



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

Well File No.
29316

FEB 12 2016

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 August 20, 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	

ND Oil & Gas Division

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

Well Name and Number
Gramma Federal 5300 41-31 12B

Footages	647 F S L	320 F W L	Qtr-Qtr LOT4	Section 31	Township 153 N	Range 100 W
Field	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 8/20/2015 the above referenced well is on pump.

End of Tubing: 2-7/8" L-80 tubing @ 10214.99'

Pump: ESP @ 9854.46'

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 February 11, 2016	
Email Address jswenson@oasispetroleum.com		

FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date 3-3-2016	
By 	
Title TAYLOR ROTH	
Engineering Technician	



AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - Form 8

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



Well File No.
29316
NDIC CTB No.
To be assigned

229316

McKenzie

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number GRAMMA FEDERAL 5300 41-31 12B	Qtr-Qtr LOT4	Section 31	Township 153	Range 100	County Williams
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Operator Oasis Petroleum North America LLC	Telephone Number (281) 404-9573	Field BAKER
--	---	-----------------------

Address 1001 Fannin, Suite 1500	City Houston	State TX	Zip Code 77002
---	------------------------	--------------------	--------------------------

Name of First Purchaser Oasis Petroleum Marketing LLC	Telephone Number (281) 404-9627	% Purchased 100%	Date Effective June 1, 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 June 1, 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
Power Crude Transport	25%	June 1, 2015
Other Transporters Transporting From This Lease	% Transported	Date Effective
		June 1, 2015
Comments		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date September 10, 2015
Signature <i>Dina Barron</i>	Printed Name Dina Barron Title Mktg. Contracts Administrator

Above Signature Witnessed By:	Printed Name	Title
Signature <i>Jerry W. Harris</i>	Printed Name Jeremy Harris	Title Marketing Scheduler

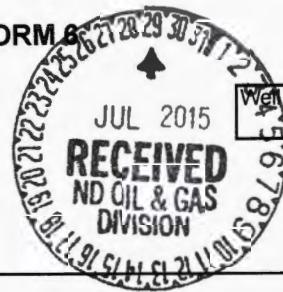
FOR STATE USE ONLY		
Date Approved	SEP 18 2015	
By	<i>Erin Roberson</i>	
Title	Oil & Gas Production Analyst	

Oil & Gas Production Analyst



WELL COMPLETION OR RECOMPLETION REPORT - FORM 8

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



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Designate Type of Completion							
<input checked="" type="checkbox"/> Oil Well	<input type="checkbox"/> EOR Well	<input type="checkbox"/> Recompletion	<input type="checkbox"/> Deepened Well	<input type="checkbox"/> Added Horizontal Leg	<input type="checkbox"/> Extended Horizontal Leg		
<input type="checkbox"/> Gas Well	<input type="checkbox"/> SWD Well	<input type="checkbox"/> Water Supply Well	<input type="checkbox"/> Other:				
Well Name and Number Gramma Federal 5300 41-31 12B				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	Permit Type <input type="checkbox"/> Wildcat <input checked="" type="checkbox"/> Development <input type="checkbox"/> Extension			

LOCATION OF WELL

At Surface		Qtr-Qtr	Section	Township	Range	County
647	F S L	320	F WL	LOT4	31	153 N 100 W McKenzie
Spud Date		Date TD Reached		Drilling Contractor and Rig Number		KB Elevation (Ft)
December 21, 2014		February 20, 2015		Nabors B27		Graded Elevation (Ft) 2183 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)

Well Bore	Type	String Size (Inch)	Top Set (MD Ft)	Depth Set (MD Ft)	Hole Size (Inch)	Weight (Lbs/Ft)	Anchor Set (MD Ft)	Packer Set (MD Ft)	Sacks Cement	Top of Cement
Surface Hole	Surface	13 3/8	0	2415	17 1/2	54.5			1211	0
Vertical Hole	Intermediate	9 5/8	0	6000	13 1/2	36			1101	2400
Vertical Hole	Intermediate	7	0	11132	8 3/4	32			830	8560
Lateral1	Liner	4 1/2	10269	20435	6	13.5			505	10269

PERFORATION & OPEN HOLE INTERVALS

Well Bore	Well Bore TD Driller's Depth (MD Ft)	Completion Type	Open Hole/Perforated Interval (MD,Ft)	Kick-off Point (MD Ft)	Top of Casing Window (MD Ft)	Date Perf'd or Drilled	Date Isolated	Isolation Method	Sacks Cement
Lateral1	20440	Perforations	11132 20435	10310		05/26/2015			

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft) Lateral 1- 11132' to 20435'				Name of Zone (If Different from Pool Name)					
Date Well Completed (SEE INSTRUCTIONS) June 30, 2015			Producing Method Flowing		Pumping-Size & Type of Pump			Well Status (Producing or Shut-In) Producing	
Date of Test 07/01/2015	Hours Tested 24	Choke Size 40 /64	Production for Test		Oil (Bbls) 2244	Gas (MCF) 3052	Water (Bbls) 3457	Oil Gravity-API (Corr.) °	Disposition of Gas Sold
Flowing Tubing Pressure (PSI)	Flowing Casing Pressure (PSI) 1500		Calculated 24-Hour Rate		Oil (Bbls) 2244	Gas (MCF) 3052	Water (Bbls) 3457	Gas-Oil Ratio 1359	

GEOLOGICAL MARKERS

PLUG BACK INFORMATION

CORES CUT

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

Drill Stem Test

Well Specific Stimulation

Date Stimulated	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											
40/70 White: 1199320 20/40 White: 6572629 20/40 Resin Coated: 1367480 100M: 236200											
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

Well or Facility No

29316

Verbal Approval To Purchase and Transport Oil 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 12B	Inspector Richard Dunn
Well Location QQ Sec Twp Rng	County MCKENZIE
LOT4 31 153 N 100 W	Field BAKER
Footages 647 Feet From the S Line	Pool BAKKEN
320 Feet From the W Line	
Date of First Production Through Permanent Wellhead	6/30/2015 This Is Not The First Sales

PURCHASER / TRANSPORTER

Purchaser KINDER MORGAN	Transporter KINDER MORGAN
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TANK BATTERY

Central Tank Battery Number : 229316-01

SALES INFORMATION This Is Not The First Sales

ESTIMATED BARRELS TO BE SOLD	ACTUAL BARRELS SOLD		DATE
15000	BBLS	293	BBLS
	BBLS		BBLS

DETAILS

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

Start Date **6/30/2015**
Date Approved **7/7/2015**
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 (08-2006)

Well File No.
29316



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

<input type="checkbox"/> Notice of Intent	Approximate Start Date	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input checked="" type="checkbox"/> Report of Work Done	Date Work Completed March 31, 2015	<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 checked="" type="checkbox"/> Reclamation
		<input type="checkbox"/> Other	Reserve pit reclamation

Well Name and Number Gramma Federal 5300 41-31 12B					
Footages	Qtr-Qtr	Section	Township	Range	
647 F S L	320 F W L	LOT4	24	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) Neu Construction	City Fairview	State MT	Zip Code 59221
Address 602 W. 9th Street			

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 6-1-15	
By 	
Title 	

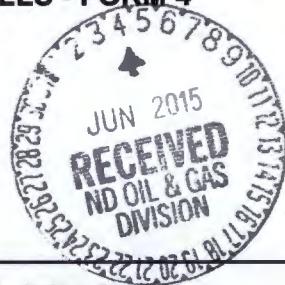


SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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

Well File No.

29316



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

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<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date June 2, 2015	<input type="checkbox"/> Drilling Prognosis	<input type="checkbox"/> Spill Report
<input type="checkbox"/> Report of Work Done	Date Work Completed	<input type="checkbox"/> Redrilling or Repair	<input type="checkbox"/> Shooting
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03. Approximate Start Date		<input type="checkbox"/> Casing or Liner	<input type="checkbox"/> Acidizing
		<input type="checkbox"/> Plug Well	<input type="checkbox"/> Fracture Treatment
		<input type="checkbox"/> Supplemental History	<input type="checkbox"/> Change Production Method
		<input type="checkbox"/> Temporarily Abandon	<input type="checkbox"/> Reclamation
		<input type="checkbox"/> Other	Waiver from tubing/packer requirement

Well Name and Number
Gramma Federal 5300 41-31 12B

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
Water	Bbls
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	Zip Code 77002
Signature 	Printed Name Jennifer Swenson	
Title Regulatory Specialist	Date June 2, 2015	
Email Address jswenson@oasispetroleum.com		

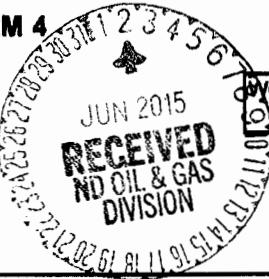
FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>June 4, 2015</i>	
By <i>J.P.M. wa</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.
29316

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<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date June 2, 2015	<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	Change well status to CONFIDENTIAL

Well Name and Number Gramma Federal 5300 41-31 12B					
Footages 647 F S L	320 F W L	Qtr-Qtr	Section 31	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)			
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	



Oil and Gas Division 29316

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/

March 19, 2015

ROBIN E. HESKETH
OASIS PETRO NO AMER
1001 FANNIN, SUITE 1500
HOUSTON, TX 77002

RE: GRAMMA FEDERAL 5300 41-31 12B
LOT4 31-153N-100W
MCKENZIE COUNTY
WELL FILE NO. 29316

Dear Robin:

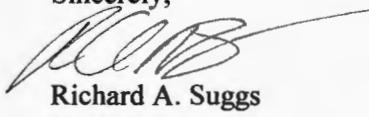
After review of the Cement Bond Log submitted on the above referenced well, dated February 14, 2015, we have determined that the top of cement behind the 7" casing string is at a depth of 7550 feet. The top of the PERMIAN-MINNEKAHTA FM Formation is picked from logs at 7433 feet. In lieu of an immediate cement squeeze, approval may be granted (via Form 4 Sundry Notice) to monitor the surface-production casing annulus. Approval will be contingent upon the following stipulations:

1. The surface-production casing annulus must be continuously monitored with an accurate pressure gauge, the pressure gauge must not be any higher than a 300 psi gauge.
2. All valves installed on the annulus must be exposed to the surface; burial will be allowed only in the presence of an Oil and Gas Division inspector.
3. Any pressure development on the annulus must be immediately reported to the Oil and Gas Division
4. The PERMIAN-MINNEKAHTA FM Formation must be isolated, as directed by the Oil and Gas Division, upon the abandonment of the well, remedial action may be required prior to abandonment if warranted by the Director.

Since the Dakota Group is not properly isolated, OASIS PETRO NO AMER must run a frac string prior to performing a Hydraulic Fracture Simulation per North Dakota Administrative Code Section 43-02-03-27.1

If you have any questions, do not hesitate to contact me.

Sincerely,



Richard A. Suggs
Geologist

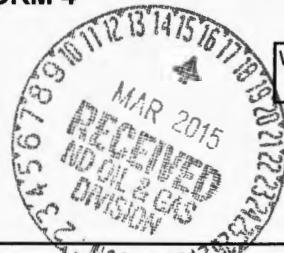
rsd/ras



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.
29316



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
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<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date March 13, 2015	<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	Well Monitoring

Well Name and Number
Gramma Federal 5300 41-31 12B

Footages	Qtr-Qtr	Section	Township	Range
647 F S L	320 F W L	Lot 4	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
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DETAILS OF WORK

Oasis Petroleum respectfully requests approval to monitor the above mentioned well with a 300# gauge in lieu of performing a remedial cement job. Oasis utilized a DV tool to perform a two stage intermediate cement job. During the first stage, Oasis did not see the plug get bumped. During the second stage, Oasis did bump the second plug and the floats held. However, near the end of the second stage, Oasis did not get expected returns. Oasis will monitor gauge daily, and record findings internally. If pressure is present, Oasis will bleed off the pressure, and notify the NDIC (Richard Suggs). Oasis plans to utilize a frac string on this well.

*(Record volume & type of Fluid/Gas)
1*

In the request, Oasis submits the following casing information:

Gauge Installation Date: 3/13/2015, gauge currently reads zero pressure

Casing Information:

Casing Size:	Grade:	Weight:	Interval:	Cement Top:
13 3/8"	J-55	54.5#	0 - 2,408'	0'
9 5/8"	J-55	36#	0 - 6,000'	0' - note: Dakota Group is Isolated By 9 5/8" string.
7"	P-110/HCP-110	29/32#	0 - 11,042	8415'

**Oasis must comply with the stipulations as noted in the NOFC letter dated 3-19-2015*

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9562	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature <i>VS</i>	Printed Name Victoria Siemieniewski	
Title Regulatory Specialist	Date March 13, 2015	
Email Address vsiemieniewski@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>3-19-2015</i>	
By <i>RS</i>	
Title Richard A. Suggs	
Geologist	

Gramma Federal 5300 41-31 12B

End of Well Report

Gramma Federal 5300 41-31 12B

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

Prepared by:

Matthew Lorraine, Aleks Kozakowski, *well-site geologists*
Columbine Logging, Inc.
2385 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 12B is an east lateral Middle Bakken well located in SW/4 SW/4 SEC 31, T153N, R100W in McKenzie County, North Dakota. The primary pay zone extended from 12'-21.5' below the top of the Middle Bakken. 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. Matthew Lorraine and Aleks Kozakowski were the primary well site geologists; providing geo-steering and mud logging from Columbine Logging, Inc.

Well Information

API #: 33-053-06231

Field: Baker

Spud Date: 02/01/2015

TD Date: 2/19/2015

Surface Location: SW SW SEC 31, T153N, R100W, 647' FSL & 320' FWL, McKenzie County, North Dakota

Intermediate Casing Point: SW SW SEC 31, T153N, R100W, 569.08' FSL & 898.59' FWL, McKenzie County, North Dakota; 11,152' MD, 10,815.50' TVD

Bottom Hole Location: SE SE SEC 32, T153N, R100W, 581.88' FSL & 331.53' FEL, McKenzie County, North Dakota

Surface Elevation: 2,158'

KB: 2183'

Casing Shoe: 11,132' MD, 10,814.57' TVD

Total Depth Drilled: 20440'

Operator: Oasis Petroleum North America LLC

Rig: Nabors B27

Company man: Nathan Weathers

Well-site Geologist: Matthew Lorraine, Aleks Kozakowski

Mud logging: Columbine Logging

DD: RPM

Mud Service: Mi Swaco

Drilling Mud: Invert, Brine

MWD: Ryan Directional Services

2.0 SERVICES

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

Geological consulting and mud logging started on 2/01/2015. 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 13T well, located 66' north on the same pad. From this offset log the Middle Bakken was determined to be approximately 34' feet thick. Within the Middle Bakken, the primary objective was to stay within an 9.3' thick target window within the Middle Bakken "B" unit, which extended from 7' to 21.3' below the top of the Middle Bakken. The target window was between 12' and 21.3' below the top of the Middle Bakken. 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 7' of the Middle Bakken, referred to as the "C" unit, consisted of overall low gamma compared to the "B" and "A" units. The lowest gamma readings of 80 api were just below the Upper Bakken Shale. The base of the "C" was marked by a gamma peak of approximately 120 api.

The "B" unit extended from 7' to 21.3' below the upper shale. The upper portion of the "B" consisted of three gamma peaks of varying intensity and thickness, and the lower ten feet had relatively lower gamma, with some inconsistent spikes and lows. The peaks in the upper portion of the "B" had a maximum value of 145 api, and the lows in the lower portion were as low as 65 api.

The "A" unit was expected to extend from 21.3' to 34' below the upper shale, based on an offset Three Forks well on the same pad. The 12B wellbore never dropped into the "A", but based on offset data the gamma was expected to be relatively high, and steady. The base of the "A" had a thin clean section of gamma, followed by the Lower Bakken Shale. After landing the curve, the wellbore was drilled almost entirely within the "B" unit.

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, 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 were picked using ROP, lithology, and gamma ray to identify markers in the curve and lateral (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)	TVDSS (ft)
Kibbey Lime		8,463'	8,462.32'	156.99'	3.32' low	8,459	(6,276)
Charles Salt		8,620'	8,619.31'	588.99'	8.31' low	8,611	(6,428)
UB		9,209'	9,208.30'	71'	4.7' high	9,213	(7,030)
Base Last Salt		9,280'	9,279.30'	35'	3.3' low	9,276	(7,093)
Ratcliffe		9,315'	9,314.30'	178'	1.3' low	9,313	(7,130)
Mission Canyon		9,493'	9,492.3'	543.98'	2.3' low	9,490	(7,307)
Lodgepole		10,037'	10,036.28'	734.49'	7.28' low	10,029	(7,846)
False Bakken		10,916'	10,770.77'	9.73'	3.77' low	10,767	(8,584)
Upper Bakken Shale		10,942'	10,780.50'	16.62'	2.5' low	10,778	(8,595)
Middle Bakken		10,999'	10,797.12'		0.12' low	10,797	(8,614)

Table 3.1 Gramma Federal 5300 41-31 12B Formation Tops

3.2 Lithology

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

3.3 Formation Dip

The formation had an average apparent dip of 89.58 degrees. Dip changes are shown in table 3.3, on the following page

STRUCTURE (MD - TVD)									
MD (ft)	Upper Bakken Top	Middle Bakken Top (C)	Middle Bakken "B"	Target top (gamma peak)	Target line gamma peak	Middle Bakken "A" top (target base)	Lower Bakken Top	Dip (angle)	Dip Rate (ft/100)
10800.0	10778.5	10796.5	10803.5	10808.5	10812.1	10817.8	10830.8		
10999.0	10779.0	10797.0	10804.0	10809.0	10812.6	10818.3	10831.3	89.9	0.3
11395.0	10779.8	10797.8	10804.8	10809.8	10813.4	10819.1	10832.1	89.88	0.2
11802.0	10779.8	10797.8	10804.8	10809.8	10813.4	10819.1	10832.1	#DIV/0!	0.0
12401.0	10783.0	10801.0	10808.0	10813.0	10816.6	10822.3	10835.3	89.69	0.5
12618.0	10786.0	10804.0	10811.0	10816.0	10819.6	10825.3	10838.3	89.21	1.4
12894.0	10785.9	10803.9	10810.9	10815.9	10819.5	10825.2	10838.2	90.02	0.0
13336.0	10790.5	10808.5	10815.5	10820.5	10824.1	10829.8	10842.8	89.40	1.0
13517.0	10791.4	10809.4	10816.4	10821.4	10825.0	10830.7	10843.7	89.72	0.5
13947.0	10795.2	10813.2	10820.2	10825.2	10828.8	10834.5	10847.5	89.49	0.9
14223.0	10796.8	10814.8	10821.8	10826.8	10830.4	10836.1	10849.1	89.67	0.6
14973.0	10805.3	10823.3	10830.3	10835.3	10838.9	10844.6	10857.6	89.35	1.1
15768.0	10809.6	10827.6	10834.6	10839.6	10843.2	10848.9	10861.9	89.69	0.5
16149.0	10813.4	10831.4	10838.4	10843.4	10847.0	10852.7	10865.7	89.43	1.0
16612.0	10813.1	10831.1	10838.1	10843.1	10846.7	10852.4	10865.4	90.04	-0.1
17044.0	10818.3	10836.3	10843.3	10848.3	10851.9	10857.6	10870.6	89.31	1.2
17811.0	10826.4	10844.4	10851.4	10856.4	10860.0	10865.7	10878.7	89.39	1.1
18256.0	10830.9	10848.9	10855.9	10860.9	10864.5	10870.2	10883.2	89.42	1.0
18809.0	10837.0	10855.0	10862.0	10867.0	10870.6	10876.3	10889.3	89.37	1.1
19509.0	10840.3	10858.3	10865.3	10870.3	10873.9	10879.6	10892.6	89.73	0.5
20000.0	10844.0	10862.0	10869.0	10874.0	10877.6	10883.3	10896.3	89.57	0.8
20440.0	10847.9	10865.9	10872.9	10877.9	10881.5	10887.2	10900.2	89.49	0.9

Table 3.3 Gramma Federal 5300 41-31 12B 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 800-2000 units, which steadily increased to peaks of 4800 units at connections, with a background of 4000 units. The gas buster was brought online at 18820', and reduced gas readings by about 2000 units. Flares were intermittent at 3' to 20'. The sandy transitional zone in the upper 2 feet of the "B" unit had slightly higher gas readings.

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. The best oil shows were within the top 2' of the Middle Bakken "B" unit.

3.6 Gas Shows

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

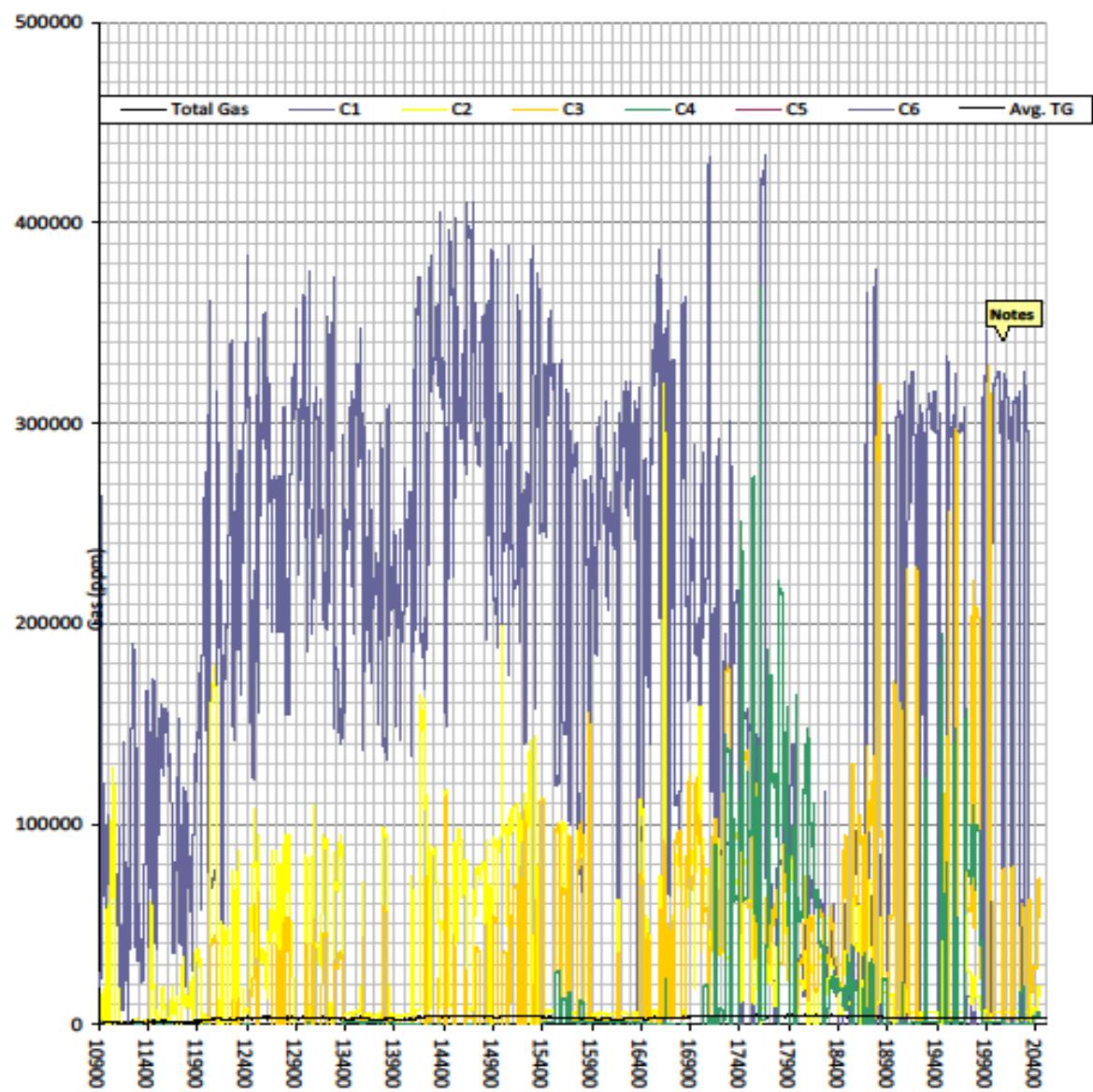


Figure 3.6 Total hydrocarbons (black) where 1 unit = 100 ppm methane eq, and chromatograph data (ppm)

4.0 WELL HISTORY

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

24 HR. FOOTAGE TALLY				Current 24 hr. Operations
Day	Date	12AM Depth	24 hr. Footage	
1	2/5/2015	8,200'	1,352'	Drill vertical, Columbine Logging, Inc at logging depth of 8,200' at 03:20 CST
2	2/6/2015	9,552'	758'	Drill vertical to KOP at 10,310' MD. TOOH for curve BHA @ 19:00 hrs, run cement bond logs.
3	2/7/2015	10,310'	99'	TIH with curve BHA and drill curve from 14:00 hrs. Lost circulation at 18:45 hrs, short trip and circulate.
4	2/8/2015	10,409'	232'	Short trip and circulate for lost circulation, drill curve from 01:45 to 13:00 hrs. TOOH @ 13:00 hrs/10,641' MD for mud motor
5	2/9/2015	10,641'	511'	TIH and drill curve from 05:00 hrs.
6	2/10/2015	11,152'	0'	TOOH @ 00:00 hrs, 11,152' MD, due to damaged mud motor. Intermediate casing point called at 11,152' MD.
7	2/11/2015	11,152'	0'	Lay down drill pipe, run intermediate casing
8	2/12/2015	11,152'	0'	Run intermediate casing, cement
9	2/13/2015	11,152'	0'	pick up drill pipe, TIH to drill out cement
10	2/14/2015	11,152'	0'	TOOH, run cement bond logs
11	2/15/2015	11,152'	1,443'	TIH, drill lateral from 08:45 hrs
12	2/16/2015	12,595'	2,338'	Drill lateral
13	2/17/2015	14,933'	2,096'	Drill lateral
14	2/18/2015	17,029'	1,837'	Drill lateral
15	2/19/2015	18,866'	1,574'	Drill lateral to TD @ 20,440' MD, 16:30 hrs

Table 4.0 Gramma Federal 5300 41-31 12B well history

5.0 WELLBORE

The surface location is SW SW SEC 31, T153N, R100W, 647' 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 Middle Bakken at 11,152' MD; 10,815.50' TVD. The lateral was drilled to TD at: 20,440' MD, with a projection to bit at: 10,881.77' TVD, 9,860.47' VS, SE SE SEC 32, T153N, R100W, 581.88' FSL & 331.53' FEL. Figure 5.1 shows a cross-section of the lateral.

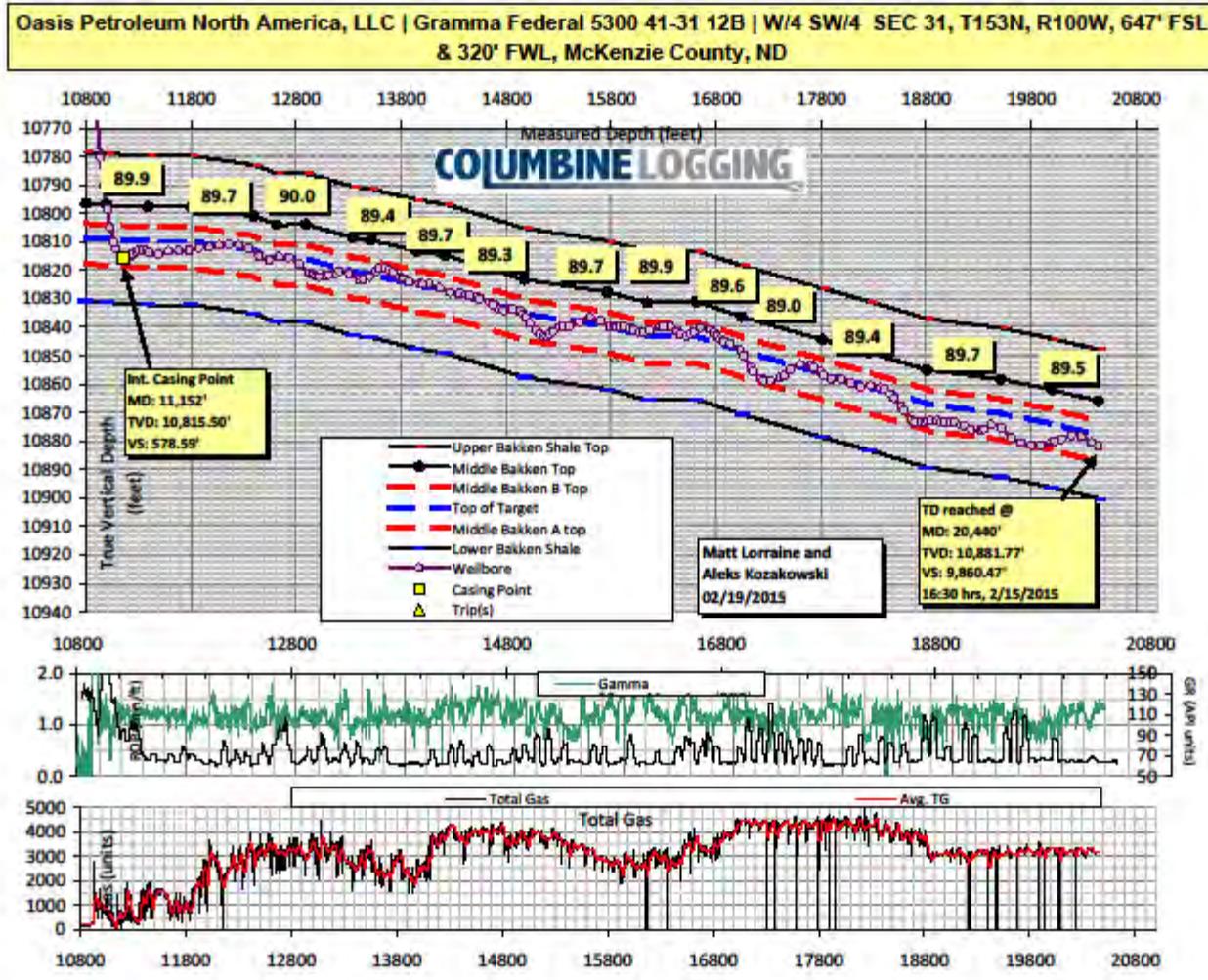


Figure 5.1 Wellbore Cross Section

5.1 DEVIATION SURVEYS

No.	Tool Type	MD (ft)	INC (°)	AZI (°)	CL (ft)	TVD (ft)	VS (ft)	Coordinates			
								N/S (ft)		E/W (ft)	
0	TIE-IN	2333	0.9	239.9		2332.88	-5.81	-1.35		-5.81	
1	MWD	2470	1.40	232.90	137	2469.85	-8.08	-2.90	S	-8.08	W
2	MWD	2564	0.90	249.80	94	2563.83	-9.68	-3.85	S	-9.68	W
3	MWD	2658	0.80	255.50	94	2657.82	-11.01	-4.27	S	-11.01	W
4	MWD	2752	0.80	271.10	94	2751.81	-12.30	-4.42	S	-12.30	W
5	MWD	2846	0.90	269.20	94	2845.80	-13.70	-4.42	S	-13.70	W
6	MWD	2940	0.50	212.00	94	2939.80	-14.65	-4.77	S	-14.65	W
7	MWD	3035	0.50	189.00	95	3034.79	-14.94	-5.53	S	-14.94	W
8	MWD	3129	0.70	178.90	94	3128.79	-14.99	-6.51	S	-14.99	W
9	MWD	3223	0.70	186.00	94	3222.78	-15.04	-7.66	S	-15.04	W
10	MWD	3317	0.80	184.20	94	3316.77	-15.15	-8.88	S	-15.15	W
11	MWD	3411	0.60	175.80	94	3410.77	-15.16	-10.03	S	-15.16	W
12	MWD	3505	0.70	171.50	94	3504.76	-15.04	-11.09	S	-15.04	W
13	MWD	3600	0.70	157.50	95	3599.75	-14.73	-12.20	S	-14.73	W
14	MWD	3694	0.40	155.60	94	3693.75	-14.38	-13.03	S	-14.38	W
15	MWD	3788	0.60	144.50	94	3787.74	-13.96	-13.73	S	-13.96	W
16	MWD	3882	0.40	161.10	94	3881.74	-13.56	-14.44	S	-13.56	W
17	MWD	3976	0.40	150.00	94	3975.74	-13.29	-15.03	S	-13.29	W
18	MWD	4070	0.60	148.50	94	4069.73	-12.87	-15.74	S	-12.87	W
19	MWD	4164	0.30	163.80	94	4163.73	-12.55	-16.39	S	-12.55	W
20	MWD	4259	0.50	146.90	95	4258.73	-12.25	-16.98	S	-12.25	W
21	MWD	4353	0.40	147.40	94	4352.73	-11.85	-17.60	S	-11.85	W
22	MWD	4447	0.40	98.10	94	4446.72	-11.35	-17.92	S	-11.35	W
23	MWD	4541	0.30	85.20	94	4540.72	-10.78	-17.95	S	-10.78	W
24	MWD	4636	0.50	119.70	95	4635.72	-10.17	-18.13	S	-10.17	W
25	MWD	4730	0.50	101.00	94	4729.72	-9.41	-18.41	S	-9.41	W
26	MWD	4824	0.80	97.50	94	4823.71	-8.36	-18.58	S	-8.36	W
27	MWD	4918	0.90	104.00	94	4917.70	-6.99	-18.84	S	-6.99	W
28	MWD	5012	1.00	95.40	94	5011.69	-5.46	-19.10	S	-5.46	W
29	MWD	5107	1.10	111.70	95	5106.67	-3.79	-19.51	S	-3.79	W
30	MWD	5201	1.20	114.40	94	5200.65	-2.05	-20.25	S	-2.05	W
31	MWD	5295	0.90	130.50	94	5294.64	-0.59	-21.14	S	-0.59	W
32	MWD	5389	1.20	125.40	94	5388.62	0.77	-22.19	S	0.77	E
33	MWD	5483	0.40	190.10	94	5482.61	1.52	-23.08	S	1.52	E
34	MWD	5577	0.50	215.20	94	5576.61	1.22	-23.74	S	1.22	E
35	MWD	5671	0.00	204.30	94	5670.61	0.99	-24.07	S	0.99	E
36	MWD	5765	0.30	18.00	94	5764.61	1.06	-23.84	S	1.06	E

37	MWD	5859	0.40	21.90	94	5858.61	1.26	-23.30	S	1.26	E
38	MWD	5953	0.60	42.60	94	5952.60	1.72	-22.64	S	1.72	E
39	MWD	6038	0.70	61.50	85	6037.60	2.47	-22.06	S	2.47	E
40	MWD	6131	0.90	63.20	93	6130.59	3.62	-21.46	S	3.62	E
41	MWD	6226	1.20	43.00	95	6225.57	4.97	-20.40	S	4.97	E
42	MWD	6320	1.50	48.80	94	6319.55	6.57	-18.87	S	6.57	E
43	MWD	6414	1.50	41.70	94	6413.51	8.31	-17.14	S	8.31	E
44	MWD	6508	1.40	33.00	94	6507.48	9.75	-15.25	S	9.75	E
45	MWD	6603	1.60	50.00	95	6602.45	11.40	-13.43	S	11.40	E
46	MWD	6697	0.90	37.30	94	6696.43	12.85	-12.00	S	12.85	E
47	MWD	6791	1.20	60.50	94	6790.41	14.16	-10.93	S	14.16	E
48	MWD	6885	0.50	8.60	94	6884.40	15.08	-10.04	S	15.08	E
49	MWD	6979	0.70	32.30	94	6978.40	15.44	-9.15	S	15.44	E
50	MWD	7074	0.80	31.30	95	7073.39	16.10	-8.09	S	16.10	E
51	MWD	7168	0.60	29.40	94	7167.38	16.68	-7.10	S	16.68	E
52	MWD	7262	0.60	44.10	94	7261.38	17.27	-6.32	S	17.27	E
53	MWD	7356	0.70	23.50	94	7355.37	17.84	-5.44	S	17.84	E
54	MWD	7450	0.80	34.90	94	7449.36	18.44	-4.37	S	18.44	E
55	MWD	7544	0.70	46.10	94	7543.36	19.23	-3.44	S	19.23	E
56	MWD	7639	0.70	28.60	95	7638.35	19.93	-2.52	S	19.93	E
57	MWD	7733	0.50	12.40	94	7732.34	20.29	-1.62	S	20.29	E
58	MWD	7827	0.40	3.50	94	7826.34	20.40	-0.89	S	20.40	E
59	MWD	7921	0.20	8.60	94	7920.34	20.44	-0.40	S	20.44	E
60	MWD	8016	0.30	345.40	95	8015.34	20.40	0.00	N	20.40	E
61	MWD	8110	0.40	322.60	94	8109.34	20.14	0.50	N	20.14	E
62	MWD	8204	0.50	294.60	94	8203.33	19.57	0.93	N	19.57	E
63	MWD	8298	0.40	258.10	94	8297.33	18.88	1.04	N	18.88	E
64	MWD	8393	0.70	239.60	95	8392.33	18.05	0.68	N	18.05	E
65	MWD	8487	0.70	243.10	94	8486.32	17.04	0.12	N	17.04	E
66	MWD	8581	0.40	236.50	94	8580.31	16.26	-0.32	S	16.26	E
67	MWD	8675	0.60	252.40	94	8674.31	15.52	-0.65	S	15.52	E
68	MWD	8769	0.40	232.00	94	8768.31	14.79	-1.00	S	14.79	E
69	MWD	8864	0.60	219.50	95	8863.30	14.21	-1.58	S	14.21	E
70	MWD	8958	0.50	228.80	94	8957.30	13.59	-2.23	S	13.59	E
71	MWD	9052	0.40	259.80	94	9051.30	12.96	-2.56	S	12.96	E
72	MWD	9147	0.20	222.00	95	9146.30	12.52	-2.74	S	12.52	E
73	MWD	9241	0.40	269.50	94	9240.29	12.08	-2.87	S	12.08	E
74	MWD	9335	0.20	271.50	94	9334.29	11.59	-2.87	S	11.59	E
75	MWD	9430	0.50	248.60	95	9429.29	11.04	-3.02	S	11.04	E
76	MWD	9524	0.30	268.80	94	9523.29	10.41	-3.17	S	10.41	E
77	MWD	9618	0.40	264.70	94	9617.29	9.84	-3.21	S	9.84	E
78	MWD	9712	0.30	315.10	94	9711.28	9.34	-3.06	S	9.34	E

79	MWD	9807	0.40	277.60	95	9806.28	8.83	-2.84	S	8.83	E
80	MWD	9901	0.00	211.90	94	9900.28	8.51	-2.80	S	8.51	E
81	MWD	9995	0.20	219.60	94	9994.28	8.40	-2.92	S	8.40	E
82	MWD	10089	0.20	290.90	94	10088.28	8.15	-2.99	S	8.15	E
83	MWD	10183	0.30	277.30	94	10182.28	7.75	-2.90	S	7.75	E
84	MWD	10252	0.10	327.70	69	10251.28	7.54	-2.83	S	7.54	E
85	MWD	10314	1.50	88.80	62	10313.27	8.32	-2.77	S	8.32	E
86	MWD	10345	6.50	97.20	31	10344.19	10.47	-2.98	S	10.47	E
87	MWD	10376	11.30	98.30	31	10374.81	15.22	-3.64	S	15.22	E
88	MWD	10408	14.50	101.60	32	10405.99	22.24	-4.89	S	22.24	E
89	MWD	10439	19.30	101.80	31	10435.65	31.07	-6.72	S	31.07	E
90	MWD	10471	25.30	99.70	32	10465.24	42.99	-8.96	S	42.99	E
91	MWD	10502	29.50	97.90	31	10492.76	57.09	-11.13	S	57.09	E
92	MWD	10533	30.10	96.40	31	10519.66	72.38	-13.04	S	72.38	E
93	MWD	10565	32.30	96.10	32	10547.03	88.85	-14.84	S	88.85	E
94	MWD	10596	35.00	96.30	31	10572.83	105.93	-16.70	S	105.93	E
95	MWD	10628	38.00	97.20	32	10598.55	124.83	-18.94	S	124.83	E
96	MWD	10659	42.00	97.60	31	10622.29	144.58	-21.51	S	144.58	E
97	MWD	10690	45.40	98.90	31	10644.70	165.77	-24.59	S	165.77	E
98	MWD	10722	48.70	98.70	32	10666.50	188.92	-28.17	S	188.92	E
99	MWD	10753	52.10	98.70	31	10686.26	212.53	-31.79	S	212.53	E
100	MWD	10784	55.40	98.60	31	10704.59	237.24	-35.54	S	237.24	E
101	MWD	10816	57.40	98.10	32	10722.30	263.61	-39.41	S	263.61	E
102	MWD	10847	59.10	97.20	31	10738.61	289.73	-42.92	S	289.73	E
103	MWD	10879	61.20	96.50	32	10754.54	317.29	-46.23	S	317.29	E
104	MWD	10910	65.40	96.00	31	10768.46	344.81	-49.24	S	344.81	E
105	MWD	10941	69.40	96.10	31	10780.37	373.27	-52.26	S	373.27	E
106	MWD	10973	73.70	95.90	32	10790.50	403.45	-55.43	S	403.45	E
107	MWD	11004	76.80	95.90	31	10798.39	433.26	-58.51	S	433.26	E
108	MWD	11035	78.60	96.30	31	10804.99	463.38	-61.73	S	463.38	E
109	MWD	11067	82.70	98.20	32	10810.19	494.69	-65.72	S	494.69	E
110	MWD	11089	84.80	98.80	22	10812.59	516.32	-68.95	S	516.32	E
111	MWD	11158	89.90	97.60	69	10815.78	584.52	-78.77	S	584.52	E
112	MWD	11188	90.00	98.20	30	10815.80	614.23	-82.90	S	614.23	E
113	MWD	11219	91.90	98.50	31	10815.29	644.90	-87.40	S	644.90	E
114	MWD	11250	92.30	97.70	31	10814.15	675.57	-91.76	S	675.57	E
115	MWD	11280	90.80	95.70	30	10813.34	705.35	-95.26	S	705.35	E
116	MWD	11311	90.50	93.30	31	10812.99	736.25	-97.69	S	736.25	E
117	MWD	11341	89.70	91.40	30	10812.94	766.22	-98.92	S	766.22	E
118	MWD	11372	89.20	90.90	31	10813.23	797.22	-99.55	S	797.22	E
119	MWD	11403	88.90	91.00	31	10813.75	828.21	-100.06	S	828.21	E
120	MWD	11495	90.50	91.10	92	10814.23	920.19	-101.75	S	920.19	E

121	MWD	11590	90.70	90.30	95	10813.23	1015.17	-102.91	S	1015.17	E
122	MWD	11686	89.50	88.30	96	10813.07	1111.16	-101.73	S	1111.16	E
123	MWD	11781	90.60	90.00	95	10812.98	1206.15	-100.32	S	1206.15	E
124	MWD	11877	90.50	89.90	96	10812.06	1302.14	-100.24	S	1302.14	E
125	MWD	11972	89.70	88.10	95	10811.90	1397.12	-98.58	S	1397.12	E
126	MWD	12068	91.10	88.60	96	10811.23	1493.08	-95.82	S	1493.08	E
127	MWD	12163	89.50	91.10	95	10810.73	1588.06	-95.57	S	1588.06	E
128	MWD	12259	89.90	91.30	96	10811.23	1684.04	-97.58	S	1684.04	E
129	MWD	12354	88.80	92.60	95	10812.31	1778.98	-100.81	S	1778.98	E
130	MWD	12449	88.00	94.00	95	10814.96	1873.78	-106.28	S	1873.78	E
131	MWD	12545	90.40	94.10	96	10816.30	1969.52	-113.06	S	1969.52	E
132	MWD	12640	90.90	91.40	95	10815.22	2064.40	-117.61	S	2064.40	E
133	MWD	12735	88.80	88.20	95	10815.47	2159.38	-117.28	S	2159.38	E
134	MWD	12831	88.20	87.80	96	10817.99	2255.29	-113.93	S	2255.29	E
135	MWD	12927	88.40	87.40	96	10820.83	2351.16	-109.92	S	2351.16	E
136	MWD	12959	89.10	87.80	32	10821.53	2383.13	-108.58	S	2383.13	E
137	MWD	12990	89.30	87.80	31	10821.97	2414.10	-107.39	S	2414.10	E
138	MWD	13022	89.80	88.40	32	10822.22	2446.08	-106.33	S	2446.08	E
139	MWD	13086	90.70	90.50	64	10821.94	2510.07	-105.71	S	2510.07	E
140	MWD	13118	90.50	89.80	32	10821.60	2542.07	-105.79	S	2542.07	E
141	MWD	13181	90.80	90.40	63	10820.89	2605.07	-105.90	S	2605.07	E
142	MWD	13213	91.50	90.20	32	10820.25	2637.06	-106.07	S	2637.06	E
143	MWD	13308	87.50	88.90	95	10821.07	2732.03	-105.33	S	2732.03	E
144	MWD	13404	89.90	90.50	96	10823.25	2828.00	-104.82	S	2828.00	E
145	MWD	13436	90.30	90.50	32	10823.20	2859.99	-105.10	S	2859.99	E
146	MWD	13499	91.50	91.30	63	10822.21	2922.98	-106.09	S	2922.98	E
147	MWD	13563	92.00	90.70	64	10820.25	2986.94	-107.21	S	2986.94	E
148	MWD	13595	91.20	89.60	32	10819.36	3018.92	-107.29	S	3018.92	E
149	MWD	13658	89.00	88.70	63	10819.25	3081.91	-106.36	S	3081.91	E
150	MWD	13690	88.50	88.70	32	10819.95	3113.90	-105.63	S	3113.90	E
151	MWD	13722	88.50	88.90	32	10820.78	3145.88	-104.96	S	3145.88	E
152	MWD	13786	88.80	88.60	64	10822.29	3209.84	-103.57	S	3209.84	E
153	MWD	13817	89.00	88.70	31	10822.89	3240.83	-102.84	S	3240.83	E
154	MWD	13881	89.10	88.60	64	10823.95	3304.80	-101.33	S	3304.80	E
155	MWD	13977	89.80	88.5	96	10824.87	3400.77	-98.90	S	3400.77	E
156	MWD	14008	90.20	87.9	31	10824.87	3431.75	-97.93	S	3431.75	E
157	MWD	14072	89.80	87.4	64	10824.87	3495.70	-95.30	S	3495.70	E
158	MWD	14167	88.50	86.9	95	10826.28	3590.57	-90.58	S	3590.57	E
159	MWD	14263	89.70	87.8	96	10827.79	3686.45	-86.14	S	3686.45	E
160	MWD	14358	89.80	89.5	95	10828.20	3781.42	-83.90	S	3781.42	E
161	MWD	14422	89.80	90.00	64	10828.43	3845.42	-83.62	S	3845.42	E
162	MWD	14454	89.60	89.20	32	10828.59	3877.42	-83.40	S	3877.42	E

163	MWD	14517	88.80	89.90	63	10829.47	3940.41	-82.91	S	3940.41	E
164	MWD	14549	89.70	90.60	32	10829.89	3972.40	-83.05	S	3972.40	E
165	MWD	14645	88.80	90.90	96	10831.15	4068.39	-84.30	S	4068.39	E
166	MWD	14676	88.20	90.60	31	10831.96	4099.37	-84.71	S	4099.37	E
167	MWD	14740	88.70	90.20	64	10833.69	4163.35	-85.15	S	4163.35	E
168	MWD	14772	90.00	90.60	32	10834.05	4195.34	-85.38	S	4195.34	E
169	MWD	14835	90.70	90.60	63	10833.67	4258.34	-86.04	S	4258.34	E
170	MWD	14867	89.60	91.90	32	10833.59	4290.33	-86.74	S	4290.33	E
171	MWD	14931	89.20	91.40	64	10834.26	4354.30	-88.58	S	4354.30	E
172	MWD	14963	86.90	91.30	32	10835.34	4386.27	-89.33	S	4386.27	E
173	MWD	14986	87.10	91.60	23	10836.55	4409.23	-89.91	S	4409.23	E
174	MWD	15026	87.10	91.60	40	10838.57	4449.17	-91.03	S	4449.17	E
175	MWD	15090	88.00	89.10	64	10841.31	4513.10	-91.42	S	4513.10	E
176	MWD	15122	88.00	89.30	32	10842.42	4545.08	-90.97	S	4545.08	E
177	MWD	15154	89.10	89.30	32	10843.23	4577.06	-90.58	S	4577.06	E
178	MWD	15186	91.20	89.20	32	10843.15	4609.06	-90.16	S	4609.06	E
179	MWD	15217	91.50	89.40	31	10842.42	4640.05	-89.78	S	4640.05	E
180	MWD	15249	91.50	88.80	32	10841.58	4672.03	-89.28	S	4672.03	E
181	MWD	15313	91.30	88.80	64	10840.02	4736.00	-87.94	S	4736.00	E
182	MWD	15344	90.00	89.70	31	10839.67	4766.99	-87.54	S	4766.99	E
183	MWD	15408	90.10	89.70	64	10839.61	4830.99	-87.20	S	4830.99	E
184	MWD	15504	91.70	90.50	96	10838.10	4926.98	-87.37	S	4926.98	E
185	MWD	15599	90.20	89.80	95	10836.53	5021.96	-87.62	S	5021.96	E
186	MWD	15695	88.40	89.90	96	10837.70	5117.95	-87.37	S	5117.95	E
187	MWD	15790	89.10	90.40	95	10839.77	5212.93	-87.61	S	5212.93	E
188	MWD	15822	89.90	91.00	32	10840.05	5244.92	-88.01	S	5244.92	E
189	MWD	15854	90.50	91.20	32	10839.94	5276.92	-88.62	S	5276.92	E
190	MWD	15885	90.50	90.40	31	10839.67	5307.91	-89.05	S	5307.91	E
191	MWD	15917	90.10	89.90	32	10839.50	5339.91	-89.14	S	5339.91	E
192	MWD	15981	88.70	89.50	64	10840.17	5403.90	-88.80	S	5403.90	E
193	MWD	16013	88.70	88.80	32	10840.90	5435.89	-88.33	S	5435.89	E
194	MWD	16077	89.40	88.90	64	10841.96	5499.87	-87.04	S	5499.87	E
195	MWD	16108	90.50	89.20	31	10841.99	5530.87	-86.53	S	5530.87	E
196	MWD	16172	90.90	88.40	64	10841.21	5594.85	-85.19	S	5594.85	E
197	MWD	16268	90.60	89.30	96	10839.95	5690.82	-83.26	S	5690.82	E
198	MWD	16299	90.90	88.60	31	10839.54	5721.81	-82.69	S	5721.81	E
199	MWD	16363	88.80	85.80	64	10839.71	5785.72	-79.57	S	5785.72	E
200	MWD	16427	87.90	88.10	64	10841.55	5849.60	-76.16	S	5849.60	E
201	MWD	16459	88.30	89.20	32	10842.61	5881.57	-75.41	S	5881.57	E
202	MWD	16522	90.80	90.40	63	10843.11	5944.57	-75.19	S	5944.57	E
203	MWD	16554	91.40	90.80	32	10842.50	5976.56	-75.53	S	5976.56	E
204	MWD	16586	91.60	91.40	32	10841.66	6008.54	-76.14	S	6008.54	E

205	MWD	16650	91.20	91.60	64	10840.09	6072.50	-77.81	S	6072.50	E
206	MWD	16745	87.90	91.10	95	10840.84	6167.46	-80.05	S	6167.46	E
207	MWD	16777	87.80	91.10	32	10842.04	6199.43	-80.67	S	6199.43	E
208	MWD	16809	88.20	91.00	32	10843.16	6231.40	-81.25	S	6231.40	E
209	MWD	16841	88.30	91.20	32	10844.13	6263.38	-81.87	S	6263.38	E
210	MWD	16872	88.40	90.70	31	10845.03	6294.36	-82.38	S	6294.36	E
211	MWD	16936	90.30	92.10	64	10845.75	6358.34	-83.94	S	6358.34	E
212	MWD	17032	86.90	88.20	96	10848.10	6454.28	-84.20	S	6454.28	E
213	MWD	17063	86.20	88.70	31	10849.96	6485.21	-83.36	S	6485.21	E
214	MWD	17127	86.40	88.60	64	10854.09	6549.06	-81.86	S	6549.06	E
215	MWD	17159	88.10	88.00	32	10855.63	6581.00	-80.91	S	6581.00	E
216	MWD	17223	87.80	88.40	64	10857.92	6644.93	-78.90	S	6644.93	E
217	MWD	17254	89.50	89.30	31	10858.65	6675.92	-78.28	S	6675.92	E
218	MWD	17318	90.30	89.60	64	10858.76	6739.91	-77.66	S	6739.91	E
219	MWD	17414	90.90	91.40	96	10857.76	6835.90	-78.50	S	6835.90	E
220	MWD	17446	91.70	92.00	32	10857.03	6867.88	-79.45	S	6867.88	E
221	MWD	17509	92.00	91.80	63	10855.00	6930.81	-81.54	S	6930.81	E
222	MWD	17605	90.30	91.40	96	10853.07	7026.75	-84.22	S	7026.75	E
223	MWD	17701	89.10	90.90	96	10853.57	7122.72	-86.14	S	7122.72	E
224	MWD	17732	88.80	90.70	31	10854.14	7153.72	-86.58	S	7153.72	E
225	MWD	17796	88.20	90.10	64	10855.82	7217.69	-87.02	S	7217.69	E
226	MWD	17828	88.10	89.30	32	10856.85	7249.67	-86.85	S	7249.67	E
227	MWD	17892	89.60	89.40	64	10858.13	7313.66	-86.13	S	7313.66	E
228	MWD	17987	90.20	90.10	95	10858.30	7408.65	-85.71	S	7408.65	E
229	MWD	18082	88.30	90.10	95	10859.54	7503.64	-85.88	S	7503.64	E
230	MWD	18178	90.10	91.60	96	10860.88	7599.61	-87.30	S	7599.61	E
231	MWD	18274	90.20	90.60	96	10860.63	7695.60	-89.15	S	7695.60	E
232	MWD	18369	89.00	89.90	95	10861.29	7790.59	-89.56	S	7790.59	E
233	MWD	18401	89.00	89.20	32	10861.85	7822.58	-89.31	S	7822.58	E
234	MWD	18465	88.10	88.90	64	10863.47	7886.55	-88.25	S	7886.55	E
235	MWD	18497	87.00	89.30	32	10864.84	7918.52	-87.75	S	7918.52	E
236	MWD	18560	87.60	89.60	63	10867.81	7981.45	-87.14	S	7981.45	E
237	MWD	18592	86.90	89.20	32	10869.34	8013.41	-86.81	S	8013.41	E
238	MWD	18656	87.50	89.00	64	10872.47	8077.32	-85.80	S	8077.32	E
239	MWD	18688	89.40	89.50	32	10873.34	8109.31	-85.39	S	8109.31	E
240	MWD	18751	90.50	89.90	63	10873.39	8172.31	-85.06	S	8172.31	E
241	MWD	18783	90.20	91.70	32	10873.19	8204.30	-85.50	S	8204.30	E
242	MWD	18815	90.20	91.30	32	10873.08	8236.29	-86.34	S	8236.29	E
243	MWD	18847	90.40	91.40	32	10872.92	8268.28	-87.09	S	8268.28	E
244	MWD	18911	89.60	91.90	64	10872.92	8332.25	-88.94	S	8332.25	E
245	MWD	18942	89.50	92.10	31	10873.16	8363.23	-90.02	S	8363.23	E
246	MWD	18974	89.90	91.50	32	10873.33	8395.22	-91.02	S	8395.22	E

247	MWD	19038	90.00	91.30	64	10873.38	8459.20	-92.59	S	8459.20	E
248	MWD	19070	89.20	89.90	32	10873.61	8491.19	-92.92	S	8491.19	E
249	MWD	19133	89.30	89.50	63	10874.43	8554.19	-92.59	S	8554.19	E
250	MWD	19165	89.10	88.50	32	10874.88	8586.18	-92.03	S	8586.18	E
251	MWD	19228	89.10	88.20	63	10875.87	8649.14	-90.22	S	8649.14	E
252	MWD	19324	90.50	88.50	96	10876.20	8745.10	-87.46	S	8745.10	E
253	MWD	19356	90.90	88.50	32	10875.81	8777.09	-86.62	S	8777.09	E
254	MWD	19420	91.80	88.40	64	10874.30	8841.05	-84.89	S	8841.05	E
255	MWD	19515	87.00	89.10	95	10875.30	8935.99	-82.82	S	8935.99	E
256	MWD	19611	88.60	89.60	96	10878.98	9031.91	-81.73	S	9031.91	E
257	MWD	19706	89.50	89.80	95	10880.56	9126.89	-81.23	S	9126.89	E
258	MWD	19802	89.50	88.60	96	10881.40	9222.88	-79.89	S	9222.88	E
259	MWD	19897	90.30	90.10	95	10881.56	9317.87	-78.81	S	9317.87	E
260	MWD	19993	91.00	90.20	96	10880.47	9413.86	-79.06	S	9413.86	E
261	MWD	20024	90.70	89.80	31	10880.01	9444.86	-79.06	S	9444.86	E
262	MWD	20088	90.50	89.90	64	10879.34	9508.86	-78.90	S	9508.86	E
263	MWD	20183	91.00	88.80	95	10878.10	9603.84	-77.82	S	9603.84	E
264	MWD	20279	88.60	86.90	96	10878.43	9699.76	-74.22	S	9699.76	E
265	MWD	20374	88.90	86.70	95	10880.51	9794.59	-68.92	S	9794.59	E
266	MWD	20440	88.90	86.70	66	10881.77	9860.47	-65.12	S	9860.47	E

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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.

www.wiagro.com.my

BOTTOM HOLE ASSEMBLY 1



RYAN DIRECTIONAL SERVICES, INC.

A NARROW CONDUIT

BOTTOM HOLE ASSEMBLY 2

2



RYAN DIRECTIONAL SERVICES, INC.

BOTTOM HOLE ASSEMBLY 4

RYAN DIREC



RYAN DIREC
A NATION'S COMIC

RYAN DIRECTIONAL SERVICES, INC.

BOTTOM HOLE ASSEMBLY 6

WELL INFORMATION		DIRECTIONAL RESPONSE				BIT INFO.	
ITEM #	TOOL	COMPANY	CONN. UP	IN	OUT	CHANGE RATE	SIZE
OIL COMPANY	Oasis Petroleum			2/15/2015	2/20/2015		6"
FRIG #:	NABORS B-27						T40F
LOCATION	MCKENZIE CO. ND			11152	20440		6" x 18"
WELL	IMA FEDERAL 5300 41-2			10812	10880		SER# 7449706
JOB NUMBER	8563						9288
MUD SUPERVISOR	JOHN LAROCHE	DAVID FOLEY		94.8	88.9		
CUSTOMER OFFICE CONTACT				98.8	86.7		
CUSTOMER WELL SITE SUPERVISOR	NATHAN WEATHERS			SLIDE PERCENT			
OBJECTIVE:	DRILL LATERAL			MUD-WT.-TYPE	Salewater		
COMMENTS:		Bit to Sensor:	66	Bit to Gamma:	53	Pin-CL	1.68
ITEM #	TOOL	COMPANY	CONN. UP	CORN. DOWN	I.D.	BLADE O.D.	CL-BOX
BIT	7149706			6"		1.00	3.22
MUD MOTOR	RYAN	RY504			5"		
NM PONY COLLAR	RYAN	DRB426	3 1/2" IF	4 5/8"	2 11/16"	9.16	39.58
UB-HO (NON MAG)	RYAN	RY8779	3 1/2" IF	4 5/8"	2 3/4"	4.90	44.49
NMDC	RYAN	RY4751686	3 1/2" IF	4 3/4"	2 5/8"	30.77	75.25
XO	RY	RY4751729	3 1/2" IF	4 11/16"	2 11/16"	30.20	105.45
GHOST REAMER	WEPS		XT-39	3 1/2" IF		3.12	109.5
			XT-39	XT-39		5.19	113.76

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

6.0 SUMMARY AND CONCLUSION

Gramma Federal 5300 41-31 12B is an east lateral Middle Bakken well located in SW SW SEC 31, T153N, R100W, 647' FSL & 320' FWL, McKenzie County, North Dakota. The well was drilled to completion at 14:30 hours, 2/19/2015. The projected bottom hole location is: SE SE SEC 32, T153N, R100W, 581.88' FSL & 331.53' FEL, McKenzie County, North Dakota, with a projected TVD of 10,881.77'.

The targeted pay zone for the wellbore was a window within the Middle Bakken "B" unit, and bounded above and below by lower gamma zones. This window extended from 12' to 21.5' below the top of the Middle Bakken. The anticipated dip of the formation was 0.6 degrees down overall, with a possibly dip reversal structure between 15000' MD and 17000' 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 13T, located on the same pad, 66' to the north. From this offset log the Middle Bakken was determined to be approximately 34' feet thick

The formation had an average dip of 89.58 degrees. The anticipated dip reversal was not encountered, but we did see a flattening to 89.9 degrees between 16150' and 16600'. Gas readings and oil shows were best in the upper 2'-3' of the Middle Bakken "B".

Currently the well is awaiting completion.

Matthew Lorraine, Aleks Kozakowski, Well-Site Geologists
Columbine Logging, Inc.
9844 Titan Ct. Unit #6
Littleton, CO 80125-9354
(303) 289-7764



APPENDIX A:

Vertical/Curve Section Geology:

Otter @ 8230' MD; 8230' TVD

Figure A.1, Otter



Kibbey @ 8463' MD; 8462.32' TVD

Figure A.2, Kibbey



Charles@ 8620'MD; 8619.31' TVD

Figure A.3, Charles



UB @ 9209' MD, 9208.30' TVD

Figure A.4, UB



Base of Last Charles Salt @ 9280' MD; 9279.30' TVD

Figure A.5, Base of Last Charles Salt



Ratcliffe @ 9315' MD; 9314.30' TVD

Figure A.6, Ratcliffe



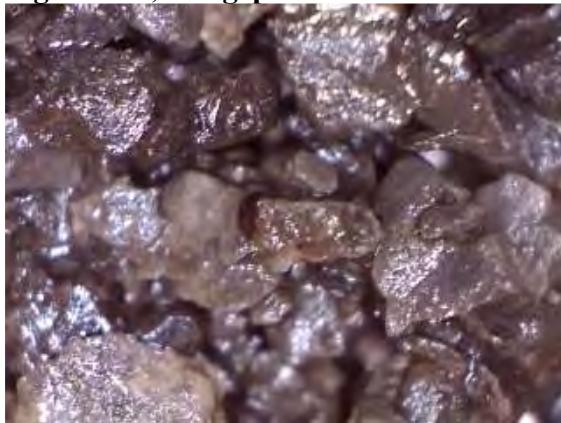
Mission Canyon @ 9493' MD; 9492.30' TVD
Figure A.7, Mission Canyon



Lodgepole @ 10037' MD; 10036.28' TVD
Figure A.8, Lodgepole



Lodgepole A @ 10139' MD; 10138.28' TVD
Figure A.9, Lodgepole A



Lodgepole B @ 10279' MD; 10278.28 TVD
Figure A.10, Lodgepole B



Lodgepole C @ 10340' MD; 10339.19' TVD
Figure A.11, Lodgepole C



Lodgepole D @ 10451' MD; 10436.74' TVD
Figure A.12, Lodgepole D



Lodgepole E @ 10668' MD; 10628.80' TVD
Figure A.13, Lodgepole E



Lodgepole F @ 10750' MD; 10684.35' TVD
Figure A.14, Lodgepole F



False Bakken@ 10916' MD; 10770.77' TVD
Figure A.15, False Bakken



Upper Bakken Shale @ 10942' MD; 10780.50' TVD
Figure A.16, Upper Bakken Shale



Middle Bakken@ 10999' MD; 10797.12' TVD
Figure A.17, Middle Bakken





Directional Survey Certification

Operator: Oasis Petroleum LLC **Well Name:** Gramma Federal 5300 41-31 12T **API:** 33-053-06231

Enseco Job#: S14064-02 **Job Type:** MWD D&I **County, State:** McKenzie County, N. Dakota

Well Surface Hole Location (SHL): Lot 4 , Sec. 31, T153N, R100W (647' FSL & 320 FWL)

Latitude: 48° 01' 34.22 N **Longitude:** 103° 36' 10.35 W **Datum:** Nad 83

Final MWD Report Date: Dec. 22, 2014 **MWD Survey Run Date:** Dec. 20, 2014 to Dec. 21, 2014

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

MWD Surveyed from 00 ft to 2,351.0 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: David Hopper

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

Jonathan Hovland, Well Planner

Enseco Representative Name, Title

Jonathan Hovland

Signature

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 12T
Job # S14064-02
API#: 33-053-06231

Survey: Final Surveys Vertical Section





Survey Report



Company:	Oasis Petroleum LLC	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	North Reference:	True
Wellbore:	Job # S14064-02	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 12T		API#: 33-053-06231	
Well Position	+N/-S +E/-W	0.00 usft	Northing: Easting:	389,608.43 usft 1,209,450.86 usft
			Wellhead Elevation:	2,183.00 usft
Position Uncertainty		0.00 usft	Latitude: Longitude:	48° 1' 34.220 N 103° 36' 10.350 W

Wellbore	Job # S14064-02				
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 (°)
			258.11



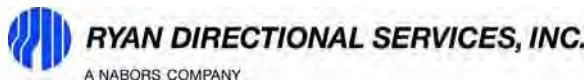
Survey Report



Company:	Oasis Petroleum LLC	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	North Reference:	True
Wellbore:	Job # S14064-02	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	0.90	322.60	154.99	2,028.01	0.97	-0.74	0.52	0.58	0.58	0.00
246.00	0.90	333.10	245.98	1,937.02	2.17	-1.50	1.02	0.18	0.00	11.54
339.00	0.70	313.10	338.97	1,844.03	3.21	-2.24	1.53	0.37	-0.22	-21.51
427.00	0.40	341.60	426.97	1,756.03	3.87	-2.73	1.88	0.45	-0.34	32.39
516.00	0.40	321.20	515.97	1,667.03	4.41	-3.02	2.05	0.16	0.00	-22.92
604.00	0.50	294.10	603.96	1,579.04	4.80	-3.57	2.50	0.26	0.11	-30.80
693.00	0.50	227.00	692.96	1,490.04	4.70	-4.21	3.15	0.62	0.00	-75.39
780.00	0.40	250.90	779.96	1,403.04	4.34	-4.77	3.77	0.24	-0.11	27.47
866.00	0.50	303.30	865.96	1,317.04	4.45	-5.37	4.34	0.47	0.12	60.93
955.00	0.90	333.50	954.95	1,228.05	5.29	-6.00	4.79	0.60	0.45	33.93
1,043.00	0.50	352.10	1,042.94	1,140.06	6.28	-6.37	4.93	0.52	-0.45	21.14
1,130.00	0.50	314.50	1,129.94	1,053.06	6.93	-6.69	5.12	0.37	0.00	-43.22
1,220.00	0.50	185.50	1,219.94	963.06	6.81	-7.01	5.45	1.00	0.00	-143.33
1,311.00	0.90	180.90	1,310.93	872.07	5.70	-7.06	5.73	0.44	0.44	-5.05
1,398.00	0.90	164.40	1,397.92	785.08	4.36	-6.88	5.84	0.30	0.00	-18.97
1,481.00	0.90	155.60	1,480.91	702.09	3.14	-6.44	5.65	0.17	0.00	-10.60
1,569.00	0.40	126.10	1,568.91	614.09	2.33	-5.90	5.30	0.67	-0.57	-33.52
1,656.00	0.50	117.30	1,655.90	527.10	1.97	-5.32	4.80	0.14	0.11	-10.11
1,743.00	0.40	86.00	1,742.90	440.10	1.82	-4.68	4.21	0.30	-0.11	-35.98
1,830.00	0.50	146.10	1,829.90	353.10	1.53	-4.17	3.76	0.53	0.11	69.08
1,917.00	0.40	75.40	1,916.90	266.10	1.29	-3.66	3.32	0.61	-0.11	-81.26
2,004.00	0.50	180.90	2,003.89	179.11	0.99	-3.37	3.10	0.83	0.11	121.26
2,090.00	0.50	205.90	2,089.89	93.11	0.27	-3.54	3.41	0.25	0.00	29.07
2,178.00	0.70	248.80	2,177.89	5.11	-0.27	-4.21	4.18	0.54	0.23	48.75
2,266.00	0.50	233.70	2,265.88	-82.88	-0.69	-5.02	5.06	0.29	-0.23	-17.16
Last MWD Survey										
2,351.00	0.90	239.90	2,350.88	-167.88	-1.24	-5.90	6.03	0.48	0.47	7.29

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	
2,351.00	2,350.88	-1.24	-5.90	Last MWD Survey	



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

Monday, February 23, 2015

State of North Dakota

Subject: **Surveys**

Re: **Oasis**
Gramma Federal 5300 41-31 12B
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.	2351'	20374'	02/01/15	02/19/15	MWD	20440'

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

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

Douglas Hudson
Well Planner



RYAN DIRECTIONAL SERVICES, INC.

A NABORS COMPANY

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

Thursday, February 19, 2015

State of North Dakota
County of MCKENZIE

Subject: **Survey Certification Letter**

Survey Company: **Ryan Directional Services, Inc.**

Job Number: **8563**

Surface: **48° 1' 34.220 N / 103° 36' 10.350 W**

Survey Job Type: **Ryan MWD**

A.P.I. No: **33-053-06231**

Customer: **OASIS PETROLEUM**

Location: **MCKENZIE, ND**

Well Name: **GRAMMA FEDERAL 5300 41-31 12B**

RKB Height: **2183'**

Rig Name: **NABORS B27**

Distance to Bit: **66'**

<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	2351'	20374'	02/01/15	02/19/15	MWD	20440'

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 12B**
Rig #: **NABORS B27**
API #: **33-053-06231**
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	2351	0.90	239.90		2350.88	-5.81	-1.24	-5.90	0.00
1	2470	1.40	232.90	57.00	2469.85	-7.87	-2.59	-7.87	0.44
2	2564	0.90	249.80	60.00	2563.83	-9.47	-3.54	-9.47	0.64
3	2658	0.80	255.50	64.00	2657.82	-10.80	-3.95	-10.80	0.14
4	2752	0.80	271.10	68.00	2751.81	-12.09	-4.11	-12.09	0.23
5	2846	0.90	269.20	69.00	2845.80	-13.49	-4.10	-13.49	0.11
6	2940	0.50	212.00	73.00	2939.80	-14.44	-4.46	-14.44	0.80
7	3035	0.50	189.00	75.00	3034.79	-14.73	-5.22	-14.73	0.21
8	3129	0.70	178.90	77.00	3128.79	-14.78	-6.20	-14.78	0.24
9	3223	0.70	186.00	78.00	3222.78	-14.83	-7.35	-14.83	0.09
10	3317	0.80	184.20	80.00	3316.77	-14.94	-8.57	-14.94	0.11
11	3411	0.60	175.80	84.00	3410.77	-14.95	-9.72	-14.95	0.24
12	3505	0.70	171.50	87.00	3504.76	-14.83	-10.78	-14.83	0.12
13	3600	0.70	157.50	89.00	3599.75	-14.52	-11.89	-14.52	0.18
14	3694	0.40	155.60	91.00	3693.75	-14.17	-12.72	-14.17	0.32
15	3788	0.60	144.50	93.00	3787.74	-13.75	-13.42	-13.75	0.24
16	3882	0.40	161.10	95.00	3881.74	-13.35	-14.13	-13.35	0.26
17	3976	0.40	150.00	96.00	3975.74	-13.08	-14.72	-13.08	0.08
18	4070	0.60	148.50	98.00	4069.74	-12.66	-15.43	-12.66	0.21
19	4164	0.30	163.80	98.00	4163.73	-12.34	-16.08	-12.34	0.34
20	4259	0.50	146.90	102.00	4258.73	-12.04	-16.67	-12.04	0.24
21	4353	0.40	147.40	104.00	4352.73	-11.64	-17.29	-11.64	0.11
22	4447	0.40	98.10	100.00	4446.73	-11.14	-17.61	-11.14	0.35
23	4541	0.30	85.20	104.00	4540.72	-10.57	-17.64	-10.57	0.13
24	4636	0.50	119.70	107.00	4635.72	-9.96	-17.82	-9.96	0.32
25	4730	0.50	101.00	108.00	4729.72	-9.20	-18.10	-9.20	0.17
26	4824	0.80	97.50	109.00	4823.71	-8.15	-18.27	-8.15	0.32
27	4918	0.90	104.00	112.00	4917.70	-6.78	-18.53	-6.78	0.15
28	5012	1.00	95.40	114.00	5011.69	-5.25	-18.79	-5.25	0.18
29	5107	1.10	111.70	114.00	5106.67	-3.58	-19.20	-3.58	0.33
30	5201	1.20	114.40	116.00	5200.65	-1.84	-19.94	-1.84	0.12
31	5295	0.90	130.50	118.00	5294.64	-0.38	-20.83	-0.38	0.44
32	5389	1.20	125.40	120.00	5388.62	0.98	-21.88	0.98	0.33
33	5483	0.40	190.10	122.00	5482.61	1.73	-22.77	1.73	1.16
34	5577	0.50	215.20	120.00	5576.61	1.43	-23.43	1.43	0.23
35	5671	0.00	204.30	122.00	5670.61	1.20	-23.76	1.20	0.53
36	5765	0.30	18.00	122.00	5764.61	1.27	-23.53	1.27	0.32
37	5859	0.40	21.90	125.00	5858.61	1.47	-22.99	1.47	0.11
38	5953	0.60	42.60	129.00	5952.60	1.93	-22.32	1.93	0.28
39	6038	0.70	61.50	102.00	6037.60	2.68	-21.75	2.68	0.28
40	6131	0.90	63.20	105.00	6130.59	3.83	-21.15	3.83	0.22
41	6226	1.20	43.00	113.00	6225.57	5.18	-20.08	5.18	0.50
42	6320	1.50	48.80	118.00	6319.55	6.78	-18.55	6.78	0.35
43	6414	1.50	41.70	122.00	6413.52	8.52	-16.83	8.52	0.20
44	6508	1.40	33.00	122.00	6507.49	9.96	-14.94	9.96	0.26
45	6603	1.60	50.00	127.00	6602.45	11.61	-13.12	11.61	0.51
46	6697	0.90	37.30	129.00	6696.43	13.06	-11.69	13.06	0.80
47	6791	1.20	60.50	136.00	6790.41	14.37	-10.61	14.37	0.55
48	6885	0.50	8.60	138.00	6884.40	15.29	-9.72	15.29	1.04
49	6979	0.70	32.30	141.00	6978.40	15.65	-8.83	15.65	0.33
50	7074	0.80	31.30	145.00	7073.39	16.31	-7.78	16.31	0.11
51	7168	0.60	29.40	145.00	7167.38	16.89	-6.79	16.89	0.21
52	7262	0.60	44.10	148.00	7261.38	17.48	-6.00	17.48	0.16
53	7356	0.70	23.50	150.00	7355.37	18.05	-5.12	18.05	0.27
54	7450	0.80	34.90	154.00	7449.37	18.65	-4.06	18.65	0.19
55	7544	0.70	46.10	156.00	7543.36	19.44	-3.12	19.44	0.19
56	7639	0.70	28.60	158.00	7638.35	20.14	-2.21	20.14	0.22
57	7733	0.50	12.40	158.00	7732.35	20.50	-1.31	20.50	0.28
58	7827	0.40	3.50	159.00	7826.34	20.61	-0.58	20.61	0.13
59	7921	0.20	8.60	161.00	7920.34	20.65	-0.09	20.65	0.21
60	8016	0.30	345.40	163.00	8015.34	20.61	0.32	20.61	0.15
61	8110	0.40	322.60	163.00	8109.34	20.35	0.81	20.35	0.18
62	8204	0.50	294.60	163.00	8203.34	19.78	1.25	19.78	0.25
63	8298	0.40	258.10	166.00	8297.33	19.09	1.35	19.09	0.32
64	8393	0.70	239.60	168.00	8392.33	18.26	0.99	18.26	0.36
65	8487	0.70	243.10	170.00	8486.32	17.25	0.44	17.25	0.05
66	8581	0.40	236.50	168.00	8580.32	16.47	0.00	16.47	0.33

**SURVEY REPORT**

Customer: **OASIS PETROLEUM**
 Well Name: **GRAMMA FEDERAL 5300 41-31 12B**
 Rig #: **NABORS B27**
 API #: **33-053-06231**
 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
67	8675	0.60	252.40	170.00	8674.31	15.73	-0.33	15.73	0.26
68	8769	0.40	232.00	172.00	8768.31	15.00	-0.69	15.00	0.28
69	8864	0.60	219.50	176.00	8863.31	14.42	-1.27	14.42	0.24
70	8958	0.50	228.80	179.00	8957.30	13.80	-1.92	13.80	0.14
71	9052	0.40	259.80	179.00	9051.30	13.17	-2.25	13.17	0.28
72	9147	0.20	222.00	179.00	9146.30	12.73	-2.43	12.73	0.29
73	9241	0.40	269.50	181.00	9240.30	12.29	-2.56	12.29	0.32
74	9335	0.20	271.50	181.00	9334.30	11.80	-2.56	11.80	0.21
75	9430	0.50	248.60	181.00	9429.29	11.25	-2.70	11.25	0.34
76	9524	0.30	268.80	183.00	9523.29	10.62	-2.86	10.62	0.26
77	9618	0.40	264.70	165.00	9617.29	10.05	-2.89	10.05	0.11
78	9712	0.30	315.10	170.00	9711.29	9.55	-2.75	9.55	0.33
79	9807	0.40	277.60	168.00	9806.29	9.04	-2.53	9.04	0.26
80	9901	0.00	211.90	172.00	9900.29	8.72	-2.49	8.72	0.43
81	9995	0.20	219.60	176.00	9994.29	8.61	-2.61	8.61	0.21
82	10089	0.20	290.90	176.00	10088.29	8.36	-2.68	8.36	0.25
83	10183	0.30	277.30	177.00	10182.28	7.96	-2.59	7.96	0.12
84	10252	0.10	327.70	176.00	10251.28	7.75	-2.52	7.75	0.36
85	10314	1.50	88.80	158.00	10313.28	8.53	-2.45	8.53	2.51
86	10345	6.50	97.20	161.00	10344.19	10.68	-2.67	10.68	16.20
87	10376	11.30	98.30	161.00	10374.81	15.43	-3.32	15.43	15.49
88	10408	14.50	101.60	161.00	10406.00	22.45	-4.58	22.45	10.26
89	10439	19.30	101.80	165.00	10435.65	31.28	-6.41	31.28	15.48
90	10471	25.30	99.70	170.00	10465.24	43.20	-8.65	43.20	18.91
91	10502	29.50	97.90	174.00	10492.76	57.30	-10.81	57.30	13.81
92	10533	30.10	96.40	176.00	10519.66	72.59	-12.73	72.59	3.09
93	10565	32.30	96.10	177.00	10547.03	89.06	-14.53	89.06	6.89
94	10596	35.00	96.30	172.00	10572.84	106.14	-16.39	106.14	8.72
95	10628	38.00	97.20	172.00	10598.56	125.04	-18.63	125.04	9.52
96	10659	42.00	97.60	177.00	10622.30	144.79	-21.20	144.79	12.93
97	10690	45.40	98.90	181.00	10644.71	165.98	-24.28	165.98	11.34
98	10722	48.70	98.70	183.00	10666.51	189.13	-27.86	189.13	10.32
99	10753	52.10	98.70	185.00	10686.27	212.73	-31.47	212.73	10.97
100	10784	55.40	98.60	186.00	10704.59	237.45	-35.23	237.45	10.65
101	10816	57.40	98.10	188.00	10722.30	263.82	-39.10	263.82	6.38
102	10847	59.10	97.20	190.00	10738.61	289.94	-42.61	289.94	6.01
103	10879	61.20	96.50	192.00	10754.54	317.50	-45.92	317.50	6.83
104	10910	65.40	96.00	192.00	10768.47	345.02	-48.93	345.02	13.62
105	10941	69.40	96.10	190.00	10780.38	373.47	-51.95	373.47	12.91
106	10973	73.70	95.90	186.00	10790.50	403.66	-55.12	403.66	13.45
107	11004	76.80	95.90	185.00	10798.39	433.47	-58.20	433.47	10.00
108	11035	78.60	96.30	183.00	10805.00	463.59	-61.42	463.59	5.94
109	11067	82.70	98.20	183.00	10810.20	494.90	-65.40	494.90	14.09
110	11089	84.80	98.80	183.00	10812.59	516.53	-68.64	516.53	9.92
111	11158	89.90	97.60	203.00	10815.78	584.73	-78.46	584.73	7.59
112	11188	90.00	98.20	203.00	10815.81	614.44	-82.59	614.44	2.03
113	11219	91.90	98.50	201.00	10815.29	645.11	-87.09	645.11	6.20
114	11250	92.30	97.70	201.00	10814.16	675.78	-91.45	675.78	2.88
115	11280	90.80	95.70	199.00	10813.34	705.56	-94.95	705.56	8.33
116	11311	90.50	93.30	201.00	10812.99	736.46	-97.38	736.46	7.80
117	11341	89.70	91.40	203.00	10812.94	766.43	-98.61	766.43	6.87
118	11372	89.20	90.90	203.00	10813.24	797.43	-99.23	797.43	2.28
119	11403	88.90	91.00	204.00	10813.75	828.42	-99.75	828.42	1.02
120	11495	90.50	91.10	204.00	10814.23	920.40	-101.43	920.40	1.74
121	11590	90.70	90.30	208.00	10813.24	1015.38	-102.59	1015.38	0.87
122	11686	89.50	88.30	210.00	10813.07	1111.37	-101.42	1111.37	2.43
123	11781	90.60	90.00	212.00	10812.99	1206.35	-100.01	1206.35	2.13
124	11877	90.50	89.90	213.00	10812.07	1302.35	-99.93	1302.35	0.15
125	11972	89.70	88.10	217.00	10811.90	1397.33	-98.27	1397.33	2.07
126	12068	91.10	88.60	219.00	10811.23	1493.29	-95.51	1493.29	1.55
127	12163	89.50	91.10	219.00	10810.73	1588.27	-95.26	1588.27	3.12
128	12259	89.90	91.30	219.00	10811.24	1684.25	-97.27	1684.25	0.47
129	12354	88.80	92.60	221.00	10812.31	1779.19	-100.50	1779.19	1.79
130	12449	88.00	94.00	222.00	10814.97	1873.99	-105.97	1873.99	1.70
131	12545	90.40	94.10	222.00	10816.31	1969.73	-112.75	1969.73	2.50
132	12640	90.90	91.40	222.00	10815.23	2064.61	-117.30	2064.61	2.89



SURVEY REPORT

Customer: **OASIS PETROLEUM**
Well Name: **GRAMMA FEDERAL 5300 41-31 12B**
Rig #: **NABORS B27**
API #: **33-053-06231**
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
133	12735	88.80	88.20	226.00	10815.48	2159.59	-116.97	2159.59	4.03
134	12831	88.20	87.80	228.00	10817.99	2255.50	-113.62	2255.50	0.75
135	12927	88.40	87.40	228.00	10820.84	2351.37	-109.60	2351.37	0.47
136	12958	89.10	87.80	230.00	10821.51	2382.34	-108.31	2382.34	2.60
137	12990	89.30	87.80	230.00	10821.96	2414.31	-107.08	2414.31	0.63
138	13022	89.80	88.40	228.00	10822.21	2446.29	-106.02	2446.29	2.44
139	13086	90.70	90.50	231.00	10821.93	2510.28	-105.40	2510.28	3.57
140	13118	90.50	89.80	233.00	10821.60	2542.28	-105.49	2542.28	2.27
141	13181	90.80	90.40	235.00	10820.88	2605.28	-105.60	2605.28	1.06
142	13213	91.50	90.20	233.00	10820.24	2637.27	-105.76	2637.27	2.27
143	13308	87.50	88.90	235.00	10821.07	2732.24	-105.02	2732.24	4.43
144	13404	89.90	90.50	237.00	10823.25	2828.21	-104.52	2828.21	3.00
145	13436	90.30	90.50	237.00	10823.19	2860.20	-104.80	2860.20	1.25
146	13499	91.50	91.30	239.00	10822.20	2923.19	-105.79	2923.19	2.29
147	13563	92.00	90.70	237.00	10820.25	2987.15	-106.90	2987.15	1.22
148	13595	91.20	89.60	237.00	10819.35	3019.13	-106.99	3019.13	4.25
149	13658	89.00	88.70	239.00	10819.24	3082.12	-106.05	3082.12	3.77
150	13690	88.50	88.70	239.00	10819.94	3114.11	-105.33	3114.11	1.56
151	13722	88.50	88.90	240.00	10820.78	3146.09	-104.66	3146.09	0.62
152	13786	88.80	88.60	240.00	10822.29	3210.05	-103.26	3210.05	0.66
153	13817	89.00	88.70	240.00	10822.88	3241.04	-102.53	3241.04	0.72
154	13881	89.10	88.60	242.00	10823.94	3305.01	-101.02	3305.01	0.22
155	13977	89.80	88.50	244.00	10824.87	3400.98	-98.59	3400.98	0.74
156	14008	90.20	87.90	244.00	10824.87	3431.96	-97.62	3431.96	2.33
157	14072	89.80	87.40	242.00	10824.87	3495.91	-94.99	3495.91	1.00
158	14167	88.50	86.90	244.00	10826.28	3590.78	-90.27	3590.78	1.47
159	14263	89.70	87.80	244.00	10827.78	3686.66	-85.83	3686.66	1.56
160	14358	89.80	89.50	244.00	10828.20	3781.63	-83.60	3781.63	1.79
161	14422	89.80	90.00	246.00	10828.42	3845.63	-83.32	3845.63	0.78
162	14454	89.60	89.20	244.00	10828.59	3877.63	-83.09	3877.63	2.58
163	14517	88.80	89.90	246.00	10829.47	3940.62	-82.60	3940.62	1.69
164	14549	89.70	90.60	246.00	10829.89	3972.61	-82.74	3972.61	3.56
165	14645	88.80	90.90	246.00	10831.14	4068.60	-83.99	4068.60	0.99
166	14676	88.20	90.60	248.00	10831.96	4099.58	-84.40	4099.58	2.16
167	14740	88.70	90.20	248.00	10833.69	4163.56	-84.85	4163.56	1.00
168	14772	90.00	90.60	248.00	10834.05	4195.56	-85.07	4195.56	4.25
169	14835	90.70	90.60	248.00	10833.66	4258.55	-85.73	4258.55	1.11
170	14867	89.60	91.90	248.00	10833.58	4290.54	-86.43	4290.54	5.32
171	14931	89.20	91.40	248.00	10834.25	4354.51	-88.27	4354.51	1.00
172	14963	86.90	91.30	248.00	10835.34	4386.48	-89.02	4386.48	7.19
173	14986	87.10	91.60	249.00	10836.54	4409.44	-89.61	4409.44	1.57
174	15026	87.10	91.60	246.00	10838.57	4449.38	-90.72	4449.38	0.00
175	15090	88.00	89.10	248.00	10841.30	4513.31	-91.11	4513.31	4.15
176	15122	88.00	89.30	246.00	10842.42	4545.29	-90.66	4545.29	0.62
177	15154	89.10	89.30	248.00	10843.23	4577.27	-90.27	4577.27	3.44
178	15186	91.20	89.20	248.00	10843.15	4609.27	-89.85	4609.27	6.57
179	15217	91.50	89.40	249.00	10842.42	4640.26	-89.48	4640.26	1.16
180	15249	91.50	88.80	249.00	10841.58	4672.24	-88.97	4672.24	1.87
181	15313	91.30	88.80	249.00	10840.01	4736.21	-87.63	4736.21	0.31
182	15344	90.00	89.70	249.00	10839.66	4767.20	-87.23	4767.20	5.10
183	15408	90.10	89.70	251.00	10839.61	4831.20	-86.89	4831.20	0.16
184	15504	91.70	90.50	253.00	10838.10	4927.19	-87.06	4927.19	1.86
185	15599	90.20	89.80	251.00	10836.52	5022.17	-87.31	5022.17	1.74
186	15695	88.40	89.90	251.00	10837.70	5118.16	-87.06	5118.16	1.88
187	15790	89.10	90.40	253.00	10839.77	5213.14	-87.31	5213.14	0.91
188	15822	89.90	91.00	253.00	10840.05	5245.13	-87.70	5245.13	3.12
189	15854	90.50	91.20	253.00	10839.94	5277.13	-88.31	5277.13	1.98
190	15885	90.50	90.40	251.00	10839.67	5308.12	-88.74	5308.12	2.58
191	15917	90.10	89.90	251.00	10839.50	5340.12	-88.83	5340.12	2.00
192	15981	88.70	89.50	253.00	10840.17	5404.11	-88.49	5404.11	2.28
193	16013	88.70	88.80	253.00	10840.89	5436.10	-88.02	5436.10	2.19
194	16077	89.40	88.90	253.00	10841.96	5500.08	-86.73	5500.08	1.10
195	16108	90.50	89.20	253.00	10841.98	5531.08	-86.22	5531.08	3.68
196	16172	90.90	88.40	253.00	10841.20	5595.06	-84.88	5595.06	1.40
197	16268	90.60	89.30	255.00	10839.94	5691.03	-82.95	5691.03	0.99
198	16299	90.90	88.60	255.00	10839.54	5722.02	-82.39	5722.02	2.46

**SURVEY REPORT**

Customer: **OASIS PETROLEUM**
 Well Name: **GRAMMA FEDERAL 5300 41-31 12B**
 Rig #: **NABORS B27**
 API #: **33-053-06231**
 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
199	16363	88.80	85.80	253.00	10839.71	5785.93	-79.26	5785.93	5.47
200	16427	87.90	88.10	251.00	10841.55	5849.81	-75.86	5849.81	3.86
201	16459	88.30	89.20	251.00	10842.61	5881.78	-75.10	5881.78	3.66
202	16522	90.80	90.40	253.00	10843.11	5944.78	-74.88	5944.78	4.40
203	16554	91.40	90.80	253.00	10842.49	5976.77	-75.22	5976.77	2.25
204	16586	91.60	91.40	253.00	10841.65	6008.75	-75.83	6008.75	1.98
205	16650	91.20	91.60	253.00	10840.09	6072.71	-77.51	6072.71	0.70
206	16745	87.90	91.10	253.00	10840.84	6167.67	-79.74	6167.67	3.51
207	16777	87.80	91.10	255.00	10842.04	6199.64	-80.36	6199.64	0.31
208	16809	88.20	91.00	255.00	10843.15	6231.61	-80.94	6231.61	1.29
209	16841	88.30	91.20	255.00	10844.13	6263.59	-81.56	6263.59	0.70
210	16872	88.40	90.70	255.00	10845.02	6294.58	-82.07	6294.58	1.64
211	16936	90.30	92.10	255.00	10845.75	6358.55	-83.64	6358.55	3.69
212	17032	86.90	88.20	255.00	10848.09	6454.49	-83.89	6454.49	5.39
213	17063	86.20	88.70	255.00	10849.96	6485.42	-83.05	6485.42	2.77
214	17127	86.40	88.60	255.00	10854.09	6549.27	-81.55	6549.27	0.35
215	17159	88.10	88.00	255.00	10855.63	6581.21	-80.60	6581.21	5.63
216	17223	87.80	88.40	253.00	10857.91	6645.14	-78.59	6645.14	0.78
217	17254	89.50	89.30	255.00	10858.65	6676.13	-77.97	6676.13	6.20
218	17318	90.30	89.60	255.00	10858.76	6740.12	-77.35	6740.12	1.33
219	17414	90.90	91.40	257.00	10857.75	6836.11	-78.19	6836.11	1.98
220	17446	91.70	92.00	257.00	10857.03	6868.09	-79.14	6868.09	3.12
221	17509	92.00	91.80	257.00	10854.99	6931.02	-81.23	6931.02	0.57
222	17605	90.30	91.40	257.00	10853.07	7026.96	-83.91	7026.96	1.82
223	17701	89.10	90.90	257.00	10853.57	7122.94	-85.83	7122.94	1.35
224	17732	88.80	90.70	258.00	10854.14	7153.93	-86.27	7153.93	1.16
225	17796	88.20	90.10	258.00	10855.81	7217.90	-86.71	7217.90	1.33
226	17828	88.10	89.30	258.00	10856.84	7249.89	-86.55	7249.89	2.52
227	17892	89.60	89.40	258.00	10858.13	7313.87	-85.82	7313.87	2.35
228	17987	90.20	90.10	258.00	10858.29	7408.86	-85.41	7408.86	0.97
229	18082	88.30	90.10	258.00	10859.54	7503.85	-85.57	7503.85	2.00
230	18178	90.10	91.60	260.00	10860.88	7599.83	-87.00	7599.83	2.44
231	18274	90.20	90.60	260.00	10860.63	7695.81	-88.84	7695.81	1.05
232	18369	89.00	89.90	260.00	10861.29	7790.80	-89.25	7790.80	1.46
233	18401	89.00	89.20	260.00	10861.85	7822.79	-89.00	7822.79	2.19
234	18465	88.10	88.90	260.00	10863.47	7886.76	-87.94	7886.76	1.48
235	18497	87.00	89.30	260.00	10864.84	7918.73	-87.44	7918.73	3.66
236	18560	87.60	89.60	260.00	10867.80	7981.66	-86.84	7981.66	1.06
237	18592	86.90	89.20	260.00	10869.34	8013.62	-86.50	8013.62	2.52
238	18656	87.50	89.00	259.00	10872.47	8077.53	-85.50	8077.53	0.99
239	18688	89.40	89.50	260.00	10873.33	8109.52	-85.08	8109.52	6.14
240	18751	90.50	89.90	260.00	10873.39	8172.52	-84.75	8172.52	1.86
241	18783	90.20	91.70	258.00	10873.19	8204.51	-85.20	8204.51	5.70
242	18815	90.20	91.30	260.00	10873.08	8236.50	-86.03	8236.50	1.25
243	18847	90.40	91.40	259.00	10872.91	8268.49	-86.79	8268.49	0.70
244	18911	89.60	91.90	260.00	10872.91	8332.46	-88.63	8332.46	1.47
245	18942	89.50	92.10	260.00	10873.15	8363.44	-89.71	8363.44	0.72
246	18974	89.90	91.50	260.00	10873.32	8395.43	-90.72	8395.43	2.25
247	19038	90.00	91.30	260.00	10873.38	8459.41	-92.28	8459.41	0.35
248	19070	89.20	89.90	260.00	10873.60	8491.40	-92.62	8491.40	5.04
249	19133	89.30	89.50	260.00	10874.43	8554.40	-92.29	8554.40	0.65
250	19165	89.10	88.50	262.00	10874.87	8586.39	-91.73	8586.39	3.19
251	19228	89.10	88.20	262.00	10875.86	8649.36	-89.91	8649.36	0.48
252	19324	90.50	88.50	264.00	10876.20	8745.31	-87.15	8745.31	1.49
253	19356	90.90	88.50	264.00	10875.81	8777.30	-86.31	8777.30	1.25
254	19420	91.80	88.40	262.00	10874.30	8841.26	-84.58	8841.26	1.41
255	19515	87.00	89.10	262.00	10875.29	8936.20	-82.51	8936.20	5.11
256	19611	88.60	89.60	262.00	10878.98	9032.12	-81.42	9032.12	1.75
257	19706	89.50	89.80	262.00	10880.55	9127.11	-80.92	9127.11	0.97
258	19802	89.50	88.60	264.00	10881.39	9223.09	-79.58	9223.09	1.25
259	19897	90.30	90.10	264.00	10881.56	9318.08	-78.51	9318.08	1.79
260	19993	91.00	90.20	266.00	10880.47	9414.07	-78.76	9414.07	0.74
261	20024	90.70	89.80	264.00	10880.01	9445.07	-78.76	9445.07	1.61
262	20088	90.50	89.90	266.00	10879.34	9509.07	-78.59	9509.07	0.35
263	20183	91.00	88.80	266.00	10878.09	9604.05	-77.51	9604.05	1.27
264	20279	88.60	86.90	266.00	10878.43	9699.97	-73.91	9699.97	3.19
265	20374	88.90	86.70	267.00	10880.50	9794.80	-68.61	9794.80	0.38
Projection	20440	88.90	86.70	267.00	10881.77	9860.68	-64.81	9860.68	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.
29316



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 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	Change to Original APD

Well Name and Number
Gramma Federal 5300 41-31 12T

Footages	Qtr-Qtr	Section	Township	Range
647 F S L	320 F W L	Lot 4	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

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 12B (previously 12T)

Formation Change: Bakken (previously Three Forks 1st Bench)

274' FEL NVIC calc.

BHL change: 550' FSL & 250' FEL Sec 32 T153N R100W
(previously: 550' 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') Already set at 2390.1'
Intermediate Casing of 7" with weight of 29/32 set at 11,080' (previously weight of 32 set at 11,167')
Production liner of 4 1/2" set from 10,287' to 20,553' (previously set from 10,349' to 20,670')*

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>D. Burns</i>	
Title David Burns	
Engineering Tech.	

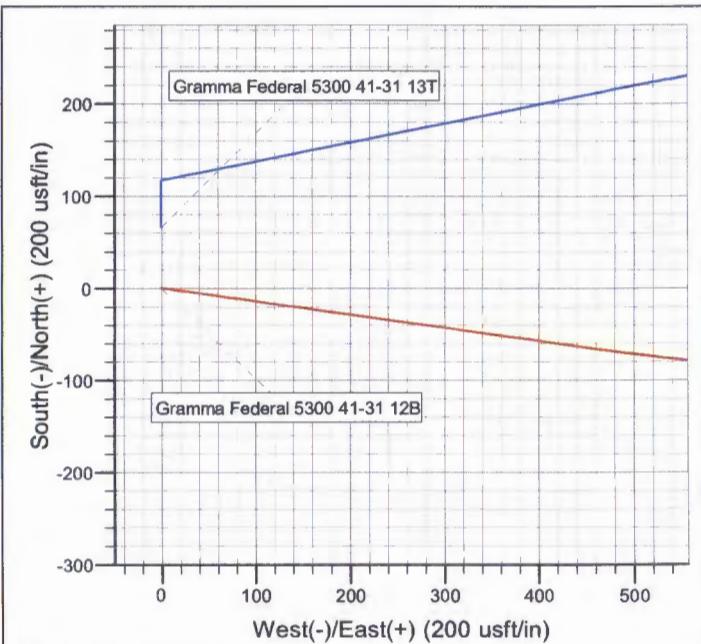
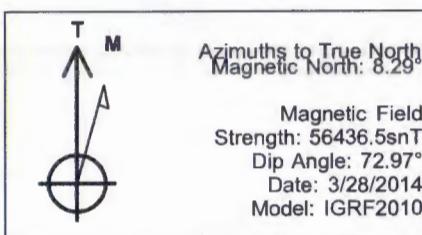
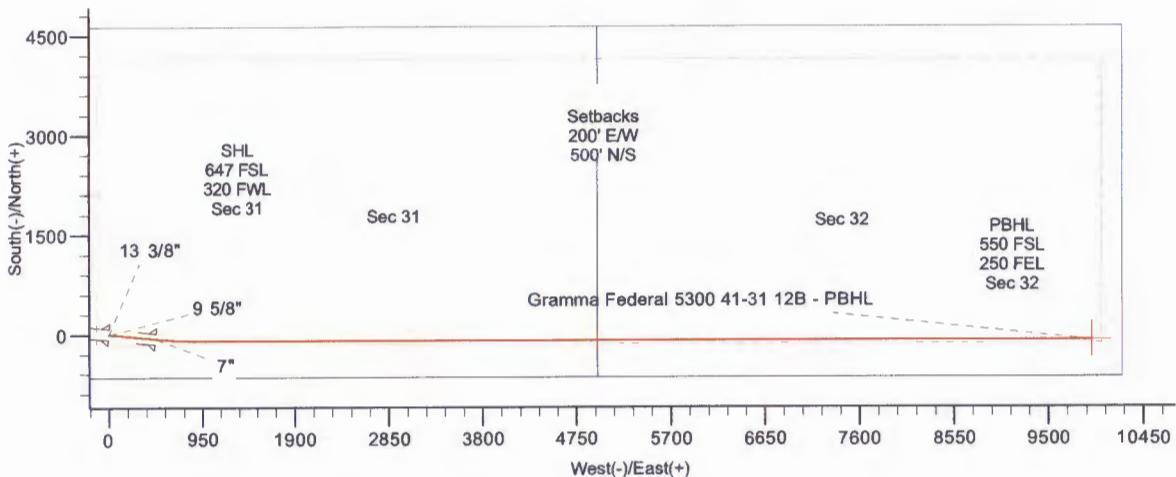
DRILLING PLAN								
OPERATOR	Oasis Petroleum			COUNTY/STATE	McKenzie Co., ND			
WELL NAME	Gramma Federal 5300 41-31-12B			RIG	0			
WELL TYPE	Horizontal Middle Bakken							
LOCATION	SWSW 31-153N-100W			Surface Location (survey plat):	647' fsl	320' fwl		
EST. T.D.	20,553'			GROUND ELEV:	2158	Finished Pad Elev.		
	TOTAL LATERA			TOTAL KB ELEV:	2183	Sub Height: 35		
PROGNOSIS:	Based on 2 183' KB test)			LOGS:				
MARKER	DEPTH (Surf Loc)	DATUM (Surf Loc)		Type	Interval			
Pierre	NDIC MAP	2,123	60	OH Logs: Triple Combo KOP to Kirby (or min run of 1800' whichever is greater); GR/Res to BSC; GR to surf; CND through the Dakota				
Greenhorn		4,738	(2,555)	CBL/GR: Above top of cement/GR to base of casing				
Mowry		5,129	(2,946)	MWD GR: KOP to lateral TD				
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)					
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:				
Arnsden		7,734	(5,551)	None planned				
Tyler		7,878	(5,695)					
Otter (Base of Minnelusa Gp.)		8,102	(5,919)					
Kibbey Lime		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)	CORES:				
Lodgepole		10,033	(7,850)	None planned				
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)					
Middle Bakken Sand Target		10,800	(8,617)					
Base Middle Bakken Sand Target		10,815	(8,632)					
Lower Bakken		10,831	(8,648)					
Three Forks		10,858	(8,675)					
Dip Rate:	0.3			MUDLOGGING:				
Max. Anticipated BHP:	4693			Two-Man:	8,406'			
MUD:	Interval	Type	WT	Vis	WL	Remarks		
Surface:	0' -	2,223'	Fw/Gel - Lime Sweeps	8.4-9.0	26-32	NC	Circ Mud Tanks	
Intermediate:	2,223' -	11,080'	Invert	9.5-10.4	40-50	30+HtHp	Circ Mud Tanks	
Lateral:	11,080' -	20,553'	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#	17-1/2"	2,223'	To Surface	12	100' into Pierre	
Dakota Contingency:	9-5/8"	40#	12-1/4"	6,346'	To Surface	12	Below Dakota	
Intermediate:	7"	29/32#	8-3/4"	11,080'	4058	24	1500' above Dakota	
Production Liner:	4.5"	13.5#	6"	20,553'	TOL @ 10,283'		50' above KOP	
PROBABLE PLUGS, IF REQ'D:								
OTHER:	MD	TVL	FNL/FSL	FEL/FWL	S-T-R	AZI		
Surface:	2,223	2,223	647' FSL	320' FWL	SEC 31-T153N-R100W			
KOP:	10,333'	10,333'	647' FSL	320' FWL	SEC 31-T153N-R100W			
EOC:	11,080'	10,810'	580' FSL	790' FWL	SEC 31-T153N-R100W	98.20		
Casing Point:	11,080'	10,810'	580' FSL	790' FWL	SEC 31-T153N-R100W	98.20		
Middle Bakken Lateral TD:	20,553'	10,859'	550' FSL	250' FEL	SEC 32-T153N-R100W	90.00		
						Build Rate: 12 deg /100'		
Comments:								
Request a Sundry for an Open Hole Log Waiver								
Exception well: LOG WAIVER REQUESTED Oasis Petroleum Lewis 5300 31-31H 700' north in sec. 31								
Completion Notes: 35 packers, 35 sleeves, no frac string								
Oasis Petroleum does not use Diesel Fuel, as defined by the US EPA in the list below, in our hydraulic fracture operations.								
68334-30-5 (Primary Name: Fuels, diesel) 68476-34-6 (Primary Name: Fuels, diesel, No. 2) 68476-30-2 (Primary Name: Fuel oil No. 2)								
68476-31-3 (Primary Name: Fuel oil, No. 4) 68008-20-6 (Primary Name: Kerosene)								
OASIS PETROLEUM								
Geology: M. Steed 12/30/2014				Engineering: DA 12-30-14				

Project: Indian Hills
 Site: 153N-100W-31/32
 Well: Gramma Federal 5300 41-31 12B
 Wellbore: Gramma Federal 5300 41-31 12B
 Design: Plan #1



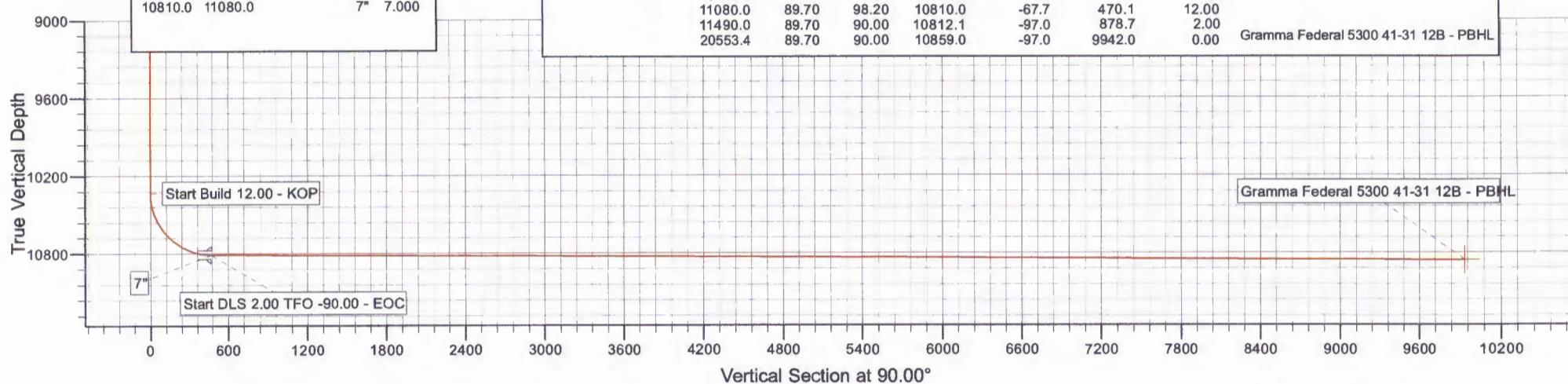
WELL DETAILS: Gramma Federal 5300 41-31 12B

Northing	Ground Level:	2158.0
389608.42	Easting	1209450.86
	Latitude	48° 1' 34.220 N
	Longitude	103° 36' 10.350 W



CASING DETAILS			
TVD	MD	Name	Size
2223.0	2223.0	13 3/8"	13.375
6346.0	6346.0	9 5/8"	9.625
10810.0	11080.0	7"	7.000

SECTION DETAILS								
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	Target	
10332.5	0.00	0.00	10332.5	0.0	0.0	0.00		
11080.0	89.70	98.20	10810.0	-67.7	470.1	12.00		
11490.0	89.70	90.00	10812.1	-97.0	878.7	2.00		
20553.4	89.70	90.00	10859.0	-97.0	9942.0	0.00		Gramma Federal 5300 41-31 12B - PBHL



Oasis

Indian Hills

153N-100W-31/32

Gramma Federal 5300 41-31 12B

T153N R100W SECTION 31

Gramma Federal 5300 41-31 12B

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 12B							
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 12B	Survey Calculation Method:	Minimum Curvature							
Wellbore:	Gramma Federal 5300 41-31 12B									
Design:	Plan #1									
Project	Indian Hills									
Map System:	US State Plane 1983	System Datum:	Mean Sea Level							
Geo Datum:	North American Datum 1983									
Map Zone:	North Dakota Northern Zone									
Site	153N-100W-31/32									
Site Position:		Northing:	390,397.86 usft							
From:	Lat/Long	Easting:	1,209,464.32 usft							
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in							
			Latitude: 48° 1' 42.010 N							
			Longitude: 103° 36' 10.620 W							
			Grid Convergence: -2.31 °							
Well	Gramma Federal 5300 41-31 12B									
Well Position	+N/S +E/W	-789.3 usft 18.4 usft	Northing: 389,608.42 usft Easting: 1,209,450.86 usft							
Position Uncertainty	0.0 usft		Latitude: 48° 1' 34.220 N Longitude: 103° 36' 10.350 W							
			Wellhead Elevation: 0.0 usft							
			Ground Level: 2,158.0 usft							
Wellbore	Gramma Federal 5300 41-31 12B									
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
10,332.5	0.00	0.00	10,332.5	0.0	0.0	0.00	0.00	0.00	0.00	0.00
11,080.0	89.70	98.20	10,810.0	-67.7	470.1	12.00	12.00	0.00	98.20	
11,490.0	89.70	90.00	10,812.1	-97.0	878.7	2.00	0.00	-2.00	-90.00	
20,553.4	89.70	90.00	10,859.0	-97.0	9,942.0	0.00	0.00	0.00	0.00	Gramma Federal 530

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12B
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 12B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 12B		
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	
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	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,738.0	0.00	0.00	4,738.0	0.0	0.0	0.0	0.00	0.00	0.00	
Greenhorn										
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,129.0	0.00	0.00	5,129.0	0.0	0.0	0.0	0.00	0.00	0.00	
Mowry										
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,558.0	0.00	0.00	5,558.0	0.0	0.0	0.0	0.00	0.00	0.00	
Dakota										
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,346.0	0.00	0.00	6,346.0	0.0	0.0	0.0	0.00	0.00	0.00	
Rierdon - 9 5/8"										
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00	

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12B
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 12B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 12B		
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)	
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
6,903.0	0.00	0.00	6,903.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Dunham Salt										
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,020.0	0.00	0.00	7,020.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Dunham Salt Base										
7,036.0	0.00	0.00	7,036.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Spearfish										
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,363.0	0.00	0.00	7,363.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Pine Salt										
7,385.0	0.00	0.00	7,385.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Pine Salt Base										
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,437.0	0.00	0.00	7,437.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Opeche Salt										
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,503.0	0.00	0.00	7,503.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Opeche Salt Base										
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,669.0	0.00	0.00	7,669.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Broom Creek (Top of Minnelusa Gp.)										
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,734.0	0.00	0.00	7,734.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Amsden										
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
7,878.0	0.00	0.00	7,878.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Tyler										
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,102.0	0.00	0.00	8,102.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Otter (Base of Minnelusa Gp.)										
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Kibbey Lime										
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,606.0	0.00	0.00	8,606.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Charles Salt										
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,202.0	0.00	0.00	9,202.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
UB										

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12B
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 12B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 12B		
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)	
9,278.0	0.00	0.00	9,278.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Base Last Salt										
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,313.0	0.00	0.00	9,313.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Ratcliffe										
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,488.0	0.00	0.00	9,488.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Mission Canyon										
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,033.0	0.00	0.00	10,033.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Lodgepole										
10,100.0	0.00	0.00	10,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,300.0	0.00	0.00	10,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
10,332.5	0.00	0.00	10,332.5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Start Build 12.00 - KOP										
10,400.0	8.10	98.20	10,399.8	-0.7	4.7	4.7	12.00	12.00	0.00	
10,499.4	20.03	98.20	10,496.0	-4.1	28.6	28.6	12.00	12.00	0.00	
Lodgepole Fracture Zone										
10,500.0	20.10	98.20	10,496.6	-4.1	28.8	28.8	12.00	12.00	0.00	
10,600.0	32.10	98.20	10,586.2	-10.4	72.2	72.2	12.00	12.00	0.00	
10,700.0	44.10	98.20	10,664.8	-19.2	133.2	133.2	12.00	12.00	0.00	
10,800.0	56.10	98.20	10,728.8	-30.1	209.0	209.0	12.00	12.00	0.00	
10,873.6	64.93	98.20	10,765.0	-39.2	272.4	272.4	12.00	12.00	0.00	
False Bakken										
10,900.0	68.10	98.20	10,775.5	-42.7	296.3	296.3	12.00	12.00	0.00	
10,901.3	68.26	98.20	10,776.0	-42.9	297.5	297.5	12.00	12.00	0.00	
Upper Bakken										
10,951.1	74.23	98.20	10,792.0	-49.6	344.2	344.2	12.00	12.00	0.00	
Middle Bakken										
10,984.8	78.27	98.20	10,800.0	-54.3	376.5	376.5	12.00	12.00	0.00	
Middle Bakken Sand Target										
11,000.0	80.10	98.20	10,802.9	-56.4	391.3	391.3	12.00	12.00	0.00	
11,080.0	89.70	98.20	10,810.0	-67.7	470.1	470.1	12.00	12.00	0.00	
Start DLS 2.00 TFO -90.00 - EOC - 7"										
11,100.0	89.70	97.80	10,810.1	-70.5	489.9	489.9	2.00	0.00	-2.00	
11,200.0	89.70	95.80	10,810.6	-82.4	589.2	589.2	2.00	0.00	-2.00	
11,300.0	89.70	93.80	10,811.1	-90.7	688.8	688.8	2.00	0.00	-2.00	
11,400.0	89.70	91.80	10,811.6	-95.6	788.7	788.7	2.00	0.00	-2.00	
11,490.0	89.70	90.00	10,812.1	-97.0	878.7	878.7	2.00	0.00	-2.00	
Start 9063.4 hold at 11490.0 MD										
11,500.0	89.70	90.00	10,812.1	-97.0	888.7	888.7	0.00	0.00	0.00	
11,600.0	89.70	90.00	10,812.7	-97.0	988.7	988.7	0.00	0.00	0.00	
11,700.0	89.70	90.00	10,813.2	-97.0	1,088.7	1,088.7	0.00	0.00	0.00	
11,800.0	89.70	90.00	10,813.7	-97.0	1,188.7	1,188.7	0.00	0.00	0.00	
11,900.0	89.70	90.00	10,814.2	-97.0	1,288.7	1,288.7	0.00	0.00	0.00	
12,000.0	89.70	90.00	10,814.7	-97.0	1,388.7	1,388.7	0.00	0.00	0.00	
12,051.3	89.70	90.00	10,815.0	-97.0	1,440.0	1,440.0	0.00	0.00	0.00	
Base Middle Bakken Sand Target										

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12B
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 12B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 12B		
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)
12,100.0	89.70	90.00	10,815.3	-97.0	1,488.7	1,488.7	0.00	0.00	0.00
12,200.0	89.70	90.00	10,815.8	-97.0	1,588.7	1,588.7	0.00	0.00	0.00
12,300.0	89.70	90.00	10,816.3	-97.0	1,688.7	1,688.7	0.00	0.00	0.00
12,400.0	89.70	90.00	10,816.8	-97.0	1,788.7	1,788.7	0.00	0.00	0.00
12,500.0	89.70	90.00	10,817.3	-97.0	1,888.7	1,888.7	0.00	0.00	0.00
12,600.0	89.70	90.00	10,817.8	-97.0	1,988.7	1,988.7	0.00	0.00	0.00
12,700.0	89.70	90.00	10,818.4	-97.0	2,088.7	2,088.7	0.00	0.00	0.00
12,800.0	89.70	90.00	10,818.9	-97.0	2,188.7	2,188.7	0.00	0.00	0.00
12,900.0	89.70	90.00	10,819.4	-97.0	2,288.7	2,288.7	0.00	0.00	0.00
13,000.0	89.70	90.00	10,819.9	-97.0	2,388.7	2,388.7	0.00	0.00	0.00
13,100.0	89.70	90.00	10,820.4	-97.0	2,488.7	2,488.7	0.00	0.00	0.00
13,200.0	89.70	90.00	10,820.9	-97.0	2,588.7	2,588.7	0.00	0.00	0.00
13,300.0	89.70	90.00	10,821.5	-97.0	2,688.7	2,688.7	0.00	0.00	0.00
13,400.0	89.70	90.00	10,822.0	-97.0	2,788.7	2,788.7	0.00	0.00	0.00
13,500.0	89.70	90.00	10,822.5	-97.0	2,888.7	2,888.7	0.00	0.00	0.00
13,600.0	89.70	90.00	10,823.0	-97.0	2,988.7	2,988.7	0.00	0.00	0.00
13,700.0	89.70	90.00	10,823.5	-97.0	3,088.7	3,088.7	0.00	0.00	0.00
13,800.0	89.70	90.00	10,824.0	-97.0	3,188.7	3,188.7	0.00	0.00	0.00
13,900.0	89.70	90.00	10,824.6	-97.0	3,288.7	3,288.7	0.00	0.00	0.00
14,000.0	89.70	90.00	10,825.1	-97.0	3,388.7	3,388.7	0.00	0.00	0.00
14,100.0	89.70	90.00	10,825.6	-97.0	3,488.7	3,488.7	0.00	0.00	0.00
14,200.0	89.70	90.00	10,826.1	-97.0	3,588.7	3,588.7	0.00	0.00	0.00
14,300.0	89.70	90.00	10,826.6	-97.0	3,688.7	3,688.7	0.00	0.00	0.00
14,400.0	89.70	90.00	10,827.2	-97.0	3,788.7	3,788.7	0.00	0.00	0.00
14,500.0	89.70	90.00	10,827.7	-97.0	3,888.7	3,888.7	0.00	0.00	0.00
14,600.0	89.70	90.00	10,828.2	-97.0	3,988.7	3,988.7	0.00	0.00	0.00
14,700.0	89.70	90.00	10,828.7	-97.0	4,088.7	4,088.7	0.00	0.00	0.00
14,800.0	89.70	90.00	10,829.2	-97.0	4,188.7	4,188.7	0.00	0.00	0.00
14,900.0	89.70	90.00	10,829.7	-97.0	4,288.7	4,288.7	0.00	0.00	0.00
15,000.0	89.70	90.00	10,830.3	-97.0	4,388.7	4,388.7	0.00	0.00	0.00
15,100.0	89.70	90.00	10,830.8	-97.0	4,488.7	4,488.7	0.00	0.00	0.00
15,200.0	89.70	90.00	10,831.3	-97.0	4,588.7	4,588.7	0.00	0.00	0.00
15,300.0	89.70	90.00	10,831.8	-97.0	4,688.7	4,688.7	0.00	0.00	0.00
15,400.0	89.70	90.00	10,832.3	-97.0	4,788.7	4,788.7	0.00	0.00	0.00
15,500.0	89.70	90.00	10,832.8	-97.0	4,888.7	4,888.7	0.00	0.00	0.00
15,600.0	89.70	90.00	10,833.4	-97.0	4,988.7	4,988.7	0.00	0.00	0.00
15,700.0	89.70	90.00	10,833.9	-97.0	5,088.6	5,088.6	0.00	0.00	0.00
15,800.0	89.70	90.00	10,834.4	-97.0	5,188.6	5,188.6	0.00	0.00	0.00
15,900.0	89.70	90.00	10,834.9	-97.0	5,288.6	5,288.6	0.00	0.00	0.00
16,000.0	89.70	90.00	10,835.4	-97.0	5,388.6	5,388.6	0.00	0.00	0.00
16,100.0	89.70	90.00	10,836.0	-97.0	5,488.6	5,488.6	0.00	0.00	0.00
16,200.0	89.70	90.00	10,836.5	-97.0	5,588.6	5,588.6	0.00	0.00	0.00
16,300.0	89.70	90.00	10,837.0	-97.0	5,688.6	5,688.6	0.00	0.00	0.00
16,400.0	89.70	90.00	10,837.5	-97.0	5,788.6	5,788.6	0.00	0.00	0.00
16,500.0	89.70	90.00	10,838.0	-97.0	5,888.6	5,888.6	0.00	0.00	0.00
16,600.0	89.70	90.00	10,838.5	-97.0	5,988.6	5,988.6	0.00	0.00	0.00
16,700.0	89.70	90.00	10,839.1	-97.0	6,088.6	6,088.6	0.00	0.00	0.00
16,800.0	89.70	90.00	10,839.6	-97.0	6,188.6	6,188.6	0.00	0.00	0.00
16,900.0	89.70	90.00	10,840.1	-97.0	6,288.6	6,288.6	0.00	0.00	0.00
17,000.0	89.70	90.00	10,840.6	-97.0	6,388.6	6,388.6	0.00	0.00	0.00
17,100.0	89.70	90.00	10,841.1	-97.0	6,488.6	6,488.6	0.00	0.00	0.00
17,200.0	89.70	90.00	10,841.6	-97.0	6,588.6	6,588.6	0.00	0.00	0.00
17,300.0	89.70	90.00	10,842.2	-97.0	6,688.6	6,688.6	0.00	0.00	0.00
17,400.0	89.70	90.00	10,842.7	-97.0	6,788.6	6,788.6	0.00	0.00	0.00
17,500.0	89.70	90.00	10,843.2	-97.0	6,888.6	6,888.6	0.00	0.00	0.00

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12B
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 12B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 12B		
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)
17,600.0	89.70	90.00	10,843.7	-97.0	6,988.6	6,988.6	0.00	0.00	0.00
17,700.0	89.70	90.00	10,844.2	-97.0	7,088.6	7,088.6	0.00	0.00	0.00
17,800.0	89.70	90.00	10,844.8	-97.0	7,188.6	7,188.6	0.00	0.00	0.00
17,900.0	89.70	90.00	10,845.3	-97.0	7,288.6	7,288.6	0.00	0.00	0.00
18,000.0	89.70	90.00	10,845.8	-97.0	7,388.6	7,388.6	0.00	0.00	0.00
18,100.0	89.70	90.00	10,846.3	-97.0	7,488.6	7,488.6	0.00	0.00	0.00
18,200.0	89.70	90.00	10,846.8	-97.0	7,588.6	7,588.6	0.00	0.00	0.00
18,300.0	89.70	90.00	10,847.3	-97.0	7,688.6	7,688.6	0.00	0.00	0.00
18,400.0	89.70	90.00	10,847.9	-97.0	7,788.6	7,788.6	0.00	0.00	0.00
18,500.0	89.70	90.00	10,848.4	-97.0	7,888.6	7,888.6	0.00	0.00	0.00
18,600.0	89.70	90.00	10,848.9	-97.0	7,988.6	7,988.6	0.00	0.00	0.00
18,700.0	89.70	90.00	10,849.4	-97.0	8,088.6	8,088.6	0.00	0.00	0.00
18,800.0	89.70	90.00	10,849.9	-97.0	8,188.6	8,188.6	0.00	0.00	0.00
18,900.0	89.70	90.00	10,850.4	-97.0	8,288.6	8,288.6	0.00	0.00	0.00
19,000.0	89.70	90.00	10,851.0	-97.0	8,388.6	8,388.6	0.00	0.00	0.00
19,100.0	89.70	90.00	10,851.5	-97.0	8,488.6	8,488.6	0.00	0.00	0.00
19,200.0	89.70	90.00	10,852.0	-97.0	8,588.6	8,588.6	0.00	0.00	0.00
19,300.0	89.70	90.00	10,852.5	-97.0	8,688.6	8,688.6	0.00	0.00	0.00
19,400.0	89.70	90.00	10,853.0	-97.0	8,788.6	8,788.6	0.00	0.00	0.00
19,500.0	89.70	90.00	10,853.5	-97.0	8,888.6	8,888.6	0.00	0.00	0.00
19,600.0	89.70	90.00	10,854.1	-97.0	8,988.6	8,988.6	0.00	0.00	0.00
19,700.0	89.70	90.00	10,854.6	-97.0	9,088.6	9,088.6	0.00	0.00	0.00
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20,300.0	89.70	90.00	10,857.7	-97.0	9,688.6	9,688.6	0.00	0.00	0.00
20,400.0	89.70	90.00	10,858.2	-97.0	9,788.6	9,788.6	0.00	0.00	0.00
20,500.0	89.70	90.00	10,858.7	-97.0	9,888.6	9,888.6	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle	Dip Dir.	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target - Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Gramma Federal 5300 4 0.00 0.00 10,859.0 -97.0 9,942.0 389,110.96 1,219,380.88 48° 1' 33.237 N 103° 33' 44.081 W									
- plan misses target center by 53.4usft at 20500.0usft MD (10858.7 TVD, -97.0 N, 9888.6 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	6,346.0 9 5/8"		9.625	12.250
11,080.0	10,810.0 7"		7.000	8.750

Oasis Petroleum

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12B
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 12B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Federal 5300 41-31 12B		
Design:	Plan #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,123.0	2,123.0	Pierre			
4,738.0	4,738.0	Greenhorn			
5,129.0	5,129.0	Mowry			
5,558.0	5,558.0	Dakota			
6,346.0	6,346.0	Rierdon			
6,903.0	6,903.0	Dunham Salt			
7,020.0	7,020.0	Dunham Salt Base			
7,036.0	7,036.0	Spearfish			
7,363.0	7,363.0	Pine Salt			
7,385.0	7,385.0	Pine Salt Base			
7,437.0	7,437.0	Opeche Salt			
7,503.0	7,503.0	Opeche Salt Base			
7,669.0	7,669.0	Broom Creek (Top of Minnelusa Gp.)			
7,734.0	7,734.0	Amsden			
7,878.0	7,878.0	Tyler			
8,102.0	8,102.0	Otter (Base of Minnelusa Gp.)			
8,400.0	8,400.0	Kibbey Lime			
8,606.0	8,606.0	Charles Salt			
9,202.0	9,202.0	UB			
9,278.0	9,278.0	Base Last Salt			
9,313.0	9,313.0	Ratcliffe			
9,488.0	9,488.0	Mission Canyon			
10,033.0	10,033.0	Lodgepole			
10,499.4	10,496.0	Lodgepole Fracture Zone			
10,873.6	10,765.0	False Bakken			
10,901.3	10,776.0	Upper Bakken			
10,951.1	10,792.0	Middle Bakken			
10,984.8	10,800.0	Middle Bakken Sand Target			
12,051.3	10,815.0	Base Middle Bakken Sand Target			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/S (usft)	+E/W (usft)		
10,332.5	10,332.5	0.0	0.0		Start Build 12.00 - KOP
11,080.0	10,810.0	-67.7	470.1		Start DLS 2.00 TFO -90.00 - EOC
11,490.0	10,812.1	-97.0	878.7		Start 9063.4 hold at 11490.0 MD
20,553.4	10,859.0	-97.0	9,942.0		TD at 20553.4

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 12B
Section 31 T153N R100W
McKenzie Co. 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	LTC	12.615"	12.459"	4100	5470	6840

Interval	Description	Collapse		Burst		Tension	
		(psi) / a	(psi) / b	(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: **734 sks** (379 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: **349 sks** (72 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 12B
Section 31 T153N R100W
McKenzie Co. 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	J-55	LTC	8.921"	8.765"	3400	4530	5660

Interval	Description	Collapse		Burst		Tension	
		(psi) / a	(psi) / b	(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.

Mix and pump the following slurry.

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 12B
Section 31 T153N R100W
McKenzie Co. ND

INTERMEDIATE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift**	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
7"	0' - 6753'	29	P-110	LTC	6.184"	6.059"	5980	7970	8770
7"	6753' - 10333'	32	HCP-110	LTC	6.094"	6.000***	6730	8970	9870
7"	10333' - 11080'	29	P-110	LTC	6.184"	6.059"	5980	7970	8770

**Special Drift 7" 32# to 6.0"

Interval	Length	Description	Collapse		Burst	Tension
			(psi) a	(psi) b	(psi) c	(1000 lbs)
0' - 6753'	6753'	7", 29#, P-110, LTC, 8rd	8530 / 2.42*	11220 / 1.19	797 / 2.09	
6753' - 10333'	3580'	7", 32#, HCP-110, LTC, 8rd	11820 / 2.19*	12460 / 1.29		
6753' - 10333'	3580'	7", 32#, HCP-110, LTC, 8rd	11820 / 1.06**	12460 / 1.29		
10333' - 11080'	747'	7", 29#, P-110, LTC, 8rd	8530 / 1.51*	11220 / 1.15		

API Rating & Safety Factor

- a) *Assume full casing evacuation with 10 ppg fluid on backside. **Assume full casing evacuation with 1.2 psi/ft equivalent fluid gradient across salt intervals.
- b) Burst pressure based on 9000 psig max press for stimulation plus 10.2 ppg fluid in casing and 9 ppg fluid on backside-to 10810' TVD.
- c) Based on string weight in 10 ppg fluid, (281k lbs buoyed weight) plus 100k lbs overpull.

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

Mix and pump the following slurry

Pre-flush (Spacer): **100 bbls** Saltwater
20bbls CW8
20bbls Fresh Water

Lead Slurry: **208 sks** (82 bbls), 11.8 lb/gal, 2.59 ft³/sk yield, Conventional system with 61 lb/sk cement, 10% NaCl, 23 lb/sk extender, 0.2% D046 Anti Foam, 0.25lb/sk D130 Lost Circulation, 0.8% D112 Fluid Loss, 6% D035 Extender.

Tail Slurry: **606 sks** (166 bbls), 15.8 lb/gal, 1.55 ft³/sk yield, Conventional system with 94 lb/sk cement, 10% NaCl, 35% Silica, 0.2% fluid loss agent D167, 0.27% Retarder D198, 0.25 lb/sk D130 lost circulation control, 0.2% Anti Foam D046.

Oasis Petroleum
Well Summary
Gramma Federal 5300 41-31 12B
Section 31 T153N R100W
McKenzie Co. ND

PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
4-1/2"	10287' - 20553'	11.6	P-110	BTC	4.000"	3.875"	2270	3020	3780

Interval	Length	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) c
10287' - 20553'	10266	4-1/2", 11.6 lb, P-110, BTC	7560 / 1.40	10690 / 1.10	385 / 1.90

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10859' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10859' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 102k lbs.) plus 100k lbs overpull.

SECTION BREAKDOWN

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

"GRAMMA FEDERAL 5300 41-31 12B"

GRAMMA FEDERAL 9300 41-51 125
647 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
SECTIONS 31 & 32, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

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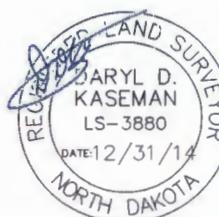


0 1000

1" = 1000'

-  - MONUMENT - RECOVERED
-  - MONUMENT - NOT RECOVERED

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".



31
EXISTING LEWIS
FEDERAL 5300 31-31H
EX. LEASE ROAD

32
GRAMMA FEDERAL
5300 41-31 12B

Grazing 2/183

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Ref. No.	Date	By	Description
REV 1	3-25-14	JLS	CORRECTED WELL CALLS
REV 2	2-27-14	JLS	CHANGED WELL NAME & BH

OASIS PETROLEUM NORTH AMERICA, LLC
SECTION BREAKDOWN
SECTIONS 31 & 32, T155N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Signed By:	B.H.	Project No.:	S-1340-372-02
Established By:	D.D.S.	Date:	Feb. 2014

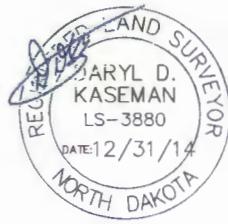
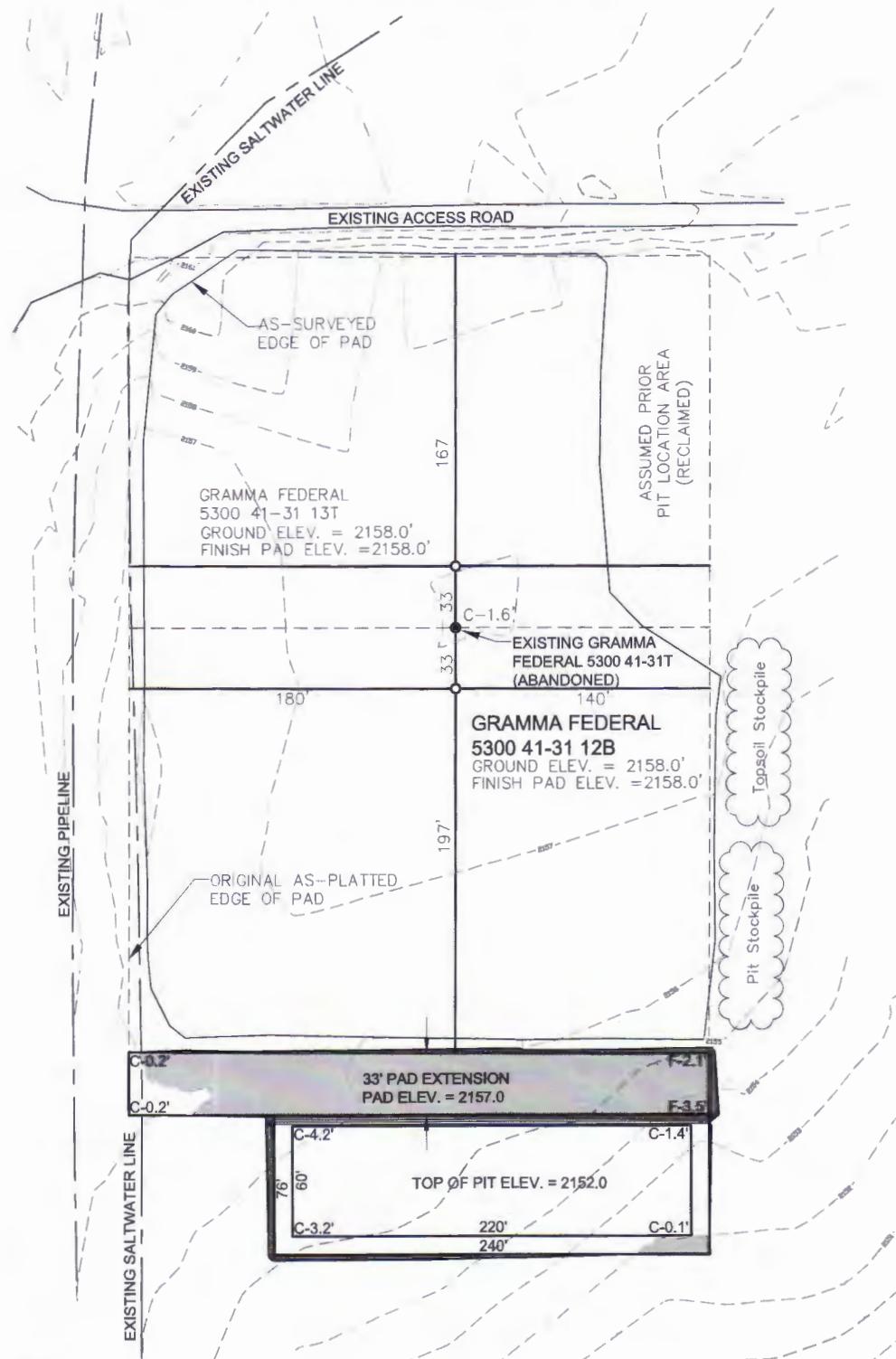
Interstate Engineering, Inc.
P.O. Box 648
425 East Main Street
Sidney, Montana 59270
Ph: (406) 433-5617
Fax: (406) 433-5618
www.interstateinc.com

PAD LAYOUT

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

"GRAMMA FEDERAL 5300 41-31 12B"

647 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
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PAD LAYOUT
SECTION 31, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.A.H.

Checked By: D.D.K.

Project No.: ST13-09-372/02

Date: FEB 2014

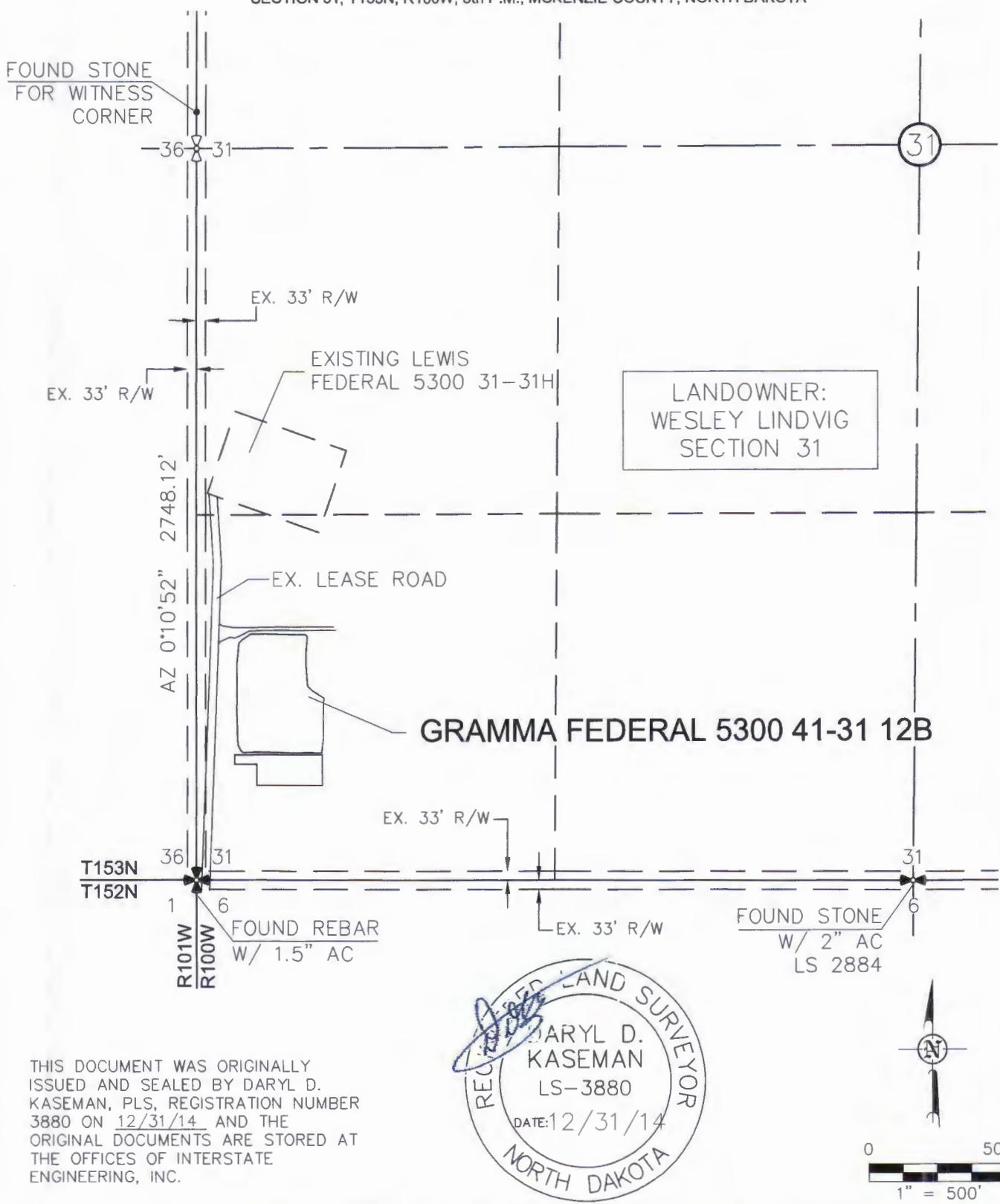
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REV 1	3/3/14	AJS	CONNECTED WELL CALLS
REV 2	2/21/14	JJS	CHANGED WELL NAME & BH

ACCESS APPROACH

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"GRAMMA FEDERAL 5300 41-31 12B"

647 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE
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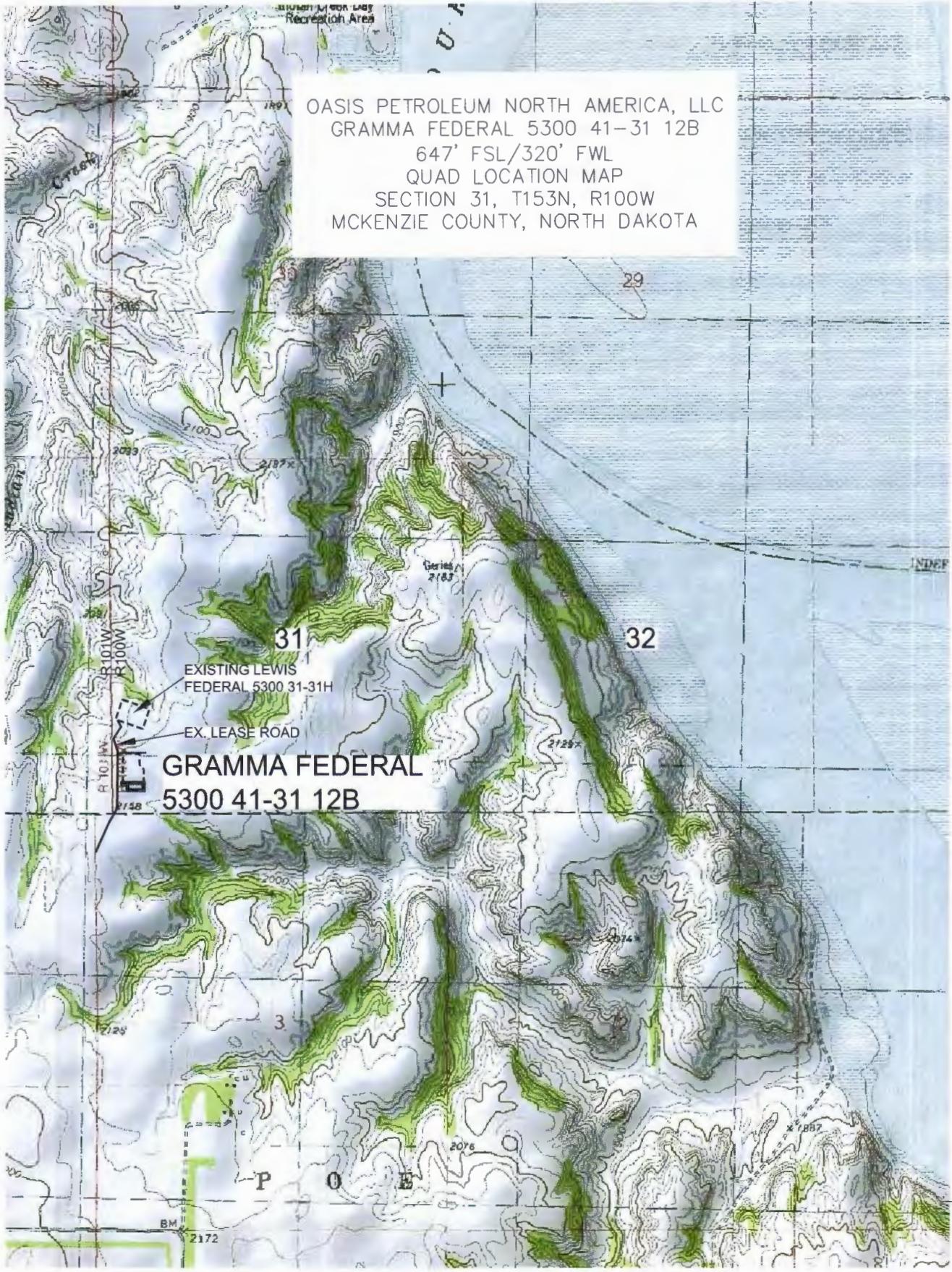
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SECTION 31, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

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

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REV 1	3/3/14	JJS	CORRECTED WELL CALLS
REV 2	12/31/14	JJS	CHANGED WELL NAME & BH



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QUAD LOCATION MAP
SECTION 31, T153N, R100W

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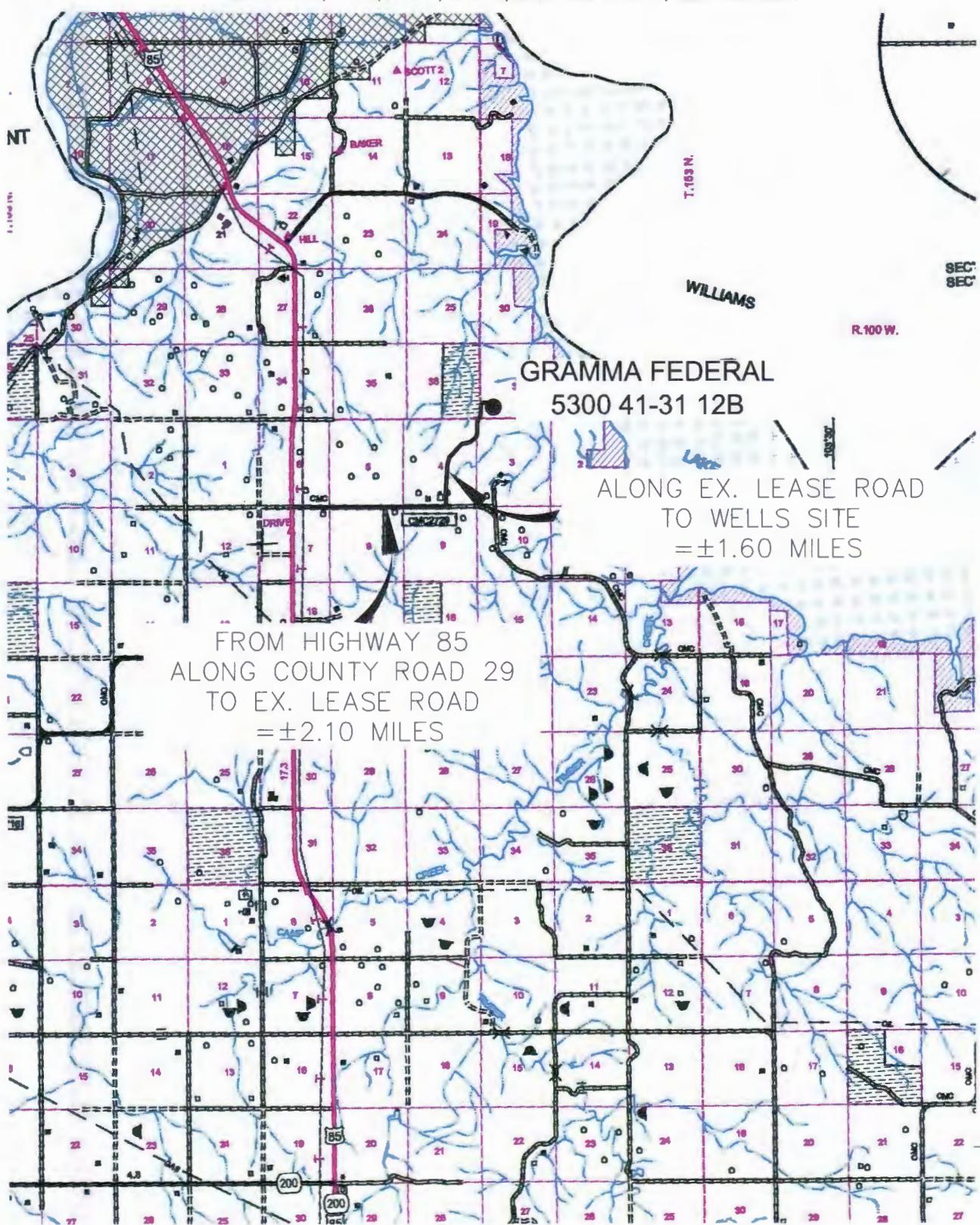
Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS
REV 2	12/31/14	JJS	CHANGED WELL NAME & BH

COUNTY ROAD MAP

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

"GRAMMA FEDERAL 5300 41-31 12B"

647 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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COUNTY ROAD MAP

SECTION 31, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

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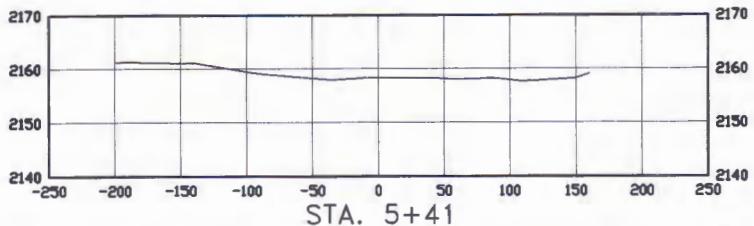
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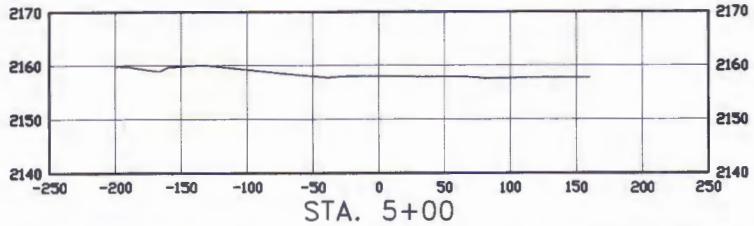
CROSS SECTIONS

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"GRAMMA FEDERAL 5300 41-31 12B"

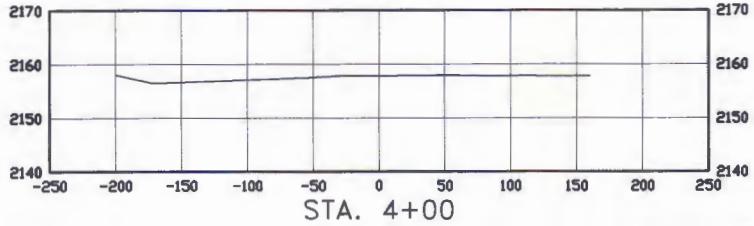
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SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



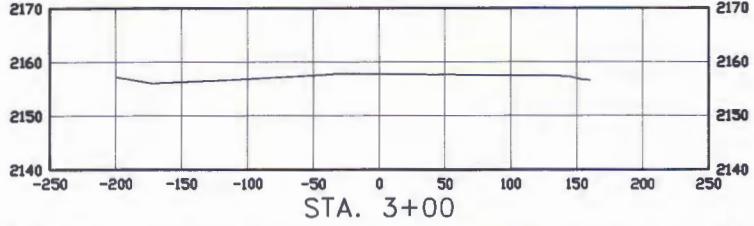
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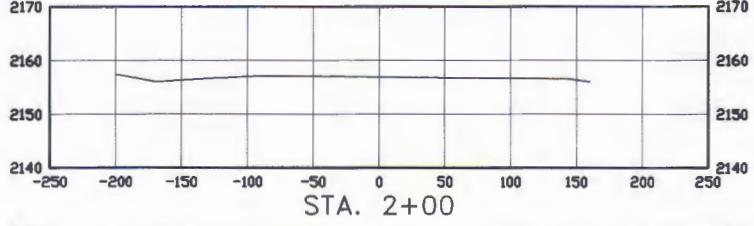
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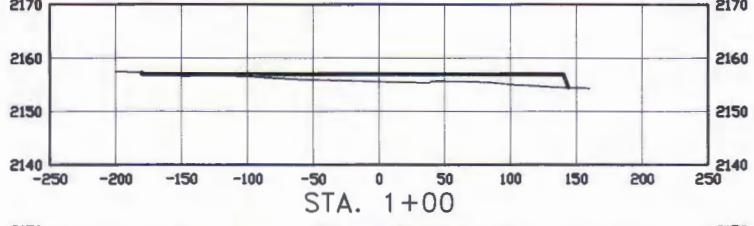
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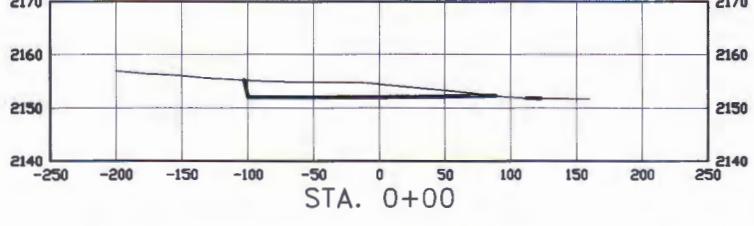
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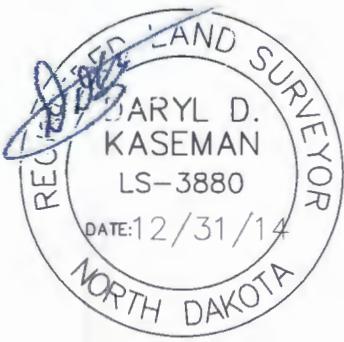


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P.O. Box 648
425 East Main Street
Sidney, Montana 59270
Ph (406) 433-5617
Fax (406) 433-5618
www.interstateeng.com
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
PAD CROSS SECTIONS
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA
Drew By: B.H.H. Project No.: S13-09-372.02
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	JAS	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 12B"
 647 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

647' FSL
 320' FWL

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8/8



SHEET NO.

Interstate Engineering, Inc.
 P.O. Box 648
 425 East Main Street
 Sidney, Montana 59270
 Ph (406) 433-5617
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 Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC

QUANTITIES

SECTION 31, T153N, R100W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: 513-09-372.02
 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.
29316

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	NDAC 43-02-03-55 Waiver

Well Name and Number Gramma Federal 5300 41-31 12T					
Footages	Qtr-Qtr	Section	Township	Range	
647 F S L	320 F W L	Lot4	31	153 N	100 W
Field	Pool	County			
Baker	Bakken/Three Forks	McKenzie			

24-HOUR PRODUCTION RATE

Before	After
Oil	Bbls
Water	Bbls
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 & TD 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 9/3/2014	
By 	
Title ENGINEERING TECHNICIAN	



Oil and Gas Division 29316

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 12T** Well File No.: **29316**
Location: **LOT4 31-153-100** County: **MCKENZIE**
Permit Type: **Development - HORIZONTAL**
Field: **BAKER** Target Horizon: **THREE FORKS B1**

Dear BRANDI TERRY:

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

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

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

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

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

Sincerely

Stephen Fried
Geologist



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.



Well File No.
29316

<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	Variance to Rule 43-02-03-31

Well Name and Number

Well Name and Number
Gramma Federal 5300 41-31 12T

Footages 647 F S	L	320 F W	L	Qtr-Qtr Lot4	Section 31	Township 153 N	Range 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 Istanfield@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.
29316

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 12T

Footages	647 F S L	320 F W L	Qtr-Qtr Lot4	Section 31	Township 153 N	Range 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)
Advanced Energy Services

Address	City	State	Zip Code
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DETAILS OF WORK

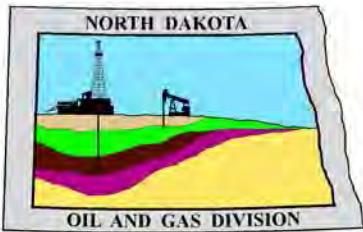
Oasis requests permission for suspension of drilling for up to 90 days for the referenced well under NDAC 43-02-03-55. Oasis intends to drill the surface hole with freshwater based drilling mud and set surface casing with a small drilling rig and move off within 3 to 5 days. The casing will be set at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

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

Company 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 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 12T
LOT4 Section 31-153N-100W
McKenzie County
Well File # 29316**

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, Tool error is not required pursuant to order. Lastly, OASIS PETRO NO AMER must contact NDIC Field Inspector Richard Dunn at 701-770-3554 prior to location construction.

Drilling pit

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

Form 1 Changes & Hard Lines

Any changes, shortening of casing point or lengthening at Total Depth must have prior approval by the NDIC. The proposed directional plan is at a legal location. Based on the azimuth of the proposed lateral the maximum legal coordinate from the well head is: 147' S, 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 12T				
Surface Footages 647 F S L 320 F W L		Qtr-Qtr LOT4	Section 31	Township 153 N	Range 100 W	County McKenzie	
Longstring Casing Point Footages 572 F S L 809 F W L		Qtr-Qtr LOT4	Section 31	Township 153 N	Range 100 W	County McKenzie	
Longstring Casing Point Coordinates From Well Head 75 S From WH 489 E From WH		Azimuth 99 °	Longstring Total Depth 11167 Feet MD 10877 Feet TVD				
Bottom Hole Footages From Nearest Section Line 550 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 97 S From WH 9992 E From WH		KOP Lateral 1 10399 Feet MD	Azimuth Lateral 1 90 °	Estimated Total Depth Lateral 1 20670 Feet MD 10926 Feet TVD			
Latitude of Well Head 48 ° 01 ' 34.22 "	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 B1					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 11167 Feet MD 10877 Feet TVD		Cement Volume 829 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 From WH		Bottom Hole Coordinates From Well Head From WH From WH					
KOP Footages From Nearest Section Line F L F L		Qtr-Qtr	Section	Township N	Range W	County	
Bottom Hole Footages From Nearest Section Line F L F L		Qtr-Qtr	Section	Township N	Range W	County	

Lateral 3

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

Lateral 4

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

Lateral 5

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

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 29316	API Number 33 - 053 - 06231
Field BAKER	
Pool BAKKEN	Permit Type DEVELOPMENT

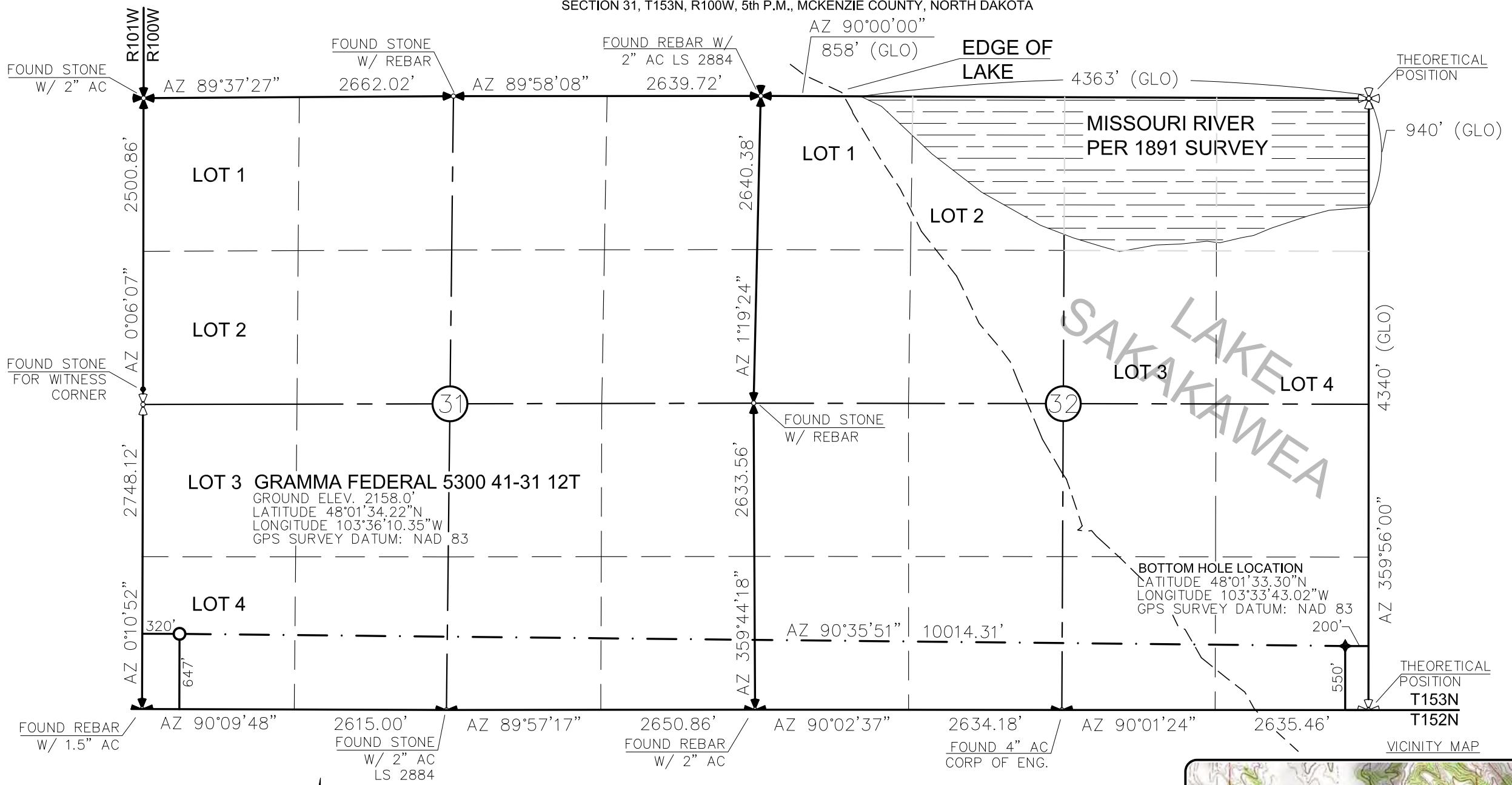
FOR STATE USE ONLY

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

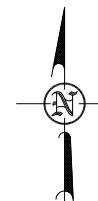
WELL LOCATION PLAT

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

"GRAMMA FEDERAL 5300 41-31 12T"
647 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.

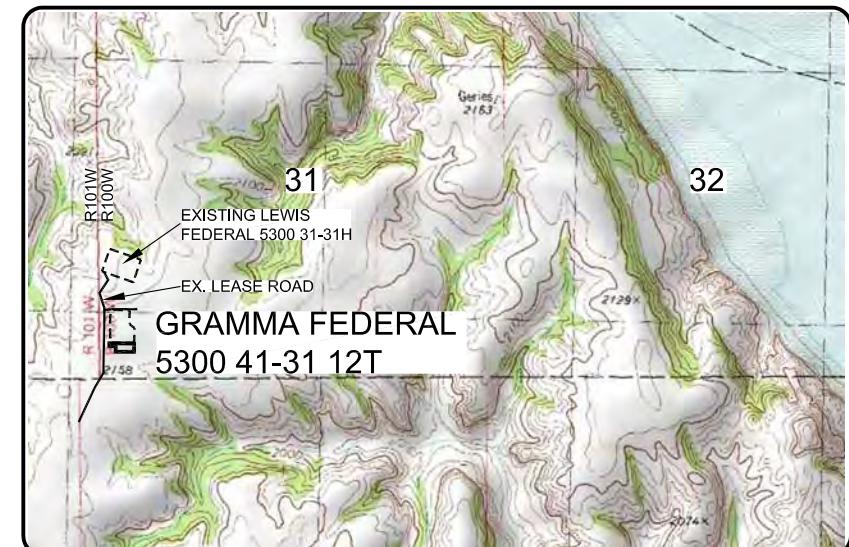


 — MONUMENT — RECOVERED
 — MONUMENT — NOT RECOVERED

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.

DARYL D. KASEMAN LS-3880



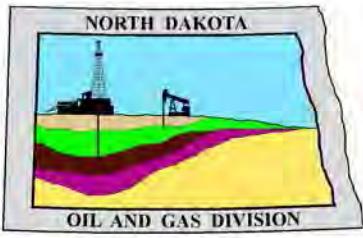
תְּלִימָדָה בְּבֵית-הַמִּזְבֵּחַ

<p>OSIS PETROLEUM NORTH AMERICA, LLC WELL LOCATION PLAT SECTION 31, T153N, R100W</p>	<p>MCKENZIE COUNTY, NORTH DAKOTA</p>
<p>Drawn By: <u>B.H.H.</u></p>	<p>Project No.: <u>ST13-09-37202</u></p>
<p>Checked By: <u>D.D.K.</u></p>	<p>Date: <u>FEB, 2014</u></p>

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Sidney, Montana 59270
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her offices in Minnesota, North Dakota and South Dakota



1/8
SHEET NO.



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 12T			RIG	Nabors B-Rig		
WELL TYPE	Horizontal Upper Three Forks						
LOCATION	SWSW 31-153N-100W			Surface Location (survey plat):	647' fsl	320' fwl	
EST. T.D.	20,670'						
TOTAL LATERA	9,503'						
PROGNOSIS:	Based on 2,183' KB(est)			LOGS:	Type		
MARKER	DEPTH (Surf Loc)	DATUM (Surf Loc)			Interval		
Pierre	NDIC MAP	2,123	60	OH Logs:	Triple Combo KOP to Kirby (or min run of 1800' whichever is greater); GR/Res to BSC; GR to surf; CND through the Dakota		
Greenhorn		4,738	(2,555)	CBL/GR:	Above top of cement/GR to base of casing		
Mowry		5,129	(2,946)	MWD GR:	KOP to lateral TD		
Dakota		5,558	(3,375)				
Rierdon		6,346	(4,163)	DEVIATION:			
Dunham Salt		6,903	(4,720)	Surf:	3 deg. max., 1 deg / 100'; svry every 500'		
Dunham Salt Base		7,020	(4,837)	Prod:	5 deg. max., 1 deg / 100'; svry every 100'		
Spearfish		7,036	(4,853)				
Pine Salt		7,363	(5,180)	DST'S:			
Pine Salt Base		7,385	(5,202)		None planned		
Opecpe Salt		7,437	(5,254)				
Opecpe Salt Base		7,503	(5,320)	CORES:			
Broom Creek (Top of Minnelusa Gp.)		7,669	(5,486)		None planned		
Amsden		7,734	(5,551)				
Tyler		7,878	(5,695)	MUDLOGGING:			
Otter (Base of Minnelusa Gp.)		8,098	(5,915)		Two-Man: 8,406'		
Kibbey Lime		8,458	(6,275)			-200' above the Charles (Kibbey) to	
Charles Salt		8,606	(6,423)			Casing point; Casing point to TD	
UB		9,202	(7,019)				
Base Last Salt		9,278	(7,095)	BOP:	30' samples at direction of wellsite geologist; 10' through target @		
Ratcliffe		9,313	(7,130)			curve land	
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		10,858	(8,675)				
TF Target Top		10,869	(8,686)				
TF Target Base		10,879	(8,696)				
Claystone		10,879	(8,696)				
Dip Rate:	-0.3						
Max. Anticipated BHP:	4710			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' -	11,167' Invert	9.5-10.4	40-50	30+HiHp	Circ Mud Tanks	
Laterals:	11,167' -	20,670' Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks	
CASING:	Size	Wt pfp	Hole	Depth	Cement	WOC	Remarks
Surface:	13-3/8"	54.5#	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"	11,167'	4058	24	TOC 1500' above Dakota
Production Liner:	4.5"	13.5#	6"	20,670'	TOL @ 10,349'		50' above KOP
PROBABLE PLUGS, IF REQ'D:							
OTHER:	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI	
Surface:	2,230	2,230	647' FSL	320' FWL	Sec. 31-T153N-R100W		Survey Company:
KOP:	10,399'	10,399'	647' FSL	320' FWL	Sec. 31-T153N-R100W		Build Rate:
EOC:	11,146'	10,877'	576' FSL	789' FWL	Sec. 31-T153N-R100W	98.0	Turn Rate:
Casing Point:	11,167'	10,877'	572' FSL	810' FWL	Sec. 31-T153N-R100W	98.0	
Middle Bakken Lateral TD:	20,670'	10,926'	550' FSL	200' FEL	Sec. 32-T153N-R100W	90.0	
Comments:							
Request a Sundry for an Open Hole Log Waiver							
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
Well Summary
Gramma Federal 5300 41-31 12T
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 12T
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 12T
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' - 11167'	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' - 11167'	7", 32#, HCP-110, LTC, 8rd	11820 / 2.08*	12460 / 1.28	897 / 2.22
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 10877' 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: **639 sks** (175 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 12T
Section 31 T153N R100W
McKenzie County, ND

PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Estimated Torque
4-1/2"	10349' - 20670'	13.5	P-110	BTC	3.920"	3.795"	4500

Interval	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) c
10349' - 20670'	4-1/2", 13.5 lb, P-110, BTC, 8rd	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 @ 10926' TVD.
Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient
- b) and 9 ppg external fluid gradient @ 10926' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 119k 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)

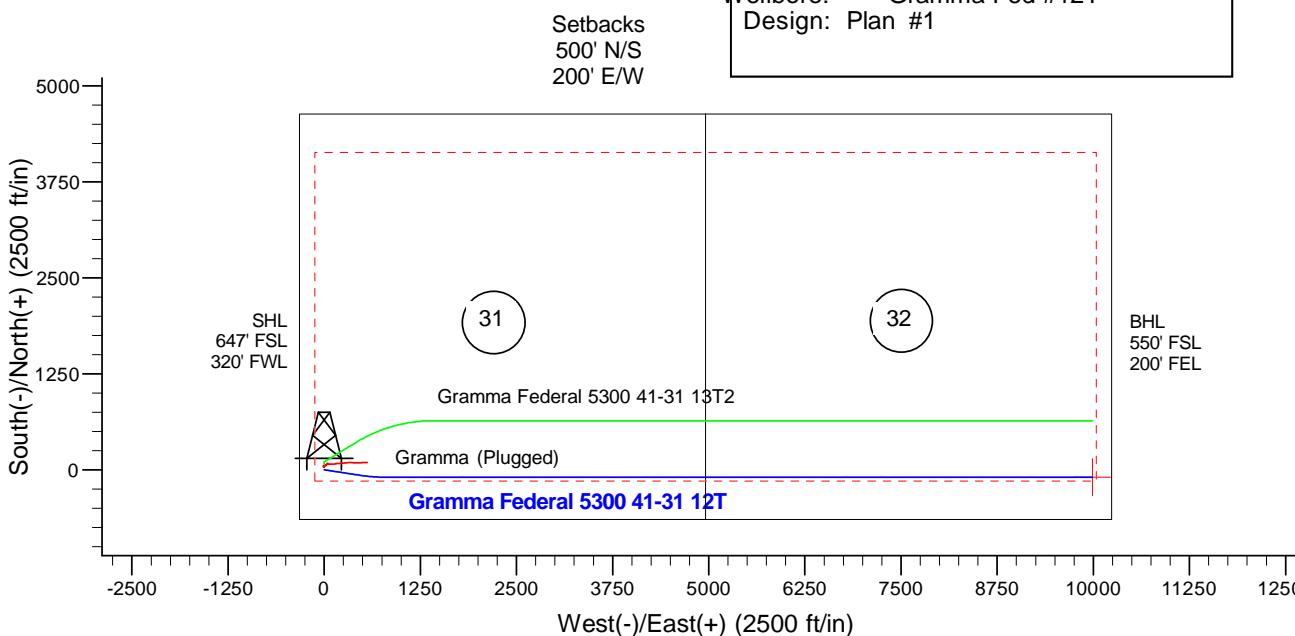


Azimuths to True North
Magnetic North: 8.29°

Magnetic Field
Strength: 56436.5snT
Dip Angle: 72.97°
Date: 3/28/2014
Model: IGRF2010



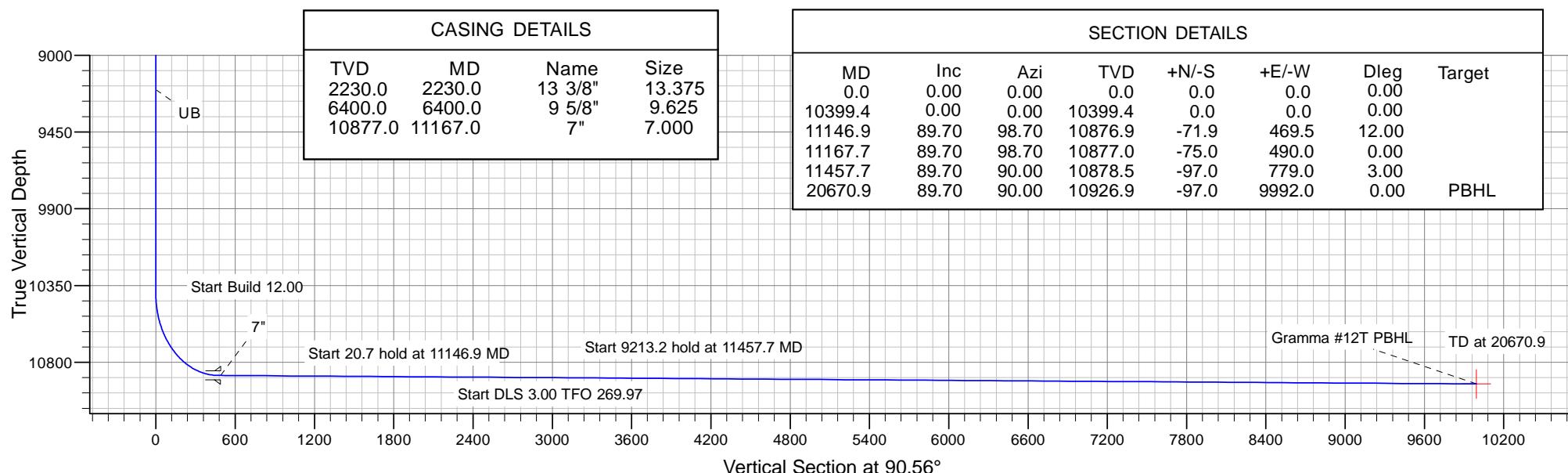
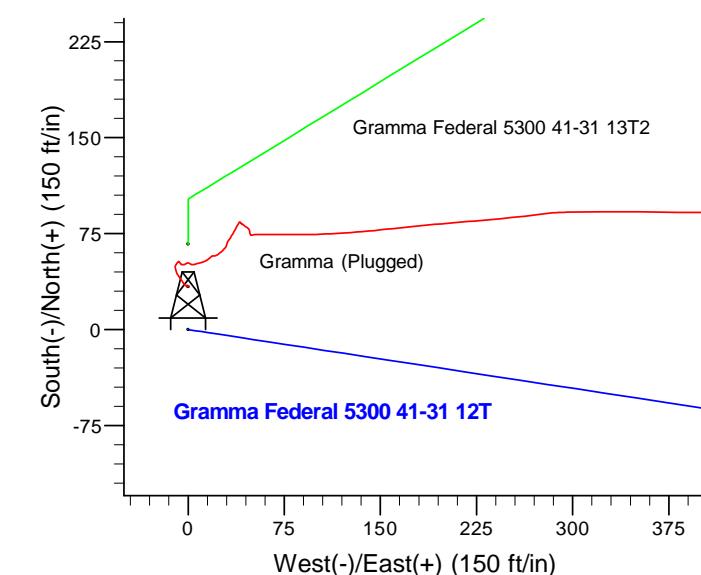
Project: Indian Hills
Site: 153N-100W-31/32
Well: Gramma Federal 5300 41-31 12T
Wellbore: Gramma Fed #12T
Design: Plan #1



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

Site Centre Latitude: 48° 1' 34.220 N
Longitude: 103° 36' 10.350 W

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



Oasis

**Indian Hills
153N-100W-31/32
Gramma Federal 5300 41-31 12T**

Gramma Fed #12T

Plan: Plan #1

Standard Planning Report

28 March, 2014

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #12T		
Design:	Plan #1		

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

Site	153N-100W-31/32				
Site Position:		Northing:	390,399.32 ft	Latitude:	48° 1' 42.010 N
From:	Lat/Long	Easting:	1,209,468.83 ft	Longitude:	103° 36' 10.620 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-2.31 °

Well	Gramma Federal 5300 41-31 12T				
Well Position	+N/-S +E/-W	-789.3 ft 18.4 ft	Northing: Easting:	389,609.88 ft 1,209,455.37 ft	Latitude: Longitude:
Position Uncertainty	0.0 ft		Wellhead Elevation:		Ground Level:
Wellbore		Gramma Fed #12T		2,158.0 ft	

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:	
Vertical Section:	

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	
10,399.4	0.00	0.00	10,399.4	0.0	0.0	0.00	0.00	0.00	0.00	
11,146.9	89.70	98.70	10,876.9	-71.9	469.5	12.00	12.00	0.00	98.70	
11,167.7	89.70	98.70	10,877.0	-75.0	490.0	0.00	0.00	0.00	0.00	
11,457.7	89.70	90.00	10,878.5	-97.0	779.0	3.00	0.00	-3.00	269.97	
20,670.9	89.70	90.00	10,926.9	-97.0	9,992.0	0.00	0.00	0.00	0.00	Gramma #12T PBHL

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #12T		
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
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,738.0	0.00	0.00	4,738.0	0.0	0.0	0.0	0.00	0.00	0.00
Greenhorn									
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #12T		
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)
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,129.0	0.00	0.00	5,129.0	0.0	0.0	0.0	0.00	0.00	0.00
Mowry									
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,558.0	0.00	0.00	5,558.0	0.0	0.0	0.0	0.00	0.00	0.00
Dakota									
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,346.0	0.00	0.00	6,346.0	0.0	0.0	0.0	0.00	0.00	0.00
Rierdon									
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"									
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,903.0	0.00	0.00	6,903.0	0.0	0.0	0.0	0.00	0.00	0.00
Dunham Salt									
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,020.0	0.00	0.00	7,020.0	0.0	0.0	0.0	0.00	0.00	0.00
Dunham Salt Base									
7,036.0	0.00	0.00	7,036.0	0.0	0.0	0.0	0.00	0.00	0.00
Spearfish									
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,363.0	0.00	0.00	7,363.0	0.0	0.0	0.0	0.00	0.00	0.00
Pine Salt									
7,385.0	0.00	0.00	7,385.0	0.0	0.0	0.0	0.00	0.00	0.00
Pine Salt Base									
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,437.0	0.00	0.00	7,437.0	0.0	0.0	0.0	0.00	0.00	0.00
Opeche Salt									
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,503.0	0.00	0.00	7,503.0	0.0	0.0	0.0	0.00	0.00	0.00
Opeche Salt Base									
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,669.0	0.00	0.00	7,669.0	0.0	0.0	0.0	0.00	0.00	0.00
Broom Creek (Top of Minnelusa Gp.)									
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,734.0	0.00	0.00	7,734.0	0.0	0.0	0.0	0.00	0.00	0.00
Amsden									

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #12T		
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)
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,878.0	0.00	0.00	7,878.0	0.0	0.0	0.0	0.00	0.00	0.00
Tyler									
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,098.0	0.00	0.00	8,098.0	0.0	0.0	0.0	0.00	0.00	0.00
Otter (Base of Minnelusa Gp.)									
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,458.0	0.00	0.00	8,458.0	0.0	0.0	0.0	0.00	0.00	0.00
Kibbey Lime									
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,606.0	0.00	0.00	8,606.0	0.0	0.0	0.0	0.00	0.00	0.00
Charles Salt									
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00
9,202.0	0.00	0.00	9,202.0	0.0	0.0	0.0	0.00	0.00	0.00
UB									
9,278.0	0.00	0.00	9,278.0	0.0	0.0	0.0	0.00	0.00	0.00
Base Last Salt									
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00
9,313.0	0.00	0.00	9,313.0	0.0	0.0	0.0	0.00	0.00	0.00
Ratcliffe									
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00
9,488.0	0.00	0.00	9,488.0	0.0	0.0	0.0	0.00	0.00	0.00
Mission Canyon									
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	0.00
10,033.0	0.00	0.00	10,033.0	0.0	0.0	0.0	0.00	0.00	0.00
Lodgepole									
10,100.0	0.00	0.00	10,100.0	0.0	0.0	0.0	0.00	0.00	0.00
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	0.00
10,300.0	0.00	0.00	10,300.0	0.0	0.0	0.0	0.00	0.00	0.00
10,399.4	0.00	0.00	10,399.4	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 12.00									
10,425.0	3.07	98.70	10,425.0	-0.1	0.7	0.7	12.00	12.00	0.00
10,450.0	6.07	98.70	10,449.9	-0.4	2.6	2.6	12.00	12.00	0.00
10,475.0	9.07	98.70	10,474.7	-0.9	5.9	5.9	12.00	12.00	0.00
10,496.7	11.67	98.70	10,496.0	-1.5	9.8	9.8	12.00	12.00	0.00
Lodgepole Fracture Zone									
10,500.0	12.07	98.70	10,499.3	-1.6	10.4	10.4	12.00	12.00	0.00
10,525.0	15.07	98.70	10,523.6	-2.5	16.2	16.3	12.00	12.00	0.00
10,550.0	18.07	98.70	10,547.5	-3.6	23.3	23.3	12.00	12.00	0.00

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #12T		
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)
10,575.0	21.07	98.70	10,571.1	-4.8	31.5	31.6	12.00	12.00	0.00
10,600.0	24.07	98.70	10,594.2	-6.3	41.0	41.1	12.00	12.00	0.00
10,625.0	27.07	98.70	10,616.7	-7.9	51.7	51.8	12.00	12.00	0.00
10,650.0	30.07	98.70	10,638.7	-9.7	63.5	63.6	12.00	12.00	0.00
10,675.0	33.07	98.70	10,660.0	-11.7	76.4	76.6	12.00	12.00	0.00
10,700.0	36.07	98.70	10,680.5	-13.8	90.5	90.6	12.00	12.00	0.00
10,725.0	39.07	98.70	10,700.4	-16.2	105.5	105.7	12.00	12.00	0.00
10,750.0	42.07	98.70	10,719.3	-18.6	121.6	121.8	12.00	12.00	0.00
10,775.0	45.07	98.70	10,737.5	-21.2	138.6	138.8	12.00	12.00	0.00
10,800.0	48.07	98.70	10,754.6	-24.0	156.6	156.8	12.00	12.00	0.00
10,815.8	49.96	98.70	10,765.0	-25.8	168.4	168.6	12.00	12.00	0.00
False Bakken									
10,825.0	51.07	98.70	10,770.8	-26.8	175.4	175.6	12.00	12.00	0.00
10,833.3	52.06	98.70	10,776.0	-27.8	181.8	182.1	12.00	12.00	0.00
Upper Bakken									
10,850.0	54.07	98.70	10,786.0	-29.8	195.0	195.3	12.00	12.00	0.00
10,860.3	55.30	98.70	10,792.0	-31.1	203.3	203.6	12.00	12.00	0.00
Middle Bakken									
10,875.0	57.07	98.70	10,800.2	-33.0	215.4	215.7	12.00	12.00	0.00
10,900.0	60.07	98.70	10,813.2	-36.2	236.5	236.8	12.00	12.00	0.00
10,925.0	63.07	98.70	10,825.1	-39.5	258.2	258.6	12.00	12.00	0.00
10,938.4	64.67	98.70	10,831.0	-41.3	270.1	270.4	12.00	12.00	0.00
Lower Bakken									
10,950.0	66.07	98.70	10,835.8	-42.9	280.5	280.9	12.00	12.00	0.00
10,957.9	67.02	98.70	10,839.0	-44.0	287.7	288.1	12.00	12.00	0.00
Pronghorn									
10,975.0	69.07	98.70	10,845.4	-46.4	303.4	303.8	12.00	12.00	0.00
11,000.0	72.07	98.70	10,853.7	-50.0	326.7	327.1	12.00	12.00	0.00
11,014.6	73.83	98.70	10,858.0	-52.1	340.5	341.0	12.00	12.00	0.00
Three Forks									
11,025.0	75.07	98.70	10,860.8	-53.6	350.4	350.9	12.00	12.00	0.00
11,050.0	78.07	98.70	10,866.6	-57.3	374.4	374.9	12.00	12.00	0.00
11,062.5	79.56	98.70	10,869.0	-59.2	386.5	387.0	12.00	12.00	0.00
TF Target Top									
11,075.0	81.07	98.70	10,871.1	-61.0	398.7	399.3	12.00	12.00	0.00
11,100.0	84.07	98.70	10,874.3	-64.8	423.2	423.8	12.00	12.00	0.00
11,125.0	87.07	98.70	10,876.3	-68.5	447.8	448.5	12.00	12.00	0.00
11,146.9	89.70	98.70	10,876.9	-71.9	469.5	470.2	12.00	12.00	0.00
Start 20.7 hold at 11146.9 MD									
11,167.0	89.70	98.70	10,877.0	-74.9	489.3	490.0	0.00	0.00	0.00
7"									
11,167.7	89.70	98.70	10,877.0	-75.0	490.0	490.7	0.00	0.00	0.00
Start DLS 3.00 TFO 269.97									
11,200.0	89.70	97.73	10,877.2	-79.6	522.0	522.7	3.00	0.00	-3.00
11,300.0	89.70	94.73	10,877.7	-90.5	621.4	622.2	3.00	0.00	-3.00
11,400.0	89.70	91.73	10,878.2	-96.1	721.2	722.1	3.00	0.00	-3.00
11,457.7	89.70	90.00	10,878.5	-97.0	779.0	779.9	3.00	0.00	-3.00
Start 9213.2 hold at 11457.7 MD									
11,500.0	89.70	90.00	10,878.7	-97.0	821.2	822.1	0.00	0.00	0.00
11,600.0	89.70	90.00	10,879.3	-97.0	921.2	922.1	0.00	0.00	0.00
11,700.0	89.70	90.00	10,879.8	-97.0	1,021.2	1,022.1	0.00	0.00	0.00
11,800.0	89.70	90.00	10,880.3	-97.0	1,121.2	1,122.1	0.00	0.00	0.00
11,900.0	89.70	90.00	10,880.8	-97.0	1,221.2	1,222.1	0.00	0.00	0.00
12,000.0	89.70	90.00	10,881.4	-97.0	1,321.2	1,322.1	0.00	0.00	0.00

Planning Report

Database: Company: Project: Site: Well: Wellbore: Design:	OpenWellsCompass - EDM Prod Oasis Indian Hills 153N-100W-31/32 Gramma Federal 5300 41-31 12T Gramma Fed #12T Plan #1	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Well Gramma Federal 5300 41-31 12T WELL @ 2183.0ft (Original Well Elev) WELL @ 2183.0ft (Original Well Elev) True Minimum Curvature
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Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,100.0	89.70	90.00	10,881.9	-97.0	1,421.2	1,422.1	0.00	0.00	0.00
12,200.0	89.70	90.00	10,882.4	-97.0	1,521.2	1,522.1	0.00	0.00	0.00
12,300.0	89.70	90.00	10,883.0	-97.0	1,621.2	1,622.1	0.00	0.00	0.00
12,400.0	89.70	90.00	10,883.5	-97.0	1,721.2	1,722.1	0.00	0.00	0.00
12,500.0	89.70	90.00	10,884.0	-97.0	1,821.2	1,822.0	0.00	0.00	0.00
12,600.0	89.70	90.00	10,884.5	-97.0	1,921.2	1,922.0	0.00	0.00	0.00
12,700.0	89.70	90.00	10,885.1	-97.0	2,021.2	2,022.0	0.00	0.00	0.00
12,800.0	89.70	90.00	10,885.6	-97.0	2,121.2	2,122.0	0.00	0.00	0.00
12,900.0	89.70	90.00	10,886.1	-97.0	2,221.2	2,222.0	0.00	0.00	0.00
13,000.0	89.70	90.00	10,886.6	-97.0	2,321.2	2,322.0	0.00	0.00	0.00
13,100.0	89.70	90.00	10,887.2	-97.0	2,421.2	2,422.0	0.00	0.00	0.00
13,200.0	89.70	90.00	10,887.7	-97.0	2,521.2	2,522.0	0.00	0.00	0.00
13,300.0	89.70	90.00	10,888.2	-97.0	2,621.2	2,622.0	0.00	0.00	0.00
13,400.0	89.70	90.00	10,888.7	-97.0	2,721.2	2,722.0	0.00	0.00	0.00
13,500.0	89.70	90.00	10,889.3	-97.0	2,821.2	2,822.0	0.00	0.00	0.00
13,600.0	89.70	90.00	10,889.8	-97.0	2,921.2	2,922.0	0.00	0.00	0.00
13,700.0	89.70	90.00	10,890.3	-97.0	3,021.2	3,022.0	0.00	0.00	0.00
13,800.0	89.70	90.00	10,890.8	-97.0	3,121.2	3,122.0	0.00	0.00	0.00
13,900.0	89.70	90.00	10,891.4	-97.0	3,221.2	3,222.0	0.00	0.00	0.00
14,000.0	89.70	90.00	10,891.9	-97.0	3,321.2	3,322.0	0.00	0.00	0.00
14,100.0	89.70	90.00	10,892.4	-97.0	3,421.2	3,422.0	0.00	0.00	0.00
14,200.0	89.70	90.00	10,892.9	-97.0	3,521.2	3,521.9	0.00	0.00	0.00
14,300.0	89.70	90.00	10,893.5	-97.0	3,621.2	3,621.9	0.00	0.00	0.00
14,400.0	89.70	90.00	10,894.0	-97.0	3,721.2	3,721.9	0.00	0.00	0.00
14,500.0	89.70	90.00	10,894.5	-97.0	3,821.2	3,821.9	0.00	0.00	0.00
14,600.0	89.70	90.00	10,895.0	-97.0	3,921.2	3,921.9	0.00	0.00	0.00
14,700.0	89.70	90.00	10,895.6	-97.0	4,021.2	4,021.9	0.00	0.00	0.00
14,800.0	89.70	90.00	10,896.1	-97.0	4,121.2	4,121.9	0.00	0.00	0.00
14,900.0	89.70	90.00	10,896.6	-97.0	4,221.2	4,221.9	0.00	0.00	0.00
15,000.0	89.70	90.00	10,897.1	-97.0	4,321.2	4,321.9	0.00	0.00	0.00
15,100.0	89.70	90.00	10,897.7	-97.0	4,421.2	4,421.9	0.00	0.00	0.00
15,200.0	89.70	90.00	10,898.2	-97.0	4,521.2	4,521.9	0.00	0.00	0.00
15,300.0	89.70	90.00	10,898.7	-97.0	4,621.2	4,621.9	0.00	0.00	0.00
15,400.0	89.70	90.00	10,899.2	-97.0	4,721.2	4,721.9	0.00	0.00	0.00
15,500.0	89.70	90.00	10,899.8	-97.0	4,821.2	4,821.9	0.00	0.00	0.00
15,600.0	89.70	90.00	10,900.3	-97.0	4,921.1	4,921.9	0.00	0.00	0.00
15,700.0	89.70	90.00	10,900.8	-97.0	5,021.1	5,021.9	0.00	0.00	0.00
15,800.0	89.70	90.00	10,901.3	-97.0	5,121.1	5,121.8	0.00	0.00	0.00
15,900.0	89.70	90.00	10,901.9	-97.0	5,221.1	5,221.8	0.00	0.00	0.00
16,000.0	89.70	90.00	10,902.4	-97.0	5,321.1	5,321.8	0.00	0.00	0.00
16,100.0	89.70	90.00	10,902.9	-97.0	5,421.1	5,421.8	0.00	0.00	0.00
16,200.0	89.70	90.00	10,903.4	-97.0	5,521.1	5,521.8	0.00	0.00	0.00
16,300.0	89.70	90.00	10,904.0	-97.0	5,621.1	5,621.8	0.00	0.00	0.00
16,400.0	89.70	90.00	10,904.5	-97.0	5,721.1	5,721.8	0.00	0.00	0.00
16,500.0	89.70	90.00	10,905.0	-97.0	5,821.1	5,821.8	0.00	0.00	0.00
16,600.0	89.70	90.00	10,905.5	-97.0	5,921.1	5,921.8	0.00	0.00	0.00
16,700.0	89.70	90.00	10,906.1	-97.0	6,021.1	6,021.8	0.00	0.00	0.00
16,800.0	89.70	90.00	10,906.6	-97.0	6,121.1	6,121.8	0.00	0.00	0.00
16,900.0	89.70	90.00	10,907.1	-97.0	6,221.1	6,221.8	0.00	0.00	0.00
17,000.0	89.70	90.00	10,907.6	-97.0	6,321.1	6,321.8	0.00	0.00	0.00
17,100.0	89.70	90.00	10,908.2	-97.0	6,421.1	6,421.8	0.00	0.00	0.00
17,200.0	89.70	90.00	10,908.7	-97.0	6,521.1	6,521.8	0.00	0.00	0.00
17,300.0	89.70	90.00	10,909.2	-97.0	6,621.1	6,621.8	0.00	0.00	0.00
17,400.0	89.70	90.00	10,909.8	-97.0	6,721.1	6,721.7	0.00	0.00	0.00
17,500.0	89.70	90.00	10,910.3	-97.0	6,821.1	6,821.7	0.00	0.00	0.00

Planning Report

Database: Company: Project: Site: Well: Wellbore: Design:	OpenWellsCompass - EDM Prod Oasis Indian Hills 153N-100W-31/32 Gramma Federal 5300 41-31 12T Gramma Fed #12T Plan #1	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Well Gramma Federal 5300 41-31 12T WELL @ 2183.0ft (Original Well Elev) WELL @ 2183.0ft (Original Well Elev) True Minimum Curvature
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Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,600.0	89.70	90.00	10,910.8	-97.0	6,921.1	6,921.7	0.00	0.00	0.00
17,700.0	89.70	90.00	10,911.3	-97.0	7,021.1	7,021.7	0.00	0.00	0.00
17,800.0	89.70	90.00	10,911.9	-97.0	7,121.1	7,121.7	0.00	0.00	0.00
17,900.0	89.70	90.00	10,912.4	-97.0	7,221.1	7,221.7	0.00	0.00	0.00
18,000.0	89.70	90.00	10,912.9	-97.0	7,321.1	7,321.7	0.00	0.00	0.00
18,100.0	89.70	90.00	10,913.4	-97.0	7,421.1	7,421.7	0.00	0.00	0.00
18,200.0	89.70	90.00	10,914.0	-97.0	7,521.1	7,521.7	0.00	0.00	0.00
18,300.0	89.70	90.00	10,914.5	-97.0	7,621.1	7,621.7	0.00	0.00	0.00
18,400.0	89.70	90.00	10,915.0	-97.0	7,721.1	7,721.7	0.00	0.00	0.00
18,500.0	89.70	90.00	10,915.5	-97.0	7,821.1	7,821.7	0.00	0.00	0.00
18,600.0	89.70	90.00	10,916.1	-97.0	7,921.1	7,921.7	0.00	0.00	0.00
18,700.0	89.70	90.00	10,916.6	-97.0	8,021.1	8,021.7	0.00	0.00	0.00
18,800.0	89.70	90.00	10,917.1	-97.0	8,121.1	8,121.7	0.00	0.00	0.00
18,900.0	89.70	90.00	10,917.6	-97.0	8,221.1	8,221.7	0.00	0.00	0.00
19,000.0	89.70	90.00	10,918.2	-97.0	8,321.1	8,321.7	0.00	0.00	0.00
19,100.0	89.70	90.00	10,918.7	-97.0	8,421.1	8,421.6	0.00	0.00	0.00
19,200.0	89.70	90.00	10,919.2	-97.0	8,521.1	8,521.6	0.00	0.00	0.00
19,300.0	89.70	90.00	10,919.7	-97.0	8,621.1	8,621.6	0.00	0.00	0.00
19,400.0	89.70	90.00	10,920.3	-97.0	8,721.1	8,721.6	0.00	0.00	0.00
19,500.0	89.70	90.00	10,920.8	-97.0	8,821.1	8,821.6	0.00	0.00	0.00
19,600.0	89.70	90.00	10,921.3	-97.0	8,921.1	8,921.6	0.00	0.00	0.00
19,700.0	89.70	90.00	10,921.8	-97.0	9,021.1	9,021.6	0.00	0.00	0.00
19,800.0	89.70	90.00	10,922.4	-97.0	9,121.1	9,121.6	0.00	0.00	0.00
19,900.0	89.70	90.00	10,922.9	-97.0	9,221.1	9,221.6	0.00	0.00	0.00
20,000.0	89.70	90.00	10,923.4	-97.0	9,321.1	9,321.6	0.00	0.00	0.00
20,100.0	89.70	90.00	10,923.9	-97.0	9,421.1	9,421.6	0.00	0.00	0.00
20,200.0	89.70	90.00	10,924.5	-97.0	9,521.1	9,521.6	0.00	0.00	0.00
20,300.0	89.70	90.00	10,925.0	-97.0	9,621.1	9,621.6	0.00	0.00	0.00
20,400.0	89.70	90.00	10,925.5	-97.0	9,721.1	9,721.6	0.00	0.00	0.00
20,500.0	89.70	90.00	10,926.0	-97.0	9,821.1	9,821.6	0.00	0.00	0.00
20,600.0	89.70	90.00	10,926.6	-97.0	9,921.1	9,921.6	0.00	0.00	0.00
20,670.9	89.70	90.00	10,926.9	-97.0	9,992.0	9,992.5	0.00	0.00	0.00
TD at 20670.9 - Gramma #12T PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/S (ft)	+E/W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Gramma #12T PBHL - plan hits target center - Point	0.00	0.00	10,926.9	-97.0	9,992.0	389,110.40	1,219,435.37	48° 1' 33.236 N	103° 33' 43.346 W

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	6,400.0	9 5/8"				9.625	12.250		
11,167.0	10,877.0	7"				7.000	8.750		

Planning Report

Database:	OpenWellsCompass - EDM Prod	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gramma Fed #12T		
Design:	Plan #1		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,123.0	2,123.0	Pierre			
4,738.0	4,738.0	Greenhorn			
5,129.0	5,129.0	Mowry			
5,558.0	5,558.0	Dakota			
6,346.0	6,346.0	Rierdon			
6,903.0	6,903.0	Dunham Salt			
7,020.0	7,020.0	Dunham Salt Base			
7,036.0	7,036.0	Spearfish			
7,363.0	7,363.0	Pine Salt			
7,385.0	7,385.0	Pine Salt Base			
7,437.0	7,437.0	Opeche Salt			
7,503.0	7,503.0	Opeche Salt Base			
7,669.0	7,669.0	Broom Creek (Top of Minnelusa Gp.)			
7,734.0	7,734.0	Amsden			
7,878.0	7,878.0	Tyler			
8,098.0	8,098.0	Otter (Base of Minnelusa Gp.)			
8,458.0	8,458.0	Kibbey Lime			
8,606.0	8,606.0	Charles Salt			
9,202.0	9,202.0	UB			
9,278.0	9,278.0	Base Last Salt			
9,313.0	9,313.0	Ratcliffe			
9,488.0	9,488.0	Mission Canyon			
10,033.0	10,033.0	Lodgepole			
10,496.7	10,496.0	Lodgepole Fracture Zone			
10,815.8	10,765.0	False Bakken			
10,833.3	10,776.0	Upper Bakken			
10,860.3	10,792.0	Middle Bakken			
10,938.4	10,831.0	Lower Bakken			
10,957.9	10,839.0	Pronghorn			
11,014.6	10,858.0	Three Forks			
11,062.5	10,869.0	TF Target Top			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
10,399.4	10,399.4	0.0	0.0	Start Build 12.00	
11,146.9	10,876.9	-71.9	469.5	Start 20.7 hold at 11146.9 MD	
11,167.7	10,877.0	-75.0	490.0	Start DLS 3.00 TFO 269.97	
11,457.7	10,878.5	-97.0	779.0	Start 9213.2 hold at 11457.7 MD	
20,670.9	10,926.9	-97.0	9,992.0	TD at 20670.9	



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". The signature is fluid and cursive, with a horizontal line underneath it.

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

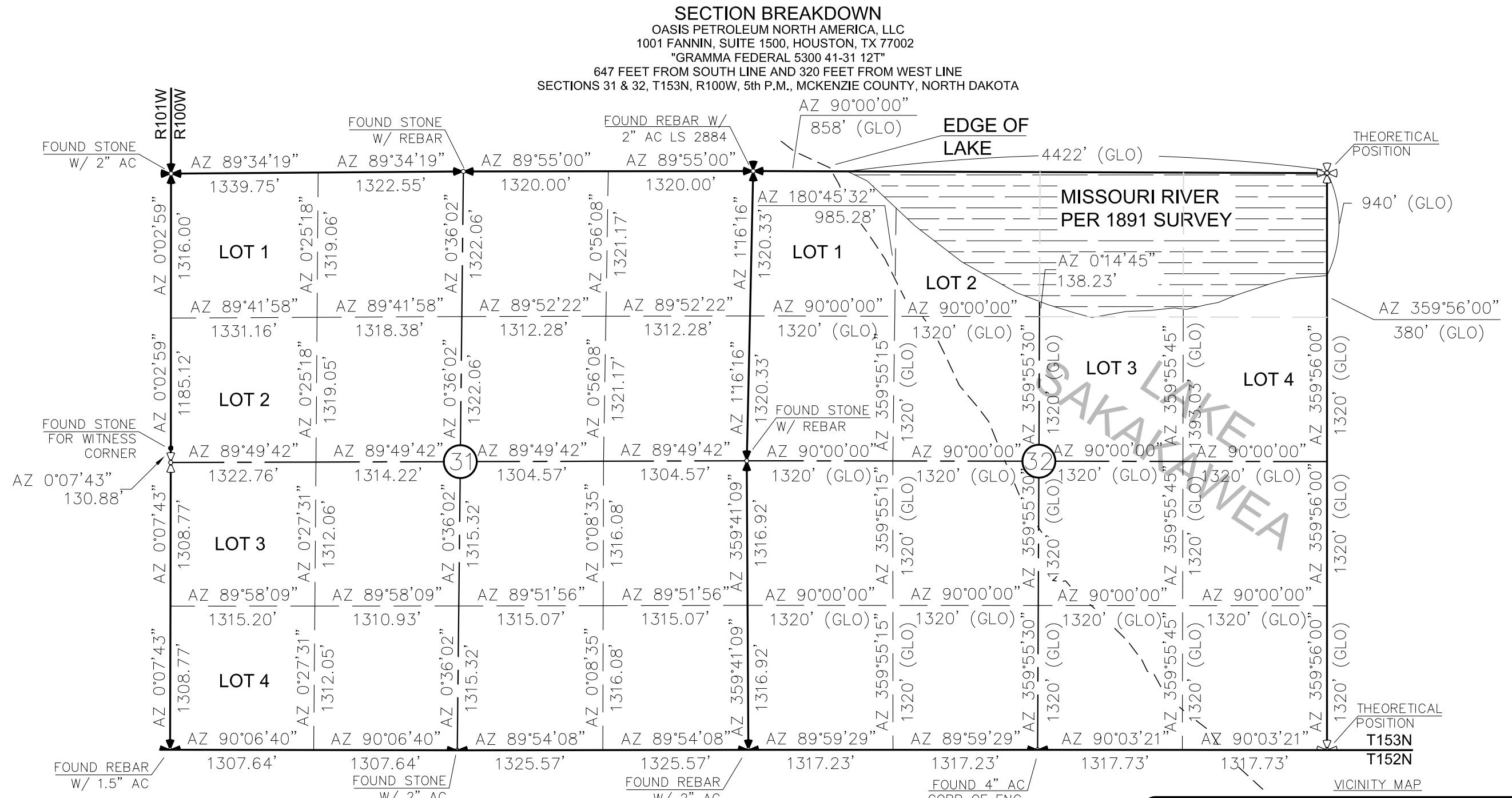
will need to send me a copy with a Form 4 sundry for both wells.

Thanks,

Matt Messana

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

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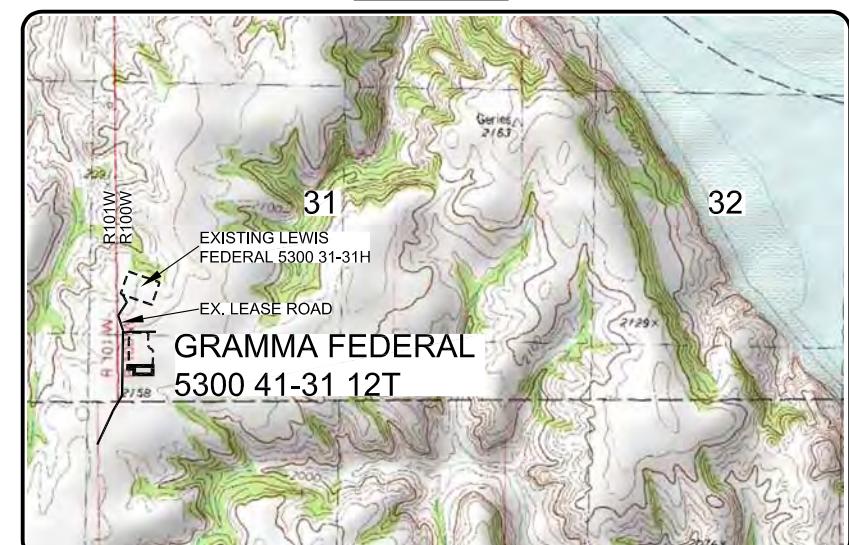
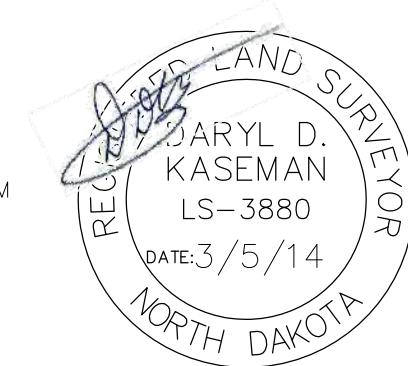


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- MONUMENT - RECOVERED
- MONUMENT - NOT RECOVERED



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'.

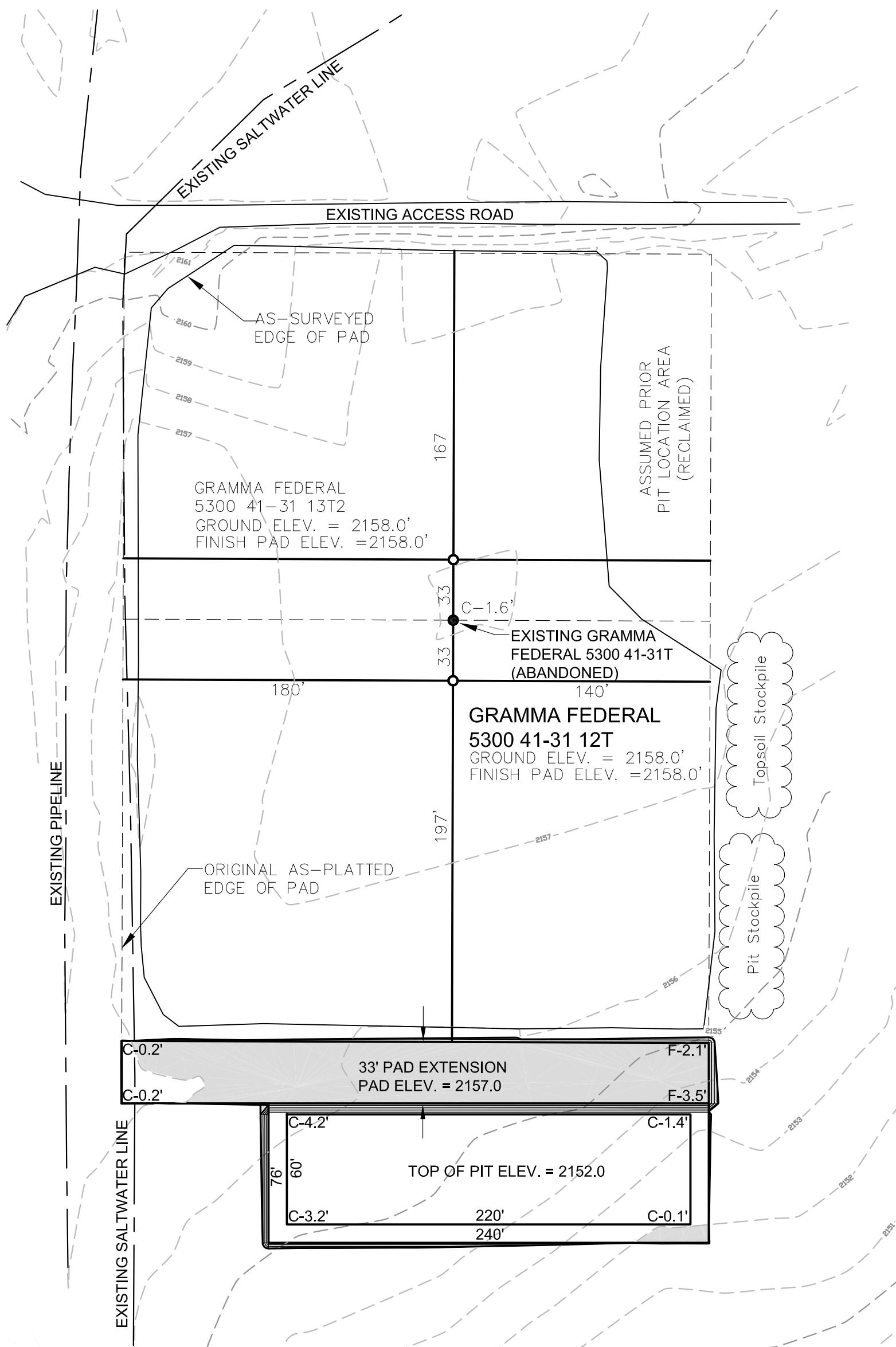


Professionals you need, people you trust

PAD LAYOUT

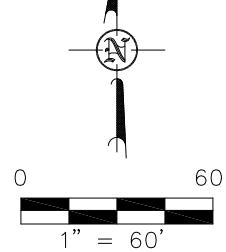
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"GRAMMA FEDERAL 5300 41-31 12T"

647 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 utilities location is recommended before construction.



(c) 2014, INTERSTATE ENGINEERING, INC.

3/8

SHEET NO.



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

Other offices in Minnesota, North Dakota and South Dakota

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

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-372.02
Checked By: D.D.K. Date: FEB 2014

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

Locater.CAD (Gramma Federal 5300 41-31 12T.dwg) - 3/5/2014 1:46 PM - JJS

WELL LOCATION SITE QUANTITIES
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "GRAMMA FEDERAL 5300 41-31 12T"
 647 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

647' FSL

320' FWL

(C) 2014, INTERSTATE ENGINEERING, INC.

8/8



SHEET NO.

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

OASIS PETROLEUM NORTH AMERICA, LLC
 QUANTITIES
 SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA
 Drawn By: B.H.H. Project No.: S13-09-372.02
 Checked By: D.D.K. Date: FEB. 2014

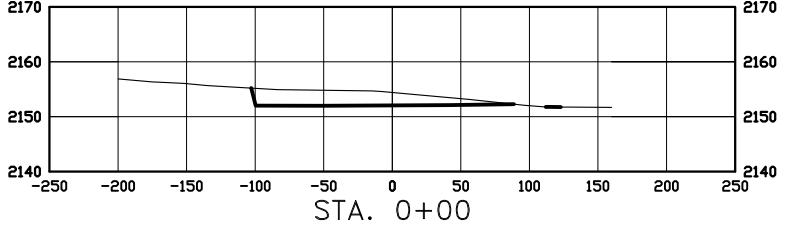
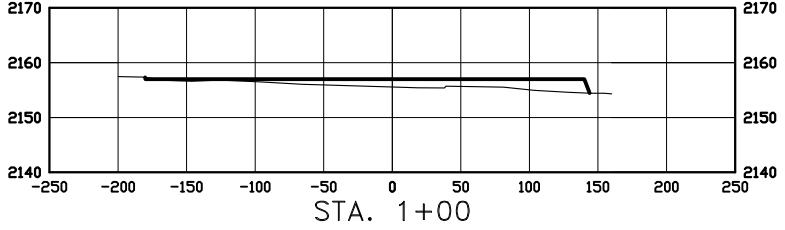
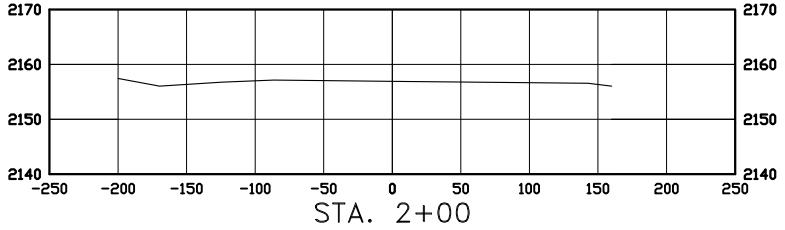
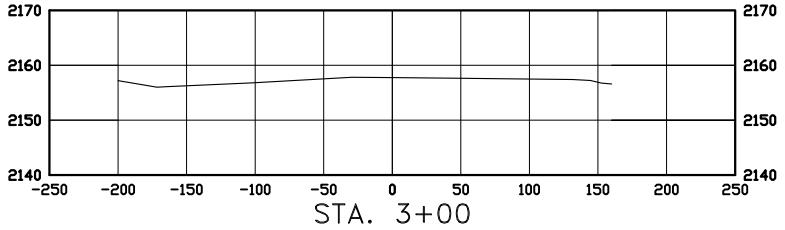
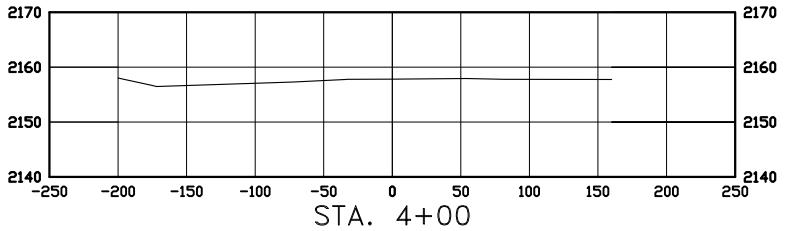
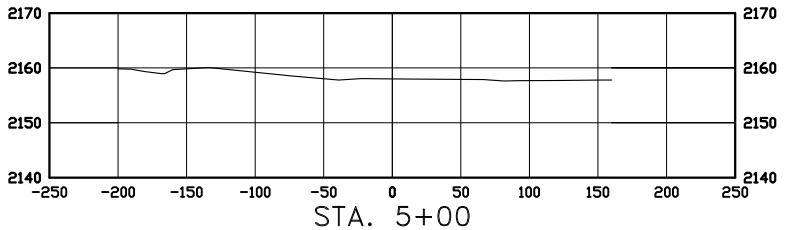
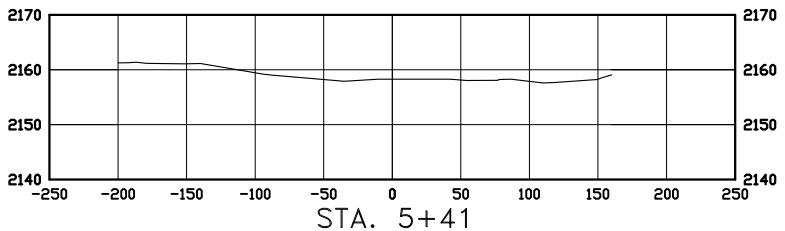
Revision No.	Date	By	Description
REV 1	3/5/14	JJS	CORRECTED WELL CALLS

CROSS SECTIONS

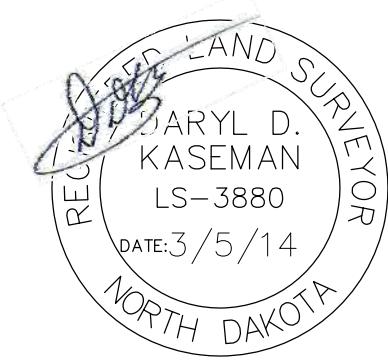
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"GRAMMA FEDERAL 5300 41-31 12T"

647 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
HORIZ 1"=140'
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Other offices in Minnesota, North Dakota and South Dakota

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

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	B.H.H.	Project No.:	S13-09-372.02
Checked By:	D.D.K.	Date:	FEB, 2014

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

ACCESS APPROACH

OASIS PETROLEUM NORTH AMERICA, LLC

1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"GRAMMA FEDERAL 5300 41-31 12T"

647 FEET FROM SOUTH LINE AND 320 FEET FROM WEST LINE

SECTION 31, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

FOUND STONE
FOR WITNESS
CORNER

-36-

31

31

EX. 33' R/W

EX. 33' R/W

EXISTING LEWIS
FEDERAL 5300 31-31H

LANDOWNER:
WESLEY LINDVIG
SECTION 31

2748.12'

AZ 0°10'52"

EX. LEASE ROAD

GRAMMA FEDERAL 5300 41-31 12T

T153N
T152N

36

31

31

6

1

6

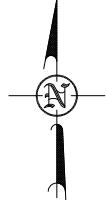
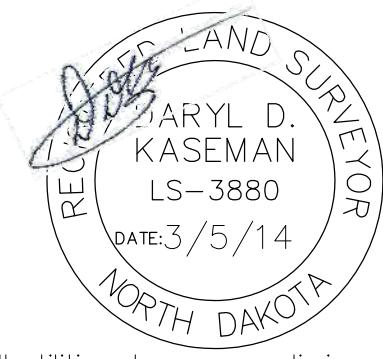
R101W

R100W

FOUND REBAR

W/ 1.5" AC

FOUND STONE
W/ 2" AC
LS 2884



0
1" = 500'
500

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

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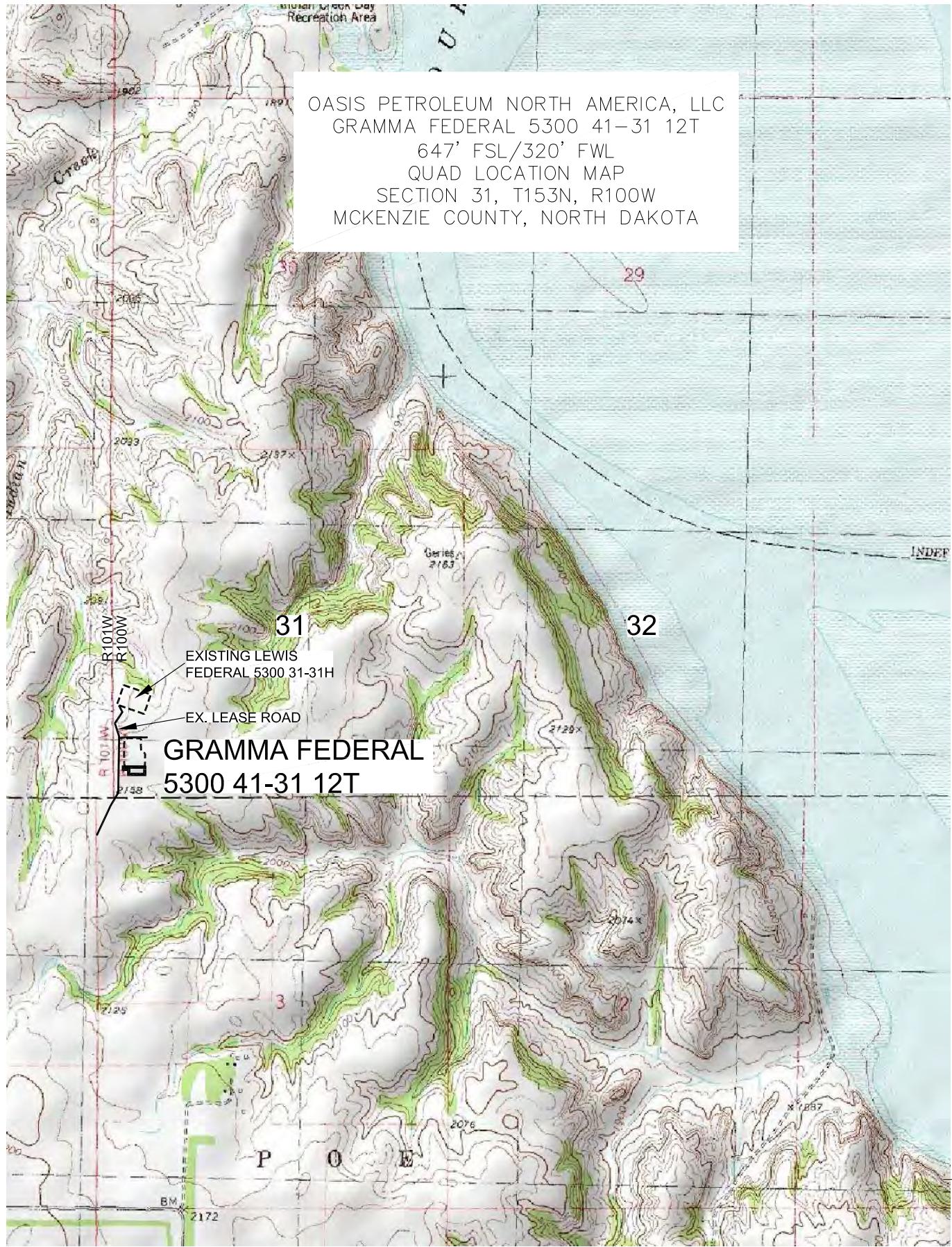


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Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
ACCESS APPROACH
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA
Drawn By: B.H.H. Project No.: S13-09-372.02
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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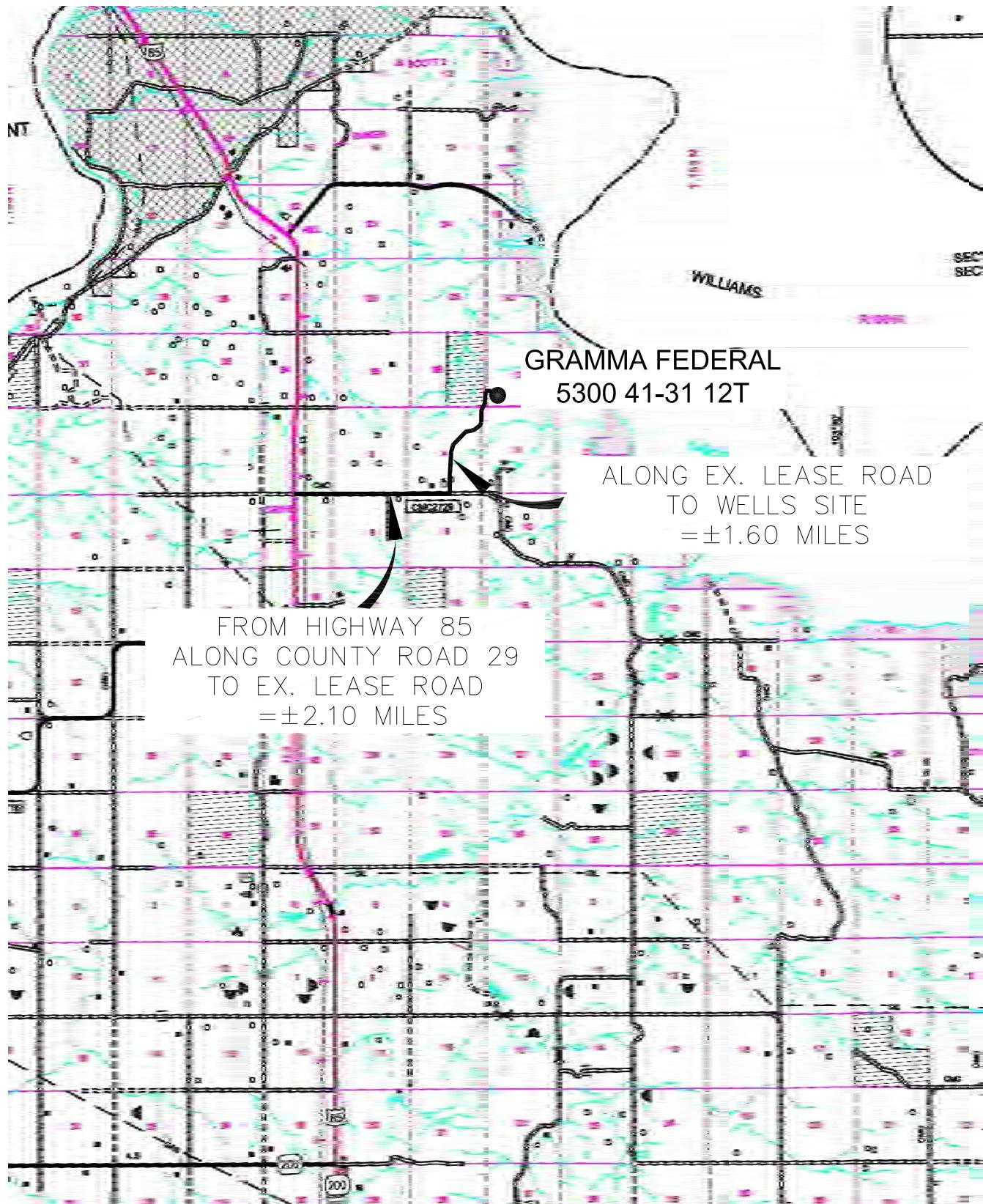
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OASIS PETROLEUM NORTH AMERICA, LLC
QUAD LOCATION MAP
SECTION 31, T153N, R100W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: B.H.H. Project No.: S13-09-372.02
Checked By: D.D.K. Date: FEB, 2014

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

COUNTY ROAD MAP
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "GRAMMA FEDERAL 5300 41-31 12T"
 647 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.: S13-09-372.02
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 12T**

**Gramma Fed #12T
Plan #1**

Anticollision Report

28 March, 2014

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #12T	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	20,670.9	Plan #1 (Gramma Fed #12T)	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			100.0	74.9	33.5	33.3	198.838	CC
Gramma (Plugged) - Gramma Gyro - Gyro			1,700.0	1,674.8	34.6	27.5	4.876	ES
Gramma (Plugged) - Gramma Gyro - Gyro			10,316.8	10,292.8	88.6	44.1	1.989	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	0.00	33.4	0.0	41.8			
100.0	100.0	74.9	74.9	0.1	0.1	0.03	33.5	0.0	33.5	33.3	0.17	198.838 CC
200.0	200.0	174.9	174.9	0.3	0.3	0.18	33.7	0.1	33.7	33.1	0.58	58.376
300.0	300.0	274.9	274.9	0.5	0.5	0.38	33.9	0.2	33.9	32.8	1.01	33.600
400.0	400.0	374.9	374.9	0.8	0.7	0.50	34.0	0.3	34.0	32.6	1.44	23.582
500.0	500.0	475.0	475.0	1.0	0.9	0.60	34.1	0.4	34.1	32.3	1.88	18.185
600.0	600.0	575.0	575.0	1.2	1.1	0.56	34.2	0.3	34.2	31.8	2.31	14.778
700.0	700.0	675.0	675.0	1.4	1.3	0.24	34.3	0.1	34.3	31.5	2.75	12.460
800.0	800.0	775.0	775.0	1.7	1.5	-0.29	34.3	-0.2	34.3	31.1	3.18	10.775
900.0	900.0	875.0	875.0	1.9	1.7	-0.73	34.4	-0.4	34.4	30.8	3.62	9.512
1,000.0	1,000.0	975.0	974.9	2.1	1.9	-1.15	34.5	-0.7	34.5	30.5	4.05	8.523
1,100.0	1,100.0	1,075.0	1,075.0	2.3	2.2	-1.54	34.6	-0.9	34.6	30.1	4.48	7.716
1,200.0	1,200.0	1,175.1	1,175.1	2.6	2.4	-1.98	34.4	-1.2	34.4	29.5	4.92	7.006
1,300.0	1,300.0	1,275.1	1,275.1	2.8	2.6	-2.02	34.2	-1.2	34.3	28.9	5.35	6.404
1,400.0	1,400.0	1,375.0	1,375.0	3.0	2.8	-2.02	34.1	-1.2	34.1	28.3	5.78	5.903
1,412.0	1,412.0	1,387.0	1,387.0	3.0	2.8	-2.04	34.1	-1.2	34.1	28.3	5.83	5.850
1,500.0	1,500.0	1,475.0	1,475.0	3.2	3.0	-2.29	34.1	-1.4	34.1	27.9	6.22	5.493
1,600.0	1,600.0	1,574.9	1,574.9	3.5	3.2	-2.79	34.2	-1.7	34.2	27.6	6.65	5.147
1,700.0	1,700.0	1,674.8	1,674.8	3.7	3.4	-3.84	34.5	-2.3	34.6	27.5	7.09	4.876 ES
1,800.0	1,800.0	1,774.8	1,774.8	3.9	3.6	-4.72	35.0	-2.9	35.2	27.6	7.52	4.674
1,900.0	1,900.0	1,874.8	1,874.8	4.1	3.8	-5.20	35.6	-3.2	35.8	27.8	7.96	4.496
2,000.0	2,000.0	1,974.7	1,974.7	4.4	4.0	-5.64	36.2	-3.6	36.4	28.0	8.39	4.335
2,100.0	2,100.0	2,074.6	2,074.5	4.6	4.2	-6.38	37.2	-4.2	37.4	28.6	8.83	4.236
2,200.0	2,200.0	2,174.5	2,174.5	4.8	4.5	-7.38	38.4	-5.0	38.7	29.5	9.26	4.180
2,300.0	2,300.0	2,274.5	2,274.4	5.0	4.7	-8.39	39.7	-5.9	40.1	30.4	9.70	4.136
2,400.0	2,400.0	2,374.5	2,374.4	5.3	4.9	-9.40	40.9	-6.8	41.5	31.4	10.13	4.095

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 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #12T	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											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
2,500.0	2,500.0	2,474.5	2,474.4	5.5	5.1	-10.40	42.2	-7.7	42.9	32.4	10.57	4.061		
2,600.0	2,600.0	2,574.4	2,574.3	5.7	5.3	-11.18	43.5	-8.6	44.4	33.4	11.00	4.035		
2,700.0	2,700.0	2,674.2	2,674.1	5.9	5.5	-11.61	45.2	-9.3	46.2	34.7	11.44	4.035		
2,800.0	2,800.0	2,774.2	2,774.1	6.2	5.7	-11.72	47.1	-9.8	48.1	36.2	11.88	4.047		
2,900.0	2,900.0	2,874.4	2,874.2	6.4	5.9	-11.62	48.8	-10.0	49.8	37.5	12.31	4.046		
3,000.0	3,000.0	2,974.6	2,974.5	6.6	6.1	-10.92	50.2	-9.7	51.1	38.4	12.74	4.010		
3,100.0	3,100.0	3,074.7	3,074.6	6.8	6.3	-10.02	51.2	-9.1	52.0	38.8	13.18	3.947		
3,200.0	3,200.0	3,174.8	3,174.6	7.1	6.6	-9.12	52.1	-8.4	52.7	39.1	13.61	3.875		
3,300.0	3,300.0	3,274.9	3,274.7	7.3	6.8	-8.42	52.8	-7.8	53.4	39.3	14.04	3.801		
3,400.0	3,400.0	3,375.1	3,375.0	7.5	7.0	-7.93	53.2	-7.4	53.7	39.2	14.48	3.709		
3,500.0	3,500.0	3,475.4	3,475.2	7.7	7.2	-7.64	53.0	-7.1	53.5	38.6	14.91	3.589		
3,600.0	3,600.0	3,575.4	3,575.2	8.0	7.4	-7.26	52.7	-6.7	53.1	37.7	15.35	3.459		
3,700.0	3,700.0	3,675.4	3,675.2	8.2	7.6	-6.97	52.3	-6.4	52.7	36.9	15.78	3.337		
3,800.0	3,800.0	3,775.4	3,775.2	8.4	7.8	-6.73	51.9	-6.1	52.2	36.0	16.21	3.222		
3,900.0	3,900.0	3,875.3	3,875.2	8.6	8.0	-6.51	51.5	-5.9	51.8	35.2	16.65	3.113		
4,000.0	4,000.0	3,975.3	3,975.1	8.9	8.2	-6.30	51.2	-5.7	51.5	34.4	17.08	3.016		
4,100.0	4,100.0	4,075.3	4,075.1	9.1	8.4	-6.03	51.0	-5.4	51.3	33.8	17.51	2.928		
4,200.0	4,200.0	4,175.2	4,175.0	9.3	8.6	-5.80	50.9	-5.2	51.1	33.2	17.95	2.849		
4,300.0	4,300.0	4,275.2	4,275.0	9.5	8.9	-5.46	50.8	-4.9	51.1	32.7	18.38	2.779		
4,400.0	4,400.0	4,375.2	4,375.1	9.7	9.1	-4.95	50.8	-4.4	51.0	32.2	18.81	2.713		
4,500.0	4,500.0	4,475.2	4,475.0	10.0	9.3	-4.37	50.8	-3.9	50.9	31.7	19.25	2.646		
4,600.0	4,600.0	4,575.2	4,575.0	10.2	9.5	-3.62	50.8	-3.2	50.9	31.2	19.68	2.585		
4,621.9	4,621.9	4,597.1	4,596.9	10.2	9.5	-3.45	50.8	-3.1	50.9	31.1	19.78	2.572		
4,700.0	4,700.0	4,675.0	4,674.9	10.4	9.7	-2.81	50.9	-2.5	51.0	30.9	20.12	2.534		
4,800.0	4,800.0	4,774.9	4,774.7	10.6	9.9	-2.04	51.4	-1.8	51.4	30.9	20.55	2.502		
4,900.0	4,900.0	4,875.0	4,874.8	10.9	10.1	-1.23	52.0	-1.1	52.0	31.0	20.99	2.477		
5,000.0	5,000.0	4,975.3	4,975.1	11.1	10.3	-0.11	52.1	-0.1	52.1	30.7	21.42	2.433		
5,100.0	5,100.0	5,075.5	5,075.3	11.3	10.5	1.17	51.7	1.1	51.7	29.9	21.85	2.367		
5,200.0	5,200.0	5,175.5	5,175.3	11.5	10.7	2.69	51.0	2.4	51.1	28.8	22.29	2.291		
5,267.2	5,267.2	5,242.4	5,242.2	11.7	10.9	3.84	50.7	3.4	50.8	28.3	22.58	2.251		
5,300.0	5,300.0	5,275.0	5,274.8	11.8	11.0	4.50	50.7	4.0	50.9	28.2	22.72	2.240		
5,400.0	5,400.0	5,374.8	5,374.5	12.0	11.2	6.81	51.2	6.1	51.6	28.5	23.16	2.229		
5,500.0	5,500.0	5,474.7	5,474.5	12.2	11.4	9.39	51.9	8.6	52.6	29.0	23.60	2.229		
5,600.0	5,600.0	5,574.6	5,574.3	12.4	11.6	11.89	52.6	11.1	53.7	29.7	24.03	2.235		
5,700.0	5,700.0	5,674.1	5,673.7	12.7	11.8	14.30	53.7	13.7	55.4	30.9	24.47	2.264		
5,800.0	5,800.0	5,773.6	5,773.2	12.9	12.0	16.60	55.7	16.6	58.1	33.2	24.90	2.333		
5,900.0	5,900.0	5,874.9	5,874.5	13.1	12.2	18.11	57.4	18.8	60.4	35.1	25.34	2.385		
6,000.0	6,000.0	5,975.4	5,974.9	13.3	12.4	18.75	57.4	19.5	60.6	34.9	25.77	2.352		
6,100.0	6,100.0	6,075.3	6,074.8	13.6	12.6	19.46	57.4	20.3	60.8	34.6	26.21	2.321		
6,200.0	6,200.0	6,174.9	6,174.4	13.8	12.9	20.35	57.6	21.4	61.4	34.8	26.65	2.305		
6,300.0	6,300.0	6,274.6	6,274.2	14.0	13.1	21.32	58.3	22.7	62.6	35.5	27.08	2.310		
6,400.0	6,400.0	6,374.5	6,374.0	14.2	13.3	22.22	59.3	24.2	64.1	36.5	27.52	2.328		
6,500.0	6,500.0	6,474.1	6,473.6	14.5	13.5	23.04	60.6	25.8	65.9	38.0	27.96	2.358		
6,600.0	6,600.0	6,573.7	6,573.1	14.7	13.7	23.90	62.4	27.7	68.3	39.9	28.40	2.406		
6,700.0	6,700.0	6,674.3	6,673.7	14.9	13.9	24.62	64.4	29.5	70.8	42.0	28.84	2.456		
6,800.0	6,800.0	6,774.4	6,773.8	15.1	14.1	24.47	65.9	30.0	72.4	43.2	29.27	2.474		
6,900.0	6,900.0	6,874.2	6,873.5	15.4	14.3	24.18	67.7	30.4	74.2	44.5	29.71	2.497		
7,000.0	7,000.0	6,974.2	6,973.6	15.6	14.6	24.32	69.4	31.4	76.2	46.0	30.14	2.528		
7,100.0	7,100.0	7,074.1	7,073.4	15.8	14.8	24.60	71.0	32.5	78.1	47.5	30.58	2.554		
7,200.0	7,200.0	7,173.9	7,173.2	16.0	15.0	24.81	72.8	33.7	80.2	49.2	31.02	2.587		
7,300.0	7,300.0	7,274.0	7,273.3	16.3	15.2	24.93	74.7	34.7	82.4	51.0	31.45	2.620		
7,400.0	7,400.0	7,374.1	7,373.3	16.5	15.4	25.08	76.5	35.8	84.4	52.6	31.89	2.648		
7,500.0	7,500.0	7,473.8	7,473.1	16.7	15.6	25.13	78.3	36.7	86.5	54.2	32.32	2.676		

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 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #12T	Database:	OpenWellsCompass - EDM Prod
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-31/32 - Gramma (Plugged) - Gramma Gyro - Gyro												Distance		Offset Site Error:	0.0 ft	
Survey Program: 100-MWD			Distance												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Offset		Semi Major Axis		Highside Toolface	Offset Wellbore Centre +N/S (ft)	Offset Wellbore Centre +E/W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
			Reference	Offset	Reference	Offset										
7,600.0	7,600.0	7,574.0	7,573.2	16.9	15.8	25.27	80.2	37.8	88.7	55.9	32.76	2.707				
7,700.0	7,700.0	7,674.2	7,673.4	17.2	16.0	25.41	81.8	38.9	90.6	57.4	33.19	2.728				
7,800.0	7,800.0	7,774.7	7,773.9	17.4	16.2	25.42	83.2	39.5	92.1	58.5	33.63	2.739				
7,900.0	7,900.0	7,875.3	7,874.5	17.6	16.4	25.46	83.9	39.9	92.9	58.9	34.06	2.728				
8,000.0	8,000.0	7,975.7	7,974.9	17.8	16.7	25.55	84.1	40.2	93.2	58.7	34.49	2.702				
8,100.0	8,100.0	8,075.9	8,075.1	18.1	16.9	25.71	84.0	40.4	93.2	58.3	34.92	2.668				
8,200.0	8,200.0	8,175.9	8,175.1	18.3	17.1	25.87	83.8	40.6	93.1	57.7	35.35	2.633				
8,300.0	8,300.0	8,275.9	8,275.1	18.5	17.3	26.13	83.5	41.0	93.0	57.2	35.79	2.599				
8,400.0	8,400.0	8,375.9	8,375.1	18.7	17.5	26.33	83.3	41.2	92.9	56.7	36.22	2.565				
8,500.0	8,500.0	8,476.0	8,475.2	19.0	17.7	26.54	82.9	41.4	92.7	56.1	36.65	2.530				
8,600.0	8,600.0	8,576.0	8,575.2	19.2	17.9	26.76	82.6	41.6	92.5	55.4	37.09	2.494				
8,698.2	8,698.2	8,674.0	8,673.2	19.4	18.1	26.90	82.4	41.8	92.4	54.9	37.51	2.463				
8,700.0	8,700.0	8,675.8	8,675.0	19.4	18.1	26.90	82.4	41.8	92.4	54.9	37.52	2.462				
8,800.0	8,800.0	8,775.8	8,775.0	19.6	18.3	27.11	82.3	42.1	92.4	54.5	37.95	2.435				
8,834.1	8,834.1	8,809.9	8,809.1	19.7	18.4	27.16	82.2	42.2	92.4	54.3	38.10	2.425				
8,900.0	8,900.0	8,875.7	8,874.9	19.9	18.5	27.30	82.1	42.4	92.4	54.1	38.39	2.408				
9,000.0	9,000.0	8,975.7	8,974.9	20.1	18.7	27.62	82.0	42.9	92.5	53.7	38.82	2.384				
9,100.0	9,100.0	9,076.0	9,075.2	20.3	18.9	28.09	81.6	43.6	92.5	53.2	39.26	2.356				
9,200.0	9,200.0	9,176.0	9,175.2	20.5	19.2	28.58	81.0	44.1	92.2	52.5	39.69	2.324				
9,300.0	9,300.0	9,275.9	9,275.1	20.8	19.4	29.17	80.4	44.9	92.1	52.0	40.12	2.296				
9,400.0	9,400.0	9,375.9	9,375.1	21.0	19.6	30.00	79.7	46.0	92.0	51.5	40.56	2.269				
9,500.0	9,500.0	9,476.0	9,475.1	21.2	19.8	30.67	79.1	46.9	91.9	50.9	40.99	2.242				
9,600.0	9,600.0	9,576.2	9,575.3	21.4	20.0	31.18	78.4	47.5	91.7	50.2	41.42	2.213				
9,700.0	9,700.0	9,676.4	9,675.5	21.7	20.2	31.63	77.6	47.8	91.2	49.3	41.86	2.179				
9,800.0	9,800.0	9,776.4	9,775.6	21.9	20.4	31.97	76.8	48.0	90.6	48.3	42.29	2.142				
9,900.0	9,900.0	9,876.4	9,875.6	22.1	20.6	32.34	76.0	48.1	89.9	47.2	42.72	2.105				
10,000.0	10,000.0	9,976.3	9,975.5	22.3	20.8	32.68	75.2	48.2	89.3	46.2	43.16	2.070				
10,100.0	10,100.0	10,076.1	10,075.3	22.6	21.0	32.96	74.6	48.4	88.9	45.3	43.59	2.040				
10,200.0	10,200.0	10,176.0	10,175.1	22.8	21.2	33.20	74.2	48.6	88.7	44.7	44.02	2.015				
10,300.0	10,300.0	10,276.0	10,275.1	23.0	21.5	33.48	73.9	48.9	88.6	44.2	44.46	1.993				
10,316.8	10,316.8	10,292.8	10,291.9	23.0	21.5	33.52	73.9	48.9	88.6	44.1	44.53	1.989 SF				
10,399.4	10,399.4	10,372.5	10,371.6	23.2	21.7	34.42	74.0	50.7	89.7	44.8	44.88	1.999				
10,425.0	10,425.0	10,397.0	10,396.1	23.3	21.7	-63.98	74.2	52.0	90.4	45.4	44.96	2.010				
10,450.0	10,449.9	10,420.1	10,419.1	23.3	21.8	-64.09	74.4	53.8	90.8	45.8	45.05	2.016				
10,475.0	10,474.7	10,443.0	10,441.8	23.4	21.8	-64.30	74.5	56.7	91.3	46.2	45.12	2.023				
10,500.0	10,499.3	10,466.0	10,464.4	23.4	21.9	-64.59	74.5	60.7	91.7	46.5	45.18	2.030				
10,525.0	10,523.6	10,488.9	10,486.8	23.5	21.9	-64.97	74.4	65.7	92.2	46.9	45.23	2.037				
10,550.0	10,547.5	10,511.6	10,508.8	23.5	22.0	-65.44	74.2	71.6	92.6	47.3	45.29	2.045				
10,575.0	10,571.1	10,534.2	10,530.2	23.6	22.0	-66.08	74.2	78.4	93.2	47.9	45.34	2.056				
10,600.0	10,594.2	10,556.7	10,551.4	23.7	22.1	-66.92	74.2	86.1	93.9	48.5	45.40	2.069				
10,625.0	10,616.7	10,579.2	10,572.2	23.7	22.1	-67.92	74.3	94.7	94.8	49.3	45.47	2.085				
10,650.0	10,638.7	10,600.0	10,591.1	23.8	22.2	-68.98	74.6	103.3	95.9	50.3	45.56	2.105				
10,675.0	10,660.0	10,623.6	10,612.1	23.9	22.3	-70.36	75.0	114.1	97.2	51.6	45.68	2.129				
10,700.0	10,680.5	10,645.5	10,631.2	23.9	22.3	-71.75	75.7	124.9	99.0	53.1	45.82	2.160				
10,725.0	10,700.4	10,667.4	10,649.7	24.0	22.4	-73.23	76.6	136.5	101.1	55.1	45.98	2.199				
10,750.0	10,719.3	10,689.2	10,667.6	24.1	22.5	-74.77	77.8	148.9	103.7	57.5	46.17	2.245				
10,775.0	10,737.5	10,711.4	10,685.3	24.2	22.6	-76.35	79.2	162.2	106.7	60.3	46.40	2.299				
10,800.0	10,754.6	10,734.1	10,702.6	24.3	22.7	-77.87	80.7	176.8	109.9	63.3	46.65	2.356				
10,825.0	10,770.8	10,756.9	10,719.3	24.5	22.8	-79.28	82.1	192.4	113.4	66.5	46.93	2.417				
10,850.0	10,786.0	10,779.8	10,735.1	24.6	22.9	-80.56	83.6	208.9	117.2	70.0	47.21	2.482				
10,875.0	10,800.2	10,800.0	10,748.3	24.8	23.0	-81.52	84.8	224.1	121.2	73.7	47.48	2.552				
10,900.0	10,813.2	10,824.1	10,763.0	24.9	23.1	-82.66	86.6	243.0	125.5	77.6	47.84	2.622				
10,925.0	10,825.1	10,845.4	10,775.3	25.1	23.3	-83.52	88.4	260.4	130.3	82.1	48.19	2.704				

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 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #12T	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
10,950.0	10,835.8	10,869.0	10,787.7	25.3	23.4	-84.43	90.7	280.3	135.7	87.1	48.57	2.793	
10,975.0	10,845.4	10,902.9	10,803.2	25.5	23.7	-85.39	91.8	310.4	139.5	90.4	49.08	2.843	
11,000.0	10,853.7	10,927.1	10,812.6	25.8	23.9	-85.72	91.9	332.7	143.0	93.4	49.53	2.886	
11,025.0	10,860.8	10,951.4	10,820.6	26.0	24.2	-85.89	91.9	355.7	146.4	96.4	50.01	2.927	
11,050.0	10,866.6	10,975.9	10,827.0	26.3	24.4	-85.90	91.7	379.3	149.8	99.3	50.53	2.965	
11,075.0	10,871.1	10,999.2	10,831.9	26.6	24.7	-85.85	91.5	402.1	153.3	102.2	51.06	3.002	
11,100.0	10,874.3	11,022.9	10,836.2	26.9	24.9	-85.99	91.5	425.3	156.9	105.2	51.63	3.038	
11,125.0	10,876.3	11,047.0	10,840.4	27.2	25.2	-86.52	91.6	449.1	160.5	108.3	52.25	3.072	
11,146.9	10,876.9	11,067.9	10,843.9	27.5	25.5	-87.21	91.7	469.7	163.8	111.0	52.81	3.101	
11,167.7	10,877.0	11,087.4	10,846.5	27.8	25.8	-88.15	91.9	489.0	167.0	113.6	53.36	3.129	
11,200.0	10,877.2	11,118.5	10,848.7	28.2	26.2	-88.88	92.2	520.1	171.9	117.6	54.27	3.168	
11,300.0	10,877.7	11,162.0	10,849.7	29.8	26.8	-89.17	92.8	563.5	192.2	135.7	56.48	3.403	
11,400.0	10,878.2	11,162.0	10,849.7	31.5	26.8	-89.18	92.8	563.5	246.1	187.9	58.21	4.227	
11,457.7	10,878.5	11,162.0	10,849.7	32.6	26.8	-89.19	92.8	563.5	287.1	227.8	59.25	4.845	
11,500.0	10,878.7	11,162.0	10,849.7	33.4	26.8	-89.19	92.8	563.5	320.0	260.0	60.07	5.327	
11,600.0	10,879.3	11,162.0	10,849.7	35.4	26.8	-89.19	92.8	563.5	404.9	342.8	62.11	6.519	
11,700.0	10,879.8	11,162.0	10,849.7	37.6	26.8	-89.19	92.8	563.5	495.5	431.2	64.27	7.709	
11,800.0	10,880.3	11,162.0	10,849.7	39.8	26.8	-89.19	92.8	563.5	589.1	522.6	66.53	8.855	
11,900.0	10,880.8	11,162.0	10,849.7	42.1	26.8	-89.19	92.8	563.5	684.5	615.7	68.87	9.940	
12,000.0	10,881.4	11,162.0	10,849.7	44.5	26.8	-89.19	92.8	563.5	781.1	709.8	71.28	10.959	
12,100.0	10,881.9	11,162.0	10,849.7	47.0	26.8	-89.19	92.8	563.5	878.4	804.7	73.75	11.912	
12,200.0	10,882.4	11,162.0	10,849.7	49.5	26.8	-89.19	92.8	563.5	976.3	900.1	76.27	12.801	
12,300.0	10,883.0	11,162.0	10,849.7	52.1	26.8	-89.19	92.8	563.5	1,074.6	995.8	78.83	13.632	
12,400.0	10,883.5	11,162.0	10,849.7	54.7	26.8	-89.19	92.8	563.5	1,173.2	1,091.7	81.43	14.407	
12,500.0	10,884.0	11,162.0	10,849.7	57.3	26.8	-89.19	92.8	563.5	1,271.9	1,187.9	84.06	15.131	
12,600.0	10,884.5	11,162.0	10,849.7	60.0	26.8	-89.19	92.8	563.5	1,370.9	1,284.2	86.72	15.808	
12,700.0	10,885.1	11,162.0	10,849.7	62.7	26.8	-89.19	92.8	563.5	1,470.0	1,380.6	89.40	16.442	
12,800.0	10,885.6	11,162.0	10,849.7	65.4	26.8	-89.19	92.8	563.5	1,569.2	1,477.1	92.11	17.037	
12,900.0	10,886.1	11,162.0	10,849.7	68.1	26.8	-89.19	92.8	563.5	1,668.5	1,573.7	94.83	17.595	
13,000.0	10,886.6	11,162.0	10,849.7	70.8	26.8	-89.19	92.8	563.5	1,767.9	1,670.3	97.57	18.119	
13,100.0	10,887.2	11,162.0	10,849.7	73.6	26.8	-89.19	92.8	563.5	1,867.4	1,767.0	100.33	18.613	
13,200.0	10,887.7	11,162.0	10,849.7	76.3	26.8	-89.19	92.8	563.5	1,966.9	1,863.8	103.09	19.079	
13,300.0	10,888.2	11,162.0	10,849.7	79.1	26.8	-89.19	92.8	563.5	2,066.4	1,960.6	105.87	19.518	
13,400.0	10,888.7	11,162.0	10,849.7	81.9	26.8	-89.19	92.8	563.5	2,166.0	2,057.4	108.66	19.933	
13,500.0	10,889.3	11,162.0	10,849.7	84.7	26.8	-89.19	92.8	563.5	2,265.7	2,154.2	111.46	20.327	
13,600.0	10,889.8	11,162.0	10,849.7	87.5	26.8	-89.19	92.8	563.5	2,365.3	2,251.1	114.27	20.699	
13,700.0	10,890.3	11,162.0	10,849.7	90.3	26.8	-89.19	92.8	563.5	2,465.0	2,347.9	117.09	21.053	
13,800.0	10,890.8	11,162.0	10,849.7	93.1	26.8	-89.19	92.8	563.5	2,564.7	2,444.8	119.91	21.389	
13,900.0	10,891.4	11,162.0	10,849.7	96.0	26.8	-89.19	92.8	563.5	2,664.5	2,541.7	122.74	21.709	
14,000.0	10,891.9	11,162.0	10,849.7	98.8	26.8	-89.19	92.8	563.5	2,764.2	2,638.6	125.57	22.013	
14,100.0	10,892.4	11,162.0	10,849.7	101.6	26.8	-89.19	92.8	563.5	2,864.0	2,735.6	128.41	22.303	
14,200.0	10,892.9	11,162.0	10,849.7	104.5	26.8	-89.19	92.8	563.5	2,963.8	2,832.5	131.26	22.580	
14,300.0	10,893.5	11,162.0	10,849.7	107.3	26.8	-89.19	92.8	563.5	3,063.6	2,929.5	134.11	22.844	
14,400.0	10,894.0	11,162.0	10,849.7	110.2	26.8	-89.19	92.8	563.5	3,163.4	3,026.4	136.96	23.097	
14,500.0	10,894.5	11,162.0	10,849.7	113.0	26.8	-89.19	92.8	563.5	3,263.2	3,123.4	139.82	23.339	
14,600.0	10,895.0	11,162.0	10,849.7	115.9	26.8	-89.19	92.8	563.5	3,363.1	3,220.4	142.68	23.570	
14,700.0	10,895.6	11,162.0	10,849.7	118.8	26.8	-89.19	92.8	563.5	3,462.9	3,317.4	145.55	23.792	
14,800.0	10,896.1	11,162.0	10,849.7	121.6	26.8	-89.19	92.8	563.5	3,562.8	3,414.3	148.42	24.005	
14,900.0	10,896.6	11,162.0	10,849.7	124.5	26.8	-89.19	92.8	563.5	3,662.6	3,511.3	151.29	24.210	
15,000.0	10,897.1	11,162.0	10,849.7	127.4	26.8	-89.19	92.8	563.5	3,762.5	3,608.3	154.16	24.406	
15,100.0	10,897.7	11,162.0	10,849.7	130.3	26.8	-89.19	92.8	563.5	3,862.4	3,705.3	157.04	24.595	
15,200.0	10,898.2	11,162.0	10,849.7	133.1	26.8	-89.19	92.8	563.5	3,962.2	3,802.3	159.92	24.777	
15,300.0	10,898.7	11,162.0	10,849.7	136.0	26.8	-89.19	92.8	563.5	4,062.1	3,899.3	162.80	24.952	

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 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #12T	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
15,400.0	10,899.2	11,162.0	10,849.7	138.9	26.8	-89.19	92.8	563.5	4,162.0	3,996.4	165.68	25.121	
15,500.0	10,899.8	11,162.0	10,849.7	141.8	26.8	-89.19	92.8	563.5	4,261.9	4,093.4	168.56	25.284	
15,600.0	10,900.3	11,162.0	10,849.7	144.7	26.8	-89.19	92.8	563.5	4,361.8	4,190.4	171.45	25.441	
15,700.0	10,900.8	11,162.0	10,849.7	147.6	26.8	-89.19	92.8	563.5	4,461.7	4,287.4	174.34	25.592	
15,800.0	10,901.3	11,162.0	10,849.7	150.4	26.8	-89.19	92.8	563.5	4,561.7	4,384.4	177.23	25.739	
15,900.0	10,901.9	11,162.0	10,849.7	153.3	26.8	-89.19	92.8	563.5	4,661.6	4,481.4	180.12	25.880	
16,000.0	10,902.4	11,162.0	10,849.7	156.2	26.8	-89.19	92.8	563.5	4,761.5	4,578.5	183.01	26.017	
16,100.0	10,902.9	11,162.0	10,849.7	159.1	26.8	-89.19	92.8	563.5	4,861.4	4,675.5	185.91	26.150	
16,200.0	10,903.4	11,162.0	10,849.7	162.0	26.8	-89.19	92.8	563.5	4,961.3	4,772.5	188.80	26.278	
16,300.0	10,904.0	11,162.0	10,849.7	164.9	26.8	-89.19	92.8	563.5	5,061.3	4,869.6	191.70	26.402	
16,400.0	10,904.5	11,162.0	10,849.7	167.8	26.8	-89.19	92.8	563.5	5,161.2	4,966.6	194.60	26.522	
16,500.0	10,905.0	11,162.0	10,849.7	170.7	26.8	-89.19	92.8	563.5	5,261.1	5,063.6	197.50	26.639	
16,600.0	10,905.5	11,162.0	10,849.7	173.6	26.8	-89.19	92.8	563.5	5,361.1	5,160.7	200.40	26.752	
16,700.0	10,906.1	11,162.0	10,849.7	176.5	26.8	-89.19	92.8	563.5	5,461.0	5,257.7	203.30	26.862	
16,800.0	10,906.6	11,162.0	10,849.7	179.4	26.8	-89.19	92.8	563.5	5,560.9	5,354.7	206.20	26.969	
16,900.0	10,907.1	11,162.0	10,849.7	182.3	26.8	-89.19	92.8	563.5	5,660.9	5,451.8	209.10	27.072	
17,000.0	10,907.6	11,162.0	10,849.7	185.2	26.8	-89.19	92.8	563.5	5,760.8	5,548.8	212.01	27.173	
17,100.0	10,908.2	11,162.0	10,849.7	188.1	26.8	-89.19	92.8	563.5	5,860.8	5,645.9	214.91	27.271	
17,200.0	10,908.7	11,162.0	10,849.7	191.0	26.8	-89.19	92.8	563.5	5,960.7	5,742.9	217.82	27.366	
17,300.0	10,909.2	11,162.0	10,849.7	193.9	26.8	-89.19	92.8	563.5	6,060.7	5,840.0	220.72	27.458	
17,400.0	10,909.8	11,162.0	10,849.7	196.8	26.8	-89.19	92.8	563.5	6,160.6	5,937.0	223.63	27.548	
17,500.0	10,910.3	11,162.0	10,849.7	199.8	26.8	-89.19	92.8	563.5	6,260.6	6,034.0	226.54	27.636	
17,600.0	10,910.8	11,162.0	10,849.7	202.7	26.8	-89.19	92.8	563.5	6,360.5	6,131.1	229.45	27.721	
17,700.0	10,911.3	11,162.0	10,849.7	205.6	26.8	-89.19	92.8	563.5	6,460.5	6,228.1	232.35	27.804	
17,800.0	10,911.9	11,162.0	10,849.7	208.5	26.8	-89.19	92.8	563.5	6,560.4	6,325.2	235.26	27.886	
17,900.0	10,912.4	11,162.0	10,849.7	211.4	26.8	-89.19	92.8	563.5	6,660.4	6,422.2	238.17	27.965	
18,000.0	10,912.9	11,162.0	10,849.7	214.3	26.8	-89.19	92.8	563.5	6,760.4	6,519.3	241.08	28.042	
18,100.0	10,913.4	11,162.0	10,849.7	217.2	26.8	-89.19	92.8	563.5	6,860.3	6,616.3	243.99	28.117	
18,200.0	10,914.0	11,162.0	10,849.7	220.1	26.8	-89.19	92.8	563.5	6,960.3	6,713.4	246.91	28.190	
18,300.0	10,914.5	11,162.0	10,849.7	223.0	26.8	-89.19	92.8	563.5	7,060.3	6,810.4	249.82	28.262	
18,400.0	10,915.0	11,162.0	10,849.7	225.9	26.8	-89.19	92.8	563.5	7,160.2	6,907.5	252.73	28.331	
18,500.0	10,915.5	11,162.0	10,849.7	228.9	26.8	-89.19	92.8	563.5	7,260.2	7,004.5	255.64	28.400	
18,600.0	10,916.1	11,162.0	10,849.7	231.8	26.8	-89.19	92.8	563.5	7,360.1	7,101.6	258.56	28.466	
18,700.0	10,916.6	11,162.0	10,849.7	234.7	26.8	-89.19	92.8	563.5	7,460.1	7,198.6	261.47	28.531	
18,800.0	10,917.1	11,162.0	10,849.7	237.6	26.8	-89.19	92.8	563.5	7,560.1	7,295.7	264.39	28.595	
18,900.0	10,917.6	11,162.0	10,849.7	240.5	26.8	-89.19	92.8	563.5	7,660.1	7,392.8	267.30	28.657	
19,000.0	10,918.2	11,162.0	10,849.7	243.4	26.8	-89.19	92.8	563.5	7,760.0	7,489.8	270.21	28.718	
19,100.0	10,918.7	11,162.0	10,849.7	246.3	26.8	-89.19	92.8	563.5	7,860.0	7,586.9	273.13	28.777	
19,200.0	10,919.2	11,162.0	10,849.7	249.3	26.8	-89.19	92.8	563.5	7,960.0	7,683.9	276.05	28.836	
19,300.0	10,919.7	11,162.0	10,849.7	252.2	26.8	-89.19	92.8	563.5	8,059.9	7,781.0	278.96	28.893	
19,400.0	10,920.3	11,162.0	10,849.7	255.1	26.8	-89.19	92.8	563.5	8,159.9	7,878.0	281.88	28.948	
19,500.0	10,920.8	11,162.0	10,849.7	258.0	26.8	-89.19	92.8	563.5	8,259.9	7,975.1	284.79	29.003	
19,600.0	10,921.3	11,162.0	10,849.7	260.9	26.8	-89.19	92.8	563.5	8,359.9	8,072.1	287.71	29.056	
19,700.0	10,921.8	11,162.0	10,849.7	263.8	26.8	-89.19	92.8	563.5	8,459.8	8,169.2	290.63	29.109	
19,800.0	10,922.4	11,162.0	10,849.7	266.8	26.8	-89.19	92.8	563.5	8,559.8	8,266.3	293.55	29.160	
19,900.0	10,922.9	11,162.0	10,849.7	269.7	26.8	-89.19	92.8	563.5	8,659.8	8,363.3	296.46	29.210	
20,000.0	10,923.4	11,162.0	10,849.7	272.6	26.8	-89.19	92.8	563.5	8,759.8	8,460.4	299.38	29.259	
20,100.0	10,923.9	11,162.0	10,849.7	275.5	26.8	-89.19	92.8	563.5	8,859.7	8,557.4	302.30	29.308	
20,200.0	10,924.5	11,162.0	10,849.7	278.4	26.8	-89.19	92.8	563.5	8,959.7	8,654.5	305.22	29.355	
20,300.0	10,925.0	11,162.0	10,849.7	281.4	26.8	-89.19	92.8	563.5	9,059.7	8,751.6	308.14	29.401	
20,400.0	10,925.5	11,162.0	10,849.7	284.3	26.8	-89.19	92.8	563.5	9,159.7	8,848.6	311.06	29.447	
20,500.0	10,926.0	11,162.0	10,849.7	287.2	26.8	-89.19	92.8	563.5	9,259.6	8,945.7	313.98	29.492	
20,600.0	10,926.6	11,162.0	10,849.7	290.1	26.8	-89.19	92.8	563.5	9,359.6	9,042.7	316.90	29.535	

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 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #12T	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)	Offset Wellbore Centre +E/W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
20,670.9	10,926.9	11,162.0	10,849.7	292.2	26.8	-89.19	92.8	563.5	9,430.5	9,111.6	318.97	29.566	

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Gramma Federal 5300 41-31 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #12T	Database:	OpenWellsCompass - EDM Prod
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

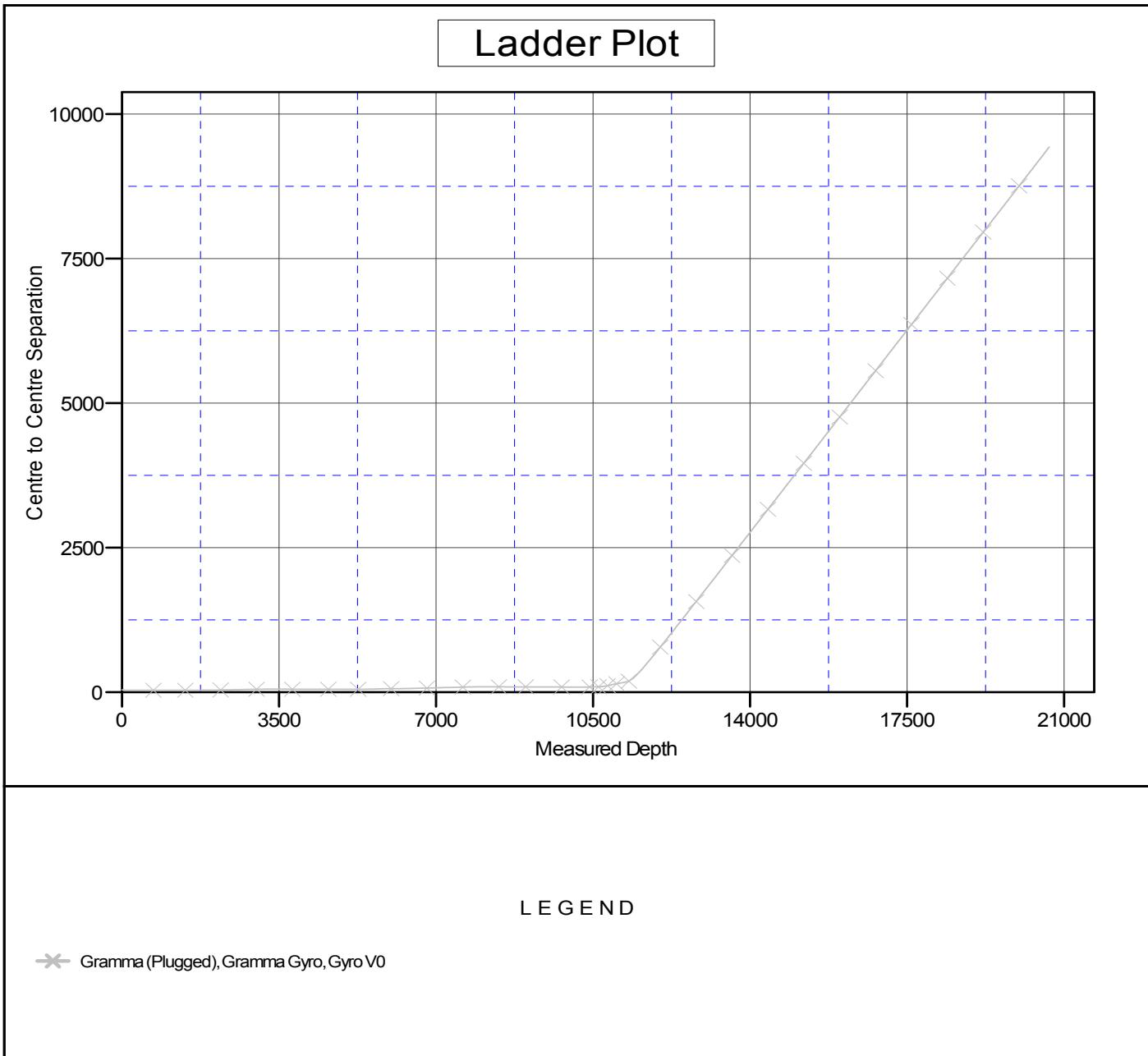
Coordinates are relative to: Gramma Federal 5300 41-31 12T

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 12T
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 12T	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gramma Fed #12T	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 12T

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°

