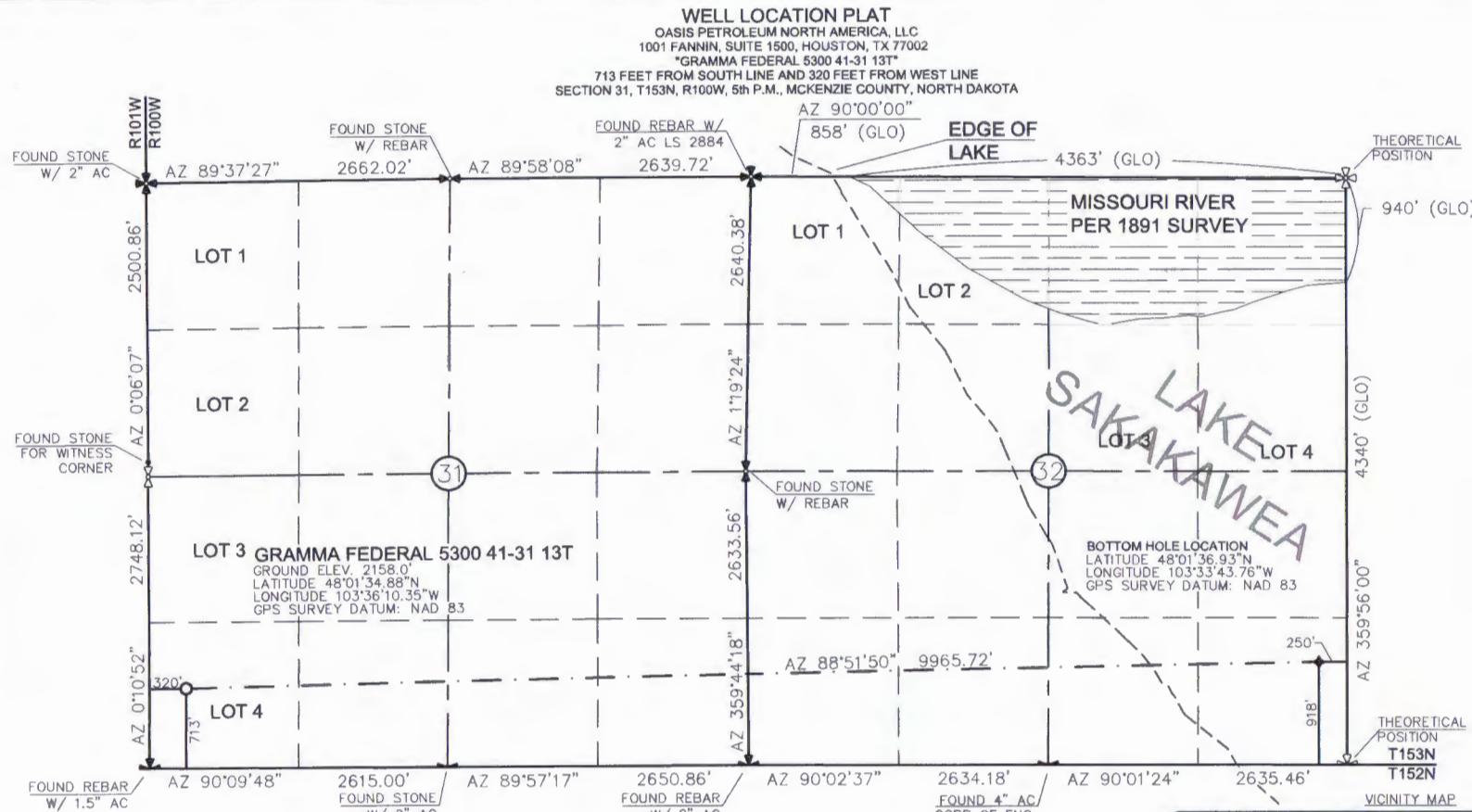
PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
4-1/2"	10347' - 20625'	13.5	P-110	BTC	3.920"	3.795"	2270	3020	3780

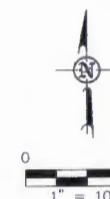
Interval	Length	Description	Collapse	Burst	Tension
			(psi) a	(psi) b	(1000 lbs) c
10347' - 20625'	10278	4-1/2", 13.5 lb, P-110, BTC	10670 / 1.97	12410 / 1.28	443 / 2.02

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10924' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10924' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 119k lbs.) plus 100k lbs overpull.



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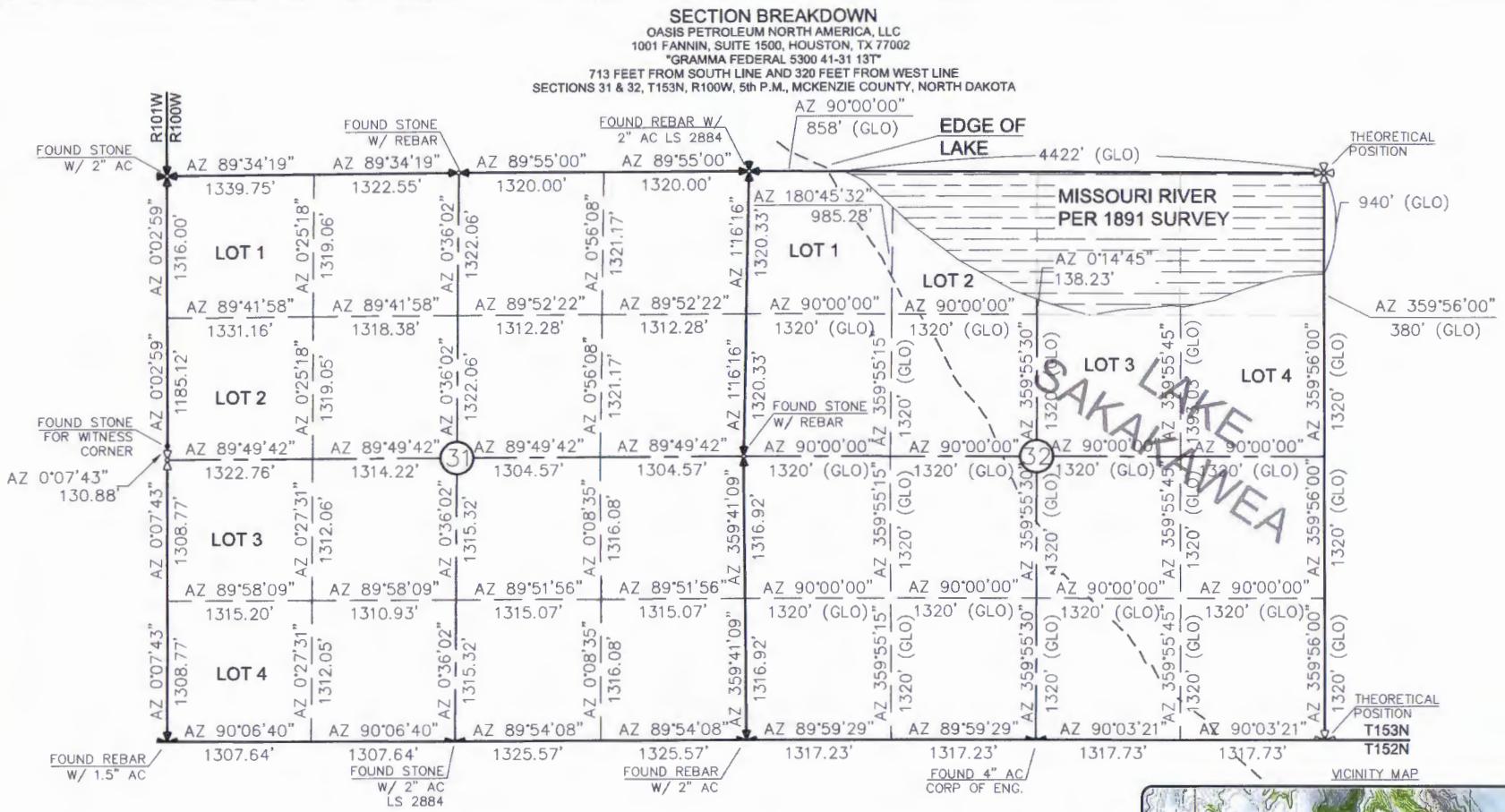
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OASIS PETROLEUM NORTH AMERICA, LLC	Project No.: 5300 41-31-13T
WELL LOCATION PLAT	Date: 12/27/2014
SECTION 31, T153N, R100W	Ref. 1: 3/2/14
MCKENZIE COUNTY, NORTH DAKOTA	Ref. 2: 12/27/14
	CONNECTED WELL CALLS
	CHANGED WELL NAME & BPL
	Project No.: 5300-32020
	Date: 12/27/2014

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425 Main Street
Sidney, Montana 59270
(406) 433-5617
Fax: (406) 433-5618
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Other offices in Montana, North Dakota and South Dakota



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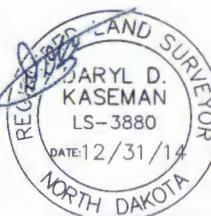
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0 1000
1" = 1000'

ALL AZIMUTHS ARE BASED ON G.P.S. OBSERVATIONS. THE ORIGINAL SURVEY OF THIS AREA FOR THE GENERAL LAND OFFICE (G.L.O.) WAS 1897. THE CORNERS FOUND ARE AS INDICATED AND ALL OTHERS ARE COMPUTED FROM THOSE CORNERS FOUND AND BASED ON G.L.O. DATA. THE MAPPING ANGLE FOR THIS AREA IS APPROXIMATELY 0°03".



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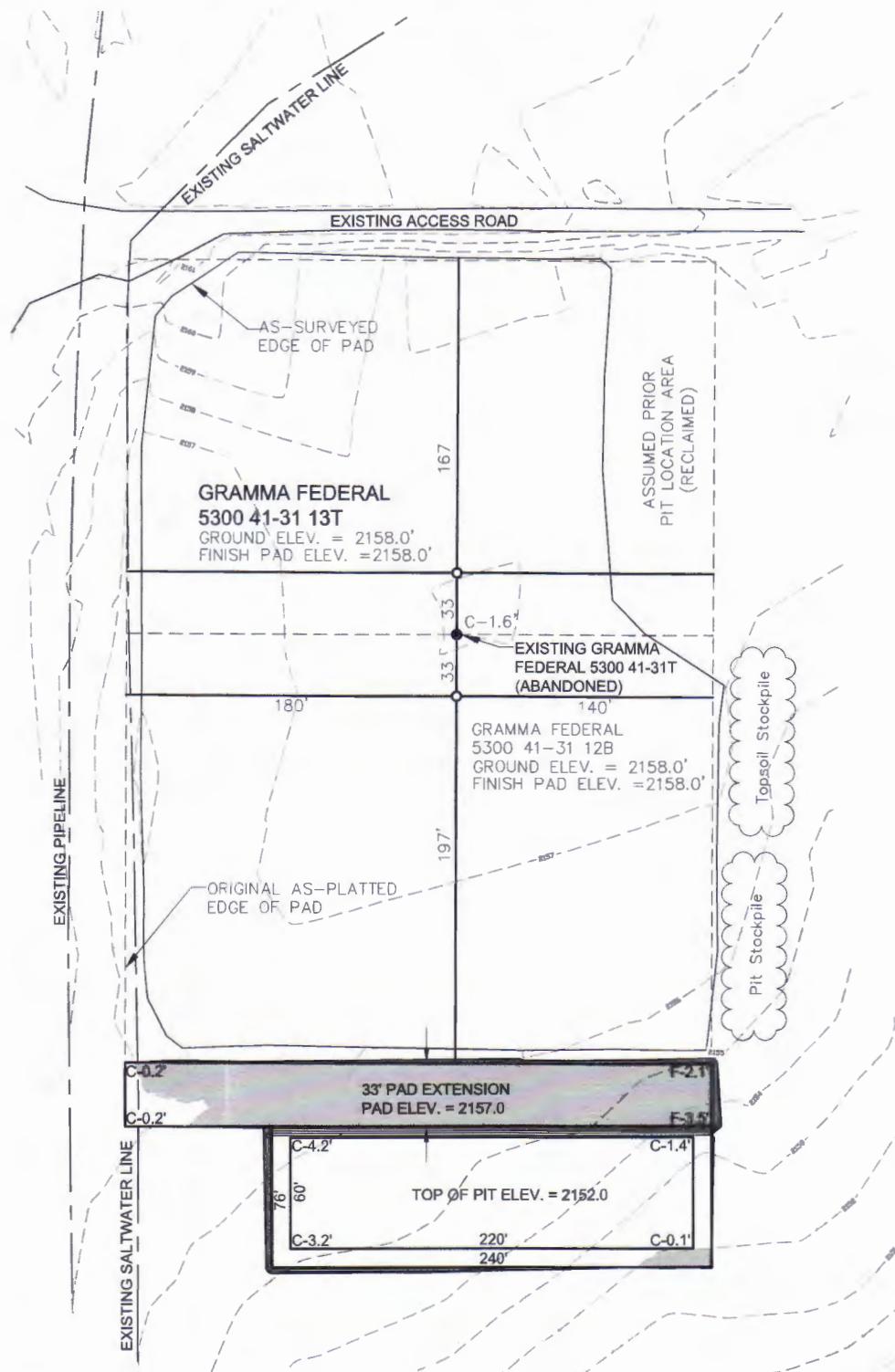
2/8

Project No.: 5300 41-31 13T	Date: 12/31/14	By: Daryl D. Kaseman
Checked By: Daryl D. Kaseman	Reviewed By: Daryl D. Kaseman	Approved By: Daryl D. Kaseman
Comments: None		

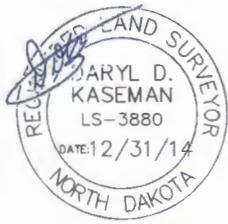
Interstate Engineering, Inc.
 P.O. Box 59270
 4325 East Main Street
 Bismarck, North Dakota 58527
 Ph: (701) 433-5617
 Fax: (701) 433-5618
www.interstateengineering.com
 Other offices in Minnesota, North Dakota and South Dakota

PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"GRAMMA FEDERAL 5300 41-31 13T"
713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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

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0 60
1" = 60'

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OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 31, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.J. Project No.: S13-06-372.01

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

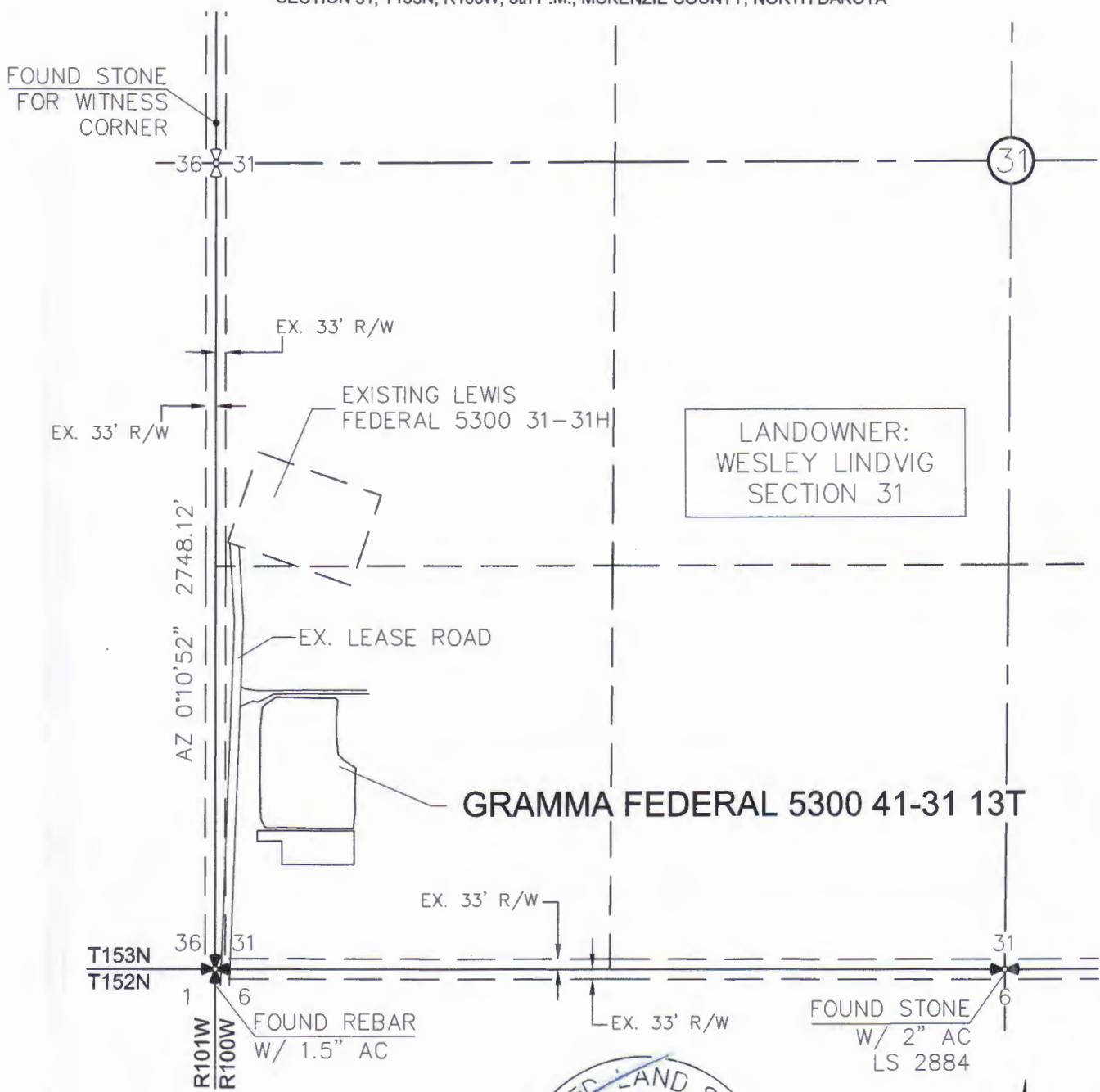
Revision No.	Date	By	Description
REV 1	5/5/14	JRS	CORRECTED WELL CALLS
REV 2	2/3/14	JRS	CHANGED WELL NAME & BH

ACCESS APPROACH

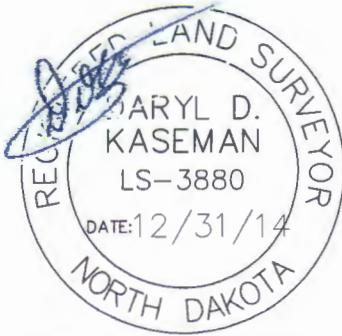
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"GRAMMA FEDERAL 5300 41-31 13T"

713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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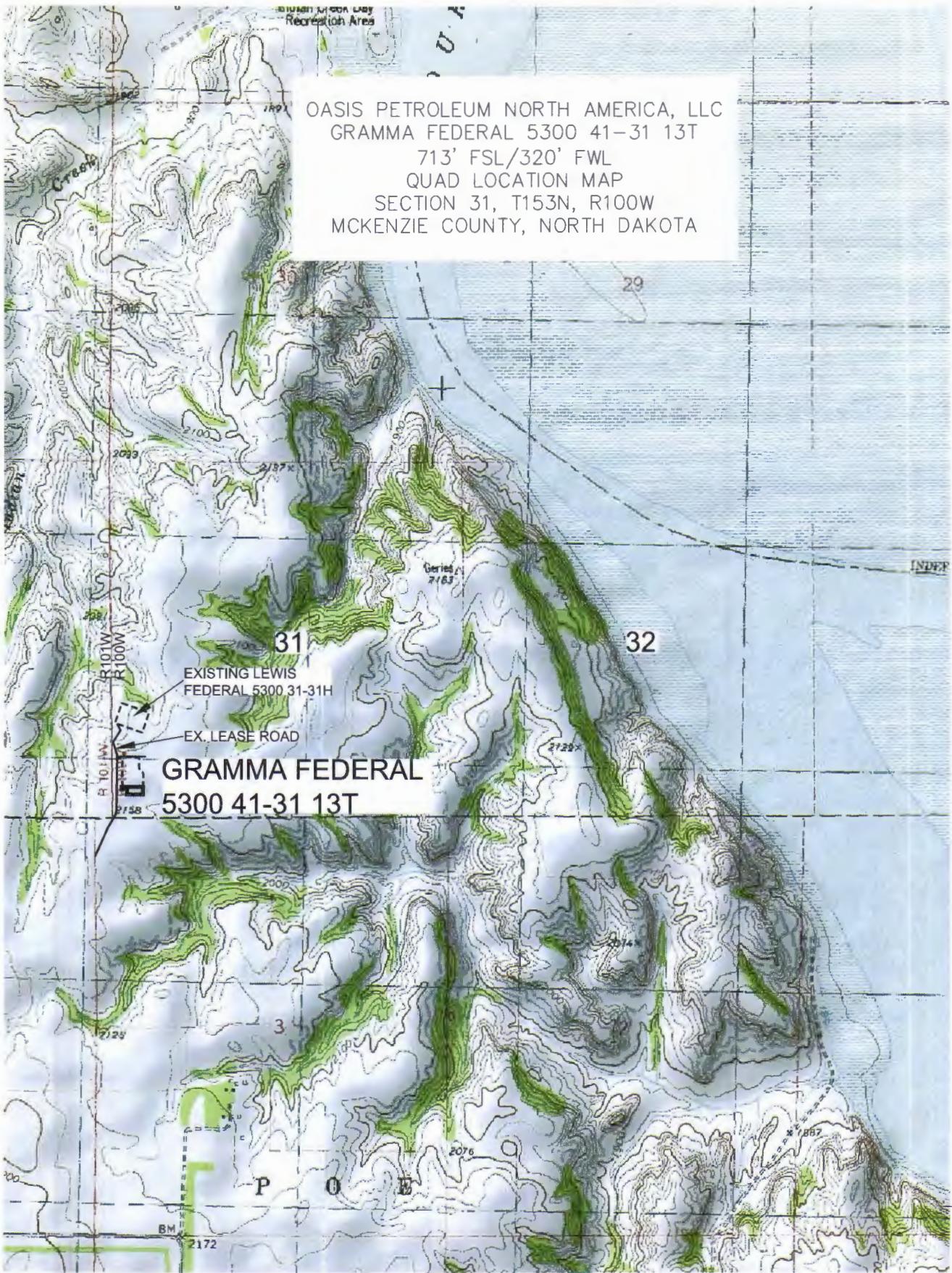
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OASIS PETROLEUM NORTH AMERICA, LLC
ACCESS APPROACH
SECTION 31, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	B.H.H.	Project No.:	S13-09-372.01
Checked By:	D.D.K.	Date:	FEB. 2014

Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS
REV 2	12/31/14	JJS	CHANGED WELL NAME & BH



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OASIS PETROLEUM NORTH AMERICA, LLC
QUAD LOCATION MAP
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA

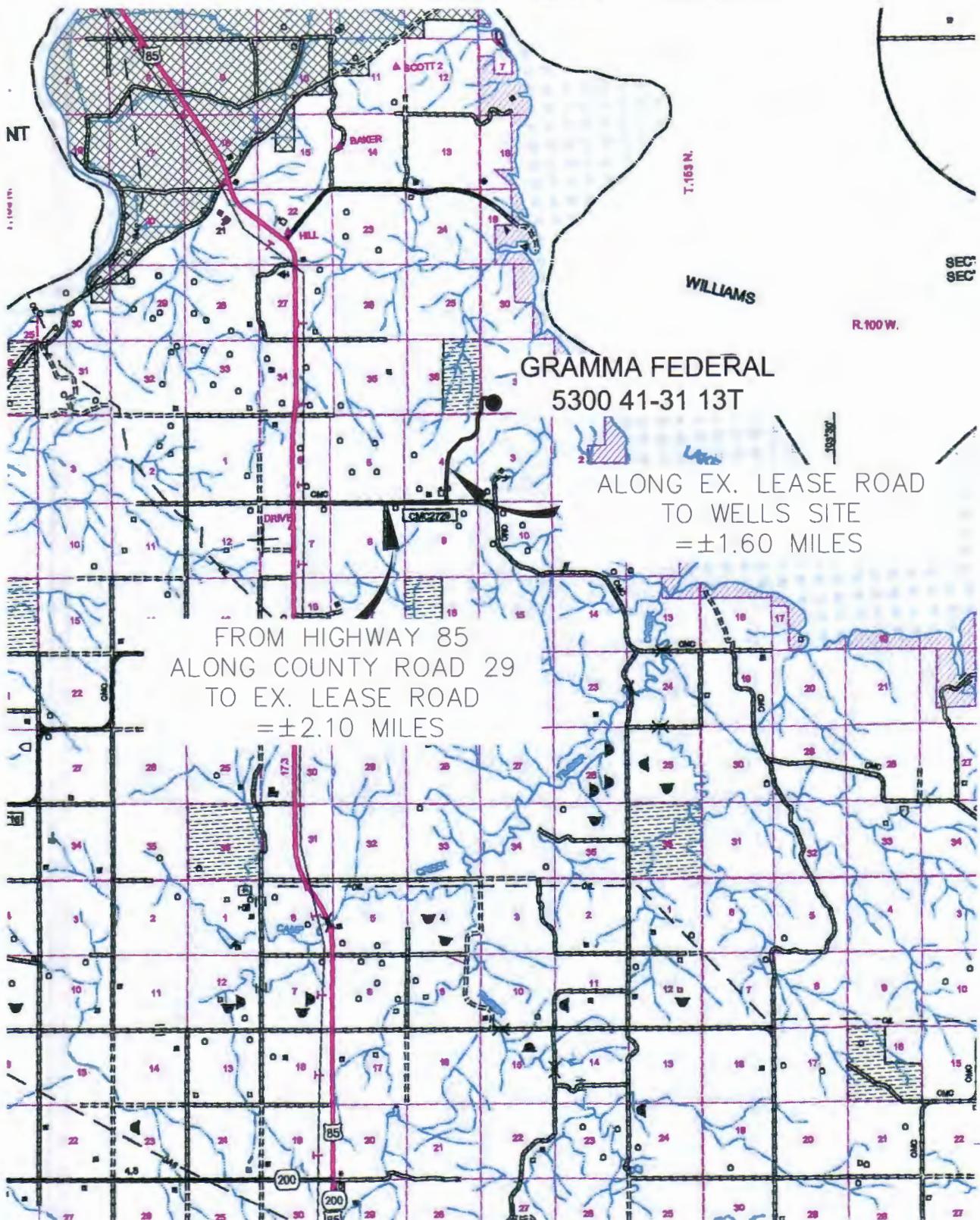
Drawn By: B.H.H. Project No.: S13-09-372.01
Checked By: D.D.K. Date: FEB 2014

Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS
REV 2	12/31/14	JJS	CHANGED WELL NAME & BH

COUNTY ROAD MAP

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"GRAMMA FEDERAL 5300 41-31 13T"

713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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OASIS PETROLEUM NORTH AMERICA, LLC
COUNTY ROAD MAP
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-372.01
Checked By: D.D.K. Date: FEB. 2014

Revision No.	Date	By	Description
REV 1	3/3/14	JJS	CORRECTED WELL CALLS
REV 2	3/31/14	JJS	CHANGED WELL NAME & BH

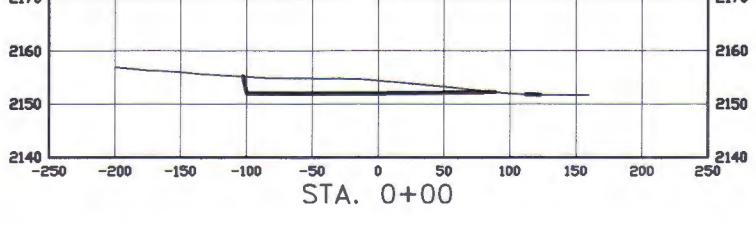
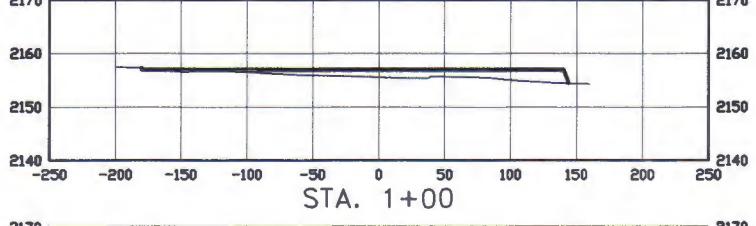
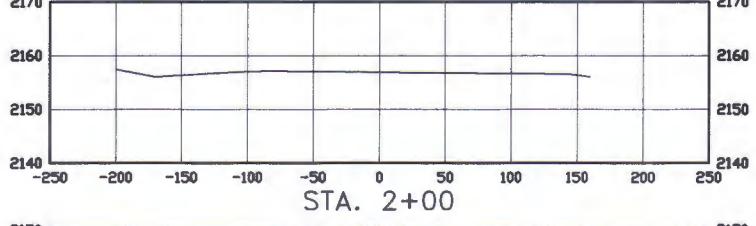
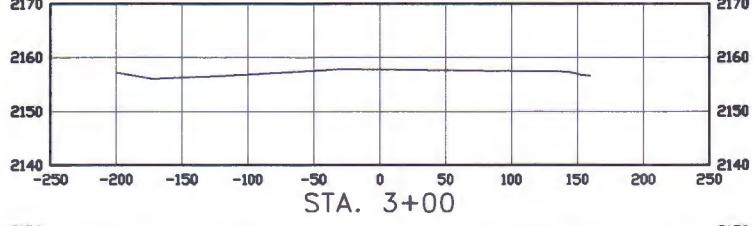
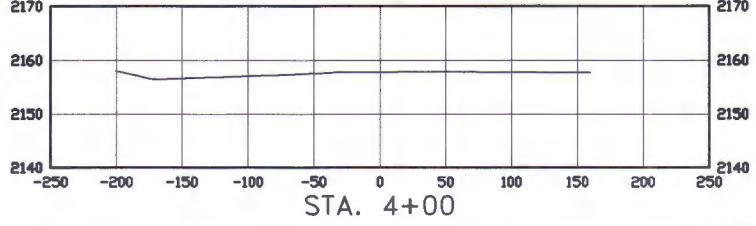
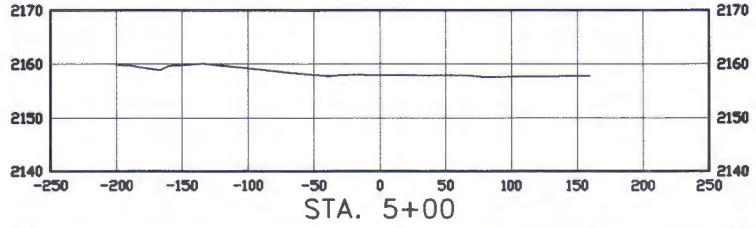
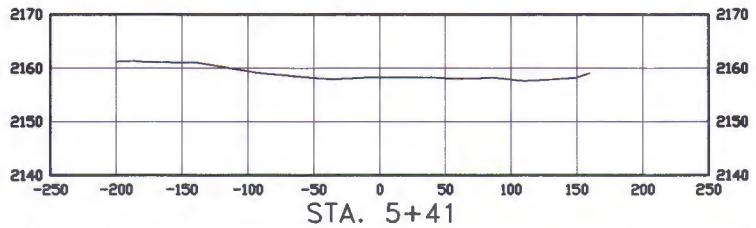
SCALE: 1" = 2 MILE

CROSS SECTIONS

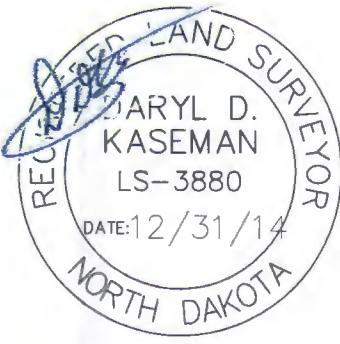
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"GRAMMA FEDERAL 5300 41-31 13T"

713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



THIS DOCUMENT WAS
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SCALE
HORIZ 1"=140'
VERT 1"=35'

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OASIS PETROLEUM NORTH AMERICA, LLC
PAD CROSS SECTIONS
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-372.01
Checked By: D.D.K. Date: FEB, 2014

Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS
REV 2	2/28/14	JJS	CHANGED WELL NAME & BH

WELL LOCATION SITE QUANTITIES
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "GRAMMA FEDERAL 5300 41-31 13T"
 713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
 SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL PAD EXTENSION ELEVATION

2157.0

EXCAVATION	1,596
PLUS PIT	6,300
	<u>7,896</u>
EMBANKMENT	517
PLUS SHRINKAGE (30%)	155
	<u>672</u>
STOCKPILE PIT	6,300
STOCKPILE TOP SOIL (6")	563
STOCKPILE MATERIAL	361
DISTURBED AREA FROM PAD	0.70 ACRES

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

CUT END SLOPES AT 1:1

FILL END SLOPES AT 1.5:1

WELL SITE LOCATION

713' FSL

320' FWL

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OASIS PETROLEUM NORTH AMERICA, LLC
 QUANTITIES
 SECTION 31, T153N, R100W
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-372.01
 Checked By: D.D.K. Date: FEB, 2014

Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS
REV 2	12/31/14	JJS	CHANGED WELL NAME & BH



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.
29317

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date May 20, 2014	<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	NDAC 43-02-03-55 Waiver

Well Name and Number Gramma Federal 5300 41-31 13T2					
Footages	713 F S L	320 F W L	Qtr-Qtr Lot4	Section 31	Township 153 N Range 100 W
Field	Pool Bakken/Three Forks			County	McKenzie
Baker					

Name of Contractor(s) Advanced Energy Services			
Address	City	State	Zip Code

24-HOUR PRODUCTION RATE

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

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 & TO INFO

Company Oasis Petroleum North America, LLC	Telephone Number (281) 404-9562	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Lauri M. Stanfield	
Title Regulatory Specialist	Date April 7, 2014	
Email Address lstanfield@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 7/3/2014	
By 	
Title ENGINEERING TECHNICIAN	



Oil and Gas Division

29317

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/

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

Date: 9/8/2014

RE: CORES AND SAMPLES

Well Name: **GRAMMA FEDERAL 5300 41-31 13T2** Well File No.: **29317**
Location: **LOT4 31-153-100** County: **MCKENZIE**
Permit Type: **Development - HORIZONTAL**
Field: **BAKER** Target Horizon: **THREE FORKS B2**

Dear BRANDI TERRY:

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

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

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

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

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

Sincerely

Stephen Fried
Geologist



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4014

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.
29317

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date May 20, 2014	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input checked="" type="checkbox"/> Other	Variance to Rule 43-02-03-31

Well Name and Number

Gramma Federal 5300 41-31 13T2

Footages	Qtr-Qtr	Section	Township	Range
713 F S L	320 F W L	Lot4	31	153 N 100 W
Field Baker	Pool Bakken/Three Forks	County McKenzie		

24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address

City

State

Zip Code

DETAILS OF WORK

Oasis Petroleum North America, LLC requests a variance to rule 43-02-03-31 requiring electrical, radioactive or other similar logs to be run to determine formation tops and zones of porosity. The surface location of this well will be very near our Lewis Federal 5300 31-31H (API #33-053-03433 NDIC # 20314) in Lot 4 Section 31, T153N, R100W and the logs run on this well should be sufficient to determine formation tops in the vertical section of the well bore. As outlined in our application for permit to drill, Oasis Petroleum North America, LLC will run gamma ray logs from KOP to the total depth and cement bond log from the production casing total depth to surface. Two digital copies of all mud logs (one tif and one las) will be submitted to the NDIC.

Company Oasis Petroleum North America, LLC	Telephone Number (281) 404-9562	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Lauri M. Stanfield	
Title Regulatory Specialist	Date April 7, 2014	
Email Address lstanfield@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 9-3-2014	
By 	
Title 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 5749 (09-2006)

Well File No.
29317

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

Notice of Intent

Approximate Start Date

May 20, 2014

Report of Work Done

Date Work Completed

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

Approximate Start Date

Drilling Prognosis

Spill Report

Redrilling or Repair

Shooting

Casing or Liner

Acidizing

Plug Well

Fracture Treatment

Supplemental History

Change Production Method

Temporarily Abandon

Reclamation

Other

NDAC 43-02-03-55 Waiver

Well Name and Number

Gramma Federal 5300 41-31 13T2

Footages	Qtr-Qtr	Section	Township	Range
713 F S L	320 F W L	Lot4	31	153 N 100 W
Field Baker	Pool Bakken/Three Forks		County McKenzie	

24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Advanced Energy Services

Address

City

State

Zip Code

DETAILS OF WORK

Oasis 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 & TO INFO

Company
Oasis Petroleum North America, LLC

Telephone Number
(281) 404-9562

Address
1001 Fannin, Suite 1500

City
Houston State
TX Zip Code
77002

Signature

Printed Name
Lauri M. Stanfield

Title
Regulatory Specialist Date
April 7, 2014

Email Address
lstanfield@oasispetroleum.com

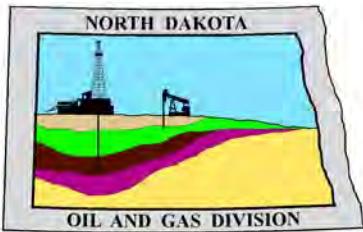
FOR STATE USE ONLY

Received Approved

Date
9/3/2014

By

Title
ENGINEERING TECHNICIAN



Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.oilgas.nd.gov

September 3, 2014

Lauri M. Stanfield
Regulatory Specialist
OASIS PETROLEUM NORTH AMERICA LLC
1001 Fannin Street, Suite 1500
Houston, TX 77002

**RE: HORIZONTAL WELL
GRAMMA FEDERAL 5300 41-31 13T2
LOT4 Section 31-153N-100W
McKenzie County
Well File # 29317**

Dear Lauri:

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 31 & 32 T153N R100W.

PERMIT STIPULATIONS: Effective June 1, 2014, a covered leak-proof container (with placard) for filter sock disposal must be maintained on the well site beginning when the well is spud, and must remain on-site during clean-out, completion, and flow-back whenever filtration operations are conducted. Also, OASIS PETROLEUM NORTH AMERICA LLC must 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: 10016' 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.

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

Thank you for your cooperation.

Sincerely,

Matt Messana
Engineering Technician



APPLICATION FOR PERMIT TO DRILL HORIZONTAL WELL - FORM 1H

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

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Type of Work New Location	Type of Well Oil & Gas	Approximate Date Work Will Start 05 / 20 / 2014	Confidential Status No
Operator OASIS PETROLEUM NORTH AMERICA LLC		Telephone Number 281-404-9562	
Address 1001 Fannin Street, Suite 1500		City Houston	State TX Zip Code 77002

Notice has been provided to the owner of any permanently occupied dwelling within 1,320 feet. This well is not located within five hundred feet of an occupied dwelling.

WELL INFORMATION (If more than one lateral proposed, enter data for additional laterals on page 2)

Well Name GRAMMA FEDERAL			Well Number 5300 41-31 13T2				
Surface Footages 713 F S L 320 F W L		Qtr-Qtr LOT4	Section 31	Township 153 N	Range 100 W	County McKenzie	
Longstring Casing Point Footages 1004 F S L 738 F W L		Qtr-Qtr LOT4	Section 31	Township 153 N	Range 100 W	County McKenzie	
Longstring Casing Point Coordinates From Well Head 291 N From WH 418 E From WH		Azimuth 59 °	Longstring Total Depth 11232 Feet MD 10947 Feet TVD				
Bottom Hole Footages From Nearest Section Line 1285 F S L 224 F E L		Qtr-Qtr SESE	Section 32	Township 153 N	Range 100 W	County McKenzie	
Bottom Hole Coordinates From Well Head 572 N From WH 9992 E From WH		KOP Lateral 1 10469 Feet MD	Azimuth Lateral 1 90 °	Estimated Total Depth Lateral 1 20858 Feet MD 10998 Feet TVD			
Latitude of Well Head 48 ° 01 ' 34.88 "	Longitude of Well Head -103 ° 36 ' 10.35 "	NAD Reference NAD83	Description of Spacing Unit: Sections 31 & 32 T153N R100W (Subject to NDIC Approval)				
Ground Elevation 2158 Feet Above S.L.	Acres in Spacing/Drilling Unit 1280	Spacing/Drilling Unit Setback Requirement 500 Feet N/S 200 Feet E/W			Industrial Commission Order 23752		
North Line of Spacing/Drilling Unit 10582 Feet	South Line of Spacing/Drilling Unit 10536 Feet	East Line of Spacing/Drilling Unit 5280 Feet			West Line of Spacing/Drilling Unit 5249 Feet		
Objective Horizons Three Forks B2					Pierre Shale Top 2123		
Proposed Surface Casing	Size 13 - 3/8 "	Weight 54 Lb./Ft.	Depth 2230 Feet	Cement Volume 1214 Sacks	NOTE: Surface hole must be drilled with fresh water and surface casing must be cemented back to surface.		
Proposed Longstring Casing	Size 7 - "	Weight(s) 32 Lb./Ft.	Longstring Total Depth 11232 Feet MD 10947 Feet TVD		Cement Volume 838 Sacks	Cement Top 4058 Feet	Top Dakota Sand 5558 Feet
Base Last Charles Salt (If Applicable) 9278 Feet		NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.					
Proposed Logs Triple Combo: KOP to Kibbey GR/RES to BSC GR to Surf CND through the Dakota							
Drilling Mud Type (Vertical Hole - Below Surface Casing) Invert				Drilling Mud Type (Lateral) Salt Water Gel			
Survey Type in Vertical Portion of Well MWD Every 100 Feet		Survey Frequency: Build Section 30 Feet		Survey Frequency: Lateral 90 Feet		Survey Contractor Ryan	

NOTE: A Gamma Ray log must be run to ground surface and a CBL must be run on intermediate or longstring casing string if set.

Surveys are required at least every 30 feet in the build section and every 90 feet in the lateral section of a horizontal well. Measurement inaccuracies are not considered when determining compliance with the spacing/drilling unit boundary setback requirement except in the following scenarios: 1) When the angle between the well bore and the respective boundary is 10 degrees or less; or 2) If Industry standard methods and equipment are not utilized. Consult the applicable field order for exceptions.

If measurement inaccuracies are required to be considered, a 2° MWD measurement inaccuracy will be applied to the horizontal portion of the well bore. This measurement inaccuracy is applied to the well bore from KOP to TD.

REQUIRED ATTACHMENTS: Certified surveyor's plat, horizontal section plat, estimated geological tops, proposed mud/cementing plan, directional plot/plan, \$100 fee.

See Page 2 for Comments section and signature block.

COMMENTS, ADDITIONAL INFORMATION, AND/OR LIST OF ATTACHMENTS

Lateral 2

KOP Lateral 2 Feet MD	Azimuth Lateral 2 °	Estimated Total Depth Lateral 2 Feet MD Feet TVD			KOP Coordinates From Well Head From WH From WH		
Formation Entry Point Coordinates From Well Head From WH			Bottom Hole Coordinates From Well Head From WH			From WH	
KOP Footages From Nearest Section Line F L			Qtr-Qtr	Section	Township N	Range W	County
F	L	F	L				
Bottom Hole Footages From Nearest Section Line F L			Qtr-Qtr	Section	Township N	Range W	County
F	L	F	L				

Lateral 3

KOP Lateral 3 Feet MD	Azimuth Lateral 3 °	Estimated Total Depth Lateral 3 Feet MD Feet TVD			KOP Coordinates From Well Head From WH From WH		
Formation Entry Point Coordinates From Well Head From WH			Bottom Hole Coordinates From Well Head From WH			From WH	
KOP Footages From Nearest Section Line F L			Qtr-Qtr	Section	Township N	Range W	County
F	L	F	L				
Bottom Hole Footages From Nearest Section Line F L			Qtr-Qtr	Section	Township N	Range W	County
F	L	F	L				

Lateral 4

KOP Lateral 4 Feet MD	Azimuth Lateral 4 °	Estimated Total Depth Lateral 4 Feet MD Feet TVD			KOP Coordinates From Well Head From WH From WH		
Formation Entry Point Coordinates From Well Head From WH			Bottom Hole Coordinates From Well Head From WH			From WH	
KOP Footages From Nearest Section Line F L			Qtr-Qtr	Section	Township N	Range W	County
F	L	F	L				
Bottom Hole Footages From Nearest Section Line F L			Qtr-Qtr	Section	Township N	Range W	County
F	L	F	L				

Lateral 5

KOP Lateral 5 Feet MD	Azimuth Lateral 5 °	Estimated Total Depth Lateral 5 Feet MD Feet TVD			KOP Coordinates From Well Head From WH From WH		
Formation Entry Point Coordinates From Well Head From WH			Bottom Hole Coordinates From Well Head From WH			From WH	
KOP Footages From Nearest Section Line F L			Qtr-Qtr	Section	Township N	Range W	County
F	L	F	L				
Bottom Hole Footages From Nearest Section Line F L			Qtr-Qtr	Section	Township N	Range W	County
F	L	F	L				

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

Date

04 / 09 / 2014

ePermit

Printed Name

Lauri M. Stanfield

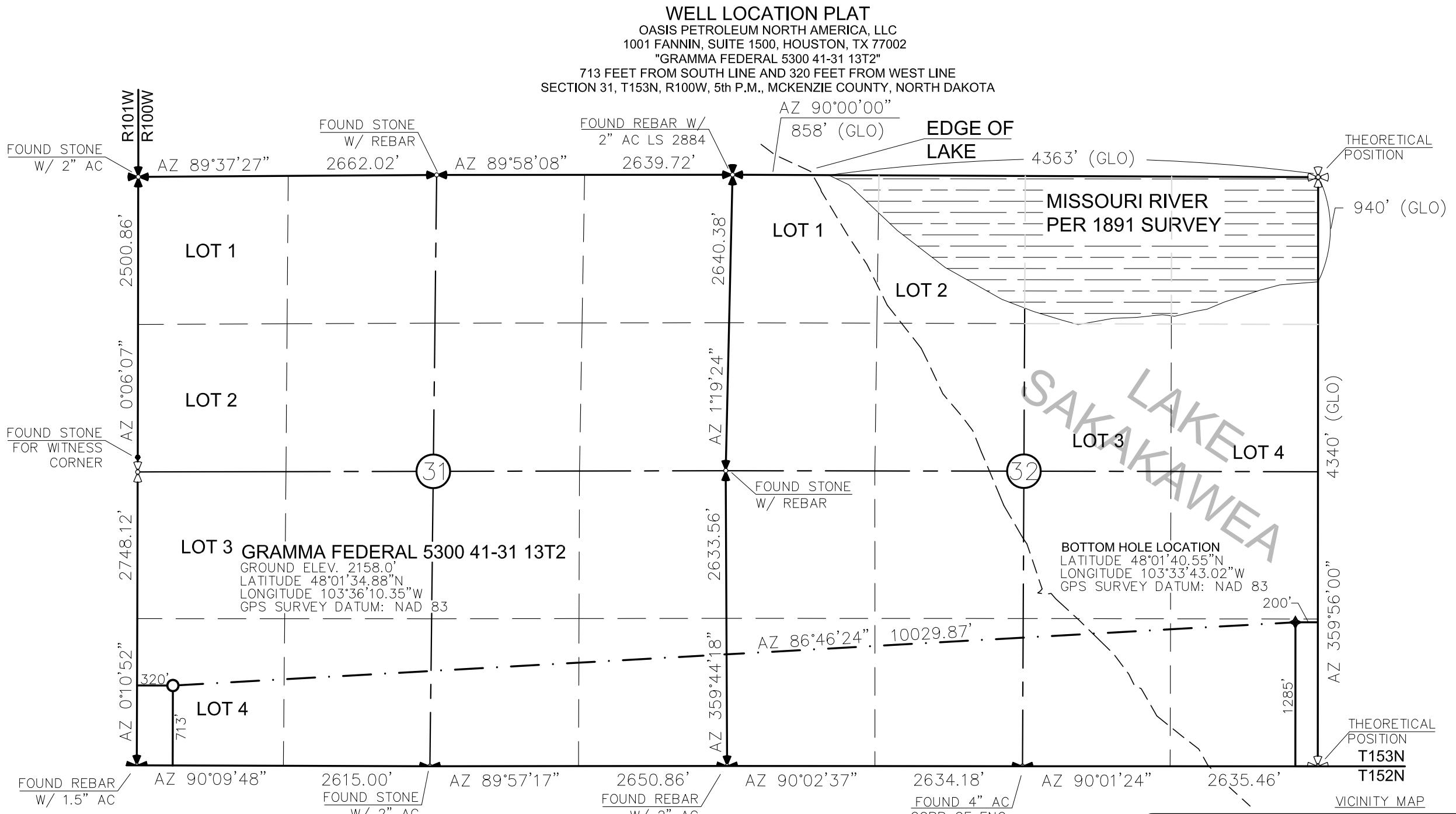
Title

Regulatory Specialist**FOR STATE USE ONLY**

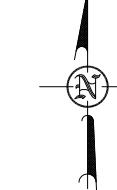
Permit and File Number 29317	API Number 33 - 053 - 06232
Field BAKER	
Pool BAKKEN	Permit Type DEVELOPMENT

FOR STATE USE ONLY

Date Approved 9 / 3 / 2014
By Matt Messana
Title Engineering Technician



THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 ON 3/5/14 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.

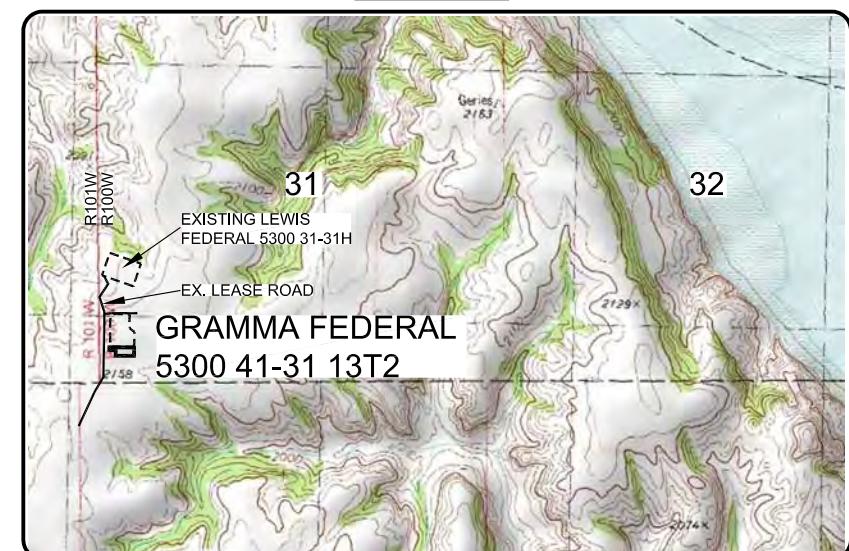
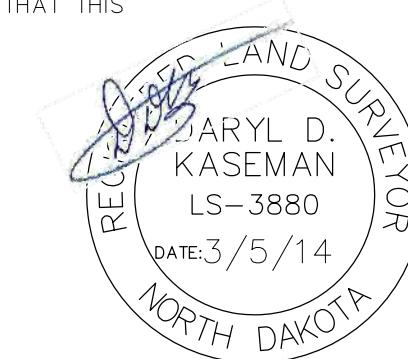


- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED

DARYL D. KASEMAN LS-3880

STAKED ON 2/28/14
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.



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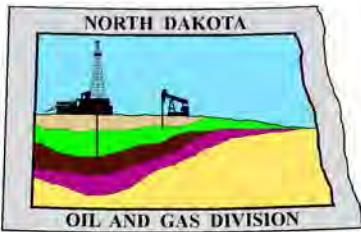
1/8

SHEET NO.

Location Code/Comments: Gramma Federal 5300 41-31 13T2 Date: 3/5/2014 Job No.: 141

Revision No.	Date	By	Description
REV 1	3/5/14	JWS	CORRECTED WELL CALLS

OASIS PETROLEUM NORTH AMERICA, LLC	WELL LOCATION PLAT	SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA		
Drawn By: BHH	Project No.: S13-09-372-01	Date: FEB 2014
Checked By: DDK		



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

April 9, 2014

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

Dear Operator,

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

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

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

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

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

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

Thank you for your cooperation.

Sincerely,

Bruce E. Hicks
Assistant Director

DRILLING PLAN													
OPERATOR	Oasis Petroleum	COUNTY/STATE	McKenzie Co., ND										
WELL NAME	Gramma Federal 5300 41-31 13T2	RIG	Nabors B-Series										
WELL TYPE	Horizontal Three Forks 2nd Bench												
LOCATION	SWSW 31-153N-100W	Surface Location (survey plat): 713' fsl		320' fwl									
EST. T.D.	20,858'			GROUND ELEV: 2158 Finished Pad Elev.		Sub Height: 25							
TOTAL LATERAL:	9,626' (est)	KB ELEV: 2183											
PROGNOSIS:	Based on 2,183' KB(est)		LOGS:	Type	Interval								
MARKER	DEPTH (Surf Loc)	DATUM (Surf Loc)	OH Logs: Triple Combo KOP to Kirby (or min run of 1800' whichever is greater); GR/Res to BSC; GR to surf; CND through the Dakota CBL/GR: Above top of cement/GR to base of casing MWD GR: KOP to lateral TD										
Pierre	NDIC MAP	2,123	60'										
Greenhorn		4,738	-2,555'										
Mowry		5,129	-2,946'										
Dakota		5,558	-3,375'										
Rierdon		6,346	-4,163'										
Dunham Salt		6,903	-4,720'										
Dunham Salt Base		7,020	-4,837'										
Spearfish		7,036	-4,853'										
Pine Salt		7,363	-5,180'										
Pine Salt Base		7,385	-5,202'										
Opecche Salt		7,437	-5,254'										
Opecche Salt Base		7,503	-5,320'										
Broom Creek (Top of Minnelusa Gp.)		7,669	-5,486'										
Amsden		7,734	-5,551'										
Tyler		7,878	-5,695'										
Otter (Base of Minnelusa Gp.)		8,102	-5,919'										
Kibbey		8,400	-6,217'										
Charles Salt		8,606	-6,423'										
UB		9,202	-7,019'										
Base Last Salt		9,278	-7,095'										
Ratcliffe		9,313	-7,130'										
Mission Canyon		9,488	-7,305'										
Lodgepole		10,033	-7,850'										
Lodgepole Fracture Zone		10,496	-8,313'										
False Bakken		10,765	-8,582'										
Upper Bakken		10,776	-8,593'										
Middle Bakken		10,792	-8,609'										
Lower Bakken		10,831	-8,648'										
Pronghorn		10,839	-8,656'										
Three Forks 1st Bench		10,858	-8,675'										
Three Forks 1st Bench Claystone		10,879	-8,696'										
Three Forks 2nd Bench		10,934	-8,751'										
Three Forks 2nd Bench Claystone		10,958	-8,775'										
Three Forks 3rd Bench		10,994	-8,811'										
Dip Rate:	-0.3												
Max. Anticipated BHP:	4748		Surface Formation: Glacial till										
MUD:	Interval	Type	WT	Vis	WL	Remarks							
Surface:	0' -	2,230'	FW	8.4-9.0	28-32	NC	Circ Mud Tanks						
Intermediate:	2,230' -	11,232'	Invert	9.5-10.4	40-50	30+HtHp	Circ Mud Tanks						
Laterals:	11,232' -	20,858'	Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks						
CASING:	Size	Wt ppf	Hole	Depth	Cement	WOC	Remarks						
Surface:	13-3/8"	54.5#	13-1/2"	2,230'	To Surface	12	100' into Pierre						
Intermediate (Dakota):	9-5/8"	40#	12-1/4"	6,400'	2230	24	Set Casing across Dakota						
Intermediate:	7"	32#	8-3/4"	11,232'	4058	24	TOC 1500' above Dakota						
Production Liner:	4.5"	13.5#	6"	20,858'	TOL @ 10,419'								
PROBABLE PLUGS, IF REQ'D:													
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI							
Surface:	2,230	2,230	713' FSL	320' FWL	Sec. 31-T153N-R100W	Survey Company:							
KOP:	10,469'	10,469'	748' FSL	320' FWL	Sec. 31-T153N-R100W	Build Rate:	12 deg /100'						
EOC:	11,217'	10,947'	996' FSL	725' FWL	Sec. 31-T153N-R100W	Turn Rate:	3 deg /100'						
Casing Point:	11,232'	10,947'	1004' FSL	738' FWL	Sec. 31-T153N-R100W	58.0							
Three Forks Lateral TD:	20,858'	10,998'	1285' FSL	200' FEL	Sec. 32-T153N-R100W	90.0							
Comments:													
Request Sundry to Waive Open Hole Logs													
Justification Well - LOG WAIVER REQUESTED Oasis Petroleum Lewis 5300 31-31H 700' north in sec. 31													
No frac string planned													
35 packers and 25 sleeves													
OASIS PETROLEUM													
Geology: M.Steed 3/18/2014				Engineering: M. Brown 3-31-14									

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 13T2
Section 31 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 2230	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 2230	13-3/8", 54.5#, J-55, STC, 8rd	1400 / 1.93	2730 / 2.61	689 / 3.36

API Rating & Safety Factor

- a) Based on full casing evacuation with 9 ppg fluid on backside (2230' setting depth).
- b) Burst pressure based on 9 ppg fluid with no fluid on backside (2230' setting depth).
- c) Based on string weight in 9 ppg fluid at 2230' TVD plus 100k# overpull. (Buoyed weight equals 105k lbs.)

Cement volumes are based on 13-3/8" casing set in 17-1/2" hole with **40%** excess to circulate cement back to surface.
 Mix and pump the following slurry.

Pre-flush (Spacer): 10 bbls fresh water

Lead Slurry: **914 sks** (324 bbls) Conventional system with 75 lb/sk cement, 2% extender, 10% expanding agent, 2% CaCl2 and 0.5 lb/sk lost circulation control agent

Tail Slurry: **300 sks** (62 bbls) Conventional system with 94 lb/sk cement, 0.2% CaCl2, and .3 lb/sk lost circulation control agent

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 13T2
Section 31 T153N R100W
McKenzie County, ND

INTERMEDIATE CASING AND CEMENT DESIGN

Intermediate Casing Design

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
9-5/8"	0' - 6400'	40	L-80	LTC	8.835"	8.75***	5,450	7,270	9,090

**Special Drift

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' - 6400'	9-5/8", 40#, HCP-110, LTC, 8rd	3090 / 3.71*	5750 / 1.24	837 / 3.86

API Rating & Safety Factor

- a) Burst pressure calculated from a gas kick coming from the production zone (Bakken Pool) at 9,000psi and a subsequent breakdown at the 9-5/8" shoe, based on a 13.5#/ft fracture gradient. Backup of 9 ppg fluid.
- b) Collapse pressure based on 11.5ppg fluid on backside and 9ppg fluid inside of casing.
- c) Yield based on string weight in 10 ppg fluid, (217k lbs buoyed weight) plus 100k lbs overpull.

Cement volumes are estimates based on 9-5/8" casing set in an 12-1/4" hole with **30%** excess. TOC at SFC shoe.

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

Lead Slurry: **592 sks** (210 bbls) Conventional system with 75 lb/sk cement, 0.5lb/sk lost circulation, 10% expanding agent, 2% extender, 2% CaCl₂, 0.2% anti foam, and 0.4% fluid loss

Tail Slurry: **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
Well Summary
Gramma Federal 5300 41-31 13T2
Section 31 T153N R100W
McKenzie County, ND

INTERMEDIATE CASING AND CEMENT DESIGN

Intermediate Casing Design

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
7"	0' - 11232'	32	HCP-110	LTC	6.094"	6.000***	6,730	8,970	11210

**Special Drift

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' - 11232'	7", 32#, HCP-110, LTC, 8rd	11820 / 2.07*	12460 / 1.28	897 / 2.21
6903' - 9300'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.05**	12460 / 1.30	

API Rating & Safety Factor

- a) *Assume full casing evacuation with 10 ppg fluid on backside. **Assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals.
- b) Burst pressure based on 9000 psig max press for stimulation plus 10.2 ppg fluid in casing and 9 ppg fluid on backside-to 10947' TVD.
- c) Based on string weight in 10 ppg fluid, (303k lbs buoyed weight) plus 100k lbs overpull.

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

Pre-flush (Spacer): **20 bbls** Chem wash
70 bbls 10.6# Scavenger

Lead Slurry: **190 sks** (76 bbls) Conventional system with 24 lb/sk cement, 54lb/sk extender, 3% KCl, 0.5% viscosifier, 0.2% anti foam, 0.5lb/sk lost circulation

Tail Slurry: **648 sks** (177 bbls) Conventional system with 94 lb/sk cement, 3% KCl, 35% Silica, 0.2% fluid loss agent, 0.5 lb/sk lost circulation control agent and 0.4% retarder

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 13T2
Section 31 T153N R100W
McKenzie County, ND

PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Estimated Torque
4-1/2"	10419' - 20858'	13.5	P-110	BTC	3.920"	3.795"	4500

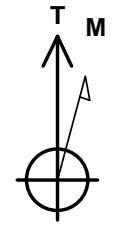
Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
10419' - 20858'	4-1/2", 13.5 lb, P-110, BTC, 8rd	10670 / 1.96	12410 / 1.28	443 / 2.00

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10998' TVD.
Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient
- b) and 9 ppg external fluid gradient @ 10998' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 120k lbs.) plus 100k lbs overpull.

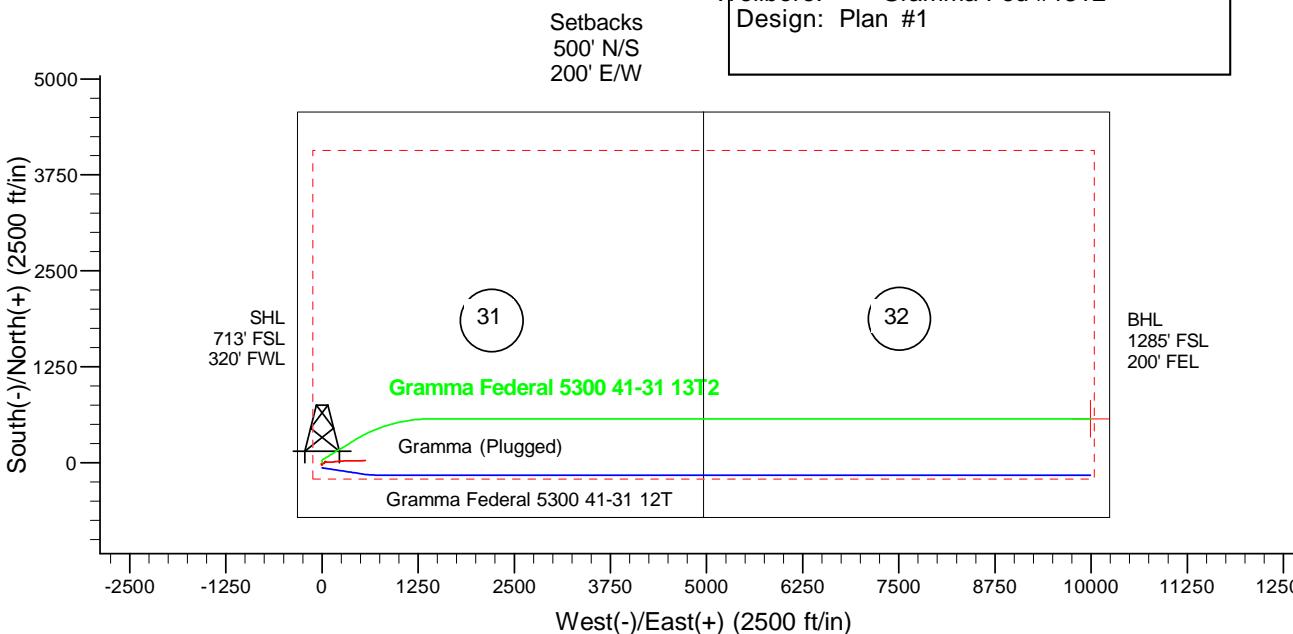
Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations.

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


 Azimuths to True North
 Magnetic North: 8.29°
 Magnetic Field Strength: 56436.6snT
 Dip Angle: 72.97°
 Date: 3/28/2014
 Model: IGRF2010



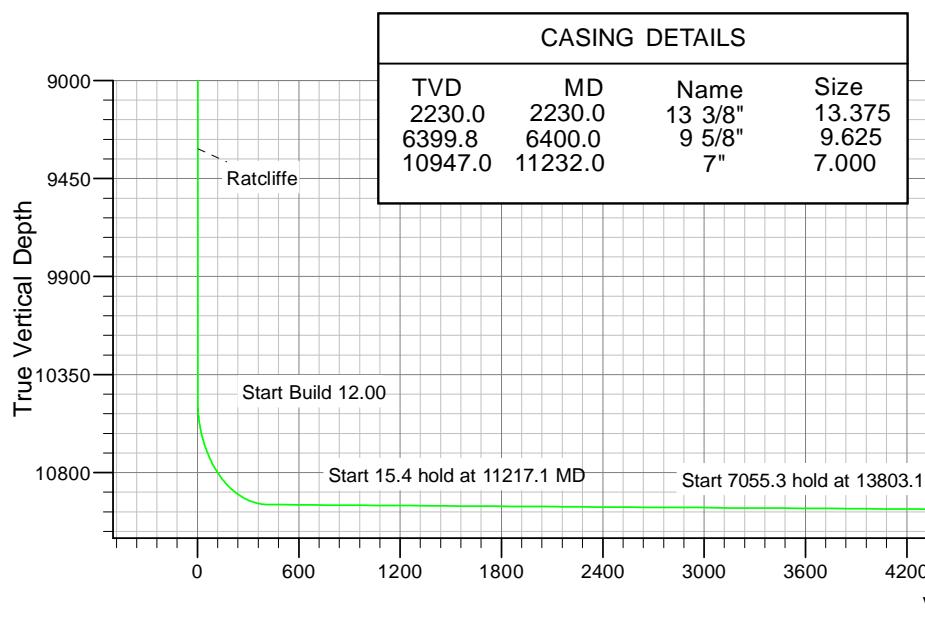
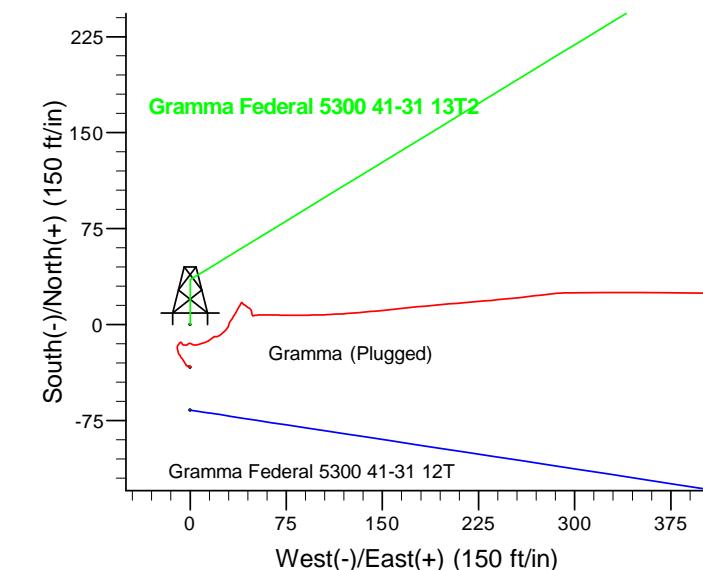
Project: Indian Hills
 Site: 153N-100W-31/32
 Well: Gramma Federal 5300 41-31 13T2
 Wellbore: Gramma Fed #13T2
 Design: Plan #1



SITE DETAILS: 153N-100W-31/32

Site Centre Latitude: 48° 1' 34.880 N
 Longitude: 103° 36' 10.350 W

Positional Uncertainty: 0.0
 Convergence: -2.31
 Local North: True



SECTION DETAILS							
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	
2400.0	0.00	0.00	2400.0	0.0	0.0	0.00	
2412.0	0.60	0.00	2412.0	0.1	0.0	5.00	
5742.3	0.60	0.00	5742.1	34.9	0.0	0.00	
5754.3	0.00	0.00	5754.1	35.0	0.0	5.00	
10000.2	0.00	0.00	10000.0	35.0	0.0	0.00	
10469.6	0.00	0.00	10469.5	35.0	0.0	0.00	
11217.1	89.70	58.53	10946.9	283.0	405.1	12.00	
11232.5	89.70	58.53	10947.0	291.0	418.2	0.00	
12281.6	89.70	90.00	10952.7	572.0	1415.3	3.00	
13803.1	89.70	90.00	10960.7	572.0	2936.8	0.00	
20858.4	89.70	90.00	10998.0	572.0	9992.0	0.00	PBHL

Gramma #13T2 PBHL

TD at 20858.4

Oasis

**Indian Hills
153N-100W-31/32
Gramma Federal 5300 41-31 13T2**

Gramma Fed #13T2

Plan: Plan #1

Standard Planning Report

28 March, 2014

Planning Report

Database: Company: Project: Site: Well: Wellbore: Design:	OpenWellsCompass - EDM Prod Oasis Indian Hills 153N-100W-31/32 Gramma Federal 5300 41-31 13T2 Gramma Fed #13T2 Plan #1	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Well Gramma Federal 5300 41-31 13T2 WELL @ 2183.0ft (Original Well Elev) WELL @ 2183.0ft (Original Well Elev) True Minimum Curvature							
Project	Indian Hills									
Map System: Geo Datum: Map Zone:	US State Plane 1983 North American Datum 1983 North Dakota Northern Zone	System Datum:	Mean Sea Level							
Site	153N-100W-31/32									
Site Position: From: Position Uncertainty:	Lat/Long 0.0 ft	Northing: Easting: Slot Radius:	390,399.32 ft 1,209,468.83 ft 13.200 in Latitude: Longitude: Grid Convergence:							
Well	Gramma Federal 5300 41-31 13T2									
Well Position	+N/-S +E/-W	-722.5 ft 18.4 ft	Northing: Easting: Wellhead Elevation:	389,676.70 ft 1,209,458.06 ft Ground Level: 2,158.0 ft	Latitude: Longitude: Grid Convergence:	48° 1' 42.010 N 103° 36' 10.620 W -2.31 °				
Wellbore	Gramma Fed #13T2									
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)					
	IGRF2010	3/28/2014	8.29	72.97	56,437					
Design	Plan #1									
Audit Notes:										
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0						
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)						
	0.0	0.0	0.0	86.72						
Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
2,412.0	0.60	0.00	2,412.0	0.1	0.0	5.00	5.00	0.00	0.00	0.00
5,742.3	0.60	0.00	5,742.1	34.9	0.0	0.00	0.00	0.00	0.00	0.00
5,754.3	0.00	0.00	5,754.1	35.0	0.0	5.00	-5.00	0.00	0.00	180.00
10,000.2	0.00	0.00	10,000.0	35.0	0.0	0.00	0.00	0.00	0.00	0.00
10,469.6	0.00	0.00	10,469.5	35.0	0.0	0.00	0.00	0.00	0.00	0.00
11,217.1	89.70	58.53	10,946.9	283.0	405.1	12.00	12.00	0.00	58.53	
11,232.5	89.70	58.53	10,947.0	291.0	418.2	0.00	0.00	0.00	0.00	
12,281.6	89.70	90.00	10,952.7	572.0	1,415.3	3.00	0.00	3.00	90.09	
13,803.1	89.70	90.00	10,960.7	572.0	2,936.8	0.00	0.00	0.00	0.00	
20,858.4	89.70	90.00	10,998.0	572.0	9,992.0	0.00	0.00	0.00	0.00	Gramma #13T2 PBHL

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Company:	Oasis	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #13T2		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
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
2,123.0	0.00	0.00	2,123.0	0.0	0.0	0.0	0.00	0.00	0.00
Pierre									
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,230.0	0.00	0.00	2,230.0	0.0	0.0	0.0	0.00	0.00	0.00
13 3/8"									
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
Start Build 5.00									
2,412.0	0.60	0.00	2,412.0	0.1	0.0	0.0	5.00	5.00	0.00
Start 3330.3 hold at 2412.0 MD									
2,500.0	0.60	0.00	2,500.0	1.0	0.0	0.1	0.00	0.00	0.00
2,600.0	0.60	0.00	2,600.0	2.0	0.0	0.1	0.00	0.00	0.00
2,700.0	0.60	0.00	2,700.0	3.1	0.0	0.2	0.00	0.00	0.00
2,800.0	0.60	0.00	2,800.0	4.1	0.0	0.2	0.00	0.00	0.00
2,900.0	0.60	0.00	2,900.0	5.2	0.0	0.3	0.00	0.00	0.00
3,000.0	0.60	0.00	3,000.0	6.2	0.0	0.4	0.00	0.00	0.00
3,100.0	0.60	0.00	3,100.0	7.3	0.0	0.4	0.00	0.00	0.00
3,200.0	0.60	0.00	3,200.0	8.3	0.0	0.5	0.00	0.00	0.00
3,300.0	0.60	0.00	3,300.0	9.4	0.0	0.5	0.00	0.00	0.00
3,400.0	0.60	0.00	3,399.9	10.4	0.0	0.6	0.00	0.00	0.00
3,500.0	0.60	0.00	3,499.9	11.5	0.0	0.7	0.00	0.00	0.00
3,600.0	0.60	0.00	3,599.9	12.5	0.0	0.7	0.00	0.00	0.00
3,700.0	0.60	0.00	3,699.9	13.6	0.0	0.8	0.00	0.00	0.00
3,800.0	0.60	0.00	3,799.9	14.6	0.0	0.8	0.00	0.00	0.00
3,900.0	0.60	0.00	3,899.9	15.6	0.0	0.9	0.00	0.00	0.00
4,000.0	0.60	0.00	3,999.9	16.7	0.0	1.0	0.00	0.00	0.00
4,100.0	0.60	0.00	4,099.9	17.7	0.0	1.0	0.00	0.00	0.00
4,200.0	0.60	0.00	4,199.9	18.8	0.0	1.1	0.00	0.00	0.00
4,300.0	0.60	0.00	4,299.9	19.8	0.0	1.1	0.00	0.00	0.00
4,400.0	0.60	0.00	4,399.9	20.9	0.0	1.2	0.00	0.00	0.00
4,500.0	0.60	0.00	4,499.9	21.9	0.0	1.3	0.00	0.00	0.00
4,600.0	0.60	0.00	4,599.9	23.0	0.0	1.3	0.00	0.00	0.00
4,700.0	0.60	0.00	4,699.9	24.0	0.0	1.4	0.00	0.00	0.00

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Company:	Oasis	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #13T2		
Design:	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,738.1	0.60	0.00	4,738.0	24.4	0.0	1.4	0.00	0.00	0.00	0.00
Greenhorn										
4,800.0	0.60	0.00	4,799.9	25.1	0.0	1.4	0.00	0.00	0.00	0.00
4,900.0	0.60	0.00	4,899.9	26.1	0.0	1.5	0.00	0.00	0.00	0.00
5,000.0	0.60	0.00	4,999.9	27.2	0.0	1.6	0.00	0.00	0.00	0.00
5,100.0	0.60	0.00	5,099.9	28.2	0.0	1.6	0.00	0.00	0.00	0.00
5,129.1	0.60	0.00	5,129.0	28.5	0.0	1.6	0.00	0.00	0.00	0.00
Mowry										
5,200.0	0.60	0.00	5,199.8	29.3	0.0	1.7	0.00	0.00	0.00	0.00
5,300.0	0.60	0.00	5,299.8	30.3	0.0	1.7	0.00	0.00	0.00	0.00
5,400.0	0.60	0.00	5,399.8	31.4	0.0	1.8	0.00	0.00	0.00	0.00
5,500.0	0.60	0.00	5,499.8	32.4	0.0	1.9	0.00	0.00	0.00	0.00
5,558.2	0.60	0.00	5,558.0	33.0	0.0	1.9	0.00	0.00	0.00	0.00
Dakota										
5,600.0	0.60	0.00	5,599.8	33.4	0.0	1.9	0.00	0.00	0.00	0.00
5,700.0	0.60	0.00	5,699.8	34.5	0.0	2.0	0.00	0.00	0.00	0.00
5,742.3	0.60	0.00	5,742.1	34.9	0.0	2.0	0.00	0.00	0.00	0.00
Start Drop -5.00										
5,754.3	0.00	0.00	5,754.1	35.0	0.0	2.0	5.00	-5.00	0.00	
Start 4245.9 hold at 5754.3 MD										
5,800.0	0.00	0.00	5,799.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
5,900.0	0.00	0.00	5,899.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,000.0	0.00	0.00	5,999.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,100.0	0.00	0.00	6,099.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,200.0	0.00	0.00	6,199.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,300.0	0.00	0.00	6,299.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,346.2	0.00	0.00	6,346.0	35.0	0.0	2.0	0.00	0.00	0.00	0.00
Rierdon										
6,400.0	0.00	0.00	6,399.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
9 5/8"										
6,500.0	0.00	0.00	6,499.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,600.0	0.00	0.00	6,599.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,700.0	0.00	0.00	6,699.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,800.0	0.00	0.00	6,799.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,900.0	0.00	0.00	6,899.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
6,903.2	0.00	0.00	6,903.0	35.0	0.0	2.0	0.00	0.00	0.00	0.00
Dunham Salt										
7,000.0	0.00	0.00	6,999.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
7,020.2	0.00	0.00	7,020.0	35.0	0.0	2.0	0.00	0.00	0.00	0.00
Dunham Salt Base										
7,036.2	0.00	0.00	7,036.0	35.0	0.0	2.0	0.00	0.00	0.00	0.00
Spearfish										
7,100.0	0.00	0.00	7,099.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
7,200.0	0.00	0.00	7,199.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
7,300.0	0.00	0.00	7,299.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
7,363.2	0.00	0.00	7,363.0	35.0	0.0	2.0	0.00	0.00	0.00	0.00
Pine Salt										
7,385.2	0.00	0.00	7,385.0	35.0	0.0	2.0	0.00	0.00	0.00	0.00
Pine Salt Base										
7,400.0	0.00	0.00	7,399.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
7,437.2	0.00	0.00	7,437.0	35.0	0.0	2.0	0.00	0.00	0.00	0.00
Opeche Salt										
7,500.0	0.00	0.00	7,499.8	35.0	0.0	2.0	0.00	0.00	0.00	0.00
7,503.2	0.00	0.00	7,503.0	35.0	0.0	2.0	0.00	0.00	0.00	0.00

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Company:	Oasis	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #13T2		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Opeche Salt Base									
7,600.0	0.00	0.00	7,599.8	35.0	0.0	2.0	0.00	0.00	0.00
7,669.2	0.00	0.00	7,669.0	35.0	0.0	2.0	0.00	0.00	0.00
Broom Creek (Top of Minnelusa Gp.)									
7,700.0	0.00	0.00	7,699.8	35.0	0.0	2.0	0.00	0.00	0.00
7,734.2	0.00	0.00	7,734.0	35.0	0.0	2.0	0.00	0.00	0.00
Amsden									
7,800.0	0.00	0.00	7,799.8	35.0	0.0	2.0	0.00	0.00	0.00
7,878.2	0.00	0.00	7,878.0	35.0	0.0	2.0	0.00	0.00	0.00
Tyler									
7,900.0	0.00	0.00	7,899.8	35.0	0.0	2.0	0.00	0.00	0.00
8,000.0	0.00	0.00	7,999.8	35.0	0.0	2.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,099.8	35.0	0.0	2.0	0.00	0.00	0.00
8,102.2	0.00	0.00	8,102.0	35.0	0.0	2.0	0.00	0.00	0.00
Otter (Base of Minnelusa Gp.)									
8,200.0	0.00	0.00	8,199.8	35.0	0.0	2.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,299.8	35.0	0.0	2.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,399.8	35.0	0.0	2.0	0.00	0.00	0.00
8,400.2	0.00	0.00	8,400.0	35.0	0.0	2.0	0.00	0.00	0.00
Kibbey									
8,500.0	0.00	0.00	8,499.8	35.0	0.0	2.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,599.8	35.0	0.0	2.0	0.00	0.00	0.00
8,606.2	0.00	0.00	8,606.0	35.0	0.0	2.0	0.00	0.00	0.00
Charles Salt									
8,700.0	0.00	0.00	8,699.8	35.0	0.0	2.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,799.8	35.0	0.0	2.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,899.8	35.0	0.0	2.0	0.00	0.00	0.00
9,000.0	0.00	0.00	8,999.8	35.0	0.0	2.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,099.8	35.0	0.0	2.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,199.8	35.0	0.0	2.0	0.00	0.00	0.00
9,202.2	0.00	0.00	9,202.0	35.0	0.0	2.0	0.00	0.00	0.00
UB									
9,278.2	0.00	0.00	9,278.0	35.0	0.0	2.0	0.00	0.00	0.00
Base Last Salt									
9,300.0	0.00	0.00	9,299.8	35.0	0.0	2.0	0.00	0.00	0.00
9,313.2	0.00	0.00	9,313.0	35.0	0.0	2.0	0.00	0.00	0.00
Ratcliffe									
9,400.0	0.00	0.00	9,399.8	35.0	0.0	2.0	0.00	0.00	0.00
9,488.2	0.00	0.00	9,488.0	35.0	0.0	2.0	0.00	0.00	0.00
Mission Canyon									
9,500.0	0.00	0.00	9,499.8	35.0	0.0	2.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,599.8	35.0	0.0	2.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,699.8	35.0	0.0	2.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,799.8	35.0	0.0	2.0	0.00	0.00	0.00
9,900.0	0.00	0.00	9,899.8	35.0	0.0	2.0	0.00	0.00	0.00
10,000.2	0.00	0.00	10,000.0	35.0	0.0	2.0	0.00	0.00	0.00
Start 469.5 hold at 10000.2 MD									
10,033.2	0.00	0.00	10,033.0	35.0	0.0	2.0	0.00	0.00	0.00
Lodgepole									
10,100.0	0.00	0.00	10,099.8	35.0	0.0	2.0	0.00	0.00	0.00
10,200.0	0.00	0.00	10,199.8	35.0	0.0	2.0	0.00	0.00	0.00
10,300.0	0.00	0.00	10,299.8	35.0	0.0	2.0	0.00	0.00	0.00
10,400.0	0.00	0.00	10,399.8	35.0	0.0	2.0	0.00	0.00	0.00
10,469.6	0.00	0.00	10,469.5	35.0	0.0	2.0	0.00	0.00	0.00

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Company:	Oasis	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #13T2		
Design:	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
Start Build 12.00										
10,475.0	0.64	58.53	10,474.8	35.0	0.0	2.0	12.00	12.00	0.00	
10,496.2	3.19	58.53	10,496.0	35.4	0.6	2.7	12.00	12.00	0.00	
Lodgepole Fracture Zone										
10,500.0	3.64	58.53	10,499.8	35.5	0.8	2.9	12.00	12.00	0.00	
10,525.0	6.64	58.53	10,524.7	36.7	2.7	4.8	12.00	12.00	0.00	
10,550.0	9.64	58.53	10,549.4	38.5	5.8	7.9	12.00	12.00	0.00	
10,575.0	12.64	58.53	10,574.0	41.0	9.9	12.2	12.00	12.00	0.00	
10,600.0	15.64	58.53	10,598.2	44.2	15.1	17.6	12.00	12.00	0.00	
10,625.0	18.64	58.53	10,622.1	48.1	21.4	24.1	12.00	12.00	0.00	
10,650.0	21.64	58.53	10,645.6	52.6	28.7	31.7	12.00	12.00	0.00	
10,675.0	24.64	58.53	10,668.5	57.7	37.1	40.3	12.00	12.00	0.00	
10,700.0	27.64	58.53	10,691.0	63.5	46.5	50.0	12.00	12.00	0.00	
10,725.0	30.64	58.53	10,712.8	69.8	56.9	60.8	12.00	12.00	0.00	
10,750.0	33.64	58.53	10,734.0	76.8	68.2	72.5	12.00	12.00	0.00	
10,775.0	36.64	58.53	10,754.4	84.3	80.5	85.2	12.00	12.00	0.00	
10,788.3	38.24	58.53	10,765.0	88.5	87.4	92.3	12.00	12.00	0.00	
False Bakken										
10,800.0	39.64	58.53	10,774.1	92.3	93.6	98.8	12.00	12.00	0.00	
10,802.5	39.94	58.53	10,776.0	93.2	95.0	100.2	12.00	12.00	0.00	
Upper Bakken										
10,823.8	42.49	58.53	10,792.0	100.5	107.0	112.5	12.00	12.00	0.00	
Middle Bakken										
10,825.0	42.64	58.53	10,792.9	100.9	107.7	113.3	12.00	12.00	0.00	
10,850.0	45.64	58.53	10,810.8	110.0	122.5	128.6	12.00	12.00	0.00	
10,875.0	48.64	58.53	10,827.8	119.6	138.1	144.8	12.00	12.00	0.00	
10,879.8	49.22	58.53	10,831.0	121.5	141.2	147.9	12.00	12.00	0.00	
Lower Bakken										
10,892.2	50.71	58.53	10,839.0	126.4	149.4	156.3	12.00	12.00	0.00	
Pronghorn										
10,900.0	51.64	58.53	10,843.9	129.6	154.5	161.7	12.00	12.00	0.00	
10,923.5	54.46	58.53	10,858.0	139.4	170.5	178.2	12.00	12.00	0.00	
Three Forks 1st Bench										
10,925.0	54.64	58.53	10,858.9	140.0	171.6	179.3	12.00	12.00	0.00	
10,950.0	57.64	58.53	10,872.8	150.9	189.3	197.6	12.00	12.00	0.00	
10,961.8	59.06	58.53	10,879.0	156.1	197.9	206.5	12.00	12.00	0.00	
Three Forks 1st Bench Claystone										
10,975.0	60.64	58.53	10,885.6	162.1	207.6	216.5	12.00	12.00	0.00	
11,000.0	63.64	58.53	10,897.3	173.6	226.4	236.0	12.00	12.00	0.00	
11,025.0	66.64	58.53	10,907.8	185.5	245.8	256.0	12.00	12.00	0.00	
11,050.0	69.64	58.53	10,917.1	197.6	265.6	276.4	12.00	12.00	0.00	
11,075.0	72.64	58.53	10,925.2	209.9	285.7	297.3	12.00	12.00	0.00	
11,100.0	75.64	58.53	10,932.0	222.5	306.2	318.5	12.00	12.00	0.00	
11,108.3	76.64	58.53	10,934.0	226.7	313.1	325.6	12.00	12.00	0.00	
Three Forks 2nd Bench										
11,125.0	78.64	58.53	10,937.6	235.2	327.0	339.9	12.00	12.00	0.00	
11,150.0	81.64	58.53	10,941.9	248.0	348.0	361.6	12.00	12.00	0.00	
11,175.0	84.64	58.53	10,944.8	261.0	369.2	383.5	12.00	12.00	0.00	
11,200.0	87.64	58.53	10,946.5	274.0	390.5	405.5	12.00	12.00	0.00	
11,217.1	89.70	58.53	10,946.9	283.0	405.1	420.6	12.00	12.00	0.00	
Start 15.4 hold at 11217.1 MD										
11,232.0	89.70	58.53	10,947.0	290.7	417.8	433.7	0.00	0.00	0.00	
7"										
11,232.5	89.70	58.53	10,947.0	291.0	418.2	434.1	0.00	0.00	0.00	

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Company:	Oasis	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #13T2		
Design:	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
Start DLS 3.00 TFO 90.09										
11,300.0	89.70	60.55	10,947.4	325.2	476.4	494.2	3.00	0.00	0.00	3.00
11,400.0	89.69	63.55	10,947.9	372.1	564.7	585.0	3.00	0.00	0.00	3.00
11,500.0	89.69	66.55	10,948.4	414.2	655.4	678.0	3.00	0.00	0.00	3.00
11,600.0	89.69	69.55	10,949.0	451.6	748.1	772.7	3.00	0.00	0.00	3.00
11,700.0	89.69	72.55	10,949.5	484.1	842.7	868.9	3.00	0.00	0.00	3.00
11,800.0	89.69	75.55	10,950.1	511.6	938.8	966.5	3.00	0.00	0.00	3.00
11,900.0	89.69	78.55	10,950.6	534.0	1,036.2	1,065.1	3.00	0.00	0.00	3.00
12,000.0	89.69	81.55	10,951.2	551.2	1,134.7	1,164.4	3.00	0.00	0.00	3.00
12,100.0	89.69	84.55	10,951.7	563.3	1,234.0	1,264.2	3.00	0.00	0.00	3.00
12,200.0	89.69	87.55	10,952.2	570.2	1,333.7	1,364.1	3.00	0.00	0.00	3.00
12,281.6	89.70	90.00	10,952.7	572.0	1,415.3	1,445.7	3.00	0.00	0.00	3.00
Start 1521.5 hold at 12281.6 MD										
12,300.0	89.70	90.00	10,952.8	572.0	1,433.7	1,464.0	0.00	0.00	0.00	0.00
12,400.0	89.70	90.00	10,953.3	572.0	1,533.7	1,563.9	0.00	0.00	0.00	0.00
12,500.0	89.70	90.00	10,953.8	572.0	1,633.7	1,663.7	0.00	0.00	0.00	0.00
12,600.0	89.70	90.00	10,954.3	572.0	1,733.7	1,763.6	0.00	0.00	0.00	0.00
12,700.0	89.70	90.00	10,954.9	572.0	1,833.7	1,863.4	0.00	0.00	0.00	0.00
12,800.0	89.70	90.00	10,955.4	572.0	1,933.7	1,963.2	0.00	0.00	0.00	0.00
12,900.0	89.70	90.00	10,955.9	572.0	2,033.7	2,063.1	0.00	0.00	0.00	0.00
13,000.0	89.70	90.00	10,956.5	572.0	2,133.7	2,162.9	0.00	0.00	0.00	0.00
13,100.0	89.70	90.00	10,957.0	572.0	2,233.7	2,262.7	0.00	0.00	0.00	0.00
13,200.0	89.70	90.00	10,957.5	572.0	2,333.7	2,362.6	0.00	0.00	0.00	0.00
13,300.0	89.70	90.00	10,958.0	572.0	2,433.7	2,462.4	0.00	0.00	0.00	0.00
13,400.0	89.70	90.00	10,958.6	572.0	2,533.7	2,562.2	0.00	0.00	0.00	0.00
13,500.0	89.70	90.00	10,959.1	572.0	2,633.7	2,662.1	0.00	0.00	0.00	0.00
13,600.0	89.70	90.00	10,959.6	572.0	2,733.7	2,761.9	0.00	0.00	0.00	0.00
13,700.0	89.70	90.00	10,960.2	572.0	2,833.7	2,861.7	0.00	0.00	0.00	0.00
13,803.1	89.70	90.00	10,960.7	572.0	2,936.8	2,964.7	0.00	0.00	0.00	0.00
Start 7055.3 hold at 13803.1 MD										
13,900.0	89.70	90.00	10,961.2	572.0	3,033.7	3,061.4	0.00	0.00	0.00	0.00
14,000.0	89.70	90.00	10,961.7	572.0	3,133.7	3,161.2	0.00	0.00	0.00	0.00
14,100.0	89.70	90.00	10,962.3	572.0	3,233.7	3,261.1	0.00	0.00	0.00	0.00
14,200.0	89.70	90.00	10,962.8	572.0	3,333.7	3,360.9	0.00	0.00	0.00	0.00
14,300.0	89.70	90.00	10,963.3	572.0	3,433.7	3,460.8	0.00	0.00	0.00	0.00
14,400.0	89.70	90.00	10,963.9	572.0	3,533.7	3,560.6	0.00	0.00	0.00	0.00
14,500.0	89.70	90.00	10,964.4	572.0	3,633.7	3,660.4	0.00	0.00	0.00	0.00
14,600.0	89.70	90.00	10,964.9	572.0	3,733.7	3,760.3	0.00	0.00	0.00	0.00
14,700.0	89.70	90.00	10,965.4	572.0	3,833.7	3,860.1	0.00	0.00	0.00	0.00
14,800.0	89.70	90.00	10,966.0	572.0	3,933.7	3,959.9	0.00	0.00	0.00	0.00
14,900.0	89.70	90.00	10,966.5	572.0	4,033.7	4,059.8	0.00	0.00	0.00	0.00
15,000.0	89.70	90.00	10,967.0	572.0	4,133.7	4,159.6	0.00	0.00	0.00	0.00
15,100.0	89.70	90.00	10,967.6	572.0	4,233.7	4,259.4	0.00	0.00	0.00	0.00
15,200.0	89.70	90.00	10,968.1	572.0	4,333.7	4,359.3	0.00	0.00	0.00	0.00
15,300.0	89.70	90.00	10,968.6	572.0	4,433.7	4,459.1	0.00	0.00	0.00	0.00
15,400.0	89.70	90.00	10,969.1	572.0	4,533.7	4,558.9	0.00	0.00	0.00	0.00
15,500.0	89.70	90.00	10,969.7	572.0	4,633.7	4,658.8	0.00	0.00	0.00	0.00
15,600.0	89.70	90.00	10,970.2	572.0	4,733.7	4,758.6	0.00	0.00	0.00	0.00
15,700.0	89.70	90.00	10,970.7	572.0	4,833.7	4,858.4	0.00	0.00	0.00	0.00
15,800.0	89.70	90.00	10,971.3	572.0	4,933.7	4,958.3	0.00	0.00	0.00	0.00
15,900.0	89.70	90.00	10,971.8	572.0	5,033.7	5,058.1	0.00	0.00	0.00	0.00
16,000.0	89.70	90.00	10,972.3	572.0	5,133.7	5,157.9	0.00	0.00	0.00	0.00
16,100.0	89.70	90.00	10,972.8	572.0	5,233.7	5,257.8	0.00	0.00	0.00	0.00
16,200.0	89.70	90.00	10,973.4	572.0	5,333.7	5,357.6	0.00	0.00	0.00	0.00

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Company:	Oasis	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #13T2		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
16,300.0	89.70	90.00	10,973.9	572.0	5,433.6	5,457.5	0.00	0.00	0.00
16,400.0	89.70	90.00	10,974.4	572.0	5,533.6	5,557.3	0.00	0.00	0.00
16,500.0	89.70	90.00	10,975.0	572.0	5,633.6	5,657.1	0.00	0.00	0.00
16,600.0	89.70	90.00	10,975.5	572.0	5,733.6	5,757.0	0.00	0.00	0.00
16,700.0	89.70	90.00	10,976.0	572.0	5,833.6	5,856.8	0.00	0.00	0.00
16,800.0	89.70	90.00	10,976.5	572.0	5,933.6	5,956.6	0.00	0.00	0.00
16,900.0	89.70	90.00	10,977.1	572.0	6,033.6	6,056.5	0.00	0.00	0.00
17,000.0	89.70	90.00	10,977.6	572.0	6,133.6	6,156.3	0.00	0.00	0.00
17,100.0	89.70	90.00	10,978.1	572.0	6,233.6	6,256.1	0.00	0.00	0.00
17,200.0	89.70	90.00	10,978.7	572.0	6,333.6	6,356.0	0.00	0.00	0.00
17,300.0	89.70	90.00	10,979.2	572.0	6,433.6	6,455.8	0.00	0.00	0.00
17,400.0	89.70	90.00	10,979.7	572.0	6,533.6	6,555.6	0.00	0.00	0.00
17,500.0	89.70	90.00	10,980.2	572.0	6,633.6	6,655.5	0.00	0.00	0.00
17,600.0	89.70	90.00	10,980.8	572.0	6,733.6	6,755.3	0.00	0.00	0.00
17,700.0	89.70	90.00	10,981.3	572.0	6,833.6	6,855.1	0.00	0.00	0.00
17,800.0	89.70	90.00	10,981.8	572.0	6,933.6	6,955.0	0.00	0.00	0.00
17,900.0	89.70	90.00	10,982.4	572.0	7,033.6	7,054.8	0.00	0.00	0.00
18,000.0	89.70	90.00	10,982.9	572.0	7,133.6	7,154.7	0.00	0.00	0.00
18,100.0	89.70	90.00	10,983.4	572.0	7,233.6	7,254.5	0.00	0.00	0.00
18,200.0	89.70	90.00	10,983.9	572.0	7,333.6	7,354.3	0.00	0.00	0.00
18,300.0	89.70	90.00	10,984.5	572.0	7,433.6	7,454.2	0.00	0.00	0.00
18,400.0	89.70	90.00	10,985.0	572.0	7,533.6	7,554.0	0.00	0.00	0.00
18,500.0	89.70	90.00	10,985.5	572.0	7,633.6	7,653.8	0.00	0.00	0.00
18,600.0	89.70	90.00	10,986.1	572.0	7,733.6	7,753.7	0.00	0.00	0.00
18,700.0	89.70	90.00	10,986.6	572.0	7,833.6	7,853.5	0.00	0.00	0.00
18,800.0	89.70	90.00	10,987.1	572.0	7,933.6	7,953.3	0.00	0.00	0.00
18,900.0	89.70	90.00	10,987.6	572.0	8,033.6	8,053.2	0.00	0.00	0.00
19,000.0	89.70	90.00	10,988.2	572.0	8,133.6	8,153.0	0.00	0.00	0.00
19,100.0	89.70	90.00	10,988.7	572.0	8,233.6	8,252.8	0.00	0.00	0.00
19,200.0	89.70	90.00	10,989.2	572.0	8,333.6	8,352.7	0.00	0.00	0.00
19,300.0	89.70	90.00	10,989.8	572.0	8,433.6	8,452.5	0.00	0.00	0.00
19,400.0	89.70	90.00	10,990.3	572.0	8,533.6	8,552.3	0.00	0.00	0.00
19,500.0	89.70	90.00	10,990.8	572.0	8,633.6	8,652.2	0.00	0.00	0.00
19,600.0	89.70	90.00	10,991.3	572.0	8,733.6	8,752.0	0.00	0.00	0.00
19,700.0	89.70	90.00	10,991.9	572.0	8,833.6	8,851.9	0.00	0.00	0.00
19,800.0	89.70	90.00	10,992.4	572.0	8,933.6	8,951.7	0.00	0.00	0.00
19,900.0	89.70	90.00	10,992.9	572.0	9,033.6	9,051.5	0.00	0.00	0.00
20,000.0	89.70	90.00	10,993.5	572.0	9,133.6	9,151.4	0.00	0.00	0.00
20,100.0	89.70	90.00	10,994.0	572.0	9,233.6	9,251.2	0.00	0.00	0.00
20,200.0	89.70	90.00	10,994.5	572.0	9,333.6	9,351.0	0.00	0.00	0.00
20,300.0	89.70	90.00	10,995.0	572.0	9,433.6	9,450.9	0.00	0.00	0.00
20,400.0	89.70	90.00	10,995.6	572.0	9,533.6	9,550.7	0.00	0.00	0.00
20,500.0	89.70	90.00	10,996.1	572.0	9,633.6	9,650.5	0.00	0.00	0.00
20,600.0	89.70	90.00	10,996.6	572.0	9,733.6	9,750.4	0.00	0.00	0.00
20,700.0	89.70	90.00	10,997.2	572.0	9,833.6	9,850.2	0.00	0.00	0.00
20,800.0	89.70	90.00	10,997.7	572.0	9,933.6	9,950.0	0.00	0.00	0.00
20,858.4	89.70	90.00	10,998.0	572.0	9,992.0	10,008.4	0.00	0.00	0.00

TD at 20858.4 - Gramma #13T2 PBHL

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Company:	Oasis	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #13T2		
Design:	Plan #1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Gramma #13T2 PBHL	0.00	0.00	10,998.0	572.0	9,992.0	389,845.68	1,219,465.01	48° 1' 40.499 N	103° 33' 43.340 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,230.0	2,230.0 13 3/8"		13.375	17.500	
6,400.0	6,399.8 9 5/8"		9.625	12.250	
11,232.0	10,947.0 7"		7.000	8.750	

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Company:	Oasis	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Project:	Indian Hills	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site:	153N-100W-31/32	North Reference:	True
Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #13T2		
Design:	Plan #1		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,123.0	2,123.0	Pierre			
4,738.1	4,738.0	Greenhorn			
5,129.1	5,129.0	Mowry			
5,558.2	5,558.0	Dakota			
6,346.2	6,346.0	Rierdon			
6,903.2	6,903.0	Dunham Salt			
7,020.2	7,020.0	Dunham Salt Base			
7,036.2	7,036.0	Spearfish			
7,363.2	7,363.0	Pine Salt			
7,385.2	7,385.0	Pine Salt Base			
7,437.2	7,437.0	Opeche Salt			
7,503.2	7,503.0	Opeche Salt Base			
7,669.2	7,669.0	Broom Creek (Top of Minnelusa Gp.)			
7,734.2	7,734.0	Amsden			
7,878.2	7,878.0	Tyler			
8,102.2	8,102.0	Otter (Base of Minnelusa Gp.)			
8,400.2	8,400.0	Kibbey			
8,606.2	8,606.0	Charles Salt			
9,202.2	9,202.0	UB			
9,278.2	9,278.0	Base Last Salt			
9,313.2	9,313.0	Ratcliffe			
9,488.2	9,488.0	Mission Canyon			
10,033.2	10,033.0	Lodgepole			
10,496.2	10,496.0	Lodgepole Fracture Zone			
10,788.3	10,765.0	False Bakken			
10,802.5	10,776.0	Upper Bakken			
10,823.8	10,792.0	Middle Bakken			
10,879.8	10,831.0	Lower Bakken			
10,892.2	10,839.0	Pronghorn			
10,923.5	10,858.0	Three Forks 1st Bench			
10,961.8	10,879.0	Three Forks 1st Bench Claystone			
11,108.3	10,934.0	Three Forks 2nd Bench			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/S (ft)	+E/W (ft)		
2,400.0	2,400.0	0.0	0.0	Start Build 5.00	
2,412.0	2,412.0	0.1	0.0	Start 3330.3 hold at 2412.0 MD	
5,742.3	5,742.1	34.9	0.0	Start Drop -5.00	
5,754.3	5,754.1	35.0	0.0	Start 4245.9 hold at 5754.3 MD	
10,000.2	10,000.0	35.0	0.0	Start 469.5 hold at 10000.2 MD	
10,469.6	10,469.5	35.0	0.0	Start Build 12.00	
11,217.1	10,946.9	283.0	405.1	Start 15.4 hold at 11217.1 MD	
11,232.5	10,947.0	291.0	418.2	Start DLS 3.00 TFO 90.09	
12,281.6	10,952.7	572.0	1,415.3	Start 1521.5 hold at 12281.6 MD	
13,803.1	10,960.7	572.0	2,936.8	Start 7055.3 hold at 13803.1 MD	
20,858.4	10,998.0	572.0	9,992.0	TD at 20858.4	



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 Chisholm – McKenzie County GIS Specialist

Gramma Federal 5300 41-31 12T – 153N-100W-31/32 – 06/02/2014

Gramma Federal 5300 41-31 13T2 – 153N-100W-31/32 – 06/02/2014

A handwritten signature in blue ink, appearing to read "Lauri M. Stanfield".

Lauri M. Stanfield

Regulatory Specialist

Oasis Petroleum North America, LLC

From: [Michael Kukuk](#)
To: [Messana, Matt A.](#); [Lauri Stanfield](#)
Cc: [Karyme Martin](#); [Damon Jorgensen](#); [Jeff Savela](#); [Terry Weisz](#); [Zach Dekruif](#)
Subject: RE: Gramma Federal 5300 41-31 12T, 13T2 - Production Layout
Date: Wednesday, September 03, 2014 3:41:39 PM
Attachments: [image001.png](#)

Hi Matt,

I affirm that there are no occupied dwellings within 1000 feet of the Gramma Federal wells. I also affirm that we will not place any production equipment within 1000 feet of any occupied dwellings.

We will send a Form 4 sundry for both wells indicating the final production layout before December 1, 2014.

Thank you,

Michael P. Kukuk

Regulatory Supervisor

1001 Fannin, Suite 1500
Houston, Texas 77002
281-404-9575
281-382-5877 (cell)

-
mkukuk@oasispetroleum.com



From: Messana, Matt A. [mailto:mamessana@nd.gov]
Sent: Wednesday, September 03, 2014 2:40 PM
To: Lauri Stanfield
Cc: Michael Kukuk
Subject: Gramma Federal 5300 41-31 12T, 13T2 - Production Layout

Lauri,

I am going to be issuing the Gramma Federal wells in a little bit. I noticed that they do not have a production layout on them.

- If a production pad layout has been made for this pad, please send it to me at your earliest convenience.

- If not, please send me an email affirming that there are no occupied dwellings within 1000 feet of the wells and production equipment. Also, please give me an approximate timetable as to when the production layout can be made. Eventually, when you have the layout, you

will need to send me a copy with a Form 4 sundry for both wells.

Thanks,

Matt Messana

Engineering Technician
NDIC, Oil and Gas Division
<https://www.dmr.nd.gov/oilgas/>
701-328-7999

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SECTION BREAKDOWN

OASIS PETROLEUM NORTH AMERICA, LLC

1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"GRAMMA FEDERAL 5300 41-31 13T2"

713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
SECTIONS 31 & 32, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

SECTIONS 31 & 32, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

SECTION LINES

- R101W / R100W
- 1308.77' / 1308.77'
- 1307.64' / 1307.64'
- 1325.57' / 1325.57'
- 1317.23' / 1317.23'
- 1317.73' / 1317.73'
- 1317.73' / 1317.73'

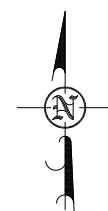
COORDINATES

- AZ 89°34'19" / AZ 0°02'59"
- AZ 89°34'19" / AZ 0°25'18"
- AZ 89°55'00" / AZ 0°36'02"
- AZ 89°41'58" / AZ 0°25'18"
- AZ 89°41'58" / AZ 0°36'02"
- AZ 89°52'22" / AZ 0°36'02"
- AZ 89°49'42" / AZ 0°36'02"
- AZ 89°58'09" / AZ 0°27'31"
- AZ 89°58'09" / AZ 0°36'02"
- AZ 89°51'56" / AZ 0°08'35"
- AZ 89°51'56" / AZ 0°36'02"
- AZ 89°41'09" / AZ 359°41'09"
- AZ 89°54'08" / AZ 359°41'09"
- AZ 89°59'29" / AZ 359°55'15"
- AZ 89°59'29" / AZ 359°55'30"
- AZ 90°03'21" / AZ 359°55'45"
- AZ 90°03'21" / AZ 359°56'00"

NOTES

- FOUND STONE W/ REBAR
- FOUND REBAR W/ 2" AC LS 2884
- FOUND STONE W/ 2" AC
- FOUND STONE FOR WITNESS CORNER
- EDGE OF LAKE
- MISSOURI RIVER PER 1891 SURVEY
- THEORETICAL POSITION
- SAKAKAWEA
- CORP OF ENG.
- VICINITY MAP

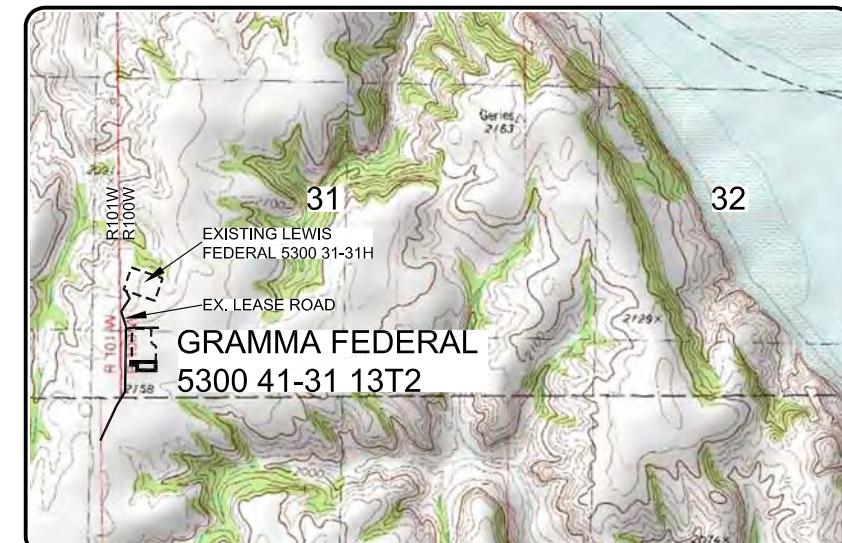
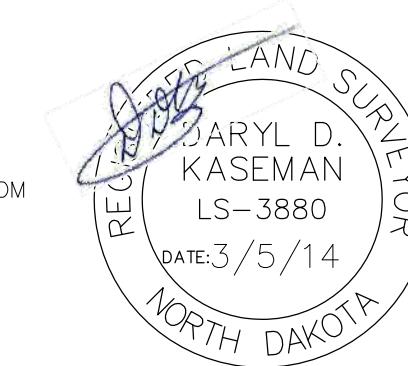
THIS DOCUMENT WAS ORIGINALLY
ISSUED AND SEALED BY DARYL D.
KASEMAN, PLS, REGISTRATION NUMBER
3880 ON 3/5/14 AND THE
ORIGINAL DOCUMENTS ARE STORED AT
THE OFFICES OF INTERSTATE
ENGINEERING, INC.



0 100

 1" \equiv 1000'

ALL AZIMUTHS ARE BASED ON G.P.S. OBSERVATIONS. THE ORIGINAL SURVEY OF THIS AREA FOR THE GENERAL LAND OFFICE (G.L.O.) WAS 1897. THE CORNERS FOUND ARE AS INDICATED AND ALL OTHERS ARE COMPUTED FROM THOSE CORNERS FOUND AND BASED ON G.L.O. DATA. THE MAPPING ANGLE FOR THIS AREA IS APPROXIMATELY 0°03'.



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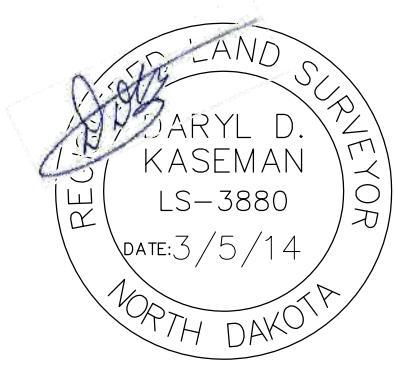
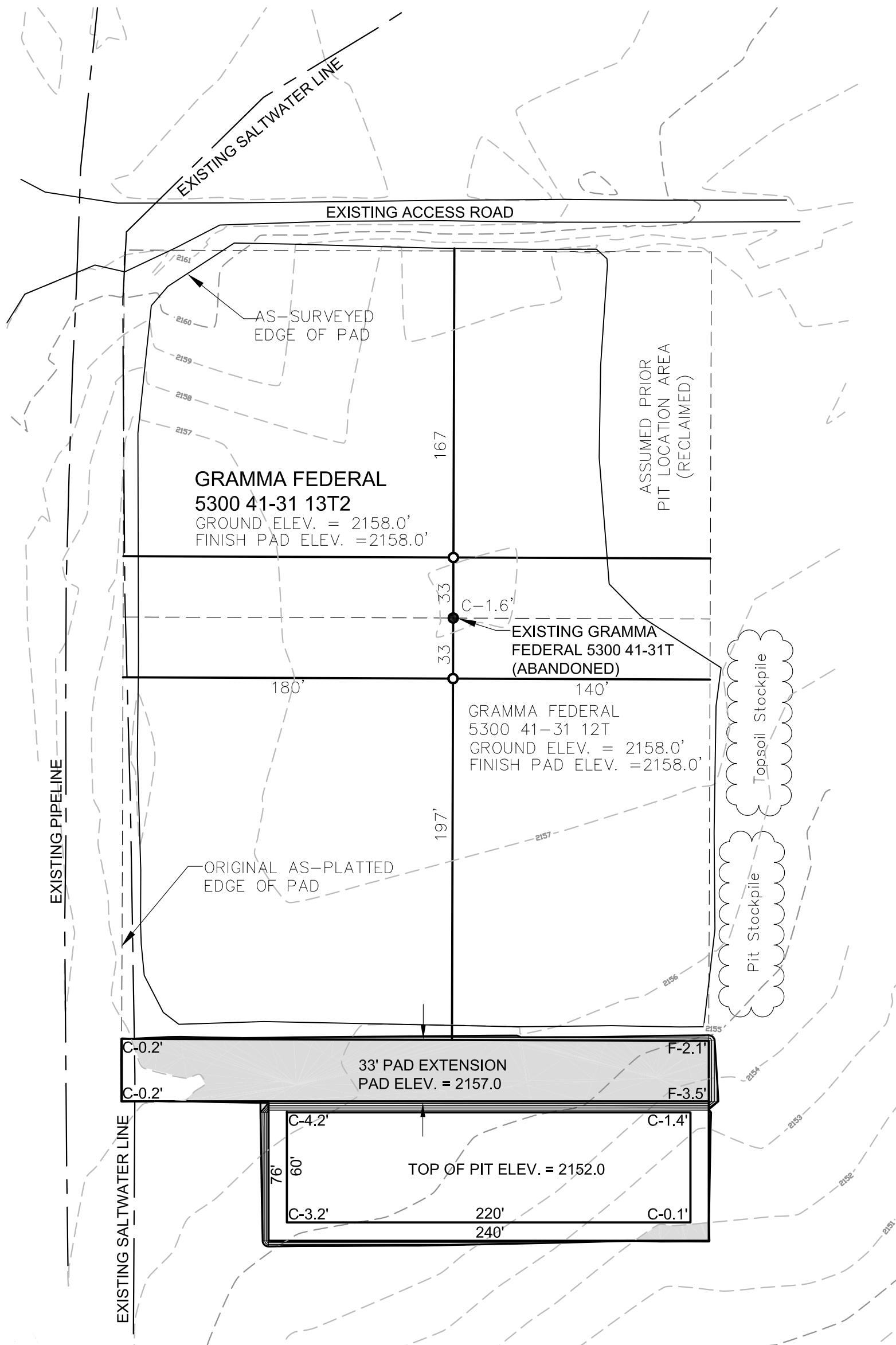
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2/8

PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"CRAMMA FEDERAL 5200.41-31.12T2"

"GRAMMA FEDERAL 5300 41-31 13T2"
713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
SECTION 31, 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 3/5/14 AND THE
ORIGINAL DOCUMENTS ARE STORED AT
THE OFFICES OF INTERSTATE
ENGINEERING, INC.

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

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0 60
1" = 60'

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

Interstate Engineering, Inc.
P.O. Box 648
425 East Main Street
OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 31 T153N R100W

Sidney, Montana 59270
Ph (406) 433-5617

MCKENZIE COUNTY, NORTH DAKOTA

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

Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS

WELL LOCATION SITE QUANTITIES
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "GRAMMA FEDERAL 5300 41-31 13T2"
 713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
 SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL PAD EXTENSION ELEVATION 2157.0

EXCAVATION	1,596
PLUS PIT	<u>6,300</u>
	7,896
EMBANKMENT	517
PLUS SHRINKAGE (30%)	<u>155</u>
	672
STOCKPILE PIT	6,300
STOCKPILE TOP SOIL (6")	563
STOCKPILE MATERIAL	361
DISTURBED AREA FROM PAD	0.70 ACRES

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

CUT END SLOPES AT 1:1

FILL END SLOPES AT 1.5:1

WELL SITE LOCATION

713' FSL

320' FWL

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8/8



SHEET NO.

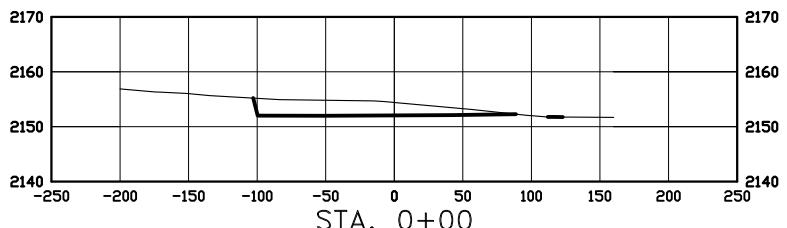
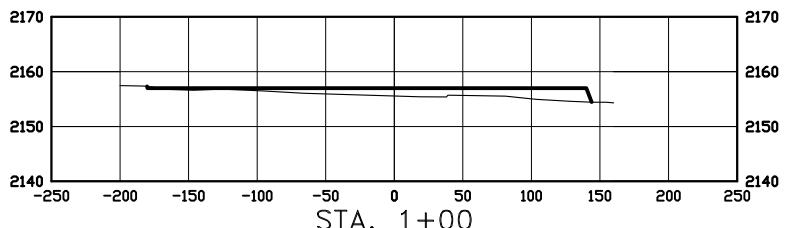
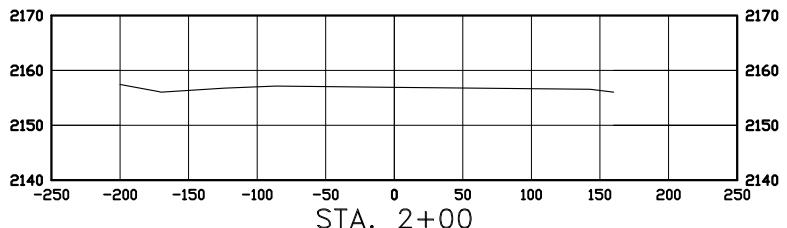
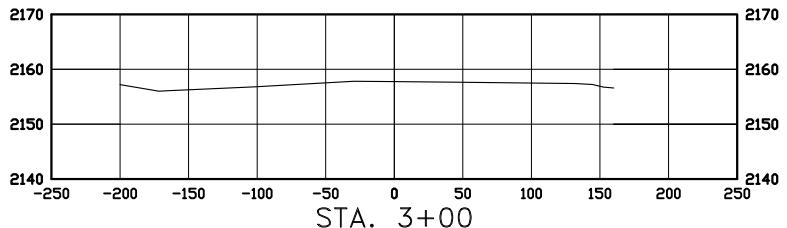
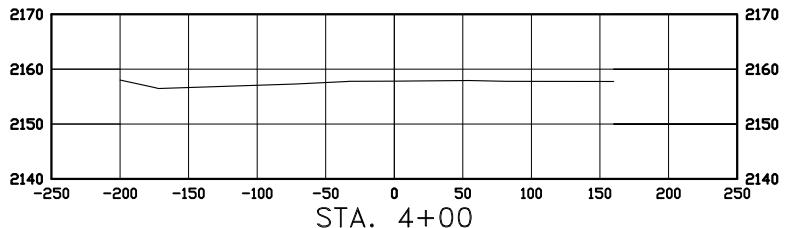
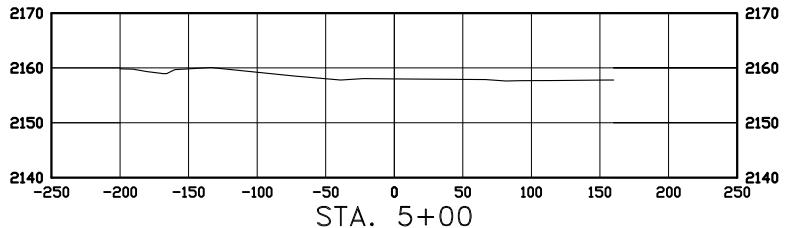
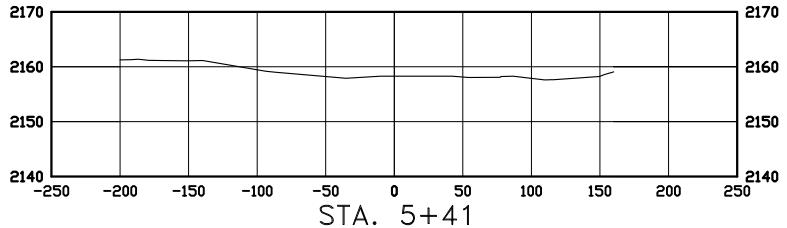
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OASIS PETROLEUM NORTH AMERICA, LLC
 QUANTITIES
 SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA
 Drawn By: B.H.H. Project No.: S13-09-372.01
 Checked By: D.D.K. Date: FEB. 2014

Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS

CROSS SECTIONS

OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "GRAMMA FEDERAL 5300 41-31 13T2"
 713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
 SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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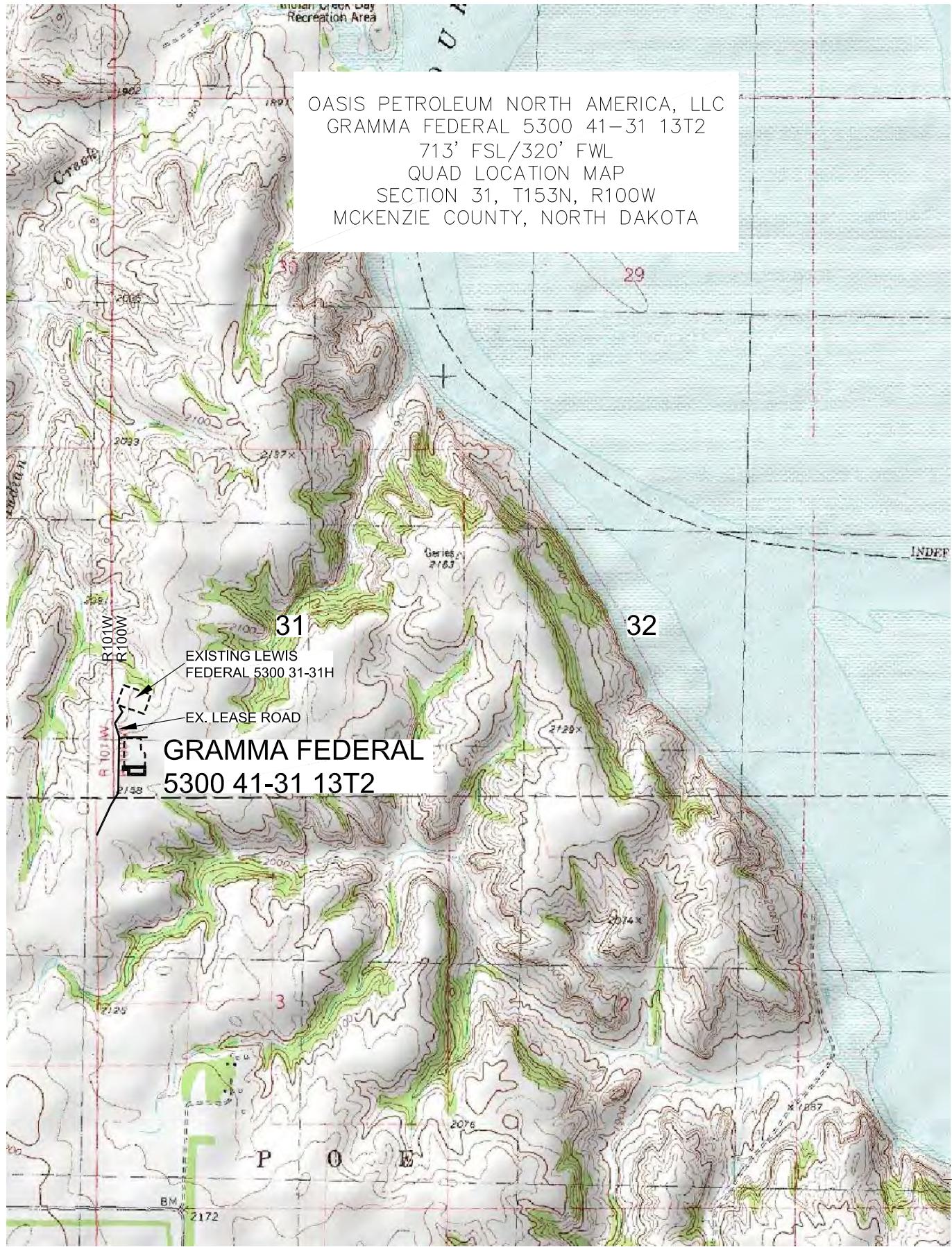
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OASIS PETROLEUM NORTH AMERICA, LLC
 PAD CROSS SECTIONS
 SECTION 31, T153N, R100W
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-372.01
 Checked By: D.D.K. Date: FEB, 2014

Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS



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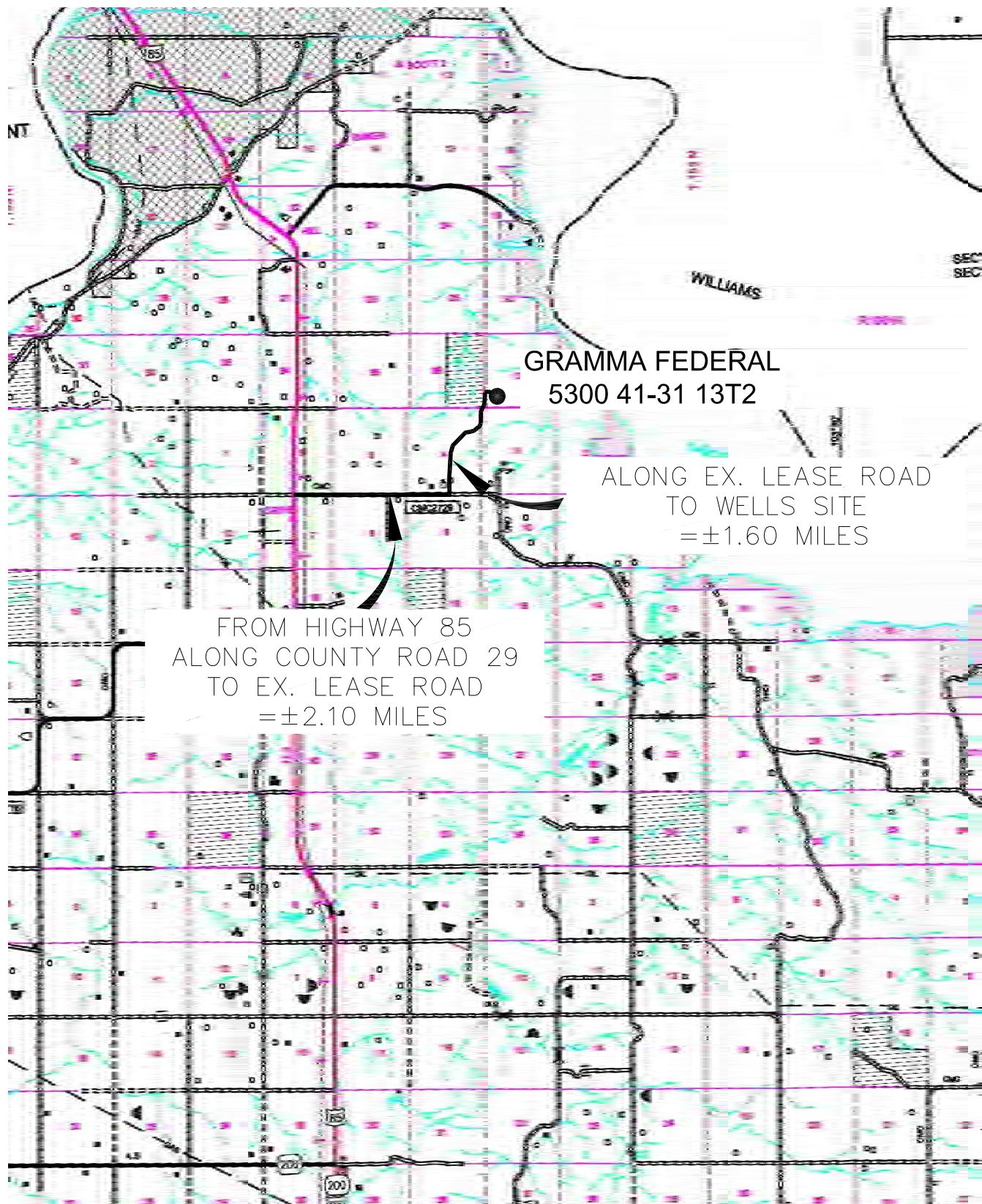
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OASIS PETROLEUM NORTH AMERICA, LLC
QUAD LOCATION MAP
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-372.01
Checked By: D.D.K. Date: FEB, 2014

Revision No.	Date	By	Description
REV 1	5/6/14	JJS	CORRECTED WELL CALLS

COUNTY ROAD MAP
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "GRAMMA FEDERAL 5300 41-31 13T2"
 713 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
 SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

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OASIS PETROLEUM NORTH AMERICA, LLC
 COUNTY ROAD MAP
 SECTION 31, T153N, R100W
 MCKENZIE COUNTY, NORTH DAKOTA
 Drawn By: B.H.H. Project No.: S13-09-372.01
 Checked By: D.D.K. Date: FEB. 2014

Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS

Oasis

**Indian Hills
153N-100W-31/32
Gramma Federal 5300 41-31 13T2**

**Gramma Fed #13T2
Plan #1**

Anticollision Report

28 March, 2014

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Project:	Indian Hills	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Reference Site:	153N-100W-31/32	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #13T2	Database:	OpenWellsCompass - EDM Prod
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 10,000.0 ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program		Date	3/28/2014	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,260.9	Plan #1 (Gramma Fed #13T2)	MWD	MWD - Standard

Summary		Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance			Warning
		Offset Well - Wellbore - Design	Depth (ft)	Depth (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation Factor	
153N-100W-31/32								
Gramma (Plugged) - Gramma Gyro - Gyro			3,194.4	3,169.7	24.6	11.0	1.810	CC
Gramma (Plugged) - Gramma Gyro - Gyro			8,900.0	8,875.4	46.8	8.4	1.220	Level 2, ES
Gramma (Plugged) - Gramma Gyro - Gyro			9,000.0	8,975.3	47.3	8.5	1.220	Level 2, SF

Offset Design 153N-100W-31/32 - Gramma (Plugged) - Gramma Gyro - Gyro											Offset Site Error:	0.0 ft
Survey Program:		100-MWD									Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/S (ft)	Offset Wellbore Centre +E/W (ft)	Distance			
									Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-33.4	0.0	41.8			
100.0	100.0	75.1	75.1	0.1	0.1	179.97	-33.4	0.0	33.4	33.2	0.17	197.814
200.0	200.0	175.1	175.1	0.3	0.3	179.81	-33.2	0.1	33.2	32.6	0.58	57.427
300.0	300.0	275.1	275.1	0.5	0.5	179.62	-33.0	0.2	33.0	32.0	1.01	32.774
400.0	400.0	375.1	375.1	0.8	0.7	179.48	-32.9	0.3	32.9	31.4	1.44	22.781
500.0	500.0	475.0	475.0	1.0	0.9	179.38	-32.7	0.4	32.7	30.9	1.88	17.445
600.0	600.0	575.0	575.0	1.2	1.1	179.41	-32.7	0.3	32.7	30.4	2.31	14.155
700.0	700.0	675.0	675.0	1.4	1.3	179.75	-32.6	0.1	32.6	29.9	2.75	11.862
800.0	800.0	775.0	775.0	1.7	1.5	-179.70	-32.6	-0.2	32.6	29.4	3.19	10.223
900.0	900.0	875.0	875.0	1.9	1.7	-179.22	-32.5	-0.4	32.5	28.8	3.62	8.972
1,000.0	1,000.0	975.0	975.0	2.1	1.9	-178.77	-32.4	-0.7	32.4	28.3	4.05	7.987
1,071.8	1,071.8	1,046.8	1,046.8	2.3	2.1	-178.49	-32.3	-0.8	32.3	27.9	4.36	7.402
1,100.0	1,100.0	1,075.0	1,075.0	2.3	2.2	-178.35	-32.3	-0.9	32.3	27.8	4.48	7.203
1,200.0	1,200.0	1,174.9	1,174.9	2.6	2.4	-177.91	-32.5	-1.2	32.5	27.6	4.92	6.606
1,300.0	1,300.0	1,274.9	1,274.9	2.8	2.6	-177.88	-32.6	-1.2	32.7	27.3	5.35	6.109
1,400.0	1,400.0	1,375.0	1,375.0	3.0	2.8	-177.90	-32.8	-1.2	32.8	27.0	5.78	5.671
1,500.0	1,500.0	1,475.0	1,475.0	3.2	3.0	-177.62	-32.8	-1.4	32.8	26.6	6.22	5.274
1,600.0	1,600.0	1,575.0	1,575.0	3.5	3.2	-177.09	-32.7	-1.7	32.7	26.1	6.65	4.922
1,700.0	1,700.0	1,675.1	1,675.1	3.7	3.4	-175.91	-32.4	-2.3	32.5	25.4	7.09	4.584
1,800.0	1,800.0	1,775.2	1,775.2	3.9	3.6	-174.80	-31.8	-2.9	32.0	24.5	7.52	4.250
1,900.0	1,900.0	1,875.2	1,875.1	4.1	3.8	-174.08	-31.3	-3.2	31.4	23.5	7.96	3.949
2,000.0	2,000.0	1,975.2	1,975.2	4.4	4.0	-173.36	-30.7	-3.6	30.9	22.5	8.39	3.682
2,100.0	2,100.0	2,075.3	2,075.3	4.6	4.2	-172.03	-29.7	-4.2	30.0	21.2	8.83	3.399
2,200.0	2,200.0	2,175.4	2,175.3	4.8	4.5	-170.08	-28.5	-5.0	28.9	19.6	9.27	3.119
2,300.0	2,300.0	2,275.3	2,275.3	5.0	4.7	-167.83	-27.2	-5.9	27.8	18.1	9.70	2.866
2,400.0	2,400.0	2,375.3	2,375.3	5.3	4.9	-165.33	-25.9	-6.8	26.8	16.7	10.14	2.644

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

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Project:	Indian Hills	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Reference Site:	153N-100W-31/32	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #13T2	Database:	OpenWellsCompass - EDM Prod
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-31/32 - Gramma (Plugged) - Gramma Gyro - Gyro													Offset Site Error:	0.0 ft
Survey Program: 100-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
2,411.6	2,411.6	2,387.0	2,386.9	5.3	4.9	-165.05	-25.8	-6.9	26.7	16.6	10.19	2.625		
2,412.0	2,412.0	2,387.3	2,387.3	5.3	4.9	-165.04	-25.8	-6.9	26.7	16.6	10.19	2.625		
2,500.0	2,500.0	2,475.3	2,475.2	5.5	5.1	-163.18	-24.7	-7.8	26.8	16.2	10.57	2.534		
2,600.0	2,600.0	2,575.4	2,575.3	5.7	5.3	-161.22	-23.3	-8.6	26.8	15.8	11.01	2.433		
2,700.0	2,700.0	2,675.5	2,675.4	5.9	5.5	-159.41	-21.6	-9.3	26.4	15.0	11.44	2.309		
2,800.0	2,800.0	2,775.5	2,775.4	6.2	5.7	-157.79	-19.8	-9.8	25.8	14.0	11.88	2.176		
2,900.0	2,900.0	2,875.5	2,875.3	6.4	5.9	-156.68	-18.1	-10.0	25.3	13.0	12.31	2.058		
3,000.0	3,000.0	2,975.4	2,975.3	6.6	6.1	-157.11	-16.7	-9.7	24.9	12.1	12.74	1.953		
3,100.0	3,100.0	3,075.4	3,075.2	6.8	6.4	-158.47	-15.7	-9.0	24.6	11.5	13.17	1.871		
3,194.4	3,194.3	3,169.7	3,169.6	7.0	6.5	-160.04	-14.8	-8.4	24.6	11.0	13.58	1.810 CC		
3,200.0	3,200.0	3,175.4	3,175.2	7.1	6.6	-160.13	-14.8	-8.4	24.6	11.0	13.61	1.807		
3,300.0	3,300.0	3,275.3	3,275.1	7.3	6.8	-161.56	-14.1	-7.8	24.7	10.7	14.04	1.760		
3,400.0	3,399.9	3,375.1	3,375.0	7.5	7.0	-162.92	-13.7	-7.4	25.2	10.8	14.47	1.743		
3,500.0	3,499.9	3,475.1	3,474.9	7.7	7.2	-164.29	-13.8	-7.1	26.3	11.4	14.90	1.763		
3,600.0	3,599.9	3,575.0	3,574.9	8.0	7.4	-165.91	-14.2	-6.7	27.6	12.2	15.34	1.796		
3,700.0	3,699.9	3,675.0	3,674.8	8.2	7.6	-167.22	-14.6	-6.4	28.9	13.1	15.77	1.831		
3,800.0	3,799.9	3,775.0	3,774.8	8.4	7.8	-168.32	-15.0	-6.1	30.2	14.0	16.21	1.865		
3,900.0	3,899.9	3,875.0	3,874.8	8.6	8.0	-169.27	-15.4	-5.9	31.6	14.9	16.64	1.898		
4,000.0	3,999.9	3,975.0	3,974.8	8.9	8.2	-170.08	-15.7	-5.7	32.9	15.8	17.07	1.924		
4,100.0	4,099.9	4,075.0	4,074.9	9.1	8.4	-170.90	-15.9	-5.4	34.1	16.5	17.51	1.945		
4,200.0	4,199.9	4,175.1	4,174.9	9.3	8.6	-171.54	-16.0	-5.2	35.2	17.2	17.94	1.961		
4,300.0	4,299.9	4,275.1	4,274.9	9.5	8.9	-172.28	-16.0	-4.9	36.2	17.8	18.38	1.970		
4,400.0	4,399.9	4,375.1	4,374.9	9.8	9.1	-173.19	-16.0	-4.4	37.2	18.4	18.81	1.976		
4,500.0	4,499.9	4,475.1	4,474.9	10.0	9.3	-174.17	-16.1	-3.9	38.2	19.0	19.24	1.987		
4,600.0	4,599.9	4,575.1	4,574.9	10.2	9.5	-175.29	-16.1	-3.2	39.2	19.5	19.68	1.993		
4,700.0	4,699.9	4,675.2	4,675.0	10.4	9.7	-176.43	-16.0	-2.5	40.1	20.0	20.11	1.992		
4,800.0	4,799.9	4,775.3	4,775.1	10.6	9.9	-177.42	-15.5	-1.8	40.6	20.1	20.55	1.976		
4,900.0	4,899.9	4,875.2	4,875.0	10.9	10.1	-178.44	-14.9	-1.1	41.0	20.1	20.98	1.956		
5,000.0	4,999.9	4,975.0	4,974.8	11.1	10.3	-179.86	-14.8	-0.1	41.9	20.5	21.42	1.958		
5,100.0	5,099.9	5,074.8	5,074.6	11.3	10.5	-178.62	-15.2	1.0	43.4	21.5	21.85	1.986		
5,200.0	5,199.8	5,174.7	5,174.5	11.5	10.7	-176.97	-15.9	2.4	45.2	22.9	22.28	2.028		
5,300.0	5,299.8	5,275.1	5,274.9	11.8	11.0	-175.09	-16.1	4.0	46.6	23.9	22.72	2.051		
5,400.0	5,399.8	5,375.2	5,375.0	12.0	11.2	-172.56	-15.6	6.1	47.4	24.2	23.16	2.046		
5,500.0	5,499.8	5,475.2	5,474.9	12.2	11.4	-169.73	-15.0	8.6	48.2	24.6	23.59	2.041		
5,600.0	5,599.8	5,575.2	5,574.9	12.4	11.6	-166.94	-14.3	11.1	49.0	25.0	24.03	2.040		
5,700.0	5,699.8	5,675.5	5,675.2	12.7	11.8	-163.95	-13.2	13.7	49.6	25.2	24.47	2.028		
5,742.3	5,742.1	5,718.0	5,717.6	12.8	11.9	-162.45	-12.4	15.0	49.7	25.0	24.65	2.015		
5,754.3	5,754.1	5,730.0	5,729.7	12.8	11.9	-162.00	-12.2	15.3	49.6	24.9	24.69	2.009		
5,800.0	5,799.8	5,775.8	5,775.4	12.9	12.0	-160.17	-11.2	16.6	49.1	24.2	24.88	1.973		
5,900.0	5,899.8	5,875.3	5,874.8	13.1	12.2	-157.08	-9.4	18.8	48.2	22.9	25.31	1.906		
5,903.7	5,903.5	5,879.0	5,878.5	13.1	12.2	-157.03	-9.4	18.8	48.2	22.9	25.33	1.905		
6,000.0	5,999.8	5,975.1	5,974.6	13.3	12.4	-156.34	-9.5	19.5	48.5	22.8	25.74	1.886		
6,100.0	6,099.8	6,075.1	6,074.6	13.6	12.6	-155.54	-9.5	20.3	48.9	22.7	26.18	1.869		
6,200.0	6,199.8	6,175.2	6,174.8	13.8	12.9	-154.26	-9.3	21.4	49.2	22.6	26.61	1.848		
6,300.0	6,299.8	6,275.4	6,274.9	14.0	13.1	-152.44	-8.6	22.8	49.2	22.1	27.05	1.818		
6,400.0	6,399.8	6,375.4	6,374.9	14.2	13.3	-150.33	-7.6	24.2	49.0	21.5	27.49	1.782		
6,500.0	6,499.8	6,475.6	6,475.0	14.5	13.5	-147.93	-6.2	25.8	48.6	20.7	27.93	1.741		
6,600.0	6,599.8	6,575.6	6,575.0	14.7	13.7	-144.87	-4.4	27.7	48.2	19.8	28.37	1.698		
6,700.0	6,699.8	6,675.7	6,675.1	14.9	13.9	-141.78	-2.5	29.5	47.7	18.9	28.80	1.656		
6,800.0	6,799.8	6,775.9	6,775.3	15.1	14.1	-140.14	-0.9	30.0	46.8	17.6	29.24	1.601		
6,900.0	6,899.8	6,875.8	6,875.2	15.4	14.3	-138.36	0.8	30.4	45.7	16.1	29.67	1.542		
7,000.0	6,999.8	6,975.6	6,975.0	15.6	14.6	-135.95	2.6	31.4	45.1	15.0	30.11	1.499 Level 3Level 3		
7,100.0	7,099.8	7,075.6	7,075.0	15.8	14.8	-133.50	4.1	32.5	44.8	14.3	30.54	1.468 Level 3Level 3		

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

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Project:	Indian Hills	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Reference Site:	153N-100W-31/32	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #13T2	Database:	OpenWellsCompass - EDM Prod
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-31/32 - Gramma (Plugged) - Gramma Gyro - Gyro													Offset Site Error:	0.0 ft	
Survey Program: 100-MWD			Distance										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		
7,200.0	7,199.8	7,175.7	7,175.0	16.0	15.0	130.76	6.0	33.7	44.5	13.5	30.98	1.435	Level 3	Level 3	
7,300.0	7,299.8	7,275.6	7,274.9	16.3	15.2	127.99	7.9	34.7	44.1	12.7	31.41	1.403	Level 3	Level 3	
7,400.0	7,399.8	7,375.7	7,374.9	16.5	15.4	125.34	9.6	35.8	43.9	12.0	31.84	1.378	Level 3	Level 3	
7,500.0	7,499.8	7,475.6	7,474.9	16.7	15.6	122.67	11.4	36.7	43.6	11.4	32.28	1.352	Level 3	Level 3	
7,555.7	7,555.6	7,531.3	7,530.6	16.8	15.7	121.02	12.5	37.4	43.6	11.1	32.52	1.341	Level 3	Level 3	
7,600.0	7,599.8	7,575.5	7,574.8	16.9	15.8	119.80	13.3	37.9	43.6	10.9	32.71	1.334	Level 3	Level 3	
7,700.0	7,699.8	7,675.6	7,674.8	17.2	16.0	117.32	14.9	38.9	43.7	10.6	33.14	1.320	Level 3	Level 3	
7,774.8	7,774.6	7,750.4	7,749.6	17.3	16.2	115.74	16.0	39.4	43.7	10.3	33.47	1.307	Level 3	Level 3	
7,800.0	7,799.8	7,775.6	7,774.8	17.4	16.2	115.32	16.3	39.5	43.7	10.2	33.57	1.303	Level 3	Level 3	
7,900.0	7,899.8	7,875.6	7,874.8	17.6	16.4	114.25	17.0	39.9	43.8	9.8	34.01	1.288	Level 3	Level 3	
8,000.0	7,999.8	7,975.5	7,974.7	17.8	16.7	113.87	17.2	40.2	44.0	9.5	34.44	1.277	Level 3	Level 3	
8,100.0	8,099.8	8,075.5	8,074.7	18.0	16.9	113.91	17.1	40.4	44.2	9.3	34.87	1.268	Level 3	Level 3	
8,200.0	8,199.8	8,175.4	8,174.6	18.3	17.1	114.02	16.9	40.6	44.5	9.2	35.30	1.260	Level 3	Level 3	
8,300.0	8,299.8	8,275.5	8,274.7	18.5	17.3	114.17	16.6	41.0	44.9	9.2	35.73	1.257	Level 3	Level 3	
8,400.0	8,399.8	8,375.5	8,374.7	18.7	17.5	114.33	16.4	41.2	45.2	9.0	36.17	1.250	Level 3	Level 3	
8,500.0	8,499.8	8,475.4	8,474.6	18.9	17.7	114.56	16.1	41.4	45.5	8.9	36.60	1.244	Level 2		
8,600.0	8,599.8	8,575.5	8,574.7	19.2	17.9	114.85	15.7	41.6	45.9	8.9	37.03	1.239	Level 2		
8,700.0	8,699.8	8,675.5	8,674.7	19.4	18.1	115.00	15.5	41.8	46.1	8.7	37.47	1.231	Level 2		
8,800.0	8,799.8	8,775.5	8,774.7	19.6	18.3	114.98	15.4	42.1	46.5	8.6	37.90	1.226	Level 2		
8,900.0	8,899.8	8,875.4	8,874.6	19.8	18.5	114.96	15.3	42.4	46.8	8.4	38.33	1.220	Level 2, ES		
9,000.0	8,999.8	8,975.3	8,974.5	20.1	18.7	114.88	15.1	42.9	47.3	8.5	38.77	1.220	Level 2, SF		
9,100.0	9,099.8	9,075.3	9,074.4	20.3	18.9	114.98	14.7	43.5	48.0	8.8	39.20	1.226	Level 2		
9,200.0	9,199.8	9,175.3	9,174.4	20.5	19.2	115.34	14.1	44.1	48.8	9.2	39.63	1.231	Level 2		
9,300.0	9,299.8	9,275.0	9,274.2	20.7	19.4	115.54	13.6	44.9	49.7	9.7	40.07	1.242	Level 2		
9,400.0	9,399.8	9,375.0	9,374.2	21.0	19.6	115.73	12.8	46.0	51.1	10.6	40.50	1.261	Level 3	Level 3	
9,500.0	9,499.8	9,475.2	9,474.4	21.2	19.8	115.96	12.2	46.9	52.1	11.2	40.94	1.274	Level 3	Level 3	
9,600.0	9,599.8	9,575.3	9,574.4	21.4	20.0	116.30	11.5	47.5	52.9	11.6	41.37	1.280	Level 3	Level 3	
9,700.0	9,699.8	9,675.4	9,674.5	21.6	20.2	116.87	10.8	47.8	53.6	11.8	41.80	1.283	Level 3	Level 3	
9,800.0	9,799.8	9,775.4	9,774.5	21.9	20.4	117.56	10.0	48.0	54.1	11.9	42.23	1.281	Level 3	Level 3	
9,900.0	9,899.8	9,875.4	9,874.5	22.1	20.6	118.28	9.1	48.1	54.6	12.0	42.67	1.280	Level 3	Level 3	
10,000.2	10,000.0	9,975.6	9,974.8	22.3	20.8	118.95	8.3	48.2	55.1	12.0	43.10	1.279	Level 3	Level 3	
10,100.0	10,099.8	10,075.5	10,074.6	22.5	21.0	119.40	7.7	48.4	55.5	12.0	43.53	1.276	Level 3	Level 3	
10,200.0	10,199.8	10,175.4	10,174.6	22.8	21.2	119.63	7.4	48.6	55.9	11.9	43.97	1.271	Level 3	Level 3	
10,300.0	10,299.8	10,275.5	10,274.6	23.0	21.5	119.78	7.0	48.9	56.3	11.9	44.40	1.268	Level 3	Level 3	
10,400.0	10,399.8	10,373.6	10,372.7	23.2	21.7	118.82	7.1	50.7	57.9	13.1	44.83	1.292	Level 3	Level 3	
10,469.6	10,469.4	10,437.8	10,436.7	23.4	21.8	116.08	7.6	56.0	62.8	17.7	45.13	1.391	Level 3	Level 3	
10,475.0	10,474.8	10,442.6	10,441.4	23.4	21.8	57.05	7.6	56.7	63.5	18.3	45.17	1.405	Level 3	Level 3	
10,500.0	10,499.8	10,464.6	10,463.1	23.4	21.9	55.89	7.6	60.4	66.8	21.5	45.25	1.476	Level 3	Level 3	
10,525.0	10,524.7	10,486.4	10,484.4	23.5	21.9	55.31	7.6	65.1	70.5	25.1	45.31	1.555			
10,550.0	10,549.4	10,508.3	10,505.5	23.5	22.0	55.21	7.4	70.7	74.4	29.1	45.36	1.641			
10,575.0	10,574.0	10,530.3	10,526.5	23.6	22.0	55.45	7.3	77.2	78.5	33.2	45.38	1.730			
10,600.0	10,598.2	10,552.1	10,547.1	23.7	22.1	55.95	7.3	84.5	82.8	37.4	45.40	1.824			
10,625.0	10,622.1	10,573.8	10,567.3	23.7	22.1	56.67	7.4	92.5	87.2	41.8	45.40	1.920			
10,650.0	10,645.6	10,600.0	10,591.1	23.8	22.2	57.84	7.7	103.3	91.8	46.4	45.42	2.022			
10,675.0	10,668.5	10,616.9	10,606.2	23.8	22.2	58.53	8.0	110.9	96.4	51.0	45.41	2.123			
10,700.0	10,691.0	10,638.2	10,624.9	23.9	22.3	59.53	8.6	121.2	101.3	55.8	45.43	2.229			
10,725.0	10,712.8	10,659.5	10,643.1	24.0	22.4	60.54	9.4	132.2	106.3	60.8	45.45	2.338			
10,750.0	10,734.0	10,680.8	10,660.7	24.0	22.5	61.54	10.4	144.0	111.5	66.0	45.49	2.450			
10,775.0	10,754.4	10,700.0	10,676.3	24.1	22.5	62.39	11.6	155.3	116.8	71.3	45.53	2.565			
10,800.0	10,774.1	10,721.6	10,693.2	24.2	22.6	63.42	13.0	168.7	122.4	76.8	45.62	2.683			
10,825.0	10,792.9	10,741.2	10,707.9	24.3	22.7	64.29	14.2	181.5	128.4	82.7	45.71	2.810			
10,850.0	10,810.8	10,760.6	10,721.8	24.4	22.8	65.13	15.5	195.0	134.8	89.0	45.82	2.943			
10,875.0	10,827.8	10,779.8	10,735.1	24.5	22.9	65.93	16.7	208.9	141.6	95.7	45.94	3.082			

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

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Project:	Indian Hills	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Reference Site:	153N-100W-31/32	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #13T2	Database:	OpenWellsCompass - EDM Prod
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-31/32 - Gramma (Plugged) - Gramma Gyro - Gyro												Offset Site Error:	0.0 ft
Survey Program: 100-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
10,900.0	10,843.9	10,800.0	10,748.3	24.6	23.0	66.76	18.0	224.1	148.8	102.7	46.11	3.227	
10,925.0	10,858.9	10,819.1	10,760.1	24.7	23.1	67.43	19.3	239.0	156.2	109.9	46.29	3.375	
10,950.0	10,872.8	10,839.5	10,771.9	24.9	23.2	68.09	21.0	255.5	163.8	117.3	46.51	3.521	
10,975.0	10,885.6	10,859.9	10,783.0	25.0	23.4	68.65	22.9	272.5	171.4	124.7	46.74	3.667	
11,000.0	10,897.3	10,874.8	10,790.5	25.2	23.5	68.76	24.4	285.3	179.3	132.4	46.92	3.822	
11,025.0	10,907.8	10,886.0	10,795.8	25.4	23.6	68.61	24.8	295.2	188.5	141.4	47.07	4.004	
11,050.0	10,917.1	10,901.0	10,802.4	25.5	23.7	68.74	24.9	308.7	198.5	151.2	47.31	4.195	
11,075.0	10,925.2	10,917.0	10,808.8	25.8	23.8	68.90	25.0	323.3	208.8	161.2	47.58	4.389	
11,100.0	10,932.0	10,934.7	10,815.3	26.0	24.0	69.13	25.0	339.8	219.4	171.5	47.90	4.580	
11,125.0	10,937.6	10,948.0	10,819.5	26.2	24.1	68.89	25.0	352.4	230.3	182.2	48.14	4.784	
11,150.0	10,941.8	10,967.3	10,824.9	26.4	24.3	69.08	24.9	371.0	241.4	192.9	48.53	4.975	
11,175.0	10,944.8	10,984.6	10,828.9	26.7	24.5	69.03	24.8	387.8	252.8	203.9	48.89	5.170	
11,200.0	10,946.5	11,004.8	10,832.9	27.0	24.7	69.20	24.7	407.5	264.1	214.7	49.34	5.352	
11,217.1	10,946.9	11,019.2	10,835.5	27.1	24.9	69.39	24.7	421.7	271.7	222.0	49.68	5.469	
11,234.9	10,947.0	11,034.6	10,838.3	27.3	25.1	70.59	24.7	436.8	279.6	229.4	50.21	5.569	
11,300.0	10,947.3	11,086.8	10,846.5	28.1	25.8	74.23	25.0	488.4	308.6	256.4	52.13	5.920	
11,400.0	10,947.9	11,162.0	10,849.7	29.6	26.8	76.78	25.9	563.5	352.4	297.6	54.83	6.427	
11,500.0	10,948.4	11,162.0	10,849.7	31.2	26.8	77.18	25.9	563.5	404.5	347.9	56.52	7.156	
11,600.0	10,949.0	11,162.0	10,849.7	32.9	26.8	77.72	25.9	563.5	468.7	410.4	58.34	8.034	
11,700.0	10,949.5	11,162.0	10,849.7	34.8	26.8	78.35	25.9	563.5	540.6	480.4	60.25	8.974	
11,800.0	10,950.0	11,162.0	10,849.7	36.8	26.8	79.04	25.9	563.5	617.4	555.2	62.21	9.924	
11,900.0	10,950.6	11,162.0	10,849.7	38.9	26.8	79.75	25.9	563.5	697.3	633.0	64.21	10.859	
12,000.0	10,951.1	11,162.0	10,849.7	41.1	26.8	80.47	25.9	563.5	779.0	712.8	66.21	11.767	
12,100.0	10,951.7	11,162.0	10,849.7	43.3	26.8	81.16	25.9	563.5	862.0	793.9	68.18	12.644	
12,200.0	10,952.2	11,162.0	10,849.7	45.6	26.8	81.82	25.9	563.5	945.7	875.6	70.10	13.491	
12,278.3	10,952.6	11,162.0	10,849.7	47.4	26.8	82.30	25.9	563.5	1,011.5	939.9	71.56	14.134	

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Project:	Indian Hills	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Reference Site:	153N-100W-31/32	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #13T2	Database:	OpenWellsCompass - EDM Prod
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 2183.0ft (Original Well Elev)

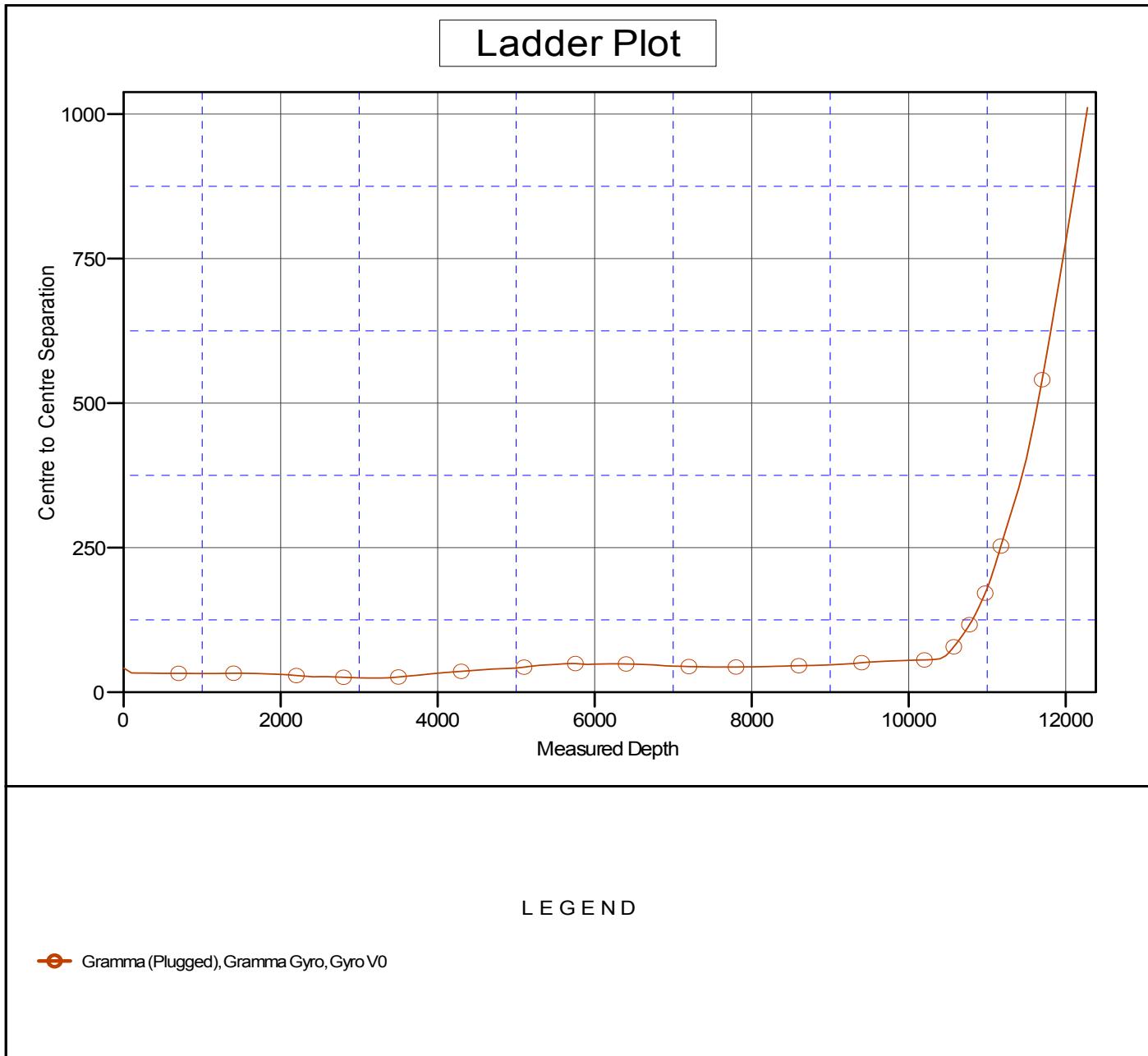
Coordinates are relative to: Gramma Federal 5300 41-31 13T2

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°



Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 13T2
Project:	Indian Hills	TVD Reference:	WELL @ 2183.0ft (Original Well Elev)
Reference Site:	153N-100W-31/32	MD Reference:	WELL @ 2183.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Gramma Federal 5300 41-31 13T2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #13T2	Database:	OpenWellsCompass - EDM Prod
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 2183.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is 100° 30' 0.000 W

Coordinates are relative to: Gramma Federal 5300 41-31 13T2
 Coordinate System is US State Plane 1983, North Dakota Northern Zone
 Grid Convergence at Surface is: -2.31°

